7th International Science Congress

ISC-2017

8th & 9th December-2017

SOUVENIR

Widespread Research: Strengthening Nations and Spreading Happiness

Jointly organized by

College of Science and Technology, Royal University of Bhutan, Bhutan

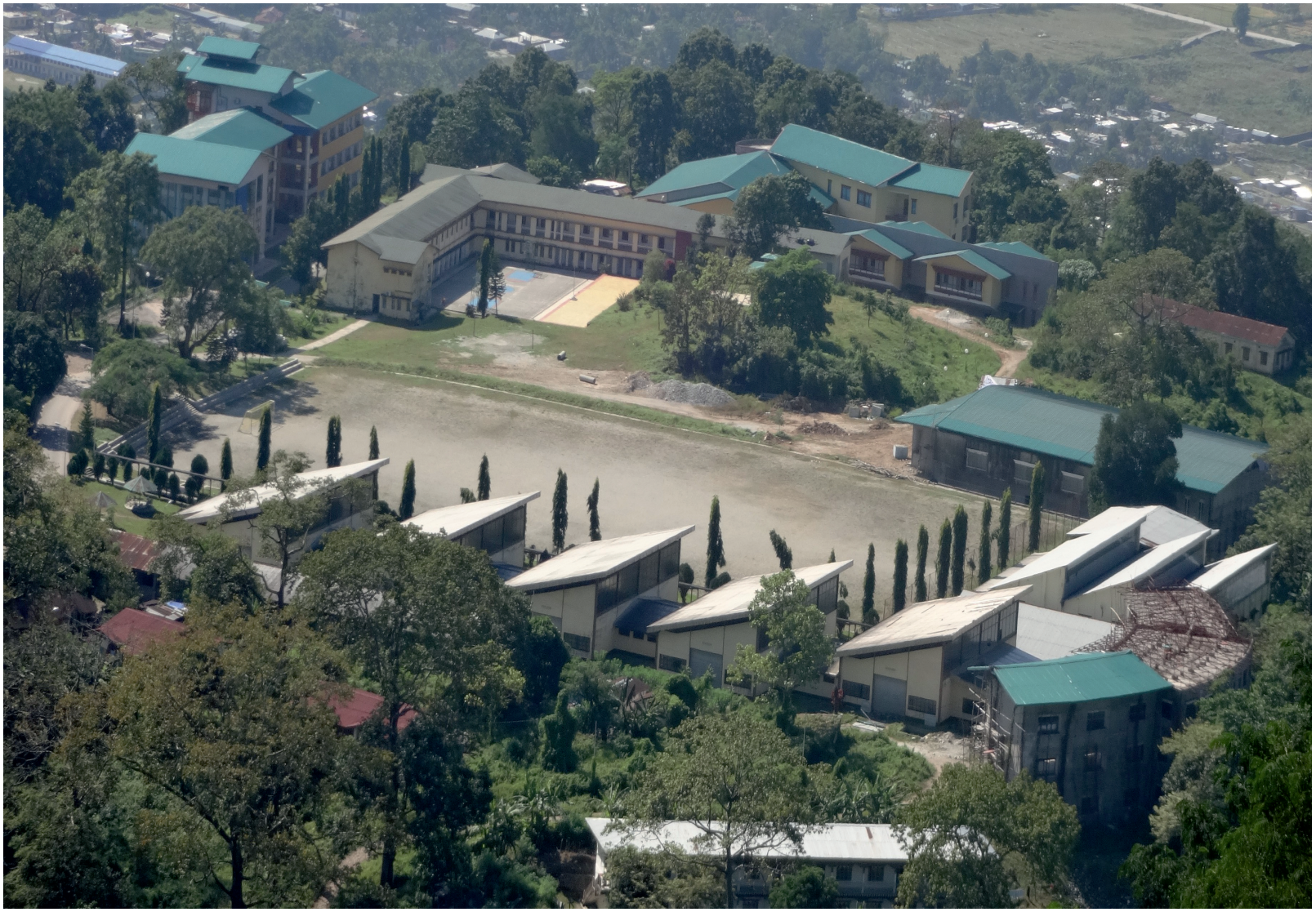
and

International Science Community Association

(Registered under Ministry of Corporate Affairs, Government of India)

7th International Science Congress (ISC-2017)

8th & 9th December 2017



Jointly Organized by

College of Science and Technology, Royal University of Bhutan, Rinchending, Phuentsholing, Chukkha, Bhutan

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International Science Community Association

(Registered under Ministry of Corporate Affairs, Government of India)
Krishnaashraya,427, Palhar Nagar, RAPTC, VIP Road, Indore-452005, MP, India

7th International Science Congress

ISC-2017

www.isca.in, www.isca.me

8th & 9th December-2017

Focal Theme

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ISC- 2017 Inaugural Ceremony

Friday, 8th December 2017, Time 10:00 am

Inauguration By

Mr. Dasho Nidup Dorji,
Vice Chancellor, Office of Vice Chancellor,
Royal University of Bhutan, Thimphu, Bhutan

Dr. Phanchung,
Director General, Department of Research & External Relations,
Office of Vice Chancellor, Royal University of Bhutan, Thimphu, Bhutan

ISC-2017 Valedictory Ceremony

Saturday, 9th December 2017, Time 03:30 pm

Felicitation By

Mr. Dasho Nidup Dorji,
Vice Chancellor, Office of Vice Chancellor,
Royal University of Bhutan, Thimphu, Bhutan

Dr. Marisa Jatupornpipat
Associate Professor, King Mongkut's Institute of Technology,
Ladkrabang, Thailand

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Prof. Dipak Sharma
Conference Coordinator and Editor-in-Chief
Professor, Maharaja Ranjit Singh College of Professional Sciences, Indore, MP, India

7th International Science Congress (ISC-2017)

8th - 9th December 2017
at
College of Science and Technology,
Royal University of Bhutan, Chukkha, Bhutan

Programme Schedule

Date	08:00 am to 10:00 am	10:00 am to 11:00 am	11:00 am to 01:00 pm	01:00 pm to 02:00 pm	02:00 pm to 03:30 pm	03:30 pm to 05:00 pm	05:00 pm to 06:00 pm
8th Dec. 2017	Registration & Breakfast	Inaugural Ceremony	Plenary Sessions	Lunch & Interaction	Special Lecture/ Oral Presentations	Oral Presentations	Tea
9th Dec. 2017	Breakfast & Poster Presentation	Oral Presentations	Oral Presentations	Lunch & Interaction	Oral Presentations	Valedictory Ceremony	Certificate Distribution & Tea

Note:

Date 8th December 2017

12:30 pm: *Sectional President, Sectional Secretary, Sectional Recorders are requested to assemble in conference control room for smooth conduction of sectional program.*

05:00 pm *Tea*

Date 9th December 2017

08:00 am to 10:00 am: *Poster Presentation*

10:00 am: *Sectional Programme (oral presentation) in continuation of first day.*

02:30 pm: *Group Photograph*

04:30 pm: *Certification Distribution*

8th International Science Congress (ISC-2018)

Focal Theme: Global Green Growth and Greeen Economy

8th and 9th December 2018

Jointly Organized by

International Science Community Association

(Registered under Ministry of Corporate Affairs, Government of India)

and

Maharishi Markandeshwar University, Mullana, Ambala, Haryana, India

There are twenty sections namely: 1.Agriculture, Forestry and Horticulture, 2.Animal, Veterinary and Fishery, 3.Biological Sciences, 4.Chemical Sciences, 5.Computer and Information Technology, 6.Earth and Geology, 7.Engineering, Architect and Planning (Civil, Electrical, Electronics, Mechanical, Fire, Textile, CS etc), 8.Environmental Sciences, 9.Forensic, Medical, Dental and Nursing, 10.Family, Community and Consumer, 11.Material Sciences 12.Mathematical and Statistical Sciences 13.Pharmaceutical Sciences, 14.Physical Sciences, 15.Physical Education and Sports, 16.Educational Sciences, 17.Commerce, Law and Management, 18.Library Sciences 19. Language, Literature and Culture 20.Social and Humanity: Anthropology, Behavior, Sociology, Social Work, psychology, Economics, Political Science, Geography, Drawing, Music, Dance, Philosophy, History, Journalism, Media and NGO.

Abstracts will be published in E-Souvenir with ISBN 978-93-86675-21-7. Full papers will publish in "Research Journal of Recent Sciences"

Awards	**Important Dates**		
International Young Scientist Award – For Best Oral Presentation (Each Section) International Young Scientist Award – For Best Poster Presentation (Each Section) International Best Oral Presentation Award (Each Section) International Best Poster Presentation Awards (Each Section)	Submission of Abstract (E-Souvenir with ISBN) upto Early Registration Acceptance of Abstract upto Last date of Submission of Full Paper Late registration fees	: : : : :	15th November 2018 31st May 2018 30th November 2018 30th November 2018 From 1st June 2018

Registration Contribution

	Indian / Bhutanese	**SAARC**	**Foreign**
Before June 1st, 2018			
Delegates	Rs. / Nu 2550/-	$ 45	$ 90
Research Scholar	Rs. / Nu 2050/-	$ 40	$ 60
Spouse/Others	Rs. / Nu 2050/-	$ 40	$ 60
From June 1st, 2018 to July 31st, 2018			
Delegates	Rs. / Nu 2750/-	$ 50	$ 100
Research Scholar	Rs. / Nu 2050/-	$ 45	$ 75
Spouse/Others	Rs. / Nu 2050/-	$ 40	$ 50
From August 1st, 2018 to September 30th, 2018			
Delegates	Rs. / Nu 3050/-	$ 55	$ 125
Research Scholar	Rs. / Nu 2350/-	$ 50	$ 100
Spouse/Others	Rs. / Nu 2050/-	$ 40	$ 50
From October 1st, 2018 to November 30th, 2018			
Delegates	Rs. / Nu 3550/-	$ 60	$ 150
Research Scholar	Rs. / Nu 2550/-	$ 55	$ 145
Spouse/Others	Rs. / Nu 2050/-	$ 40	$ 50
From December 1st, 2018 to December 7th, 2018			
Delegates	Rs. / Nu 3750/-	$ 70	$ 200
Research Scholar	Rs. / Nu 2750/-	$ 60	$ 150
Spouse/Others	Rs. / Nu 2050/-	$ 40	$ 50
From December 8th , 2018 and December 9th, 2018			
Delegates	Rs. / Nu 4050/-	$ 80	$ 200
Research Scholar	Rs. / Nu 3050/-	$ 70	$ 150
Spouse/Others	Rs. / Nu 2050/-	$ 40	$ 50

4th International Young Scientist Congress (IYSC-2018)

Focal Theme: Integrating traditional Knowledge and advance research for sustainable future

&

Workshop on Vedic Science

8th and 9th May 2018

Organized by

International Science Community Association

(Registered under Ministry of Corporate Affairs, Government of India)

in collaboration with

Rashtriya Sanskrit Vidyapeetha, Tirupati, Andhra Pradesh, India

www.isca.in,www.isca.net.co

There are twenty sections namely:

1.Agriculture, Forestry and Horticulture, 2.Animal, Veterinary and Fishery, 3.Biological Sciences, 4.Chemical Sciences, 5.Computer and Information Technology, 6.Earth and Geology, 7.Engineering, Energy, Architect and Planning (Civil, Electrical, Electronics, Mechanical, Fire, Textile, CS etc), 8.Environmental Sciences, 9.Forensic, Medical, Dental and Nursing, 10.Family, Community and Consumer, 11.Material Sciences 12.Mathematics and Statistics 13.Pharmaceutical Sciences, 14.Physical Sciences, 15.Physical Education, Sports and Yoga, 16.Educational Sciences, 17.Commerce, Law and Management, 18.Library Sciences 19. Language, Literature and Culture 20.Social and Humanity: Anthropology, Behavior, Sociology, Social Work, psychology, Economics, Political Science, Geography, Drawing, Music, Dance, Philosophy, History, Journalism, Media and NGO.

Abstracts will be published in Souvenir E-Souvenir ISBN 978-93-86675-06-4. After approval of experts, full papers will publish in special issue of an international peer reviewed journal "Research Journal of Recent Sciences" (ISSN 2277-2502).

Award

International Young Scientist Best oral Presentation Award (Each Section)
International Young Scientist Best Poster Presentation Award (Each Section)

Important Dates	
Conference & workshop Date	8th - 9th May 2018
Submission of Abstract (E-Souvenir with ISBN) upto	30th April 2018
Early Registration	31st January 2018
Acceptance of Abstract upto	30th April 2018
Last date of Submission of Full Paper	30th April 2018
Late registration fees	From 1st Feb. 2018

Registration Fees for Conference and Workshop: Indian/ SAARC (INR), Foreign ($)

From 1st Jan., 2018 to 31st Jan., 2018	**Indian/ SAARC**	**Foreign**
Delegates/ Students/ Research Scholar	1050/-	20
Spouse/Others	750/-	20
From 1st Feb., 2018 to 31st March, 2018	**Indian/ SAARC**	**Foreign**
Delegates/ Students/ Research Scholar	1550/-	25
Spouse/Others	750/-	25
From 1st April , 2018 to 30th April , 2018	**Indian/ SAARC**	**Foreign**
Delegates/ Students/ Research Scholar	2050/-	30
Spouse/Others	750/-	30
From 1st May, 2018 to 7th May, 2018	**Indian/ SAARC**	**Foreign**
Delegates/ Students/ Research Scholar	2250/-	35
Spouse/Others	1050/-	35
From 8th May, 2018 to 9th, May to 9th 2018	**Indian/ SAARC**	**Foreign**
Delegates/ Students/ Research Scholar	2550/-	40
Spouse/Others	1050/-	40

Abstracts / Papers should be submitted at earliest by email:

iyscongress@isca.net.co , iyscongress@gmail.com

5th International Virtual Congress (IVC-2018)

Focal Theme: Global Research: Energy, Ethics and Enthusiasm

&

Workshop on Personality Development

5th - 10th August 2018

(Online Conference and Workshop www.isca.net.co)

Organized by

International Science Community Association

(Registered under Ministry of Corporate Affairs, Government of India)

There are twenty sections namely:
1.Agriculture, Forestry and Horticulture, 2.Animal, Veterinary and Fishery, 3.Biological Sciences, 4.Chemical Sciences, 5.Computer and Information Technology, 6.Earth and Geology, 7.Engineering, Architect and Planning (Civil, Electrical, Electronics, Mechanical, Fire, Textile, CS etc), 8.Environmental Sciences, 9.Forensic, Medical, Dental and Nursing, 10.Family, Community and Consumer, 11.Material Sciences 12.Mathematical and Statistics 13.Pharmaceutical Sciences, 14.Physical Sciences, 15.Physical Education and Sports, 16.Educational Sciences, 17.Commerce, Law and Management, 18.Library Sciences 19. Language, Literature and Culture 20.Social and Humanity: Anthropology, Behavior, Sociology, Social Work, psychology, Economics, Political Science, Geography, Drawing, Music, Dance, Philosophy, History, Journalism, Media and NGO

Abstracts will publish in E-Souvenir with ISBN: 978-93-86675-05-7
Full papers will publish in Research Journal of Recent Sciences.

Important Dates	
Conference and Workshop Date	5th- 10th August 2018
Submission of Abstract (E-Souvenir with ISBN) upto	4th August 2018
Acceptance of Abstract upto	4th August 2018
Last date of Submission of Full Paper	4th August 2018

Abstracts / Papers should be submitted at earliest by email:
conferenceivc@gmail.com, conferenceivc@isca.net.co

Registration Contribution			
From June 1st, 2018 to June 30th, 2018	**Indian**	**SAARC**	**Foreign**
	Rs. 1050/-	$ 40	$ 50
From July 1st, 2018 to July 31th, 2018	**Indian**	**SAARC**	**Foreign**
	Rs. 1550/-	$ 45	$ 80
From August 1st, 2018 to August 4th, 2018	**Indian**	**SAARC**	**Foreign**
	Rs. 2000/-	$ 50	$ 100
From August 5th, 2018 to August 10th, 2018	**Indian**	**SAARC**	**Foreign**
	Rs. 2250/-	$ 50	$ 100

Two certificates (one for conference and one for workshop)

CONTENTS

ISC - 2017

Focal Theme
Widespread Research: Strenthening Nations and Spreading Happiness

8th December 2017

ISCA-ISC-2017-Plenary Session-01
Time: 11:00 am to 12:00 am

Speaker: Dr. Phanchung, Director General
Department of Research and External Relations, Office of Vice Chancellor, Royal University of Bhutan, Thimphu, Bhutan

ISCA-ISC-2017-Plenary Session-02
Time: 12:00 am to 1:00 pm

Dr. Tshewang Lhendup, Dean of Academic Affairs
College of Science & Technology, Royal University of Bhutan, Chukkha, Bhutan

1. Agriculture, Forestry and Horticulture

ISCA-ISC-2017-1AFH-Guest Speaker-01

Crop response to climate change

Ranjan Das
Department of Crop Physiology, Assam Agril. University, Jorhat-78513, Assam, India
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Abstract: Over the last few decades, planet earth has been facing detrimental changes in its biosphere which have threatened the biodiversity to the substantial extent. Agriculture and climate change are interlinked as climate change affects crop yield, biodiversity, water use and soil health. Similarly, agriculture also contributes to climate change through the release of greenhouse gases into the atmosphere. Rising CO_2 over the next century is likely to affect both agricultural production and food quality. Current evidence suggests that that the concentrations of atmospheric CO_2 predicted for the year 2100 will have major implications for plant physiology and growth. Under elevated CO_2, most plant species show higher rates of photosynthesis, increased growth, decreased water use and lowered tissue concentrations of nitrogen and protein. The IPCC (2014) has highlighted that the net effect of climate change on world agriculture is likely to be negative, even if some regions and crops could benefit from it. The crop response to higher level of CO_2 is not uniform within and between the species and cultivar/variety. There is significant variation in photosynthesis, where C_4 species show less of a response to high CO_2 than other types of plants in terms of some physiological processes. Warm temperature associated with climate change is a primary factor affecting the rate of plant development which has the potential to impact plant productivity. At the developmental stage, temperature extremes greatly affect the reproductive process and only a few adaptation strategies are available to cope with temperature extremes. So, selection of plants with some adaptive traits for climate resilient agriculture is essential in present day climate context. In controlled environment studies, warm temperatures increased the rate of phenological development compared to normal temperatures. The major impact of warmer temperatures was during the reproductive stage of development and in all the cases grain yield in most of the crop was significantly reduced.

Keywords: Crop, Response, Climate, Change.

ISCA-ISC-2017-1AFH-Guest Speaker-02

Population dynamics of red spider mite (*Tetranychus urticae*) on brinjal (*Solanum melongena*) and their management

Ghosh S.K.
Dept. of Agricultural Entomology, BCKV (Ag. University), AINP on Acarology, Directorate of Research, Kalyani, Nadia, West Bengal-741235, India
skghosh1969@gmail.com

Abstract: Brinjal (*Solanum melongena* L.) crop is susceptible to various insect and mite pests of which red spider mite, *Tetranychus urticae* (Tetranychidae: Acarina) is the most predominant. *Tetranychus urticae* was most active during May i.e., 22-24 Standard Meteorological Week (SMW) and September-October i.e., 40-43 SMW. Highest mite population (22.87/leaf) was recorded on 42nd SMW (first week of October). Sudden fall of population was found in last week of June because of heavy rains. The mite population always recorded higher on the upper canopy (52.75% population) of the plant as compared with the middle (30.64% population) and lower canopy (16.61% population). This result implies that mites were most densely populated in the young and new leaves of brinjal. The mite population had significantly positive correlation with temperature, minimum and average relative humidity where as non-significant positive correlation with maximum relative humidity and weekly total rainfall. Among the seven treatments evaluated microbial toxin- avermectin resulted in the best suppression of mite population (87.10% suppression), closely followed by chemical insecticide, fenazaquin and mixed formulation of botanical pesticide, azadirachtin with botanical extract, *Spilenthes* (79.24% and 70.66% suppression). Spectophotometric scanning of crude methanolic extract of *Spilanthes* flower showed strong absorbance wave length between 645-675 nm. Considering the level of peaks of wave length the flower extract contain some important chemicals of which polysulphide compounds are important and responsible of pest control. Azadirachtin and botanical extract individually did not produce good results (moderate mite suppression) but when azadirachtin is used as a mixture with botanical extracts provided better results recording more than 65% suppression. Microbial toxin, plant extracts and botanical insecticide are biopesticides having less or no hazardous effects on human health and the environment, and therefore, they can be incorporated in IPM programmes and organic farming of vegetable cultivation.

Keywords: Bio-pesticides, Organic farming, Seasonal fluctuation, Vegetable IPM.

ISCA-ISC-2017-1AFH-02-Oral

Influence of plant bio-regulators on growth, yield and quality of strawberry (*Fragaria x ananassa* Duch) cv. sweet Charlie

D.B. Ahire* and S.P. Gaikwad
National Agriculture Research Project, Mahabaleshwar Dist. Satara, Maharashtra, India
deepakkumarahire@gmail.com

Abstract: The present study indicates that the growth, yield contributing characters and yield of strawberry cv. Sweet Charlie fruits were significantly influence by various bio-regulators. Among different bio-regulators GA_3 75 ppm recorded the significantly the highest yield 33.71 t ha^{-1}. However, the highest values with respect to different growth parameters, viz., Plant height (18.19 cm) was recorded with NAA 400 ppm, while the highest (26.72 cm) NS plant spread was recorded with application of GA_3 25 ppm. The maximum plant spread (EW) (27.20 cm) was recorded with GA_3 75 ppm. Among different yield contributing characters viz., berry weight (14.49 g), number of berries per plant (46.68) and yield per plant (674.33g), GA_3 75 ppm showed superiority than other plant bio-regulators. The maximum TSS (10.61^0Brix) was also recorded in GA_3 75 ppm.

Keywords: Strawberry, Bio-regulators, Growth, Yield, Quality.

ISCA-ISC-2017-1AFH-03-Oral

Presowing guava seed treatments influence seedling growth behaviour in nursery

Aditi Guha Choudhury[1*], Jahnavi Sen[2], Anant Tamang[1] and B.C. Das[1]
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aditiubkv2009@gmail.com

Abstract: The effect of presowing treatments of freshly harvested seeds of guava cv. Allahabad Safeda were examined with NaCl, citric acid, ascorbic acid, KH_2PO_4, KNO_3, ethephon and NAA, 50 ppm each along with Water, water + black polythene cover and seeds without any treatment as control. To study the germination behaviour, pre treated seeds were sown at a depth of 0.5 to 1 cm in raised seed beds. Highest germination success was found with NAA (72%) and ethephon exhibited adverse effect on seed germination (26%). In all other treatments germination ranged from 38.04-51.92%. Low germination success (38%) with water + black polythene cover revealed that light plays a pivotal role in guava seed germination. Seed germination started an earliest of 7th day from treatment with NaCl and latest up to14th day with ethephon. Duration for completion of seed germination was minimum in ethephon with 14 days and maximum in ascorbic acid with 28.33 days. Highest seedling growth rate (1.65 cm) and rate of increase in collar diameter (0.76 mm) was found in treatment with water and NAA respectively. So, NAA (50 ppm) and water can be recommended as effective pre-sowing treatments for seed germination and seedling growth of guava rootstock development.

Keywords: Seed germination, Seedling growth, Pre-sowing treatment, Guava.

ISCA-ISC-2017-1AFH-04-Oral

Genetic diversity analysis among 23 pumpkin genotypes (*cucurbita moschata* duch. ex poir)

Mekala Srikanth*, S.G. Bharad and L.B. Thulasiram
Department of Horticulture, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola, Maharashtra-444104, India
sricoolhortico@gmail.com

Abstract: Genetic divergence among 23 pumpkin genotypes was estimated using Mahalanobis's D^2 statistic. Based on D^2 analysis, the genotypes were grouped into 6 different clusters, where cluster II contained the highest number of genotypes (6) followed by I (5), III (5), IV (4), VI (2) and cluster V contained the lowest (1). Clustering pattern revealed that geographical diversity was not associated with genetic diversity i.e., genotypes collected from same location were grouped into different clusters. The maximum intra-cluster distance was observed for cluster VI (6.07) and the minimum for cluster I (4.67). The maximum inter-cluster distance was observed between cluster V and VI (8.31) and that of minimum inter-cluster was observed in between the cluster I and II (5.80). Cluster V recorded the highest mean values for the characters vine length at 90 days (m), number of primary branches at 90 days, sex ratio, days to fruit harvest, fruit set %, fruit length (cm), rind thickness (cm), flesh thickness (cm), test weight (100 seed wt) (g).Considering cluster mean, the genotypes of cluster VI could be selected for yield per plant and other yield contributing characters.

Keywords: Cluster, D^2 analysis, Genetic diversity, Pumpkin.

ISCA-ISC-2017-1AFH-05-Oral

Socio economic survey of villages in core area of Mukandhra Hills Tiger Reserve, Kota, Rajasthan, India

Ali Mohd[1] and Sultana Fatima[2*]
[1]WII, Dehradun, Uttarakhand, India
[2]Department of Zoology, J.D.B. Govt. Girls College, Kota, Rajasthan, India
drfatimaehh2009@gmail.com

Abstract: The survey is a reflected voice of people, by presenting an opportunity to better understand the problem encountered by local population living in the core area of tiger habitat. They are mostly dependent on forest land and its resources for their survival. The people are relying on agricultural activities for their subsistence needs and rely on forest for a number of natural products to improve their livelihood. The theme of the study was to develop a framework of references of a baseline survey to asses conservation development activities and its impact on such important habitat, and also to identify the threats from the local population living in the core area and to assess their impact in various areas. The socio-economic survey was designed to assist communities in making decision that promote long term sustainability, including economic prosperity, a healthy community and social well being, also by finding a way to conserve the important tiger habitat. The villages inside core area of Mukandhra Hills Tiger Reserve are economically not much healthier as the village has lack of skilled workers, poor infrastructure; lack of education, sanitation, and most importantly the mass awareness. Farming is the main occupation of people followed by day labors. Animal rearing is another important economic resources also creating huge impact on forest due to rise in grazing pressure, decreasing the food for wild herbivores, also rising human wildlife conflict. Lowest literacy rate is another problem for lack of awareness and knowledge of alternative livelihood; they remain dependent on forest resource for their survival. The literacy rate is only around 33% which is below the national rate. The important factor of forest deforestation is due to uneducated inhabitants, lack of awareness and moral wills. Relocation and Rehabilitation of the villages should be planned and implemented with local participation. Good package of rehabilitation in favor of villagers should be planned.
Keywords: Socio-economic, Tiger Reserve, Villages, Livelihood, Deforestation.

ISCA-ISC-2017-1AFH-06-Oral

Effect of cadaverine on protein profiling of cultured tissues of *brassica juncea* (RH-30) under multiple stress

Pushpa C. Tomar [1*] and S.N. Mishra[2]
[1]Dept. of Biotechnology, Faculty of Engineering and Tech., Manav Rachna International University, Faridabad, Haryana-121004, India
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Abstract: Cadaverine (Cad), i.e. 1,5-diaminopentane demonstrated in many organisms including plants, a species of polyamines group synthesized independently through different pathway effects growth of the plant, but antistress role is obscure. In view of this, Cad effect on protein profiling of callus (from explant hypocotyl*)* was examined cultured on modified MS media. The metal and salt stress was created by adding Cd and Pb (1mM) or 100mM NaCl in the medium respectively. The explants treated with Cad showed better growth as compared to non treated one. After the sub-culturing of callus in the presence of Cad maintained high callus growth over control and NH_4NO_3 supplemented one. However, Cad did not check the inhibitory effect of salinity and Pb stress on sub-cultured callus growth. The ammonium nitrate supplementation increased the protein content in the callus significantly over control. Whereas accumulation of protein content in the sub-cultured callus was inhibited. While exhibited protective effect on protein accumulation under the salinity or Pb stress. The Cad application suppressed the accumulation of 66 kDa peptide under salinity that remained unaffected with NH_4NO_3. The NH_4NO_3 induced 54 and 44 kDa under salinity as well Pb stress. The sub-culturing of callus with Cad induced the expression of 76, 72, 45, 42, 40, 32, 30, 24, 22 and 21 kDa proteins. Out of all those peptides, the expression of two peptides 66 and 34 kDa was prominent. Cad ameliorates the growth of the Callus under stress conditions and these stress induced proteins in the presence of Cad may help plant to grow under stress condition.
Keywords: B. juncea, Cadaverine, Metal, Polyamines, Protein, Salinity, Stress.

ISCA-ISC-2017-1AFH-07-Oral

Efficient micropropagation protocol for strawberry

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Abstract: The present experiment was carried out at the Centre of Plant Biotechnology and Department of Horticulture, CCS Haryana Agricultural University, Hisar during the 2014-2015 to develope an efficientt disinfection method for

micropropagation of strawberry (*Fragaria×ananassa* Duch.) cultivar Ofra. In strawberry contamination is usually a serious problem and surface sterilization becomes a crucial task. Streptocycline and bavistin have been used widely in micropropagation studies to check bacterial and fungal growth respectively. Antioxidants citric acid and ascorbic acid have been used to remove phenolic compounds. Different combinations of concentrations and duration was tried to check contamination by surface disinfection of explants. The young tender vegetative nodal segments were taken as explants. Nodal segments of 5-7 cm were excised and washed with detergent Teepol followed by washing under running tap water. Explants were treated with citric acid (0.30-0.45%) and ascorbic acid (0.20-0.25%) at duration of 8-12 min. and bavistin 0.4 per cent and streptocycline 0.4 per cent at duration of 30-120 min. and mercuric chloride 0.1 per cent for 1-5 minutes. The efficiency of sterilizing agents was evaluated in terms of contamination, browning and survival percentage. It was observed that all the cultures were contaminated when no sterilants were used. It was noticed that contamination of explants, significantly decreased with increase in concentration and duration of dipping except in treatment (0.45% citric acid+0.25 % ascorbic acid for 10 min. and 0.4% bavistin+0.4% streptocycline for 60 min. and 0.1% mercuric chloride for 5 min.), where duration of dipping in mercuric chloride was increased and no contamination was observed in treatment and all the explants turned brown leading to mortality, which may be due to longer exposure of explants in 0.1% mercuric chloride. Least contamination was observed under the treatment (0.45% citric acid + 0.25% ascorbic acid for 12 min. and 0.4 % bavistin + 0.4% streptocycline for 120 min. and 0.1 % mercuric chloride for 3 min.) where maximum survival percentage (62.5) was recorded. It appears that this treatment duration was sufficient to control bacterial and fungal growth.

Keywords: Strawberry, Micropropagation, Survival, Disinfection.

ISCA-ISC-2017-1AFH-08-Oral

Farm energy management in India: transforming economy and ecology

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Abstract: Agro ecosystem, an assembly of mutually interacting organisms and their environment in which materials related to crop production are interchanged in a largely cyclical manner. An ecosystem has physical, chemical, and biological components along with energy sources and pathways of energy and materials interchange. The interactions between these three components exert considerable influence on a particular ecosystem. In agro ecosystem, besides the natural components, some plants are introduced to get benefit for humans and their livestock. The extension research of farm energy metabolism is extremely nascent, so it is very difficult to identify and estimate the interaction of befitting variables in any given farm ecology. Agro ecosystem research uses the methods of ecosystem analysis to measure the material and energy entering plant and animal populations and to explain how these inputs affect the physiological processes determining growth and maintenance. Green plants harvest the solar energy and store within their bodies in the form of organic compounds. Energy metabolism in a given farm ecology is contributed all by a set of socio-economic, farm resource and agri-managerial variables. Objectives of the study are, to develop the concept of rural development and energy metabolism, to study the farm energy metabolism as a composite consequent variable against causal variables consisting of socio-economic, techno-managerial and ecological characters, to study the intra and inter level of relationship and interaction in order to estimate the farm energy metabolism and to generate a kind of operational model for creating micro level farm energy policy towards achieving a sustainable rural development. State West Bengal, district Nadia, block Chakadaha, village Ghoragachha and 50 respondents were selected for the study. The independent variables selected for the study were Age, Education, Family size, male-female ratio, Occupation, Cropping Intensity, Farm size, Market orientation, Labour engaged, Average labour engaged per operation, Electricity consumption, Energy consumption per capita, Diesel consumption, Consumption of LPG, Consumption of kerosene, etc and the dependent variables selected were Cattle Total crop energy input, Total Crop Energy output, Domestic Energy Consumption, etc. After analysing the data with the statistical tools like, Coefficient of Variance, Correlation of coefficient, Regression analysis, Path analysis, etc, it has been found that the variables, per cent of farming Expenditure has recorded a positive and significant correlation with Total Crop Energy Input, the variable electricity consumption has exerted highest direct effect as well as total indirect effect, per cent of farming expenditure, electricity consumption and energy consumption per capita have exerted substantive impact on consequent variable, Total crop energy input, etc.

Keywords: Agro ecosystem, Consumption, Crop energy, Energy input, Energy output, Expenditure, Farm energy.

ISCA-ISC-2017-1AFH-09-Oral

Isolation, identification and morphological characteristics soil alkalphilic actionomycetes from agricultural soil at Lonar cratre

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Abstract: An alkaliphlic Actinomycetes are physiologically diverse group, as evident by their production of numerous extra cellular enzymes and by the thousands of metabolic products they produce. Actonomycetes DNA are rich in G+C content with GC% of 57-75% and it was isolated from a desert soil sample of lonar, Dist. Buldhana. The isolate was observed to produce, white, grey, milky white (cotton) colour colonies are obtained from soil sample. These strain produced aerial and substrate mycelium consisting of chain or smooth spore. The colonical growth of strain varied from yellow to grey. After isolating an actinomycetes, it is initially identified on the basis of morphological characters so has to have preliminary determination of genus. All the isolate were later purified and subjected to a few phosphatic enzymatic screening. Result indicate that number of isolates showed the ability to solubilize phosphate.

Keywords: Alkaliphilic actinomycetes, Soil, Isolation, Identification.

ISCA-ISC-2017-1AFH-10-Oral

Effect of paclobutrazol on growth, yield and oil content of *Kharif* groundnut

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Abstract: Field experiment was carried out in 2013 and 2014 during *kharif* season at 'AB Block' Farm of Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, Nadia, India to assess the effects of different doses of paclobutrazol (PBZ) with different time of applications on groundnut. The experiment was laid out in split-plot design with six main plot and three sub-plot treatments; it was replicated thrice. The main plot treatments consisted of six different doses of paclobutrazol i.e. PBZ@50ppm (T_1), PBZ@100ppm (T_2), PBZ@150ppm (T_3), PBZ@200ppm (T_4), PBZ@250ppm (T_5) and control (T_6); and subplot treatments were single spraying at 30 days after emergence (DAE) (S_1), single spraying at 50 DAE (S_2), double spraying at 30 and 50 DAE (S_3). Due to spraying of PBZ excess plant height during *kharif* season of treated plots were considerably reduced as compared to control plot. However, the dry matter production (g m^{-2}) was significantly increased due to higher partitioning of assimilates towards the reproductive parts. Pod dry weight (g) per plant, kernel yield (kg ha^{-1}) and harvest index (%) of PBZ treated plots were significantly higher than control. The highest values were observed in PBZ@250ppm in case of main plot treatments and double spraying at 30 and 50 DAE in case of subplot treatments. PBZ application also showed significant result in oil content. Therefore, PBZ@250ppm with double spraying will be advantageous and profitable to reduce the excess vegetative growth of groundnut during *kharif* season and to increase the yield.

Keywords: Groundnut, Paclobutrazol, Growth, Kernel yield, Oil content.

ISCA-ISC-2017-1AFH-11-Oral

Correlation between the incidence of coriander aphid (*Hyadaphis Coriandri*) and weather parameters

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Abstract: For this experiment coriander (*Coriandrum sativum* L.) crop was raised in the research area of department of Vegetable Science, CCS Haryana Agricultural University, Hisar, during the "*rabi*" season of 2014-15 following recommended agronomical practices. The incidence of aphids was first recorded in the third week of February. The maximum population of aphid was observed in the first week of March and there was a sharp decline in population of aphid in 2nd week of March. The maximum temperature and relative humidity (morning) had positive effect on population of aphids. Minimum temperature, relative humidity (evening), wind speed and sunshine hours had non - significant effect on population of aphids.

Keywords: Coriander, Incidence, Aphid, *Hyadaphis coriandri*, Weather parameters.

ISCA-ISC-2017-1AFH-12-Oral

HSPS and their role in heat tolerance in plants

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Abstract: Heat stress significantly affect protein metabolism, including degradation of proteins, inhibition of protein accumulation and induction of certain protein synthesis, causing a serious damage to the growth and development of the plant. Plants response to heat shock leads to changes in the cellular membrane structure, protein metabolism, level of enzymes and photosynthesis activity. The plants survive this stress by producing Heat Shock Proteins (HSPs), which are involved in signaling, translation, host-defence mechanisms, carbohydrate metabolism and amino acid metabolism by playing a significant function in controlling the genome and ultimately features that are obvious. In many crops, it has been reported that by using *Agrobacterium tumefaciens* mediated genetic transformation, HSPs can confer tolerance to high temperature stress.
Keywords: HSPS, Heat, Tolerance, Plants.

ISCA-ISC-2017-1AFH-13-Oral

In-vitro propagation of Japanese Iris (*Iris ensata* Thunb.)

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Abstract: Japanese Iris (*Iris ensata* Thunb.), one of the most valued ornamentals, is propagated conventionally through vegetative means which is very slow and need attention to develop elite, genuine, true-to-type quality planting materials at a faster rate. In the present study, micropropagation of the species was attempted through callus culture followed by organogenesis and rhizogenesis *in-vitro* including subsequent acclimatization, using leaf base as explant at Uttar Banga Krishi Viswavidyalaya, Pundibari, Cooch Behar, West Bengal, India during the year 2013-2015. Results revealed that the leaf base explants of Japanese Iris when placed in MS medium supplemented with 2,4-D (1.0 mg/l) and TDZ (0.1 mg/l) showed earlier callus initiation (25.30 days) in greater percentage of explants [96.67% (79.69%)] and produced higher callus weight (2.961g) at 30 days after culture. Regenerated calli when cultured in MS medium supplemented with GA_3 (2.0 mg/l) + BAP (1.0 mg/l) recorded earlier regeneration (29.20 days) with greater percentage of explants [99.70% (86.97%)] and produced higher number of microshoots per culture (16.30) having greater microshoot length (8.64 cm), leaf production (11.70), leaf length (7.0 cm) and leaf width (1.32 cm). *In-vitro* regenerated microshoots when cultured in MS medium containing IBA (1.0 mg/l) + NAA (1.0 mg/l) reported earlier root initiation (26.07 days) with higher number of roots per plant (9.07) having greater length (9.32 cm). Percent of rooted microshoots were found highest [99.62% (86.51%)] when tried with MS + IBA (1.5 mg/l) + NAA (1 mg/l). A mixture containing equal proportion of vermiculite and vermicompost (v/v) resulted greater survivability [86.85% (68.69%)] in shorter duration (12.43 days) during subsequent acclimatization of *in-vitro* regenerated plantlets of Japanese Iris.
Keywords: *Iris ensata*, Japanese Iris, Leaf base, *in-vitro*, Plant bio-regulators.

ISCA-ISC-2017-1AFH-14-Oral

Extracting the future prospective in agriculture using big data

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Abstract: The world's population is increasing very fast and agricultural production faces numerous challenges. Feeding this population requires implementing a number of strategies. To handle the constraints of agricultural production, its environmental impact and the sophisticated agricultural ecosystem must be understood. The modern agriculture system includes the use of latest technologies and digital tools which helps to capture the large amount of data. The data in agriculture can include farm level data and personal data which are collected from ground, equipment sensors, robotic drones etc. Captured data may be unstructured, semi-structured and structured. Observing the nature of data, suitable technologies like Hadoop, NoSQL, Hive etc. can be used for its analysis. The result of this analysis would support the firm and farmers to take decisions in order to minimise the risk and improve their productivity. Although big data analytics is now on top priority and is used by many companies to improve the customer's satisfaction, it has not yet been widely functional in agriculture. The research practises in the area of big data analytics in the field of agriculture must be encouraged in order to solve the related problems of agriculture.
Keywords: Data analysis, Decision support, Digital technology, Farm data, Scientific farming.

ISCA-ISC-2017-1AFH-15-Oral

Crop protection by the use of distributed framework of various agricultural web resources

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Abstract: There are more than 7.6 billion people on Earth now (UN, 2017 revised report), and it is continuously increasing. To confront the immense population, the production of agricultural commodities must be increased to meet the food requirement of the people.Crops in the field are under threat of insects and diseases attack from the day of sowing to the day they are harvested causing a substantial damage to the crop that affects adversely to the farmer's economy. Crop protectionplays a vital role in increasing the production as well as productivity of the crop by reducing the diseases, insects and weeds attack by identifying the disease, insect and weed infestation and also suggest multiple treatment and control measures to save the crop from all these threats.Although, many expert systems, information systems, forewarn systems are operational which provideinformation regarding management of crops but for different crops a farmer has to visit different expert systems separately, therefore aiming to bridging this gap, a distributed framework has been developed which captures, stores, retrieves, manipulates and displays information from different sources on a single window. The developed software also gives an alert about diseases by taking input oflocation, temperature, humidity and rainfall.
Keywords: Agricultural innovation, Crop management, Digital information, IPM, Web services.

ISCA-ISC-2017-1AFH-16-Oral

SDS-PAGE based protein profiling and diversity assessment of indigenous germplasms of cucumber (*Cucumissativus* L.)

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Abstract: The objective of this study was to determine the relationships among genotypes categorization of seed storage proteins profiles of 44 genotypes with two checks Pant Khira-1 and Pointsette of cucumber (*Cucumissativus* L.) was performed by Sodium Dodecyl Sulphate Polyacrylamide Gel Electrophoresis (SDS-PAGE) at NAIP, Laboratory of Department of Vegetable Science, G.B. Pant University of Agriculture and Technology, Pantnagar, (Uttarakhand) during July-October, 2014 and February-June, 2015. The entire profile comprised of 15 protein bands, distributed into three major zones A, B and C in increasing order of electrophoretic mobility i.e. Zone A was nearest and Zone C was farthest from the point of protein sample application. Among 15 bands maximum number of bands were observed in PCUC-193 (9 bands), PCPGR-6762 (8bands), PCPGR-7013 (8bands) and PCPGR-7795 (8bands) followed by PCUC-199 (7 bands), PCUC-832 (7 bands), PCUC-44 (7 bands), PCUC-23 (6 bands). Minimum bands were shown by PCPGR-7795 (1 band). The unweighed pair group method using arithmetic average (UPGMA) analysis of 46 cucumber genotypes was done and two major clusters obtained through seed protein analysis expressed better grouping of genotypes.
Keywords: Cucumber, SDS-PAGE, Similarity Index (S.I.) and UPGMA Cluster Analysis.

ISCA-ISC-2017-1AFH-17-Oral

Commercial utililization of predatory mites

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Abstract: Predatory mites are those which feed on phytophagous mites and small insect pests like thrips, coccids, pseudococcids, aphids. Their activity keeps the pest population below injury levels in any crop ecosystem. Predatory mites deserve special mention in an agricultural country like India, where agriculture is always under the threat of constant pest attack. Predatory mites, comprising of families are Phytoseiidae, Ascidae, Acaridae, Laelapidae, Macrochelidae, Cheyletidae, Cunaxidae, Stigmaeidae, Bdellidae, Tydeidae, Anystidae and Erythraeidae. They are of immense importance as bio-conrol agents but among these mites group, Phytoseiidae is the most important because they play pivotal role in controlling mite pests and some of the soft-bodied insect pests of various crops. Phytoseiid mites have received global attention since the 1950's due to their importance as natural predators of phytophagous mites and small insects and therefore are useful in the biological and integrated control of crop pests. Acarine Biocontrol Agents (ABAs) acts as enemies of problem-causing organisms like nematodes, soil pathogenic fungi, weeds, stored grain pests and many soft bodied insects like scales, mealybug etc. Some 20 species of phytoseiids have been made commercially available for pest control and many of these have been applied on greenhouse plants. Inspite of usefulness of ABAs, there are some constraints which hinder the growth of ABA biopesticide industry; thus the need for the further exploration for ABAs should be re-emphasised and to develop means of incorporating promising ABAs into existing IPM programmes.
Keywords: Predatory mites, Phytoseiidae, Acarine Biocontrol Agents, Pest population, IPM.

ISCA-ISC-2017-1AFH-18-Oral

Screening of certain rice varieties and its grain yield on the incidence of *Cnaphalocrosis medinalis* (Guenee) on rainfed rice crop-ecosystem of Manipur valley, India

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Abstract: Rice is the most important staple food of Manipur. Among prevailing different insects associated with rice, the leaf folder is one of the most destructive. Hence, a field experiment was conducted at Rice Research Farm, College of Agriculture, CAU, Imphal during the *Kharif* season, 2010 and 2011. Nineteen rice varieties including one check were tested in the field for their resistance reaction against leaf folder. One month old seedlings were transplanted in RBD in the plot size of 5m x 4m at 15cm x 20 cm spacing with three replications. The perusal data on mean percentage leaf damage due to *C. medinalis* indicates that all the varieties of rice screened were not prone to the attack by *C. medinalis*. However, the pooled mean per cent leaf damage was significantly varied among the test varieties. The lowest mean leaf damage was noted in the variety 'CAUS-1' but, was at par with 'Pariphou, RCM-9 and Sanaphou'. The variety 'TN-1' recorded the highest mean per leaf damage, closely followed by 'IR-64' variety which did not differ significantly from each another. The rating made based on D-values (damage rating) revealed that four varieties *viz*. "RCM-9, Sanaphou, CAUS-1 and Pariphou" were recorded as moderately susceptible, ten varieties "Punshiphou, Phouoibiphou, WR-11-4, Ereimaphou, WR-1-9-17, RCM-10, KD-5-2-8, Tamphaphou, Ginphou and KD-Awangba" were categorized as moderately susceptible to leaf folder. While, three varieties namely "Leimaphou, Matamphou and WR-2-3-1" exhibited the susceptible reaction against the pest, whereas two varieties *viz*., "IR-64 and TN-1" were categorized as highly susceptible varieties. The grain yield data revealed that the highest grain yield (8.77 tha^{-1}) was obtained from the plots of 'IR-64' as against (2.50 tha^{-1}) in highly susceptible check variety 'TN-1'.
Keywords: Rice, *Cnaphalocrosis medinalis,* Leaf damage per cent and grain yield.

ISCA-ISC-2017-1AFH-19-Oral

Crop stress assessment through remote sensing technology

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Abstract: Monitoring of crop conditions at regular intervals is fundamental for implementing sustainable agriculture. It is axiomatic that high yields can only be obtained if plant stress is kept to a minimum. Remote sensing techniques provide a suitable alternative for crop condition assessment, as it gives a timely, accurate, synoptic and estimation of various crop parameters. Advancements in the remote sensing technology help in real time monitoring, early warning and quick damage assessment due to various abiotic and biotic stresses. Crop conditions are often better characterized through the use of band rationing technique in comparison to use of individual spectral bands. There are many proven indices developed worldwide for continuous monitoring of vegetation conditions like the Normalized Difference Vegetation Index (NDVI), Enhanced Vegetation Index (EVI), Standardized Vegetation Index (SVI) and many more hyperspectral (narrow band) indices which have been shown to be crucial for monitoring crop conditions and quantifying biophysical and biochemical parameters of agricultural crops. The majority of these indices are based on indirect indicators, mostly chlorophyll content, leaf area index, and leaf soluble protein, which are proven to be physiologically linked to stress condition. Hyperspectral remote sensing could be a better tool for detection of stress in non destructive method. There are other factors which influence on the crop stress conditions apart from vegetation index. Thus, an integrated approach needs to be developed to improve accuracy.
Keywords: Remote Sensing, Hyperspectral, Spectral Indices, LAI, Chlorophyll.

ISCA-ISC-2017-1AFH-20-Oral

Effect of gamma radiation on Indian Mustard (*Brassica juncea* L.)

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Abstract: An experiment was conducted to study the variability caused by gamma rays on quantitative traits such as germination percentage, Survival percentage, plant height, number of siliqua per plant, seed per siliqua, and dry weight of

whole plant of Indian Mustard (*Brassica juncea*). The two varieties of *Brassica juncea* L. *viz.* Pusa Bold and Pusa Kranti used for present study and six level of gamma irradiation comprising 1000 GY + EMS, 900 GY, 1000 GY, 1100 GY and 1200 GY including control was maintained. Results revealed that application of higher doses of gamma irradiation significantly decreased some morphological parameters such as germination percentage, Survival percentage, plant height, number of siliqua per plant, seed per siliqua and dry weight of whole plant as comparison to control indicating some mutation may be occurred due to irradiation and chemical mutagen. It is also observed that there is a significant difference between two varieties due to the application of gamma radiation.

Keywords: Indian Mustard, Mutagen, Gamma radiation, EMS, Morphological, Traits.

ISCA-ISC-2017-1AFH-21-Oral

Evaluation of some early genotype of pigeon pea [*Cajanus cajan* (L.) Millsp.]

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Abstract: An investigation was carried out at GPB experimental farm, School of Agricultural Sciences and Rural Development, Nagaland University, Medziphema during kharief season, 2016-17. Early genotypes viz. AL-1489, AL-1756, AL-2025, AL-1871, AL-2021, AL-1760, AL-1758, ICPL-88039, ICPL-161, ICPL-0338 with a check variety UPAS-120 was assessed under randomized block design to study the morphological variation among the genotypes. Results revealed that there was significant variation among the genotype in terms of morphology. The highest number seeds per pod and plant height was recorded in AL-1756, Maximum days to 50% flowering and days to maturity was recorded in ICPL-20338. Highest seed yield and no of pods per plant was recorded in upas-120 followed by AL 1758 respectively indicating there may be prevalence of additive gene action for inheritance of these early traits which may help to enhancing earliness of that genotype including check one.

Keywords: Pigeon pea, Genetic variance, Heritability, Correlation, Path analysis.

ISCA-ISC-2017-1AFH-22-Oral

Physiological performance of some selected *sali* rice genotypes under delayed dates of sowing

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Abstract: The *sali* rice (winter rice) crop in Assam faces recurrent floods at various stages of the crop. In view of the damage caused to the seedlings in seedbeds the farmers are compelled to sow seeds again and again resulting in delayed transplanting due to which biomass accumulation is reduced leading to lower grain yield. Keeping in views the above points a study was conducted during the s*ali* seasons at the experimental field of Instructional cum Research (ICR) farm, Assam Agricultural University, Jorhat to assess the physiological performance of seven selected *sali* rice genotypes namely, Satya, Luit, Monoharsali, Jaya, Bordhan, Basundhara and Srimanta under delayed dates of sowing using thirty days old seedlings. While comparison was made between timely sowing (15th June sowing) and the deferred dates of sowing lowest reduction in the values of grain yield were recorded in genotypes Manoharsali and Srimanta (35.66 % and 35.03 % under D_2 i.e.20th July, 42.89% and 58.57% under D_3 i.e.27th July). These two genotypes recorded better performance in terms of parameters like leaf area index, nitrogen accumulation in biomass and plant biomass etc. Uptake kinetic studies revealed that the genotype Basundhara and Srimanta showed lowest K_m values for nitrate and the latter genotype also showed highest accumulation of nitrogen in plant biomass. The genotype Srimanta showed higher grain yield in timely sowing situation and its percent reduction with delayed dates of sowing was lowest. Therefore the genotype Srimanta can be regarded as better genotype for delayed sowing.

Keywords: Leaf area index, Plant biomass, Accumulated nitrogen in the biomass, Km.

ISCA-ISC-2017-1AFH-23-Oral

Artificial vermicomposting

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Abstract: In today's world where we talk of green revolution, we come across one of the most heated topic of chemical fertilizers. All of us are aware of its negative impacts on the environment but still it's an integral part of our agriculture

system. Following the footsteps of our ancestors, we can switch to techniques which preserves the eco-friendliness of natural manures but at the same time meets the efficiency of artificial manure. We aimed at producing a plug flow reactor that mimics the earthworm's gut. By generating necessary conditions of temperature, pressure, enzymes in different compartments (foregut, midgut and hindgut) of earthworm and also providing some tweaks here and there we can synthesize our desired manure. By using this technique we can eliminate the dependency on the geographical abundancy of earthworms and also produce better and soil specific manure by changing the different types of substrate. Using mixed soil cultures as a source of bacteria, actinomycetes, fungi, etc and crude enzymes for our process, we can also ensure the cost effectiveness. We have also simulated the reactor theoretically using the data available by the use of java program which gave us a better insight into the capability of such reactors.

Keywords: Earthworm, Earthworm's Gut, Java, Plug Flow Reactor, Vermicompost.

ISCA-ISC-2017-1AFH-24-Oral

Developmental processes in hot chilli (*Capsicum chinense* Jacq.) as affected by elevated carbondioxide and temperature

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Abstract: A study was conducted during 2012-2014 in Carbondioxide Temperature Gradient Tunnels (CTGTs) and in ambient condition to assess the interaction effect of elevated carbondioxide and temperature in two genotypes of *Capsicum chinense* Jacq on some developmental processes. The treatments consisted of field (ambient CO_2 and ambient temperature), CTGT I (380 ppm CO_2 and ambient temperature), CTGT II (550 ppm CO_2 with ambient temp + 2^0C elevation) and CTGT III (750 ppm CO_2 with ambient temp + 4^0C elevation). Elevated CO_2 and temperature brought about a significant difference in phyllochron index in both the years. A lower phyllochron or higher leaf emission rate was reported in cv. Manipur over cv. Assam. Elevated CO_2 and temperature brought about a significant increase in plant spread. A variation among the species was also observed in the present experiment where days to anthesis was much more accelerated in cv. Manipur than that of cv. Assam. There was a significant difference in days to anthesis between the cultivars, treatments and interaction of treatments and cultivars. A significant difference in number of fruit/ plant was noted amongst the treatments and among the cultivars in both the years. This indicates the responses of genotypes under future climate change conditions.

Keywords: CTGT, *Capsicum chinense*, Phyllochron, Days to anthesis, High temperature, Elevated carbondioxide.

ISCA-ISC-2017-1AFH-25-Oral

Allelopathic effect of aqueous leaf extracts of *Flemingia semialata* Roxb. on the growth and yield of *Zea mays* L. and *Oryza sativa* L.

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Abstract: Aqueous leaf extracts (20%, 50%, 75% and 100%) of *Flemingia semialata* Roxb. was used to investigate its effect on the growth and yield of *Zea mays* L. and *Oryza sativa* L. Significant stimulatory effect were observed in 50 and 75 per cent concentration for root length and 25 per cent for shoot length of maize. Stimulatory effect on root length of rice was observed in 25 and 50 per cent concentrated leaf extract. However, no stimulatory effects were observed on root and shoot length of rice. The inhibitory effect on biomass yield was observed at lower concentration in maize but inhibitory effect was more pronounced in rice with increase in the concentration of leaf extract. Aqueous leaf extract of *Flemingia semialata* Roxb. performed more better in maize than rice.

Keywords: Aqueous leaf extracts, *Flemingia semialata*, Inhibitory effect, Maize, Rice, Stimulatory effect.

ISCA-ISC-2017-1AFH-26-Oral

Ex. Situ conservation of Cacti and succulents of Arts, Science and Commerce College, Rahuri, Botanic Garden, Rahuri Tehshil District-Ahmednagar, MS, India

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Abstract: Arts, Science and Commerce College, Rahuri (Ganesh Tekadi) of Rahuri tehasil encompass the geographical area (19.3927° N, 74.6488° E) of North-East Maharashtra, India. It represents a rare mixture of plants with various varieties. Entire area comes under region have deciduous forests with some invasive species. The present investigation is focused on planting and conserving the various cacti and succulents of this region. The study area is not favorable for plant growth

because of very hard strata. This is an opportunity taken into consideration and college has developed large number of cacti and succulents and conserve them. The Ex. situ conservation of cacti and succulents have been conducted into different parts of world by various workers, Yeaton and cody (1979), Hunt (1992), Hernandez and Barcenas (1996), Oldfield (1997), Anderson (1997), Gomez and Hernandez (2000), Guzman et.al (2003), Ortega and Godinez (2006), Taylor (2006), Roy and Khuraijam (2016), and Sara and David (2016). About 286 species of cactus and succulents were planted conserved and identified on the basis of there morphotaxonomy. In the present study total 170 species of cacti and 116 species of succulents belonging to 78 genera and 16 families were recorded. Thus efforts are made to increase and conserve the number of cacti and succulents in the present study area.

Keywords: Cacti, Succulents, Conservation, Decideousforest.

ISCA-ISC-2017-1AFH-27-Oral

Technology for value added packaging of cymbidium flowers

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Abstract: Cymbidium is one of the most promising floriculture crops for Himalayan region. Though they are generally sold as cut spikes, the individual flowers, that are large (7cm to 12 cm diameter), attractive and have extraordinarily long vase-life, can be exploited as cut flowers. The paper describes a 'waste to wealth' technology developed for value-added packaging of Cymbidium individual flowers, to convert them to beautiful gifts and souvenirs. The technology benefits both consumers and farmers and can also create employment for women and youth. Several types of packages accommodating one to few Cymbidium flowers have been designed which allows display of the flowers for the maximum period of time without further manoeuvre. For single flowers, two types of designs are made i.e. top facing package - ideal for low coffee table and front facing package - suitable for higher shelves or tables. The packages comprise of two parts. The base portion, made of paper/cardboard (170-250gsm), holds flower in position and supply water while the top portion is made of clear polyester film (125-175µ) that allows view of the flower and creates modified atmosphere within. Several aspects of package design, materials, benefit-cost ratio and package-life of flowers were studied.

Keywords: Cymbidium, Packaging, Waste to wealth, Value-addition, Post-harvest management.

ISCA-ISC-2017-1AFH-28-Oral

Effect of plant growth regulators on quality flower production of three different gladiolus (*Gladiolus SP.*) cultivars in Darjeeling Hills of West Bengal, India

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Abstract: The experiment was carried out to observe the influence of plant growth regulators on the performance of three different cultivars of Gladiolus namely Red Ginger, White Prosperity and Candiman. Six different plant growth regulators namely GA_3, NAA, BA, CCC, SADH and Paclobutrazol each at 100 and 200 ppm concentrations were applied and the effect was compared with control plants in Regional Research Station of Uttar Banga Krishi Viswavidyalaya, Kalimpong, Darjeeling, West Bengal, India consecutively in 2009 and 2010. Out of 13 treatments, GA_3@200 ppm showed better performance in respect of flowering of gladiolus and early flowering was noticed in White Prosperity when applied with GA_3 @200ppm. Among the three different varieties, cv. Candiman when treated with GA_3@200ppm concentration showed the maximum size of floret, spike length, rachis length, highest days of field-life of spike and vase-life of cut spikes in normal tap water. Maximum number of florets per spike and number of florets remaining open at a time were found in the variety White Prosperity with GA_3@200ppm application. Among the three cultivars studied, cv. Candiman showed better performance in respect of the quality parameters of Gladiolus flowers in the hilly region of West Bengal and hence recommended for commercial cultivation.

Keywords: Gladiolus, GA_3, NAA, BA, SADH, CCC, Paclobutrazol, PGR.

ISCA-ISC-2017-1AFH-29-Oral

Organic matter recycling in tea plantations

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Abstract: Tea is one of the most important plantation crops in India. Darjeeling tea is famous in the world and considered as the champagne of tea for its unique flavour. However, due to indiscriminate use of chemical inputs like fertilizers, pesticides

and weedicide as well as reduced use of organic manures, the quality of Indian tea is deteriorating day-by-day. Judicious use of chemical inputs including Integrated Nutrient Management and Integrated Pest Management, organic matter recycling in tea plantations is a possible way to minimize the cost of production and improve the soil health, shelf life and quality of the produce. Various reports revealed that recycling of various organic matters and decomposition of leaves and twigs of shade trees, green manuring crops and pruning litters in-situ, tea waste, application of Farm Yard Manure and vermicompost etc. not only provide essential micro-nutrients for tea plantations but also improves the soil rhizosphere for better growth of beneficial micro-organisms. Ever-increasing awareness of organic tea and their methods of production have been discussed in this paper.

Keywords: Tea, Organic, Recycling, Compost.

ISCA-ISC-2017-1AFH-30-Oral

Effects of land use on soil organic carbon storage potentiality of selected land use systems in North-East India

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Abstract: Diverse land use systems in North-East India supported by the characteristic variability in climate and topography provides the scope of studying the effect of land use land cover (LULC) sectors on soil organic carbon (SOC) pools of this region. The effect of different land uses on SOC storage potentiality was analyzed in six selected LULC systems of North-East India viz., i. Natural forest (NF), ii. Homestead agroforestry (HA), iii. Teak plantation (TP), iv. Oil palm plantation (OP) v. Jhum fallow (JF) and vi. Wet rice cultivation (WC). Soil samples were collected from three soil depth profiles (0-20, 20-40 and 40-100 cm) to observe the variation in LULC SOC stocks and changes into the soil depth gradient**.** Significant variation ($p<0.05$) in SOC stock was observed among the different LULC systems as well as along the depth gradient under this study. Total SOC stock was recorded highest in NF (126.18±4.34Mg^{-ha}) and it was lowest in JF (41.06±2.19Mg^{-ha}). Pearson correlation value of SOC stocks with other soil parameter showed strong significant positive correlation between SOC stocks and SOC concentration in all the soil depth profiles. In case of bulk density significant negative correlation was observed in the 0-20, 0-100 cm depth profiles. However, clay+silt and silt particle possessed significant positive correlation and clay and sand particles attained significant negative correlation with SOC stock in the 20-40 depth profile. Comparison between NF with JF, HA, WC and other plantations revealed that when a natural forest gets converted to JF, reduction of SOC storage potentiality was maximum (67.46%), in plantations it ranged between 33.67 to 40.54% while, the reduction was only 20.07 % in case of HA and 39.78% in WC. Therefore, present study results suggest the adaptation and promotion of homestead agroforestry system in the jhum affected areas of NE India both from the carbon balancing and biodiversity conservation perspective.

Keywords: Carbon balancing, Land use, SOC, Biodiversity, Significant.

ISCA-ISC-2017-1AFH-31-Oral

Understanding hazards of agriculture through GIS

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Abstract: The intensive agricultural practices now-a-days targeted towards self-sufficiency and food security through development of input responsive varieties coupled with excessive and indiscriminate use of agrochemicals. The intensification of crop production necessary to meet the increasing demand through enhanced productivity per unit area might be impossible without a concomitant intensification of pest control. The perspectives of integrated pest management in safeguarding crop production and preventing negative effects on the environment are discussed for developing and developed countries. The unscientific and indiscriminate use of agrochemicals has affected the soil health adversely and brought down the fertility of soil and productivity of crops. It has resulted in the over exploitation of soil leading to nutrient imbalance. Moreover, a negative impact of chemical agriculture on environment and human health reported and documented. Any agents which are likely to involve to cause harm or damage to humans, animals, and environment and so on is considerably a factor for agricultural hazards. There are various types of hazards, e.g. biological, chemical, mechanical and physical hazards. Agricultural hazards related to different components like soil, water, aquatic life, effect on plants, on human and animals. Basically there are few methods to identify hazards- survey method (sample survey and stakeholder survey), observation method. The open source GIS software generally used for maintaining agricultural hazard data. Geo referencing of area map along with polygon map, thematic map preparation are some process of assessing hazards through GIS. There are numerous advantages of using GIS in case of reckoning hazards are providing the support services to the farming community. GIS establishes the linkage between geographic information and database management system, we improve or manage the data

both qualitatively and quantitatively with geographical location. After geo-spatial analysis we can get detailed picture of agricultural practices which were practiced by the selected people in a selected area. As there is so much opportunity for incorporation of GIS in Agriculture some limitations are also there for understanding hazards. e.g. GIS is a specialized field and it requires trained personal. Establishment /input cost are high. Initially investment in terms of money, now open source of GIS software is available. Initial investment of labour is high. Lack of awareness. Public awareness is required for wide spread uses of GIS. Large scope for miscommunication due to local language or language barrier. Information sources are very less. Finally though there are several challenges but we can conclude that nowadays, addressing the information needs of poor farmers and the cost involved in face-to-face information dissemination at the right time are the major issues in Agricultural information dissemination. However, GIS reduces these difficulties of reaching the target audiences for Agricultural information distribution purpose. It will be easier for researcher/extension worker to reproduce customize maps quickly on demand, allowing maps to be created and taken into the field when they are needed.

Keywords: Agricultural Hazards, GIS.

ISCA-ISC-2017-1AFH-32-Oral

Use of Geographical information system and remote sensing in natural resource management under climate change scenario

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Abstract: Geographical information system (GIS) and remote sensing offers copious opportunity to manage and monitor natural resources at multi-temporal, multi-spatial and multi-spectral resolution. It is an urgent necessitates understanding the specialized capabilities of an ever-expanding display of image sources and analysis techniques for natural resource managers. Agricultural production systems are highly vulnerable to variations in climate, soil and topography of different regions. For sustainable agricultural management, all these factors need to be analyses. Remote sensing and GIS are very essential tools having wide range of applications to tackle these issues. These technologies have manifold applications in agriculture including crop discrimination, crop growth monitoring/stress detection, crop inventory, soil moisture estimation, computation of crop evapo-transpiration, site-specific management/precision agriculture, crop acreage estimation and yield prediction. Timely and reliable information on crop acreage, growth condition and yield estimation can be highly beneficial to the producers, managers and policy planners for taking tactical decisions regarding food security, import/export and economic impact. Such information on regional basis can be made available with the use of remote sensing and GIS techniques. Remote sensing and GIS can also be used very effectively in land use / land cover analysis as well as damage assessment because of drought, floods and other extreme weather conditions.

Keywords: Climate change, Crop, Global positioning system, Geographical information system, Natural resource management, Remote sensing.

ISCA-ISC-2017-1AFH-33-Oral

Potential of *Brassica juncea* as Biofumigant for the management of damping off in Tomato

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Abstract: Pre and post-emergence damping off of tomato is a serious problem. Being a vegetable crop there has always been need to manage it using eco-friendly control measures. Keeping in view, the need for non chemical, environment friendly, sustainable approach for the management of damping off disease of tomato, the present investigation was designed to evaluate the potential of three *Brassica juncea* varieties viz., Kranti, Varuna and Divya as biofumigant alone and also in combination with Pant Biocontrol Agent-3 (consortium of *Trichoderma asperellium* and *Pseudomonus fluoroscens*) for the management of damping off disease in tomato. *Pythium aphanidermatum, Rhizoctonia solani, Fusarium oxysporum, Sclerotinia sclerotiorum* and *Sclerotium rolfsii* showed highest sensitivity to the volatiles released from Kranti followed by Varuna and Divya. Combination of amendment with Kranti as biofumigant along with seed treatment with Pant Biocontrol Agent-3 was found to be most effective in managing pre- and post-emergence damping off of tomato both under controlled and field conditions. Different growth parameters like shoot and root length, fresh weight of shoot and root, dry weight of shoot and root and plant vigour index were found to be highest in the treatment Kranti+PBAT-3 in both controlled and field conditions. HPLC analysis revealed highest concentration of Sinigrin in Kranti.

Keywords: Biofumigation, Damping Off, *Brassica juncea*, Sinigrin, Tomato.

ISCA-ISC-2017-1AFH-34-Oral

Studies on survey of rice (*Oryza Sativa.* L) diseases on different areas of Bishnupur District, Manipur, India

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Abstract: Rice (*Oryza sativa* L.) is one of the most economically important staple food crop of Manipur and accounts for about 95% of the total food grain production of the state in 2009 and 2010. Disease survey was carried out in 30 different areas of Bishnupur district during September- October 2017. Presence of brown spot (*Dresclera oryzae* = *Helminthosporium oryzae*), bacterial blight (*Sphingomonas oryzae sp. nov.*) and sheath blight (*Rhizoctonia solani*) were recorded in various proportion. Percent Incidence of Disease (PID), Percent Disease Index (PDI) and Coefficient of Disease Index (CODEX) were revealed. Brown spot showed 1.1-12.5% PID at Thanga Lawai and Irengbam Mamang Leikai, 4-30% PDI at Nambol Phoijing Makha Leikai and Leimaram Mamang Leikai, and 0.02-2.83 CODEX at Thanga Lawai and Leimaram Maning Leikai. Sheath blight showed 5.0-13.9% PID at Nambol Phoijing Makha Leikai and Heinoubob, 5.3-20% PDI at Leimaram Maning Leikai and Nachou and 0.22-2.4 CODEX at Kumbiterakha and Nachou and bacterial blight showed 7.3-16.2% PID at Ningthoukhong and Toubul, 1.9-36% PDI at Phubala and Ngakchoupokpi and 0.36-5.77 CODEX at Nambol Phoijing Makha Leikai and Khapotsangbam.
Keywords: Rice, Survey and Diseases.

ISCA-ISC-2017-1AFH-35-Oral

Effect of NPK doses on yield of dragon fruit (*Hylocereus costaricensis* [F.A.C. Weber] Britton & Rose) in The New Alluvial Zone of West Bengal, India

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Abstract: An experiment was conducted comprising eight fertilizer treatments *viz*., $T_1 = N_{250}\,P_{150}\,K_{100}$, $T_2 = N_{300}\,P_{200}\,K_{150}$, $T_3 = N_{350}\,P_{250}\,K_{200}$, $T_4 = N_{400}\,P_{300}\,K_{250}$, $T_5 = N_{450}\,P_{350}\,K_{300}$, $T_6 = N_{500}\,P_{400}\,K_{350}$, $T_7 = N_{550}\,P_{450}\,K_{400}$, $T_8 =$ Control and Organic manure @ 20 kg/ pillar containing four plants was laid out in Randomized Block Design with 4 replications at the adjacent area of faculty of Horticulture, Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, Nadia, West Bengal during 2015-2017 to standardize the proper NPK fertilizer dose for higher yield and quality of Dragon fruit cv Royal Moroccan Red. There was significant difference in terms of fruit yield per pillar, average fruit weight and number of fruit. The maximum number of fruits per pillar (68.00), average individual fruit weight (222.03 g) and fruit yield (24.15 t/ha) were observed in T_5 ($N_{450}\,P_{350}\,K_{300}$). The minimum number of fruits per pillar (23.75), fruit yield (5.61 t/ha) and average individual fruit weight (152.28 g) was found in T_8 (control). The highest TSS (18.58° B) was recorded in control and lowest (16.65° B) in T_2 ($N_{300}\,P_{200}\,K_{150}$).
Keywords: Dragon fruit, New Alluvial Zone, Fertilizer dose, NPK, Fruit Yield, TSS.

ISCA-ISC-2017-1AFH-36-Oral

Organic cultivation of Ridge gourd (*Luffa acutangula* Roxb.) byusing organic sources of nutrients

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Abstract: An investigation was carried out for three consecutive years from 2015–2016 to 2017–2018 at Regional Agricultural Research Station, Assam Agricultural University, Shillongani, Nagaon for Organic cultivation of Ridge gourd (*Luffa acutangula* Roxb.) by using organic sources of nutrients. The experiment was conducted in Randomized Block Design with eight treatments in three replications. The treatments included four different types of organic manures along with two types of bio-fertilizers at different combinations, and one conventional treatment (RDF) 10 t FYM + 20:30:30 kg N:P:K ha^{-1}. The conventional treatment showed the highest values in the growth and yield parameters. Among the different organic matter and bio-fertilizer treatments Rock Phosphate (RP) + Azotobacter (AZB) + Phosphate Solubilizing Bacteria (PSB) + Enriched Compost (EC)@5tha^{-1} showed significantly better results in most of the growth and yield parameters compared to other organic matter treatments, *viz*., total number of laterals (19.67), vine length (335.33cm) and node number on which first

female flower appear (19.65th node). The treatment also showed significantly higher yield attributing characters *viz*., fruiting percentage (76.47), number of fruits plant^{-1} (17.67), fruit weight (148 g) and yield (13.12t ha^{-1}). Soil parameter studies also revealed significant increase in soil Microbial Biomass Carbon (MBC) (185.49 µg g^{-1}), soil pH (5.68), soil organic carbon content (1.39%), N (277.01kg ha^{-1}), P (45.45kg ha^{-1}), K (144.56kg ha^{-1}) in the organic treatments. Thus for organic cultivation of Ridge gourd using organic sources of nutrient with RP + AZB + PSB + (EC)@5t ha^{-1} may be a better option for sustainable production of healthy gourds.

Keywords: Ridge gourd, Enriched compost, Organic cultivation, Vermicompost.

ISCA-ISC-2017-1AFH-37-Oral

Diversity of aphids and their management in *Brassica* crops

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Abstract: The species of aphids had been recorded from rapeseed-mustard in the Gangetic Alluvial Zone of West Bengal were *Lipaphis erysimi* (Kalt.) and *Myzus persicae* (Sulzer). A wild brassica herb, *Rorippa indica indica* (L.) was recorded as an alternate host of these aphids. Another aphid species recorded from *R. i. indica* (L.) was *Aphis gossypii* (Glover). Among all these aphid species, *L. erysimi* was predominant both in the rapeseed-mustard crop as well as in the rorippa weed. Rapeseed-mustard (*Brassica* sp.) is the most important edible oilseed crop in Northern as well as Eastern India and is severely infested by the aphid species every year resulting 35.4 to 96% loss in yield under different agro-climatic conditions. The peak population of the aphids on rapeseed-mustard crop was found during 5-11th February and thereafter population started declining and completely disappear after first week of March. On each variety aphid population reached peak level coincided with its flowering stages. Among all the tested varieties, none was found to be resistance to mustard aphid, except taramira (RTM 1212 and T 27) due to presence of certain allelo-chemicals. Population of these aphid species were increased in the late sown rapeseed-mustard crops. To reduce the damage due to aphid and to get higher seed yield the rapeseed-mustard crop should be sown within early November. Among all the natural enemies, syrphid maggots were predominant. NSKE 5%, Dimethoate 30 EC and Oxy-demeton methyl 25 EC were found to be more effective against mustard aphid in late sown rapeseed-mustard crops.

Keywords: Aphids, *Brassica*, Varieties, Bio-ecology, Management.

ISCA-ISC-2017-1AFH-38-Oral

Influence of integrated nutrient management on the corm and cormels development of gladiolus (*gladiolus grandiflorus* L.) Cv. American beauty in Terai Region of West Bengal, India

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Abstract: The experiment was aimed to evaluate the effect of Integrated Nutrient Management for production of corms and cormlets of gladiolus. Experiment consists of 11 different treatments. The result revealed that the treatment Azotobacter @ of 2g/plant + RDF-50% + FYM @ 50tons/ha as basal gave more number of corm (2.67), corm weight (63.85gm), equatorial diameter (6.30cm) polar diameter (3.89cm) and cormels per plant (123.65). The treatment Azotobacter@2g/plant + RDF-50% + FYM@50tons/ha as basal gave maximum cormels weight (34.76gm) per plant. Minimum production of corm and cormels was found in control. It appears that plant supplied with integrated nutrients continuously maintained vegetative growth leading to increase in photosynthetic area, which in turn resulted in more accumulation of, assimilates and partitioning to the developing corms, which resulted in bigger size corms and number of corms and cormels.

Keywords: Integrated Nutrient Management, Production, Corm, Cormels.

ISCA-ISC-2017-1AFH-01-Poster

Survey on predatory mites in different agroecosystems of Coimbatore Region of Tamil Nadu, India

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Abstract: Phytoseiid are the best-known and arguably the most important group of predatory mites due to their ability to control populations of spider mites. They have worldwide distribution and are found in a wide range of climates. Mass multiplication methods have been developed to use these predators in commercial scale on a variety of crops. The most important predatory mites explored in this regard include members of Phytoseiidae, Cheyletidae, Cunaxidae, Stigmaeidae, Bdellidae, Tydeidae, Anystidae and Erythraeidae. Biological control of phytophagous mites by predatory mites (Family: Phytoseiidae) had been proved successful alternative to conventional chemical control, especially on greenhouse crops. Faunistic studies on Phytoseiidae of the country has fairly well progressed, as on date 195 species has been recorded in India, compared to 2709 species from the world. Despite of the relevance of predatory mites they have not acquired desired recognition in many parts of the world, especially in Tamil nadu. Considering the above situation, frequent surveys were made to study the diversity of predatory mites occurring in different host plants in and around Coimbatore during the 2014-2015. Results of survey revealed the occurrence of ten genera belonging to six families viz., Phytoseiidae, Tydeidae, Acaridae, Cunaxidae, Eupodidae and Stigmaeidae. Among the species collected, phytoseiid members include *Neoseiulus longispinosus*, *N. paspalivorus*; *Euseius* sp., *Paraphytoseius* sp., and *Amblyseius* sp; *Agistemus* sp., common stigmaeid predatory mite was recorded on fruit and vegetable crops. Tydeus sp. belonging to family Tydeidae was observed on jasmine crop and it was associated with eriophyid mites. Cunaxa sp. belonging to Cunaxidae and Eupodes sp. belonging to Eupodidae were found on the leaves of coconut. Tyrophagus sp. (Acaridae) was recorded on citrus and it was found feeding on fungal spores.
Keywords: Predatory mites, Survey, Coimbatore region.

ISCA-ISC-2017-1AFH-02-Poster

Effect of terminal drought and heat stress on seed yield in lentil (*Lens culinaris* Medikus)

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Abstract: Lentil (*Lens culinaris* Medikus) is an important winter season grain legume crop. It is mostly grown on residual soil moisture and is frequently subjected to terminal drought that results in low and variable seed yields. Moreover, delay in sowing even for two weeks causes the reproductive and grain filling phase of this crop to coincide with a period of substantially high temperature resulting in yield losses by reduced seed set, seed weight and accelerated senescence. With this background, an experiment was conducted to study the effect of terminal drought and heat stress on some genotypes of lentil. For this purpose, nine lentil genotypes were sown under rainfed condition in two sowing dates i.e. 15th November (normal sowing) and in 15th December (late sowing) respectively in 2016. The results indicated significant differences for yield attributes such as plant height (cm), pod/plant, seed yield/plant(g), harvest index(%), shelling percentage and biomass/ plant(g) under late sowing date. Different phenological parameters like first flower and 50% flowering, first pod initiation and maturity days showed also differed substantially. The seeds size (expressed as 100-seed weight) was also affected greatly under late sown condition. There was an average of 26.82% decline in seed yield per plant in late sowing. Among all the genotypes, ILL-6002 was found to be the most tolerant genotype in respect of whereas PL-406 had the poorest performance under late sown condition. The genotypes having better performance under stressed condition can be further utilized for future breeding programme to evolve lentil variety with tolerance to terminal heat and drought stress and suitable for cultivation under late sowing date.
Keywords: Terminal drought, Rain-fed, Yield attributes.

ISCA-ISC-2017-1AFH-03-Poster

Effect of cadmium stress on seedling growth in groundnut [*Arachis hypogaea* L.]

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Abstract: Cadmium is considered as a major toxic heavy metal pollutant for human, animals and plants. Increasing concentration of cadmium in soil has posed a serious threat to sustainable agriculture and human health worldwide. Accumulation of cadmium in plant tissues may cause a variety of toxicity symptoms ranging from chlorosis, wilting, and

growth reduction, to cell death. The present experiment has been designed to study the effect of cadmium stress on some physiological parameters at seedling growth stage in groundnut. For this purpose, seeds of 13 genotypes of groundnut were germinated and seedlings were raised in sand culture using modified Hoagland solution. Cadmium stress was imposed by supplementing 300 µM in the form of $CdCl_2$, H_2O. The results indicated that all the genotypes showed reduction in root length, root fresh weight and total dry weight of the plants along with its different parts when subjected to cadmium treatment. The genotypes varied among them in their responses. ISK-2014-12 (TI=92.86%) was found to be the most tolerant among all the genotypes closely followed by ISK-2014-04 (TI=92.02%) and TG 51 (TI=88.97%). On the contrary, ISK-2014-02 (TI=66.46%), ISK-2014-14 (TI=66.85%) and ISK-2014-15 (TI=67.86%) were among the most susceptible genotypes. The data on physiological parameters of most tolerant ad susceptible genotypes revealed that all the genotypes registered increase in lipid peroxidation of leaf and electrolyte leakage of root under cadmium stress indicating membrane damage of both leaf and root under stress. But the susceptible genotypes recorded much higher extent of such membrane damage than the tolerant ones. The three tolerant genotypes also recorded lower reduction in leaf chlorophyll content. There were significant differences among the genotypes in respect of content of phenol and activity of guaiacol peroxidase (GPOX) enzyme in the leaf.

Keywords: Heavy metal, Chlorosis, Lipid peroxidation, Electrolytic leakage.

ISCA-ISC-2017-1AFH-04-Poster

Some wild plants of Sikkim used in primary health care

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Abstract: Traditional systems of medicine continue to be widely practiced on many accounts. Population rise, inadequate supply of drugs, high cost of treatments, side effects of several synthetic drugs and development of resistance to currently used drugs for infectious diseases have led to increased emphasis on the use of plant materials as a source of medicines for a wide variety of human ailments. Sikkim a small Indian state in the Eastern Himalayas and is bestowed with abundant natural resources. Certain medicinal plants found in Sikkim such as *Acorus calamus, Artimesia indica, Curcuma longa, Dioscorea deltoid,* etc are commercially utilized. However many underutilized medicinal plants are also available which are locally used for curing various ailments. Some of those plants are *Aconitum hetrophyllum*, *Aconitum ferox* Wall. *Aeschynanthus sikkimensis* Stapf., *Alnus nepalensis*, *Betula ultilis*, *Bridelia retusa*, *Berginia ciliate*, *Clematis buchananiana*, *Equisetum diffusum*, *Eupatorium cannabium, Ficus cunia, Heracleum wallichii*, *Kaempferia rotunda* L., *Nardostachys grandiflora, Rhododendron arboretum* Smith. etc. These underutilized medicinal plants have high efficacy and have medicinal values which have been widely used by the different Indian system of medicines like Ayurveda, Homeopathy, Unani, Siddha, Amchi, and Allopathy. Some of the species are also used for cosmetic, neutraciticals, food products, beverages etc. and have tremendous demands from pharmaceuticals and many other herbal based Industries. Developing good agronomic practices for such plants is obligatory to bring them in cultivation as these plants are exploited constantly from their natural habitat threatening its existence.

Keywords: Health, Medicinal Plants, Sikkim, Underutilized.

ISCA-ISC-2017-1AFH-05-Poster

Climate change - posing a serious threat on banana cultivation

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Abstract: Banana (*Musa* sp.) a very important fruit crop grown throughout the tropics and subtropics as a source of food, nutrition and income for millions of rural and urban households. The production and crop duration of banana mainly depends on climatic factors like temperature and rainfall. Climate change may refer to a change in average weather conditions, or in the time variation of weather around longer-term average conditions (*i.e.,* more or fewer extreme weather events). Various plant processes like vegetative growth, flowering, fruiting and fruit quality are highly vulnerable to climate change. Unlike many other crops, which have crop cycles of 3-5 months, banana is a semi-perennial crop with a crop cycle nearly a year long under optimum conditions and even longer with lower temperatures or more erratic water supply. The vulnerability of the crop to climate change is an important consideration, demanding specific tools suited to banana growth habit and crop cycle. The effects of climate change on banana cultivation have been proposed in terms of both productivity and the risk of disruption of production, with implications for food security and income for millions of households worldwide. The increase in average temperature that characterizes climate change is likely to generate an increase in the frequency and severity of extreme and moderate weather events resulting in additional episodic losses. This converts into increased vulnerability in

banana cultivation over the medium and long term unless measures are taken to strengthen the resilience of production systems.

Keywords: Banana, Climate change, Mitigation.

ISCA-ISC-2017-1AFH-06-Poster

Effect of different depths of irrigation on growth, yield and water use efficiency of groundnut (*Arachis hypogaea* L)

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Abstract: Field experiment was conducted during summer season of 2013 and 2014 at Bidhan Chandra Krishi Viswavidyalaya, West Bengal, India to evaluate the effect of different depths of irrigation on growth, yield and water use efficiency of groundnut. The experiment comprising 11 treatments was conducted in randomized complete block design with three replications. The treatments consisted of application of uniform or different depths of irrigation water with or without skipping of irrigation during various growth stages of groundnut. The results revealed that different depth of irrigation water applied during different growth stages had the significant effect on dry matter production at harvest and crop growth rate at 60-75 DAE. The higher number of pods/plant, pod dry weight/plant pod and haulm yield were obtained with the treatments received different depth of irrigation water at different physiological growth stages without escaping the irrigation water of any crop stage. The higher water use efficiency was found under 120-160mm irrigation water applied in groundnut.

Keywords: Depth of irrigation, Groundnut, Growth, Water use efficiency.

ISCA-ISC-2017-1AFH-07-Poster

GDot-A new soil moisture monitoring technical tool for farmer groups

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Abstract: Water is an expensive resource and prime requirement for all aspects of life. Renewable quantity of water is finite and is a major limiting factor in the production of irrigated grains, and efficient water management is paramount for growers to achieve high yields and profits. Efficient use of water resources in agriculture through improving irrigation techniques is, therefore, one of the most urgent needs and prerequisites for sustainable food production. The use of soil moisture sensors (SMS) is one of the best and simplest ways to improve on-farm water management decisions. Soil moisture monitoring devices provide useful information that can help guide and improve irrigation decisions but they should always be used in conjunction with other tools such as weather data, field observations or growth monitoring**.** Soil moisture sensors are used to measure moisture in the soil either as tension, percentage or relative content. Depending on the soil type, soil moisture sensor readings are an indication of the readily available water (RAW) in the root zone. The GDot displays soil moisture tension represented by flourescent yellow flip dots. The more yellow dots showing, the wetter the soil is; the fewer lit yellow dots, the drier the soil. It uses a granular matrix sensor, a type of gypsum block. Electrodes embedded into gypsum blocks are used to measure the electrical resistance between them under the presence of moisture and those signals are related to soil moisture tension, that is, how hard it is for the plant to extract water. It can be used in most soil types (although not recommended for use in light sands and heavy or cracking clays) and have an operational range of 0-100 kPa. It will run for several years on a pair of alkaline AA batteries. It never needs adjustment or calibration and can be installed in minutes with the most unsophisticated equipment.

Keywords: Water resources, Moisture sensor, GDot and easy installation.

ISCA-ISC-2017-1AFH-08-Poster

Effect of thermal process methods on chemical composition, color and antioxidant properties of ready to eat Golek Chicken product

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Abstract: Six different golek sauce preparations were investigated to find out the best recipe which resulted from the score of sensory evaluation by 30 panelists. The selected recipe composed of the basic recipe for golek sauce with Red pepper, Red Chili and Jusmine rice 3,3 and 6.0% of as an additional ingredient was mixed with prepared chicken in ratio of 2:1 and filled in retort bowl. The prepared product with air removal were sealed and subjected to the thermal processing. The retort

processing was performed at 116^{0}C, 1.80 bars and the F^0 value of 6.0 for 58 min. Physicochemical and antioxidant properties of the retort processed golek chicken product were analyzed. The value of L* and b* were decreased whereas the value of a* was slightly increased. The moisture, protein content and pH were decreased which were opposite to the result of fat and ash content. The result was no change in water activity. The decrease of total phenolic content, FRAP value and radical scavenging activity were 30.50%, 40.76% and 44.04%, respectively, when compared to those from before thermal processing. The condition of thermal processing in this study had no effect on total flavonoid content.

Keywords: Chicken, Thermal processing, Retort bowl, Physicochemical, Antioxidant.

ISCA-ISC-2017-1AFH-09-Poster

SISNU (diplazium esculentum) and NINGRO (uritca dioca) - An underutilized herbaceous plant of Sikkim, India

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Abstract: Sikkim, a small state of India is blessed with abundant natural resources as its lies in Eastern Himalayas which is one of the biodiversity hotspots in the world. Only covering just 0.2% of the geographical area of the country, Sikkim Himalaya is endowed with wide variety of non-timber forest produce. Sikkim harbours more than 26% of flowering plants, 26 types of Bamboos, 326 kinds of ferns and ferns allies and approx 242 different medicinal plants. The traditional uses of underutilized herbaceous wild plants among various ethnic groups of Sikkim are very common. The local people gather more than 50% of the non timber forest products and sell in the local market at a minimum price for their sustainability. Among such products, Sisnu (*Uritca dioca*) and Ningro (*Diplazium esculentum*) are the favorites among the local population of Sikkim. The tender shoots and leaves of *Urtica dioica* (common nettle) are consumed as vegetable as it contains amines, flavonoids, lignans, minerals (calcium, potassium, iron, and silicon) and vitamins A, B_2, C and K. It is also an excellent herb to ease pain in muscles and joints caused by arthritis, gout and minor fractures. Stinging nettle is also used as a diuretic and laxative. Tender fronds of Ningro (*Diplazium esculentum*) are a delicacy among the ethnic people of Sikkim. The fern is also having medicinal properties. Decoction of this plant is used in the treatment of cough and sometimes as a tonic. However these plants are needed to be conserved as they are being exploited from their habitats. Therefore, a strategic plan is needed for conservation of these plants and also for sustainable use.

Keywords: Uritca dioca, Diplazium esculentum, Sikkim, Forest product.

ISCA-ISC-2017-1AFH-10-Poster

Adaptation analysis in mung bean genotypes (*Vigna radiata*)

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Abstract: Green gram (*Vigna radiata*) is an important short duration pulse crop. It is cultivated in tropical and sub tropical areas of India, Pakistan, Bagladesh, Indonesia, Myanmar, Shrilanka, Nepal and China. India alone accounts for 65% of its world acreage and 54% of the production. In India, it is grown on an area of 3.7 million hectares with production of 1.57 million tonnes and productivity of 406.98 Kg/ha. Mungbean has the potential to make up the gap of protein shortage, but its yield per hectare in the country is still low and there is a need for improvement. It also improves the nutrient status of soil through atmospheric nitrogen fixation and adds humus to the soil. The present study was carried out to investigate the extent of genetic diversity and identify promising genotypes for future utilization. The experiment comprising of forty four genotypes of mung bean was laid out with three replications in three environments in a randomized complete block design at Ganjbasoda, district Vidisha (Madhya Pradesh). The observations were recorded for days to 50% flowering, number of branches per plant, number of pods per plant, yellow vein mosaic incidence, days to maturity, plant height, biological yield per plant, 100 seed weight, harvest Index and seed yield per plant. Stability analysis revealed that Pusa 1471 appeared as a promising genotype stable for seed yield per plant. It could be recommended for general cultivation to stabilize the urd bean production in Madhya Pradesh. DGG-1 a high yielding genotype can be recommended for stress conditions. Other high yielding genotypes *i.e.* PDM -139, Pusa 1572 and TJM 3 were found suitable for favourable condition of crop growth.

Keywords: Mung, *Vigna radiate*, Stability, Adaptation, Genotype x environment interaction.

ISCA-ISC-2017-1AFH-11-Poster

Climate change impact of on crop pest scenario

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Abstract: Climate change alters population abundance, geographical distribution and seasonal phenology of important agricultural pests. Temperature is the dominant abiotic factor determining development rates, reproduction and migration of many insects. Scenarios concerning possible impacts of climate change on pests are necessary to identify adapted plant protection strategies and sustainable plant management options. The elevated level of CO_2 and thereby increase of atmospheric temperature had negative impact on crop pest population. A substantial expansion in high latitude and elevation of crop insect pest distributions are critical in temperate part of the world. Abnormal Increased insect outbreaks had been observed where changing climate may interfere with the induction of extended diapauses. Climate change impacts on pest population include change in phenology, distribution, community composition and ecosystem dynamics that finally leads to extinction of species. Increase in atmospheric temperature resulted in reduction in survival and increase in developmental rate and voltinism. New studies show that insect species living in warmer areas are more likely to undergo rapid population growth because they have higher metabolic rates and reproduce more frequently, thus climate change would create favorable conditions for growth in insect populations. Other abiotic factors such as relative humidity and CO_2 is paramount important, elevated CO_2 in the atmosphere make plants to take up more carbon and leaves become less nutritious and results in voluminous feeding. Further studies on crop-pest interaction focusing on spatio-temporal variations are needed to have a better understanding and to quantify its future impacts.
Keywords: Crop pests, Climate change, Elevated CO_2, Pest management.

ISCA-ISC-2017-1AFH-12-Poster

Studies on races of *Fusarium oxysporum* f. sp. *ciceri* prevalent in vindhyan plateau zone for better management of chickpea wilt

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Abstract: The wilt of chickpea caused by *Fusarium oxysporum* f.sp. *ciceri* is a most important disease, damaging the crop greatly in Madhya Pradesh. The disease occurs in all 6 districts of vindhyan plateau zone of the state with an incidence of 10 to 20 percent. The studies were conducted to identify races of the pathogen in the aforesaid zone. During a field survey, 71 samples of chickpea wilted plants were collected from 23 locations in six districts of vindhyan plateau zone of Madhya Pradesh. On isolation, 20 isolates of *Fusarium* spp. pathogenic to chickpea were recovered. These isolates were placed in 6 groups on the basis of their pathogenic reactions on 8 wilt differential genotypes of chickpea. The reactions of these groups of isolates were compared with standard reactions of already identified races. It revealed the presence of races 1,2,4,6 and a new pathotype of *Fusarium oxysporum* f.sp. *ciceri* in vindhyan plateau zone of Madhya Pradesh. The reaction of the new races to exhibiting chickpea cultivators revealed that WR 315, JG 74, BG212 and CPS1 should be promoted for better management of chickpea wilt.
Kewords: *Fusarium oxysporum,* Race, Chickpea, Wilt, Pathotype.

ISCA-ISC-2017-1AFH-13-Poster

Integrated crop management (ICM) for increasing rice production in Barind area

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Abstract: An experiment was conducted at the Agronomy Field Laboratory, University of Rajshahi, during the period from June 2015 to November 2015 to study the integrated crop management practice for increasing rice production in Barind area, Bangladesh. The experiment consisted of two factors: i. Two varieties viz. BRRI dhan 56 and BRRI dhan 57; and ii. Five management practices like control, only weed management, only pest management, farmers practices and ICM practice. The experiment was laid out in RCBD with three replications. Among the management practices, integrated crop management (ICM) gave the highest number of tillers plant^{-1}, effective tillers plant^{-1}, panicle length, number of grains panicle^{-1} and thousand grain weight. The lowest values were found in control. Between two varieties, BRRI dhan 56 produced higher yield components like effective tillers plant^{-1}, number of grains panicle^{-1} and 1000- grain weight than BRRI dhan 57. BRRI dhan 56 produced the higher grain yield than BRRI dhan 57 when the field was treated with ICM. So it could be concluded that farmers were suggested to cultivate BRRI dhan 56 and adopted ICM practice for maximizing rice production in Barind area, Bangladesh.
Keywords: Integrated Crop Management, Rice, Production and Barind area.

ISCA-ISC-2017-1AFH-14-Poster

Effect of spacing and age of seedling on yield of rice under system of rice intensification

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Abstract: A field study was conducted during *kharif* season of 2014 at Agronomy research farm of school of Agricultural sciences and Rural Development (SASRD), Nagaland University, Medziphema to study the effect of spacing and seedling age on yield under System of Rice Intensification. The Experiment was laid out in Split plot design with 3 replications having 3 main plot factors (20×20cm^2, 30×30cm^2, 40×40cm^2) and 4 sub plot factors (9, 11, 13, and 15 days old seedling). The study showed that plant height, LAI and number of tillers per hill showed an increase in its trend at 30, 60, 90 and 120 DAT. Dry matter accumulation was higher for 20×20cm^2 spacing treatment on unit area basis but under per plant basis 40×40cm^2 spacing treatment was better. 9 days old seedling planted at 40×40cm^2 spacing gave the highest yield (4.35 t ha^{-1}) and harvest index (35.11%) followed by 11 days old seedling (4.25 t ha^{-1}) planted at 30 × 30 cm^2 spacing. The straw yield was however found to be inversely related with the grain yield.

Keywords: Spacing, Age of seedling, Yield, *Oryza sativa*.

ISCA-ISC-2017-1AFH-15-Poster

Bio-efficacy of Bentazon against weeds in direct seeded rice under Kymore Plateau and Satpura Hill Zone

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Abstract: The experiment was conducted at research farm of Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur, Madhya Pradesh to study the "Bio-efficacy of Bentazon against Weeds in Direct Seeded Rice under Kymore Plateau and Satpura Hill zone" during *kharif* season of 2016 under edaphic and climatic conditions of Jabalpur (MP). The experimental site was Sandy Clay loam in texture, medium in organic carbon (0.62%), available phosphorus (16.34 kg/ha) and potassium (327.16 kg/ha) with pH 7.2. The dominant weeds associated with direct seeded rice in the experimental field were mainly comprised of monocot (*Echinochloa colona*, *Dinebra retroflexa*), sedge (*Cyperus iria*) and dicot weeds (*Mullogo pentaphylla* and *Alternanthera philoxeroides*). Experiment consists of total ten treatments comprising of seven doses of Bentazon 600, 800, 1000, 1200, 1600, 1800 and 2000g/ha, 2,4-D 380g/ha as post-emergence, hand weeding twice (20 and 40 DAS) including weedy check, were laid out in randomized block design with 3 replications. The post-emergence application of Bentazon 1600 g/ha was found economically best suitable for effective control of dicot weeds in direct seeded rice. This treatment also enhanced growth parameters (viz. plant height, number of tillers/m²), yield attributes (viz. effective tillers/m², total and sound grains/panicle) and yield (grain and straw) as compared to rest of the doses. It also produced higher B:C ratio (2.2) therefore application of Bentazon 1600 g/ha was found more remunerative and productive.

Keywords: Grain yield, Bentazon, Dicot weeds, Direct seeded rice, Weed Control efficiency.

ISCA-ISC-2017-1AFH-16-Poster

Effect of plant growth regulator on Mungbean (Vigna radiata) foliage

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Abstract: Plant growth regulator plays an important role of crops yield especially in mungbean. Therefore, an experiment was conducted in cement moulded pots inside the net house of the department of Crop Physiology of Chandra Shekhar Azad University of Agriculture and Technology, Kanpur to find out the effect of plant growth regulators viz. Gibberellin (20 and 40 ppm), 2,3,5 triiodobenzoic acid (20 and 40 ppm) and Cycocel, (50 and 100 ppm) as foliar spray. The result indicated significant variations of plant height, number of leaves plant^{-1}, leaf area and leaf dry weight due to plant growth regulators. The result obtained from the study concluded that plant height was highest in case 40 ppm GA. The number of leaves remainedhigher in CCC 100 ppm at 50 DAS. Both leaf area and leaf dry weight recorded highest in CCC 50 ppm 60 DAS which is due to higher no of leaves whereas leaf area recordedminimum in TIBA 20 ppm.These results might suggest that use of plant growth regulator mightimprove more photosynthetic facility that eventually helps to get more yield of mungbean.

Keywords: Plant growth, Regulator, Mungbean, Foliage.

ISCA-ISC-2017-1AFH-17-Poster

Response of wheat to foliar application of fertilizer

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Abstract: An experiment was conducted at the Agronomy Field Laboratory, University of Rajshahi during the period from November 2015 to April 2015 to study the response of wheat to foliar application of fertilizer. Two factors were included in the experiment, namely variety and liquid fertilizer application: variety-3 levels viz. BARIgom25, BARIgom26, BARIgom27 and liquid fertilizer-4 levels viz. 33% urea solution, 66% urea solution, magic growth and recommended dose. The result showed that variety and liquid urea had significant on growth and yield of wheat. Among the varieties BARIgom25 produced the highest TDM and CGR. The highest TDM and CGR were observed when the crop received liquid fertilizer magic growth. BARI gom25 produced the highest grain yield when the field was fertilized with liquid fertilizer magic growth.
Keywords: Wheat, Foliar Application, Liquid fertilizer and yield.

ISCA-ISC-2017-1AFH-18-Poster

Study on varietal screening and population dynamics of foliar nematode (*Aphelenchoides besseyi*, christie) in Tuberose (*Polianthes tuberosa*, linn.)

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Abstract: Tuberose is the bulbous ornamental plant cultivated in most of the tropical arid subtropical countries of the world. Tuberose cultivation in India is estimated to be about 20,000 ha. and in West Bengal it is 2110 ha. The foliar nematodes *Aphelenchoides besseyi* Christie has been identified as the key pest to this crop. In order to evaluate the best variety against *Aphelenchoides besseyi* in tuberose and also to know whether there is any resistant variety against *Aphelenchoides besseyi*, the field trial was conducted at the green house plot of the Directorate of Research in BCKV, Kalyani, Nadia with 14 (fourteen) varietal trials under field condition. From the study of percentage of infestation per plot and population of nematodes per 10g of flower sample, it was found that all the varieties were found to be susceptible to the *A.besseyi*. GKTC Hyd was found to be the most susceptible variety and Phule Rajani being the least susceptible one. The population dynamics revealed that the maximum population of *A. besseyi* was observed with crop producing greater number of flowers during July-August, whereas minimum population was found when the crop entered into senescence (October to January) which generally coincides with the low temperature, rainfall and Relative humidity under West Bengal conditions.
Keywords: Tuberose, Foliar nematode, *Aphelenchoides*, Varietal screening, Population Dynamics.

ISCA-ISC-2017-1AFH-19-Poster

Vegetative propagation of Ashoka (*Saraca asoca Roxb. De Wilde.*) through stem cuttings

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Abstract: An experiment was conducted during the year 2015-16 at Biotechnology-cum-Tissue Culture Centre, OUAT, Bhubaneswar, India to induce the rooting from the stem cutting of *Saraca asoca* Roxb. De Wilde under agro-shade net controlled condition. The selected healthy branches of *Saraca asoca* Roxb. De Wilde was cut into 15 cm length having 4 to 5 nodes (with in thickness 0.5-1.5 cm).The base positions of cuttings were dipped in the 100,300,500 and 800 ppm of IBA (Indole-3-butyric acid), NAA (α-Naphthalene-acetic-acid) and IAA (Indole-3-acetic acid) respectively for four hours along with a control (without treatment). After which the cuttings were planted in the polypots filled with rooting media consists of sand, soil and farm yard manure (FYM) in the ratio of 1:2:1. Maximum sprouting (80.00%), rooting (56.66%), Number of leaves (16.00), root number (4.66), root length (16.33 cm), fresh biomass (13.37 g), dry biomass (6.38 g) were observed in cutting treated with 800 ppm NAA. Hence for production of healthy seedlings, the stem cutting of 15 cm length should be treated with 800 ppm NAA for obtaining better quality seedling.
Keywords: Cuttings, IAA, IBA, NAA, *Saraca asoca.*

ISCA-ISC-2017-1AFH-20-Poster

Effect of hydropriming and different sowing dates on economics of wheat (*Triticum aestivum* L.) in Allahabad

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Abstract: The paper has evaluated the economics of each treatment based on the existing market prices of input and output of wheat (*Triticum aestivum* L.) in Allahabad with hydropriming and different sowing dates, among treatments combinations of wheat the highest gross return (73446 ₹ha^{-1}), highest net return (42349.3 ₹ha^{-1}) and highest C:B ratio (1:2.36) was obtained in treatments T_4 (22nd Nov + H_3 (16 hrs. of hydropriming). The study suggested that the wheat should be sown on 22nd Nov + 16 hrs of hydropriming to ensure of getting the high return.
Keywords: Economics, Hydropriming, Wheat, Weather.

ISCA-ISC-2017-1AFH-21-Poster

Screening of wheat genotypes for heat tolerance based on morpho-physiological traits and yield

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Abstract: The present investigation was undertaken to identify the heat tolerance genotypes based on morpho-physiological traits and yield. Twenty wheat genotypes were studied in non-stress and stress environments. The experiment was conducted at Regional Wheat Research Centre, Bangladesh Agricultural Research Institute, Shyampur, Rajshahi during 2015-16. Significant variations ($P<0.01$) were obtained among the genotypes for yield, yield contributing, phenological and physiological characters related to heat tolerance. The genotypes G 15, G 20, G 14, G 18, G 06, G 12, G 13, G 16, G 17 and G 10 ranked better category for maximum number of traits in mean performance indicating their high tolerance to heat stress under late sowing environment. Biomass, grains spike^{-1} and grain yield had high h^2_b, high GA in % of mean along with wide range of genetic variation and lower environmental influence under heat stress condition. Direct phenotypic selection for these traits will be rewarding. Heat stress susceptibility indices 'S' indicated that, the genotypes G 06, G 07, G 10, G 14, G 15, G 17 and G 20 were highly tolerant to heat stress with high yield under late sowing environments. The results of the study will help to identify the traits as screening tools for measuring heat tolerance and this might be helpful in designing future breeding program.
Keywords: Heat tolerance, Genotypes, Genetic advance and wheat.

ISCA-ISC-2017-1AFH-22-Poster

Effect of system of rice intensification (SRI) practice on productivity and water use efficiency (WUE) of summer paddy in lower Gangetic Plains of West Bengal, India

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Abstract: In India, rice contributes more than 42% of the total food-grains produced in the country and about 70% of irrigation water is consumed in rice farming. Increasing scarcity of water is a major threat to rice production in India. SRI method has been adopted as an innovation in rice cultivation among the farmers in India recently. A study has been conducted in West Bengal to evaluate impacts of adoption of SRI on productivity and water use efficiency. Field level investigations were conducted in Bankura, West Bengal, India for consecutive three years (2015-2017) during dry season. Randomly selected 30 farmers were cultivating rice, variety 'IR-36' with SRI and conventional practices simultaneously under tube-well irrigation system in standard protocol. Conventional flooding was done with 5-10 cm water depth, whereas in SRI technique intermittent irrigation with alternate wet and dry cycle was given with shallow standing water during wet periods. Seed rate was 6-8 kg/ha and 14-16 days seedlings were transplanted at SRI. It can be concluded that paddy yield with SRI increases 28% and net income by 73% over the conventional cultivation, which being achieved with substantial reduction in irrigation water application by 35%, labour input (11%) and seed costs (83%) in SRI method. Robust efforts for the promotion of SRI should be given to engender systemic improvements in rice production and efficient water resource management.
Keywords: Economics, Paddy, Productivity, SRI, Water Use Efficiency.

ISCA-ISC-2017-1AFH-23-Poster

Validation of CROPWAT (v. 8.0) for determination of water requirement of barley using crop coefficient approach under varying hydrothermal regimes in Ludhiana, Punjab, India

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Abstract: Popular windows based FAO developed irrigation model CROPWAT (v. 8.0) was validated under different sowing dates and moisture regimes for barley (*Hordeumvulgare* L.) taking the field experimental dekad basis (10 days interval) actual evapotranspiration data and comparing it with the model predicted ET data (dekadal) during *rabi* 2016-17 in Ludhiana district of Punjab. The experiment was conducted using three sowing dates Viz. D_1 (25th October), D_2 (10th November), D_3 (25th November) along with three irrigation levels Viz. I_1 (Recommended), I_2 (Skip at vegetative stage) and I_3 (Skip at anthesis stage). From correlation studies, it was observed that under changing thermal environments the simulation model showed significantly higher correlation with D_1 (R^2= 0.92) followed by D_2 (R^2 = 0.86) and D_3 (R^2 = 0.84) whereas for changing irrigation levels, the model preferred I_1 (88.27%) as the best moisture regimes for optimum plant growth as compared to I_3 (84.05%) and I_2 (79.82%). Putting the crop coefficient values for different growth stages of barley in the model, the total actual crop evapotranspiration (343.2 mm), the total irrigation water requirement (299.9 mm) along with the net effective rainfall (57 mm) during the entire crop growing period was computed to evaluate the practical utility of model validation.

Keywords: FAO, CROPWAT, Actual crop evapotranspiration, Crop coefficient, Irrigation water requirement, Net effective rainfall.

ISCA-ISC-2017-1AFH-24-Poster

Aggregate stability and aggregate associated organic carbon as affected by agricultural land-uses in South Western plains of Punjab, India

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Abstract: To study the effect of agricultural land-uses on soil aggregate stability and distribution of carbon within different sized aggregates soil samples were collected from semi-arid sub- tropical region of Punjab, in and around Dhanaula (30°18´ N, 75°27´ E); district Barnala, Bhucho (30°15´ N, 75°03´ E) and Phul (30°19´ N, 75°14´ E); district Bathinda, under three land-uses viz. cropland, horticultural and uncultivated land and were analyzed. Both water stable aggregates (WSA) and mean weighted diameter (MWD) were highest in horticulture followed by cropland and uncultivated land and increase in aggregation with depth was also observed. SOC concentration was recorded highest in horticulture both in surface (0.97%) and sub-surface soil (0.65 %). Total aggregate associated organic carbon (AAOC) content followed the trend of horticulture > cropland >uncultivated land in both layers (0-15 and 15-30 cm). Macro-aggregates (0.25->2 mm) were recognized as the main carrier of organic carbon (OC) and highest OC was associated with 1-2 mm sized aggregates. Depth-wise decrease in OC associated with micro-aggregates (0.1-0.25 mm) was much pronounced in cropland and uncultivated land than that of horticulture. AAOC was significantly correlated with WSA (r=0.908, p=0.05) and MWD (r=0.943, p=0.01). Water stable macro-aggregates (>0.25 mm) exhibited significant positive linear relationship with AAOC which was comparatively lower in sub-surface layer (R^2=0.76, P<0.01) than surface layer (R^2=0.89, P<0.01) but along the soil profile it was reverse with respect to labile carbon(in surface: R^2=0.29, P<0.05; in sub-surface: R^2=0.56, P<0.05).Hence, horticultural land-use and less disturbance help in sequestering organic carbon in soil layers which imparts a positive effect on soil aggregation.

Keywords: Land-use, Waters stable aggregates (WSA), Soil organic carbon (SOC), Aggregate associated organic carbon (AAOC), Labile carbon (LC).

ISCA-ISC-2017-1AFH-25-Poster

Study on seedling parameters of Rice genotypes under new alluvial zone of West Bengal, India

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Abstract: The study was allowed for 20 rice genotypes, where high variability was noticed in considerable seedling characters to analyse the nature of seed under normal and water stress. To measure seedling vigour, the considerable

parameters were germination percentage, speed of germination, root-shoot length, fresh-dry weight, vigour index and water holding capacity at 24 hours. These may be responsible to indicate the selection strategy of a crop on seedling establishment supportive to create good plant. The cultivar, V_{10} (GB 3) and V_{18} (Kataribhog) were encouraging to grow quality seedling in both situation. High genetic variability among genotypes was noticed with superior value of V_{10}. High GCV (more than 20%) and least diversity with PCV for root length, fresh weight, dry weight and water absorption potential at 24 hours confirmed the high genetic variability favourable for selection. High heritability (h^2 %) coupled with high genetic advances (GA%) of the above characters can be used as an interpreter in selection procedure for quality seedling, a basic need for good plant.In association of seedlings parameters, vigour index showed high positive significant correlation with all characters under both normal and stress. The positive correlation of fresh and dry weight was highly significant to root-shoot length, vigour index and water holding capacity at 24 hours though it was not followed for shoot length in stress.

Keywords: Correlation, Heritability, Rice, Seedling, Variability.

ISCA-ISC-2017-1AFH-26-Poster

Consumers' and Retailers' preference towards important fruits in West Bengal, India

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Abstract: Understanding the preference pattern of consumers and retailers is important to set the farmers and researchers to produce fruits according to consumers' and retailers' need. The study has been made on four important fruits namely Mango, Banana, Guava and Ber. The objectives were to find out the purchasing and selling behaviour of consumers and retailers, the attribute importance of consumers and retailers and their varietal preferences. The study was conducted in the township of Kanchrapara of North 24 Parganas, West Bengal, India. Questionnaires were administered on 100 consumers who were selected randomly and 50 retailers were selected accordingly. The results showed that majority of the consumers were men within the middle age group (age 41-60). The consumers with high annual income (>rupees 500k) used to buy fruits regularly while low income group was irregular. Most of the retailers (52%) keep their shop open for 12 hours. Retailers buy fruits mainly from three markets (Kolkata, Gayeshpur, Chakdaha). Retailers earned profits the most from guava. Consumer prefers odour more in mango and spotlessness in banana, tightness in guava and good colour in ber. Retailers' first preference is size for mango and guava, spotlessness for banana and colour for ber. Varietal preference of consumers includes four varieties of mango, two for banana and two for ber. It can be concluded that preference patterns for the selected fruits differ from consumer to retailer but there is commonality in most of the attributes.

Keywords: Fruits, Consumer preference, Retailer preference, Varietal Preference, West Bengal.

ISCA-ISC-2017-1AFH-27-Poster

Effect of different tillage management practices on quality green forage yield of forage crops grown during summer season

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Abstract: A field experiment was conducted to study the effect of different tillage management practices on quality green forage yield of forage crops grown during summer season under new alluvial zone of West Bengal during 2016 at Central Research Farm, Gayeshpur, Nadia, India on sandy loam soil. The Main objective was identifying the suitable tillage management practices for summer forages to obtain good quality green forage yield. The experiment was conducted in split plot design. Three main plot treatments were T_1=Zero tillage, T_2=Minimum tillage, T_3=Conventional tillage while sub-plot treatments were four forage crops viz., V_1=Fodder Maize, V_2=Sorghum, V_3=Ricebean and V_4=Cowpea. From the experiment it was inferred that the highest green forage yield (410.7q/ha) was recorded from zero tillage and least from the conventional tillage. Again, the highest value of crude protein yield (5.75q/ha) was reported in case of zero tillage followed by minimum tillage and minimum being in case of conventional tillage. From the present investigation it may be concluded that among the tillage management practices, zero tillage can be recommended for highest and good quality green forage yield with fodder maize but among the forage crops, ricebean crop cultivation may be recommended with respect to highest profitability.

Keywords: Different tillage practices, Forage crops, Quality green forage yield and summer season.

ISCA-ISC-2017-1AFH-28-Poster

Transition in starch and sugar content of potato (*Solanum tuberosum* L.) tubers of different cultivars under various packaging systems

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Abstract: A comprehensive study was planned in the post-harvest laboratory of the Department of Horticulture, CCSHAU, Hisar during spring-summer season of 2015-16 and 2016-17 with the objectives to analyze the effect of different packaging material on quality; to identify suitable packaging material; to analyze bio-chemical attribute of potato tubers during storage. The suitability of different packaging materials *i.e*., P_1: gunny or hessian cloth bags, P_2: nylon netted or mesh bags, P_3: cotton bags, P_4: linear low density polyethylene and P_5: plastic crates were used for the packaging of four potato varieties *i.e*., V_1: Kufri Bahar, V_2: Kufri Sadabahar, V_3: Kufri Surya, V_4: Kufri Pushkar by keeping 5 kg of healthy and clean tubers in CRD (factorial) with four replications. The biochemical parameters *i.e*., starch and sugar were investigated at starting, mid and end of the experiment during storage (25±2oC). Overall results revealed that packaging materials along with different varieties had a significant ($p \leq 0.05$) effect on total starch contents and total sugar contents. The use of suitable packaging material like polypropylene packaging was found efficient in sprout prevention thus retained maximum starch contents by the end of storage period. The overall results revealed that polypropylene packaging was found best in maintaining tuber quality attributes up to 90 days during ambient storage. Thus, it is suggested that polypropylene net bags may be used for storage of potato as packaging material.

Keywords: Potato, Packaging material, Starch, Sugar content storage.

ISCA-ISC-2017-1AFH-29-Poster

Seed born mycoflora of mustard (*Brassica juncea*) and its management

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Abstract: Mustard is an important rabi season oil-seed crop in India, grown mainly in Uttar Pradesh and Rajasthan. An experiment set up in agar media revealed better growth of *Aspergillus niger, Aspergillus flavus, Rhizopus* sp., *Fusarium* sp., *Mucor* sp., *Alternaria* sp., *Colletotrichum* sp., *Macrophomina phaseolina*, *Penicillium* sp. and *Botrytis* sp. than standard blotter method on seed. Among five plant extracts, neem leaf extract showed maximum germination of mustard (58.67% and 64%) under *in-vitro* condition at 500 ppm and 1000 ppm, respectively. Similarly under *in-vivo* conditions, neem leaf extract showed maximum germination of mustard (42.67% and 52%) at 500 ppm and 1000 ppm, respectively. *Trichoderma viride* proved its supremacy in terms of percent seed germination among other bio- agents *i. e.* 82.67% and 96% at 500 ppm and 1000 ppm, respectively. Whereas, *Trichoderma viride* under *in-vivo* condition was found most suitable among the other bio-agents conferring maximum germination percentage of 82.67% and 94.00%. Among the chemicals, Carbendazim (0.2%) showed maximum germination of 93.33% and 96.00% under *in-vitro* and *in- vivo* conditions, respectively.

Keywords: Seed born mycoflora, Agar plate method, Neem leaf extract, *Trichoderma viride* and Carbendazim.

ISCA-ISC-2017-1AFH-30-Poster

Effect of integrated nutrient management on enzymatic activity of field pea seeds

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Abstract: The present study was planned to see the effect of integrated nutrient management on enzyme activity of field pea seeds (variety HFP 529) during the year 2015-16 in the Department of Seed Science and Technology, CCS Haryana Agricultural University. The experiment was comprised of twenty three treatment combinations viz., T_0-control, T_1-vermicompost, T_2-FYM, T_3-nitrogen, T_4-rhizobium+FYM 100%, T_5-rhizobium+FYM 75%, T_6-rhizobium+vermicompost 100%, T_7- rhizobium + vermicompost 75%, T_8-rhizobium+nitrogen 100%, T_9- rhizobium + nitrogen 75%, T_{10}-PSB+FYM 100%, T_{11}-PSB+FYM 75%, T_{12}-PSB+vermicompost 100%, T_{13}-PSB+vermicompost 75%, T_{14}-PSB+nitrogen 100%, T_{15}-PSB+nitrogen 75%, T_{16}-rhizobium+PSB+FYM 100%, T_{17}-rhizobium +PSB+FYM 75%, T_{18}-rhizobium+PSB+ vermicompost 100%, T_{19}-rhizobium +PSB+vermicompost 75%, T_{20}- rhizobium+PSB+nitrogen 100%, T_{21}-rhizobium+PSB+ nitrogen 75%, T_{22}-RDF. The biofertilizers, rhizobium and phosphorus solubilising bacteria (PSB) were used as seed treatment @ 50ml/10kg

seed while FYM and vermicompost were used @20 t/ha and 5t/h, respectively. The experimental data were analyzed statistically in Complete Randomized Design replicated thrice. Among various treatments, rhizobium and PSB inoculation with 100% nitrogen performed better regarding catalase activity (0.324 mg protein^{-1}min^{-1}), peroxidase activity (14.420 mg protein^{-1}min^{-1}) and dehydrogenase activity (0.650 OD g^{-1} ml^{-1}) in comparison to other treatments. The results clearly showed that combined use of organic manure and inorganic fertilizers along with biofertilizers resulted in to higher seed enzymatic activity of field pea as quality seeds.

Keywords: Field pea, Rhizobium, FYM, Nitrogen, Enzymes.

ISCA-ISC-2017-1AFH-31-Poster

Effect of mulching and variety on the growth, yield and quality of onion seed production

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Abstract: The experiment was carried out at the Achrakhali village under the Patul agricultural block in Natore Sadar Upazilla of Natore district, Bangladesh during the two consecutive year of 2013-14 and 2014-2015 to find out the effect of varieties, bulb sizes, mulches and fertilizers on the growth, yield and quality of onion seed production. Four mulching techniques viz., no mulch, natural mulch, rice straw mulch and black polythene mulch were used as factor A and five onion varieties viz., Taherpuri, BARI Piaz-1, BARI Piaz-2, BARI Piaz-4 and Jhitka were used as factor B for the experiment. The experiment was laid out in Randomized Complete Block Design having three replications. The size of each unit plot was 4.0 m X 2..5m. It was revealed that black polythene mulch showed highest results on almost all plant, seed yield (1653.79kg/ha) and seed quality characters and lowest result in control treatment. The performance of the mulches were found in order of no mulch < natural mulch < rice straw mulch < black polythene mulch. BARI Piaz-4 showed highest results almost on all vegetative, reproductive, seed yield (1476.04 kg/ha) and seed quality characters and lowest result in all parameters were in Jhitka variety. The performance of the onion varieties were found in order of Jhitka <Taherpuri < BARI-1 <BARI-2 <BARI-4. Among the treatment combinations, black polythene mulch with BARI-4 variety produced the highest result and lowest in Jhitka variety with no mulch treatment.

Keywords: Mulching, Variety, Growth, Yield and Onion.

ISCA-ISC-2017-1AFH-32-Poster

Strawberry cultivation in Bangladesh through *in-vitro* expression for establish a new cultivar in Bangladeshi climatic conditions

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Abstract: Strawberry (*Fragaria* × *ananassa* Duch.) is most popular fruit of the world and newly introduced in Bangladesh. It is a natural hybrid between *Fragaria chiloensis* and *Fragaria virginiana Fragaria* genotypes and belongs to Rosaceae family. Strawberry is high valued fruit, mainly grown in tropical and sub-tropical environment in the world but these genotypes are mostly unpalatable. It is getting popularity in Bangladesh for its rich nutritional value and charming flavor. Development of suitable strawberry varieties to Bangladesh is not only save our foreign currency but will generate revenue and more scope for local farmer, besides commercial cultivation is not popular in Bangladesh due to lack of optimized varieties and cultivation methods. So development of new variety suitable for Bangladeshi agro-climate is an urgent need. Festival showed the batter performance in primary culture establishments, callus induction, shoot multiplication and root initiation among examined three cultivars (RABI- 3, Festival and Camarosa) and among different concentrations (0.1, 0.5, 1.5 mg/l), 0.5 mg/l GA_3 showed best performance on shoot developments than KIN and BA growth regulators. Maximum shoot induction was found 75% from runner tip for 6-8 days and 70% from nodal segment for 7-9 days. The highest percentage of shoot multiplication were found 70% from runner tips and 65% from nodal segments in MS$^+$ 0.2 mg/l KIN. The highest percentage of explants responded 90% from runner tip and 80% from nodal segment was noted in the 1.0 mg/l BA concentration. Therefore that finding wills helps to select a better explants source for establish and development to a new advanced cultivar in Bangladesh.

Keywords: Strawberry, *In-vitro* culture, Plantlets, Bangladesh.

ISCA-ISC-2017-1AFH-33-Poster

Gamma ray induced mutants and their management through tissue culture in spray chrysanthemum (*Chrysanthemum morifolium* Ramat.)

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Abstract: In floriculture, the consumer's preference changes with time to time and always seeks for novel types henceforth demand for new varieties are indeed. Mutation breeding through gamma irradiation plays a vital role in generating variation. A large number of promising mutants emerges in the form of partial chimeras after irradiation in which Isolation of mutant tissue is incommodious. In the present study, rooted cuttings of spray chrysanthemum cv. BC-8-05 irradiated with 10 Gy, 15 Gy, 20 Gy, 25 Gy, 30 Gy and untreated cuttings as control were planted by following randomized block design with 3 replications. There was no plants survived after 20 Gy treatments and LD_{50} was found at a dose rate of 17 Gy. Increase in radiation dose resulted in reduction of various growth parameters and delayed blooming. Macro mutations, mainly flower colour were exhibited in the form of chimeras at 10 Gy and changed flower shape (tubular) recorded at 15 Gy and 20 Gy. Explants of chimeric and tubular ray florets were cultured *in vitro* on basal MS medium fortified with 1 mg/l BAP + 0.5 mg/l NAA and MS+ 4 mg/l BAP +1. 0 mg/l NAA gave maximum regeneration through callus. After the successful hardening the mutants were established in the pure form at field condition.
Keywords: Gamma rays, Chimera, *in vitro*, Chrysanthemum, BAP, NAA.

ISCA-ISC-2017-1AFH-34-Poster

Identification of a suitable probability distribution for rainfall analysis of Bankura district in West Bengal, India

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Abstract: The daily rainfall data of 22 years of Bankura district in West Bengal were collected from the India Meteorological Department, Kolkata. The data was then processed to identify the maximum rainfall received on any one day (24 hrs duration), in any week (7 days), in a month (4 weeks), in a monsoon season (4 months), pre-monsoon (4 months), post-monsoon(4 months) and in a year (365 days). The data were analysed to find out the standard deviation and coefficient of variation during all the six periods of study. The data showed that the annual daily maximum rainfall received at any time ranged between 58.7mm (minimum) to 258.8mm (maximum) indicating a large range of fluctuation during the period of study. These data were analysed to identify the best fit probability distribution for all the six period of study and the trend has been presented in this study. In this study Anderson-Darling statistical goodness of fit test was done in order to select the best fit probability distribution for the all six periods of study on the basis of probability plot. All these analysis and goodness of fit test were done with the help of a statistical software, named 'Minitab® 17'. A lower AD value as well as higher p value is selected among the distributions and that is the best fitted distribution. The lognormal distribution was found as the best fit probability distribution for the annual and monsoon period of study. The best fit probability distribution of monthly data was found to be different for each month. The weibull (3P) was found as the best fit distribution for pre-monsoon and post-monsoon period of study. Weibull (3P), gamma (2P), lognormal, exponential and largest extreme value was observed in most of the weekly period of study as best fit probability distributions. The scientific results clearly established that the analytical procedure devised and tested in this study may be suitably applied for the identification of the best fit probability distribution of rainfall data.
Keywords: Probability distributions, Goodness of fit test, AD value, p value, Probability plot, Histogram.

ISCA-ISC-2017-1AFH-35-Poster

Hostel Scale Mushroom Production: *Finding suitable substrate/s to substitute straw*

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Abstract: Paddy straw mushroom (*Volvariella volvacea*) and white mushroom oyster (*Pleurotus ostreatus*) are commonly cultivated in Bhutan by farmers. National Mushroom Centre, Semtokha has been carrying out mushroom cultivation and

researches associated with it with the financial and technical assistance from Japan. Bhutan imports above 80% mushroom from Thailand and India. Commonly used substrates to grow these mushrooms are straw of paddy and wheat, which are not always readily available to farmers. Probably this could be also one of the reasons why mushroom cultivation is not picking up and discouragement amongst farmers despite of its high demand and also despite of substantial efforts from Renewable Natural Resources Research Centres, Ministry of Agriculture in technically supporting farmers in engaging in mushroom cultivation. Sherubtse has 18 hostels where 15 of them are self-catering which means residents from these hostels can carry out such mushroom production at the hostel level for their own consumption and sale surplus product. Therefore to complement researches carried out by National Mushroom Centre, this hostel scale mushroom cultivation to find alternative potential substrate/s which is/are locally available in Kanglung was carried out. Result shows that in the mushroom shed with brightness of the light where one is able to read a newspaper, at temperature of 15-20 degree Celsius, mixture of leaf and spathe of wild banana is an ideal substrate to substitute paddy straw followed by chayote leaf and common grass. *Artemisia* and *Salix* leaves though support mycelia run but decay after it, during pinning stage.

Keywords: Hostel Scale, Mushroom cultivation, Oyster, suitable substrate.

ISCA-ISC-2017-1AFH-36-Poster

Study on symptomatology of foliar nematode (*Aphelenchoides besseyi*) infesting tuberose (*Polyanthes tuberosa*)

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Abstract: Tuberose "Rajanigandha" is one of the most important flower in India and *Aphelenchoides besseyi*, the foliar nematodes has been identified as the key pest for this flower. A field trial was carried out at Central research farm in BCKV during 2013-2016 to examine thoroughly any changes in the symptomatology of the flower crop. It was found that the symptoms started from the leaves to scape and ended in the flower spike. The nematodes congregated at the top of the infected bulbs and entered in the developing flower head. It was initially marked by yellowish green or pale green or pale green leaves which were fallout of chlorosis in leaves. Subsequently, such, leaves turned brown due to the secondary infection by other pathogens. The first visible change on the scape was prickle like structures on the surface of the floral stalk along the length which developed from the epidermis and with aging pricked on touch. Severely infested plants show stunted growth and presence of profuse prickle like structures on the scape and flower and hardy brown flowers. It was recorded that the stalk length, spike length, numbers of flower, individual flower length, weight of individual flower and spike weight were less during the peak period of the infestation by the nematodes.

Keywords: *Aphelenchoides besseyi,* symptomatology, prickle, Tuberose.

ISCA-ISC-2017-1AFH-37-Poster

Influence of pinching time and gibberellic acid on growth and flower yield of African marigold (*Tagetes erecta* L.) in summer season

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Abstract: Present study was conducted at Experimental Orchard of Department of Horticulture, CCS HAU, Hisar in the summer season of 2015. The experiment was laid out in a Randomized Block Design (factorial) with sixteen treatment combinations replicated thrice. Treatments consisted of four levels each of pinching viz., P_1 - No pinching, P_2 - Pinching at 2 WAT (Weeks After Transplanting), P_3 - Pinching at 3 WAT, P_4 - Pinching at 4 WAT and gibberellic acid (GA_3) viz., G_0 - Control, G_1 - 150 ppm, G_2 - 250 ppm, G_3 - 350 ppm. Foliar spray of gibberellic acid in the respective treatment combinations was done at 4 WAT. The observations on various growth and yield parameters were recorded at full bloom stage. Results revealed that the plants pinched at two weeks after transplanting (2 WAT) attained maximum plant spread (65.05 cm) and flower yield per plant (144.80 g) as well as per hectare (9.05 t), whereas, the higher plant height (84.66 cm) was observed in un-pinched plants. GA_3 250 ppm dose was found best for obtaining higher plant height (88.71 cm), flower yield per plant (158.93 g) and flower yield per hectare (9.93 t), however plant spread (65.59 cm) was observed maximum in plants sprayed with GA_3 350 ppm.

Keywords: Growth, Flower yield, Pinching time, Gibberellic acid, Summer.

ISCA-ISC-2017-1AFH-38-Poster

Ginkgo Biloba L. (Maidenhair Tree): a living fossil with multiple uses

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Abstract: *Ginkgo biloba* L., the maidenhair tree and a living fossil that survived the first atomic explosion in Japan reminds us with hope of survival. It is the single surviving species of the Order Ginkgoales that has restricted wild distribution in China. The *Gingko biloba* has multitude medicinal, spiritual and horticultural importance worldwide. It is amongst few plant species that have been traditionally or scientifically used and evaluated for their possible medicinal applications. Its usage has been documented in traditional Chinese medicine since 5000 years. Now, it is one of the most widely prescribed herbals or pharmaceuticals in the western world. In spite of its rarity, long reproductive cycle and low rate of natural regeneration, the tree has been exploited indiscriminately due to its high medicinal value, forcing it to face a high risk of extinction. Unfortunately, despite of having huge medicinal properties and ornamental value, the species still has not received much conservation attention. Considering the international importance and conservation value of *Gingko biloba* multi-strategic efforts are required involving all stakeholders. In addition to its in situ and ex situ measures, environmental legislation and government planning is also essential to ensure adequate conservation of this living fossil plant.
Keywords: *Ginkgo biloba*, Conservation, Biodiversity, Maidenhair tree.

ISCA-ISC-2017-1AFH-39-Poster

Conservation priorities and ethnobotanical importance of vulnerable tree species: *Saraca asoca*

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Abstract: The vulnerable tree species Asoka, (*Saracaasoca*), is amongst few medicinal tree species that have been traditionally and scientifically used and evaluated for various medicinal applications. Being an important folklore tree in India, itsusage in dates back to the pre historic era. Fromleaves to root are put into use in medicinal plant industry. The evergreen nature and colorful flowers makes the tree attractive for avenue planting and gardening. Now it is one of the most preferred medicinal tree species worldwide andwell known to cure various female ailments. Restricted geographical distribution of Ashoka makes it difficult to meet the demands of the industry thus adulterants are being used. Due to the destructive collection methods and over exploitation the population of *Saracaasoca* has been drastically reducing hence the species became vulnerable. The need to conserve *Saracaasoca* is becoming more significant as they are an imporatnt raw materials for life saving drugs.Owing to its cultural, traditional and industrial importance there is an urge to conserve this precious tree species thus formalizing adequate techniques for conservation and further multiplication and propagation methodology considering the lacuna between traditional knowledge and modern treatment which should be minimized.
Keywords: *Saracaasoca*, Medicinal value, Vulnerable, Conservation.

ISCA-ISC-2017-1AFH-40-Poster

Competition and facilitation studies of tree species in temperate forest of the Indian Himalaya

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Abstract: A fundamental characteristic of mountain ecosystems is the drastic change in vegetation as well as in climate from the base to the summit of mountain. In general, growth rates may decline with altitude because of reduced air and soil temperatures (an adiabatic effect), shorter growing seasons, increased exposure to wind, and reduced supply of nutrients. In present study, distance independent and indirect indices for identification and assessment of competition and facilitation between species of the Indian temperate forest ecosystem have been developed. We found broken stick rank/abundance model. Hump-back relationship was obtained between Importance Value Index and Total Biomass Cover. Based on present approaches, *Abiesspectibilis, Myricaesculanta, Pyruspashia* and *Aesculusindica* were identified as potential competitive species. Higher competition index value was recorded between *A. spectibilis-M. esculanta* followed by *Quercusglauca, M. esculanta*, while minimum was recorded for Rhododendron arboreum - A. indica. Community Competition Value (CCV) was

1.96, while, Facilitation Index Values ranged from 0.07-0.9. Study provides list of species for enhancing success of habitat restoration and afforestration programmes. Thus, our new approaches have the potential to evaluate interactive mechanisms specifically inhabiting at hilly terrain where position of relative angular placement of different species, height or other parameters are difficult to estimate.

Keywords: Altitude, Ecosystem, Dynamics, Biomass.

ISCA-ISC-2017-1AFH-41-Poster

Ethno-botany vis-à-vis human dependency withreference to medicinal and underutilized edible plants

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Abstract: The people-plants relationshipfor various dependable reasons and livelihood sustenance throughout human history is widely used and appreciated. The differing culture, tradition, locality factors and utility among different dependent communities' in the world has enriched this ethno-botanical and traditional knowledge from community to community and region to region. Botanically derived plants to treat variousdiseases have been an ancient practice and have played a majorrole in human societies for their well being. Traditionally fermented food and beverages are recognised worldwide for their role in healthcare due to Nutraceutical potential. There is a need to transfer this ethno-botanical knowledge from older generations to younger ones including both the genderswhich otherwise is eroding due to the lack of interest among the younger generationto learn and practice it, which might be attributed tothe ever increasing influence of modernizationThe present review article has collected and gathered information on ethno-botanical utility from number of research papers, reports, and other related documents like journals, researchgate, Google scholar, CAB and other relevant available sources. The study highlights the contribution to ethno-botanical knowledge from various authors from societies throughout the globe.There is need to plant and domesticate the ethnobotanical plants aimed at fostering endogenous strategies of food security as well as re-evaluating cultural heritage and sustaining small-scale food market circuits for conserving and replenishing this natural resource to uplift socio-economic status and livelihood of indigenous communities.

Keywords: Wild plants, Traditional knowledge, Indigenous communities, Healthcare.

ISCA-ISC-2017-1AFH-42-Poster

Effect of gamma radiation on the growth and development of cabbage aphid, *Brevicoryne brassica*e Linnaeus (Homoptera: Aphididae)

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Abstract: Cabbage aphid, *Brevicoryne brassicae* is one of the most serious pest of cabbage and are economically important pest that are difficult to control because of their tremendous reproductive ability and resistance to many synthetic pesticides. Effect of gamma radiation showed significant effect on the body length, width, nymphal duration and total life duration of one and three day old treated nymphs of *B. brassicae*. The body length of all the instars showed increase with increase in radiation doses and was maximum 1.16 mm and 1.44 mm respectively for second and third instar at 50 Gy and 1.43 mm for fourth instar at 40 Gy. In contrast, the body length was 0.94 mm, 1.05 mm and 1.22 mm respectively for instar II, III and IV at 0 Gy which were minimum. The insect failed to moult in the fourth instar nymph at higher dose of 50 to 100 Gy. The total life cycle duration of treated one day old treated nymphs and three day old treated nymphs showed gradual shortening with increase in radiation doses.The total life cycle duration was longest in case of 0 Gy (untreated) in both treated nymphs. The percent survivality in the irradiated nymphs *of B. brassicae* decreased with the increase in gamma radiation doses. The lowest survivality of both one and three days old nymphs were recorded at 80, 90 and 100 Gy.

Keywords: *B.brassicae*, gamma radiation, growth and development.

ISCA-ISC-2017-1AFH-43-Poster

Unraveling mystery of non extraction of honey from modern sunflower hybrids

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Abstract: Eight sunflower cultivars (2 old populations and 6 new hybrids) were analyzed for the amount and rhythms of nectar secretion and their relative attraction to honey bees. Nectar, measured as dry nectar sugars (DNS) was maximum in 3 day old florets (DOF) (0.305 mg/floret) at 1000 h and in outer most ring of capitulum (0.314 mg). Old populations produced

17.7 per cent higher DNS (0.334 mg/floret) than the hybrids (0.275 mg). Population HS-1 and Morden produced maximum DNS per disc floret (0.344 and 0.323mg) and DK-3849 was the only comparable hybrid (0.340 mg/floret) while five others recorded noticeable reductions, 37.5% in HSFH-1183, 33.1 in Pioneer 64A57 and 14.2-19.8% in other hybrids. Old populations outperformed the hybrids in all the factors contributing towards higher DNS production like DNS production/floret (0.334mg), total DNS production by a floret in its life cycle of 3 days (1.00 mg), DNS production/capitulum (1072.4mg) and per hectare DNS production (59.6kg). Interestingly, high DNS producing old populations Morden and HS-1 recorded lowest abundance of honey bees (0.33 and 0.47 bees/capitulum/minutes-2) compared to hybrids (0.51-0.69bees) except Pioneer 64A57 which despite the lowest DNS (39.8 kg/ha) recorded maximum abundance of honey bees (0.69 bees).
Keywords: Sunflower, Honey bees, Dry nectar sugars, Floral visitors, Populations, Hybrids, Honey production.

ISCA-ISC-2017-1AFH-44-Poster

Fruit plant diversity in the homegarden of Cooch Behar (WB), India

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Abstract: Fruits plays significant role to secure sustainable nutritional security by providing rich vitamins, minerals and protein. Every individual fruit possess its own important in the sense of nutrition as well as others, like, economical, religious and medicinal value, etc. Homegarden is rich in diversity of minor fruits and also a permanent place for its conservation. All together thirty homegardens was randomly surveyed in villages of Pundibari of Cooch Behar through direct personal interview using semi structured questionnaire. The study recorded 33 fruit bearing plant species, represented by 29 genera and belonging to 19 families. The most dominated family was Rutaceae represented by 5 species followed by Arecaceae and Myrataceae with 4 species each. Among 33 species, 29 were tree with multipurpose values, 3shrubs and 1 herb.Most frequently recorded specieshaving high economic value was *Areca catechu*, *Cocusnucifera*, *Mangiferaindica* and among minor fruits are *Elaeocarpusfloribundus*, *Calophylluminophyllum*, *Carissa caranda*, *Baccaurearemiflora*, *Szygiumjambos*. Almost every household surveyed has 4-5 fruit bearing species in the garden and depend on nutritional requirements on them. The surveyed homegardens are not only important sources of food, but are also important for *in situ* conservation of the wide range of plant genetic resources.
Keywords: Conservation, Genetic resource, Nutrition, Economical.

ISCA-ISC-2017-1AFH-45-Poster

Comparative efficacy of different insecticides for management of fruit borer (*Earias vittella Fab*.) and jassid (*Amrasca biguttulla biguttulla* Ishida) on Okra, *Abelmoschus esculentus* (L). Moench

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Abstract: Investigation was conducted during pre-kharif, kharif and post-kharif seasons of 2015 and 2016 in the Uttar Banga Krishi Viswavidyalaya, Pundibari, Cooch Behar, West Bengal, India. Imidacloprid 17.8 SL @ 25 *a.i.*/ha provided excellent control with highest average yield of 12.06 q/ha. Acephate 75 SP @ 500 *a.i.*/ha found second best effective insecticides producing the average yield of 11.79 q/ha closely followed by agniastra @ 25ml/liter (11.72 q/ha). The microbial insecticides *i.e.* spinosad @ 80g *a.i.*/ha and emamectin benzoate @ 25g *a.i.*/ha provided less control than other group of insecticides where average yield was recorded 11.03 and 10.60 q/ha. Considering all aspect of studies agniastra @ 25ml/L might be selected for better efficacy which also fit well under organic system of production.
Keywords: Efficacy, Insecticides, Management, Fruit borer and jassid, Okra.

2. Animal, Veterinary, Fishery and Marine

ISCA-ISC-2017-2AVF-01-Oral

Nutritional quality assessment of fish powder

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Abstract: The study carried out with a view to determining proximate and mineral composition of fish powder of five freshwater fish samples (*Hypophthalmicthys molitrix, Labeo rohita, Cirrnina mrigala and Puntius sophore* and small prawns). The samples collected from five local fish markets of Rajshahi city corporation were subjected to washing, gutting drying and grinding in order to make powder and homogenized sample which were preserved into plastic container for chemical analyses. All the activities were conducted in the laboratory of department of Fisheries, University of Rajshahi, Bangladesh. Major nutrient compositions of powder products such as protein, lipid, moisture, ash, carbohydrate, phosphorus, iron and calcium were estimated. Chemical compositions were found to vary among the species. The protein, lipid, moisture and ash content of five samples ranged from 54.31 (P. sophore) to 68.90% (small prawns), 13.33 (P. sophore) to 19.33% (L.rohita), 11.55 (L. rohita) to 13.95% (H. molitrix) and 0.16 (small prawns) to 0.44% (C. mrigala), respectively. The highest value of carbohydrate was 19.23% (P. sophore) and the lowest was 1.75% (C. mrigala). The calcium, iron and phosphorus content of the selected species varied from 2.49 (L. rohita) to 2.55g/kg (small prawns), 0.043 (H. molitrix and P. sophore) to 0.189g/kg (C. mrigala) and 0.95 (L. rohita) to 1.91g/kg (P.sophore), respectively.
Keywords: Nutrition, Quality, Fish Powder.

ISCA-ISC-2017-2AVF-02-Oral

Molecular barcode analysis and phylogeny of helminthes parasites: A manual

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Abstract: The Deoxyribonucleic acid (DNA) is the hereditary genetic material in helminthes and all other eukaryotic organisms. The DNA mostly located in the nucleus of cell (nuclear DNA), but a little quantity of DNA can also be found in mitochondria (mitochondrial DNA or mtDNA). DNA of the organisms is a unique feature with encoded information which describes all phenotypic and physiological characteristics of the bearing animals like barcode of a physical object. A barcode is an optical, machine-readable, representation of data; the data usually describes something about the object that carries the barcode. Paul Hebert, researcher at the University of Guelph in Ontario, Canada, proposed "DNA barcoding" as a way to identify species in 2003. Until now, biological specimens were identified using morphological features like the shape, size and color of body parts. In some cases a trained technician could make routine identifications using morphological "keys", but in most cases an experienced professional taxonomist is needed. If a specimen is damaged or is in an immature stage of development, even specialists may be unable to make identifications. The validation of taxa was performed to remove ambiguity in identification of a cestodes and nematodes by phylogenetic analysis, which was earlier studied by using morphotaxometric analyses. Barcoding solves these problems because even non-specialists can obtain barcodes from tiny amounts of tissue. This is not to say that traditional taxonomy has become less important.
Keywords: Molecular, Barcode analysis, Phylogeny, Helminthes parasites.

ISCA-ISC-2017-2AVFM-03-Oral

Present status of use of aqua-chemicals in hatcheries and fish farms in Rajshahi District, Bangladesh

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Abstract: A study was conducted in fish hatcheries and fish farms to find out different chemicals used in freshwater aquaculture activities in Rajshahi District, Bangladesh. Data were collected through questionnaire interview method. Fifty different chemicals were used for different purposes as pond preparation, water quality management and fish poisoning, insect killing, disinfectant and fish disease treatment in this region. Lime and Zeolite were used for pond preparation and water quality management. Rotenone, phostoxin tablet, ripcord were used as fish poison of which rotenone was widely used (65.9%). In addition, sumithion, bleaching powder, lime were used as medicine for disease treatment. 79.2% of the farmers used sumithion. Triple super phosphate and urea were the most widely used fertilizers in this region. Fish health management and disease treatment were the key areas where majority of different chemicals were used. Farmers used different chemicals in disease treatment namely lime, salt, potash, zeolite, zeotox where 57.3% farmers used potash.

Renamycin was the most widely used (31.1% farmers) antibiotic, besides farmers used tetracyclin, orgamycin 15% for disease treatment. The study also indicated some problems associated with the use of such chemicals due to lack of knowledge of farmers about the use of chemicals, appropriate dose, method of application and their indiscriminate use of chemicals. The study also highlighted the names and dose of aquaculture chemicals available with the fish farmers in Rajshahi, Bangladesh.

Keywords: Aqua-chemicals, Fish farm, Fish.

ISCA-ISC-2017-2AVFM-04-Oral

Effect of starvation and re-feeding on compensatory growth, feed utilization, body biochemical composition and haematological parameters of *Labeo bata* under spring condition

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Abstract: The experiment was conducted to study the effect of starvation and re-feeding on compensatory growth, feed utilization, body biochemical composition and haematological parameters of *Labeo bata* under spring condition. The experiment was carried out in 12 aquariums under four treatments each with three replications at the Department of Fisheries, University of Rajshahi, for a period of 42 days (6 weeks) from 09 March to 20 April, 2017. 120 fishes were used for this experiment. The experiment was divided into two periods (starvation and re-feeding period). One hundred and twenty fish (mean 15.01±0.86 g) were divided into four feeding groups. The control group was fed to satiation two times a day during the experiment. The three groups were starved for 1 week (T1), 2 weeks (T2), and 3 weeks (T3) respectively and then fed to satiation during three week re-feeding period. The results indicated that growth performance of fish including final weight, final length decreased in starvation period (T2 and T3). Proximate composition (protein, lipid, carbohydrate, ash and moisture) and haematological parameters (RBC, WBC, haemoglobin, Total protein, Total cholesterol, albumin and globulin) were significantly affected by starvation. During starvation and re-feeding period growth performance of fish such as weight, length, SGR and ADG of T1 was very closer to control treatment. But long term starvation (2 and 3 weeks) growth performance of *Labeo bata* could negative impact on weight gain, length gain, SGR and ADG. Proximate composition such as protein, lipid and ash in T1 treatment were very closer to control treatment in starvation and re-feeding period .Blood enzymes parameters (amylase, lipase and protease) were not significantly affected by starvation and subsequent re-feeding period. The leucocytes, lymphocytes, neutrophils, eosinophils, and monocytes were not also significantly affected by starvation and subsequent re-feeding period. These findings showed that short term starvations (1 week) had no significant negative effects on growth performance, most biochemical composition and hematological parameters in bata fish (*Labeobata)* and were recovered after re-feeding period.

Keywords: Re-feeding, Growth, Haematological, Biochemical composition.

ISCA-ISC-2017-2AVFM-05-Oral

Water quality, biodiversity and fishing gear of Maindacula *Beel* at Naogaon District, Bangladesh

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Abstract: An investigation was carried out from March 2012 to November 2012 with a view to assessing the water quality parameter, biodiversity and fishing gear used in Maindacula *beel* at Naogaon district of Northeast Bangladesh. During the study period, the mean water depth, temperature, pH, DO, free CO_2 and alkalinity of the *beel* was found as 1.72±0.12 m, 26.24±1.43°C, 7.50±0.13, 7.39±0.87 mg/l, 4.72±1.13 mg/l and 35.40±1.42mg/l, respectively. A total of 59 different species of fishes under 40 genera, 21 families of 6 orders (Cypriniformes, Perciformes, Siluriformes, Cypriniodontiformes, Osteoglossiformes and Clupeiformes) were identified catches by different types of gears. Out of 59 species, 5 species (*Ompok pabda, Notopterus chitala, Rohtee cotio, Botia dario* and *Channa marulius*) were recorded as critically endangered. A total of 5 fisheries items under 3 phylum (Arthropoda and Mollusca), 10 genera of phytoplankton under 4 class and 11 genera of zooplankton under 3 order were identified. A total of 18 aquatic vegetations were found of different groups in the studied *Beel.* A total of 23 types fishing gears were found to operate by the fishermen. Among the 23 gears 10 types of nets, 6 types traps, 4 types hooks and lines and 3 types of spear were recorded.

Keyword: Water quality, Biodiversity, Fish species, Plankton, *Beel.*

ISCA-ISC-2017-2AVFM-06-Oral

Assessment of shelf-life of traditionally and experimentally dried freshwater fish

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Abstract: The present research was conducted from January to December 2016 with a view to assessing the changes of quality indicators during storage in normal plastic container for examining shelf-life of traditionally and experimentally prepared sun-dried five freshwater fishes (*Channa punctatus*, *Channa striatus*, *Wallago attu*, *Mystus vittatus* and *Puntius sp*.) of Chaln beel. TVB-N content of traditional samples ranged from 16.5-25.20, 40.7 -76.4 and 78.2 (*M. vittatus*) -115.5 (*C. striatus*), while in experimental samples it varied within 13.2-23.7, 29.5-53.5 and 65.45(*Puntius sp.*) - 89.5 mg/100g (*C. striatus*) on 1st, 4nd and 8th months respectively. Peroxide value in traditional samples remained within 8.1-17.47, 12.2- 24 and 29.5 (*W.attu*)-45.5 (*C. striatus*) whereas in experimental samples it was 7.4-12.8, 10.7-20 and 18.5 (*M. vittatus*) - 38.2 mEq/kg (*C. striatus*) after 1st, 4nd and 8th month respectively. On 1st month Standard Plate Count (SPC) in traditional samples varied from 3.27 (*C. punctatus*) to 4.82 (*W. attu*), while in experimental samples it was from 2.87(*M. vittatus*) to 4.38 LogCFU/g (*W. attu*); however, after 8th month, traditional samples had SPC from 4.83 (*C. punctatus*) to 6.36 (*W. attu*) and in experimental samples it lied within 4.71(*M. vittatus*) to 5.98 LogCFU/g (*C. striatus*). Organoleptic evaluation score on 1st month was awarded from 6.50 (*Puntius sp.*) to 8.5 (*C. punctatus*) for traditional sample, while it ranged as 8.33 (*Puntius sp.*) to 9.50 (*C. punctatus*) in experimental samples. After 8th month storage of traditional sample, the score declined with the highest value of 5.42 (*C. punctatus*) and the lowest as 1.88 (*Puntius sp.*) and in experimental samples the sensory evaluation score varied from 7.25 (*C. punctatus*) to 4.5 (*Puntius sp.*). With respect to shelf-life, apart from *Puntius sp.* all experimental samples exhibited satisfactory results. However, *C. punctatus* showed impressive performance in all respects for both type of samples.

Keywords: Shelf-life, Dried fish, Freshwater, TVB-N, Peroxide value.

ISCA-ISC-2017-2AVFM-07-Oral

Effects of vacuum and modified atmosphere packaging on sliced tilapia fish (*Oreochromisniloticus* L.) and pangas fish (*Pangasiussutchi*) stored at refrigeration temperature

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Abstract: The present study investigated the shelf-life of sliced tilapia fish (*Oreochromisniloticus* L.) and pangas fish (*Pangasiussutchi*) through microbiological growthunder unpack, vacuum pack, modified atmosphere packaging with 100% N_2 during 9 days of storage period at 4°C. The initial aerobic plate count (APC) of sliced tilapia and pangas fishes were 4.87 and 5.78 log CFU/g, respectively indicated an acceptable initial quality of fish. There is no significant difference was observed in APC of vacuum and N_2 pack sample compared to unpack (control) sampleat 0, 3rd and 6th day of storage in both cases of tilapia and pangas fish. However, at 9th day of storage, the APC of tilapia fish under vacuum pack is significantly ($p<0.05$) lower than that of unpack sample. In case of pangas fish, the lower APC values were observedin case of N_2 and vacuum packed sample compared to control sampleat 9th day of storage. Taking the 7 log CFU/g as the maximum acceptable limit for fresh and frozen fish, the shelf life of unpack, vacuum and 100% N_2 pack sample is determined at approximately 4, 7 and 5 days, respectively for tilapia and 4, 5 and 6 days, respectively for pangas fish. Therefore, the best performance was observed in case of vacuum packaging for tilapia fish and nitrogen packaging for pangas fish.

Keywords: Tilapia, pangas, vacuum, modified atmosphere packaging, shelf-life.

ISCA-ISC-2017-2AVFM-08-Oral

Stock assessment of elongate glass-perchlet *Chanda nama* (hamilton, 1822) in the Ganges River, Northwestern Bangladesh

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Abstract: The present study assesses the stock of *Chanda nama* including growth parameters (asymptotic length, L_α; growth co-efficient, K; age at zero length, t_0), mortality (fishing = F; natural = M; total = Z), exploitation rate (E) and maximum

sustainable yield (MSY) from the Ganges River, northwestern Bangladesh. A sum of 1260 individuals of *C. nama* was sampled monthly during September 2015 to August 2016 using cast net (mesh size: 1.5-2.0 cm). Based on gonadosomatic index (GSI), L_m was 3.9 cm in TL for female *C. nama*. The higher GSI was found during the month of April to October, which indicates the spawning season of *C. nama* in the Ganges River and peak values of GSI were found in June-July, which point out peak spawning season. The L_α were 7.73 cm for male and 9.44 cm for female. The calculated M was 1.55 year^{-1} for male and 1.60 year^{-1} for female; and F was recorded as 1.29 year^{-1} and 1.32 year^{-1} for male and female. Additionally, Z was 2.84 year^{-1} for male and 2.92 year^{-1} for female population of *C. nama.* The E was calculated as 0.45 (45%) for both sexes. The calculated MSY was 38% and 42% for male and female, respectively. So, this fish population is 7% over exploited in the Ganges River. Thus, 7% fishing should be reduced specially during the peak spawning season for its sustainable management.

Keywords: Stock assessment, Exploitation, maximum sustainable yield, Elongate Glass-Perchlet, *Chanda nama,* Ganges.

ISCA-ISC-2017-2AVFM-09-Oral

Analysis of macrophage functions in relation to experimentally-induced hepatic fibrosis in rats

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Abstract: Macrophages are the versatile cells of mononuclear phagocytic system playingcrucial roles in health and diseases. We analyzed the functional roles of macrophages in hepatic fibrosis after depletion of Kupffer cells by molecular methods. Kupffer cells were depleted by liposome encapsulated clodronate (CLD; 10 mL/kg BW, i.v.) one day before induction of hepatocyte injury by TAA (300 mg/kg, i.p.) in 6-week-old male F344 rats; the control rats received empty liposomes followed by TAA. Liver samples were processed for histopathology, immunohistochemistry (Iba-1, CD68, CD163, MHC class II, CD204, galectin-3, vimentin, desmin, α-SMA) and real-time RT-PCR (MCP-1, TGF-β1, MMP-2, MMP-9, TIMP-1, TIMP-2). Hepatic injury/fibrosis developed incentrilobular areas in controlswith a peak ondays 2-3, consisting of myofibroblasts (MFs) immune reactive forvimentin, desmin and α-SMA, and the lesions recovered by day 7. In Kupffer cell-depletedlivers, macrophagesexpressingIba-1(chemotaxis), CD68 (phagocytosis), CD163(pro-inflammation), MHC II (antigen presentation), CD204(scavenger receptor A) and Galectin-3 (MF activation)were significantly decreasedalmost throughout the experimental period, and appearance of MFs were delayed.Real-time RT-PCR analyses showed attenuated expressions of inflammatory (MCP-1) and fibrogenic (TGF-β1, MMPs and TIMPS) factors in macrophage depleted livers compared to controls. Interestingly, dystrophic calcification occurred in injuredhepatocytes in macrophage depletedlivers.Depletion of hepatic macrophages (mainly, Kupffer cells) delays hepatic fibrosis and results in altered tissue debridement.

Keywords: Clodronate, Liver, Macrophages, Rat.

ISCA-ISC-2017-2AVFM-10-Oral

Poultry dust allergy- an article

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Abstract: Poultry dust is a mixture of organic and inorganic particles depending upon the type of birds, their reproductive cycle and the work activities in poultry house including bird feed, bedding material, bird dropping, dead skin, dust mites, bacteria, fungi, fungal spores, and endotoxins. The dust inhaled by poultry house workers declines the respiratory functions, affecting lungs respiratory tract, breathing system including mouth, nose, lungs and the tubes that connect them, causing occupational asthma. Good working practices, prevention during work, using equipments and controlling exposures to poultry, managing contractors can control the occupational asthma. The health surveillance is also laid to protect the health of individual poultry worker to minimize the exposure of poultry dust.

Keywords: Poultry dust, Allergy, Occupational asthma, Working practices, Health surveillance.

ISCA-ISC-2017-2AVFM-11-Oral

Marine bivalve and gastropoda diversity using SCUBA from West Coast of India

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Abstract: The diversity of marine edible bivalves and gastropods including survey, collection, preservation, taxonomical identification from, rocky substrata, sandy beach, muddy habitat, mangrove associated of Raigad district coast was studied which is 240 km coastline, The Shannon diversity index and Evenness is calculated, Also SCUBA equipment's are used by

dive master, for collection of alive species from the bottom of the Sea, total number of 32 bivalve species while 89 species of gastropoda identified during October 2015 to September 2016.

Keywords: Marine bivalve, Gastropoda, Diversity, West Coast of India.

ISCA-ISC-2017-2AVFM-12-Oral

Studies on small indigenous freshwater fish (SIFF) diversity and its nutritional significance in Damodar river of Purulia District, West Bengal, India

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Abstract: The Small indigenous freshwater fishes (SIFF) are defined as fishes which grow to the size of 25-30 cm in mature stage. SIFF play an important role for the poor rural and tribal people as the chief source of protein, vitamins, steroids and minerals as unique animal food in Purulia District, West Bengal. The SIFF are easy to equally distribute among all the members of a family such as aged members, pregnant and lactating women, young and adolescent members even in small quantities. Research suggests that they have (SIFF) significant prospective as cost-effective source to boost micronutrient intakes as a supplementary food. Small fish are also used as medicine to cure many diseases among the rural and tribal people of purulia district. Due to loss of natural habitats and different anthropogenic activities like use of pesticides, domestic pollution, diseases causes drastic reduction in SIFF population in West Bengal. So the biodiversity of SIFF is also important to get a clear view as a resource potential animal in point of nutritional value. A total of 26 species belonging to 09 families have been recorded from river Damodar of Purulia districts. Of the 09 families, the Family Cyprinidae is represented by 12 species.

Keywords: Indigenous, Freshwater fish, Biodiversity, Food and nutrition value, Alternative source, Animal protein.

ISCA-ISC-2017-2AVFM-13-Oral

Bioaccumulation of heavy metal mercury in *Catla Catla* of Shivnath river of Chhattishgarh, India

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Abstract: Aquatic ecosystem is very sensitive to heavy metals and the matter has received considerable concern due to their toxicity and bioaccumulation. The health implication due to Mercury exposure through food chain is a serious matter of concern for human health. In the present study bioaccumulation of Mercury from *Catla catla* species collected from four different collection sites of Shivnath River of Chhattisgarh, India was analyzed in various tissue samples *viz.,* muscle, gill and liver by atomic absorption spectrophotometric method. In all tissue samples Mercury was reported significantly higher (F=<0.05 %P) than the recommended permissible limit of European commission. It was reported that muscles having maximum tendency of bioaccumulation followed by gills and liver and maximum bioaccumulation was reported in the month of October-March. The study is significant with respect to the food chain of population from catchment area.

Keywords: Heavy Metals, Toxicity, Bioaccumulation, Mercury, Shivnath river, *Catla catla*.

ISCA-ISC-2017-2AVFM-14-Oral

Assessment of captive environment management practices in national zoological park, Delhi: a case study of conservation breeding programme of endangered Manipur brow-antlered deer (*Rucervus eldii eldii*)

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Abstract: A study has been carried out about Conservation Breeding Programme of the Endangered Manipur Brow- antlered deer in National Zoological Park, Delhi. The purpose of this study was to examine the conservation breeding status and to measure the impacts of existing management practices on the captive stock position. Observations were carried out from September 2015 to September 2017 i.e., during pre-rut, rut and post-rut periods under captivity. Scientific data collection was also done for the same period on population status, behaviour, food preferences and health conditions. Study revealed some gap areas between existing management practices and the standard guidelines of Central Zoo Authority of India.

Recommendations have been made on population management, feeding pattern, behavioral enrichment and enclosure design for sustainable conservation management practices as per Central Zoo Authority guidelines as well as the best practices being adopted in participating zoos of India. This study will play a significant role for the development of demographically stable, healthy and self-sustaining population to reduce the risks of catastrophic loss. This sustainable stock Manipur Brow- antlered deer under Conservation Breeding Programme in National Zoological Park, Delhi will further act as insurance for captivity as well as sustainable stock for reintroduction in wild habitat.

Keywords: Conservation Breeding Programme, Manipur Brow-antlered deer, National Zoological Park, Central Zoo Authority of India, Management Practices.

ISCA-ISC-2017-2AVFM-01-Poster

Evaluation of growth, production and economics of riverine threatened long-whiskered catfish *Sperata aor* (Hamilton, 1822) based on different protein level of feed in pond habitat

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Abstract: Growth, production performances and economics of riverine threatened long-whiskered catfish *Sperata aor* were evaluated for six months in four treatments (each with three replications) having an area of 0.002 ha each with an average depth of 1.0 m. During the culture period, the fingerlings of *Sperata aor* were collected from Padma River in Rajshahi region and same stocking density (60/dec) was followed and supplied different protein containing (26, 29, 32 and 35% crude protein) formulated feeds in all treatments (T_1, T_2, T_3 and T_4). The effects of dietary protein on growth, production and economics of *sperata aor* culture were evaluated by analyzing different growth parameters. Among the treatments, maximum growth in terms of weight gain was recorded in T_4 (321.22±4.40g) and lowest was recorded in T_1 (147.79±2.85g). Length gain (26.93±0.40cm), SGR (1.60±0.01 % b $wday^{-1}$), ADG (1.90±0.02g) also followed the same trend as weight gain. The best food conversion parameter like FCR (2.80±0.09) was also observed in T_4 but PER (1.16±0.0) was observed in treatment T_1. Similarly, the highest survival rate (96.67±0.76%) and condition factor (0.78±0.03) of fish were in T_4 in which 35% protein containing feed was used. The total production was also highest in T_4 and it was 5175.00±95.10 kg/ha/6 months. The best net benefit (1583196±1672 BDT/ha) of *Sperata aor* culture was achieved from T_4 where CBR was 1.57 ± 0.004. Findings indicated that, the fish fed with 35% protein containing feed have been found to be effective for better growth of the *Sperata aor*.

Keywords: Riverine, Threatened, Catfish, *Sperata aor* and Protein Level.

ISCA-ISC-2017-2AVFM-02-Poster

Assessment of pond productivity from seasonal ponds in the North Western Bangladesh

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Abstract: The study was conducted to assessment of pond productivity from seasonal ponds in North western Bangladesh from January 2016 to December 2016. Three Upazila namely Paba and Charghat of Rajshahi district and Bogra sadar under Bogra district representing the Northwest Bangladesh were selected for the present study. Data were collected through the use of well-structured questionnaire from a total number of 180 seasonal ponds fish farmers. The survey reveals that mean pond depth was maximum in Charghat (1.20±.05 m) than other two upazila. Fish fingerlings were stocked from May to June and significantly ($p<0.05$) higher mean stocking density was found in Paba (1255±204 fry/ha) than Charghat (797±127 fry/ha) and Bogra sadar upazila (728±147 fry/ha). Some farmers were used supplementary feeds very irregular basis despite their dependence on natural feeds. Maximum production cost were found 32% for fingerling in Paba, 33% and 35% for feeding in Charghat and Bogra sadar upazila. The peak harvesting period was November to December and gross output was found highest amount in Charghat (1788.69±109.22 Kg/ha) than those of Paba (1599.09±113.19 Kg/ha) and Bogra sadar upazila (1568.70±114.81 Kg/ha). Maximum gross income and CBR were found in Charghat (TK. 244180±15922/ha and 1:0.49) followed by the Paba (TK. 223883±18489/ha and 1:0.30) and Bogra sadar upazila (201202±14457 and 1:0.23). From the study it was clearly noted that mean maximum water depth in Charghat upazila positively influenced its gross production, gross income and CBR.

Keywords: Pond Productivity, Seasonal Ponds Charghat, Bogra Sadar and Paba upazila.

3. Biological Sciences **ISCA-ISC-2017-3BS-Guest Speaker-01**

Evaluation of antioxidant and anti-cancer properties of hydroxycinnamic acid on DMBA induced buccal pouch carcinogenesis in gold Syrian hamsters

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Abstract: The anti-cancer properties of hydroxycinnamic acid (HCA) in 7,12-dimethylbenz[*a*]anthracene (DMBA)-induced hamster buccal pouch carcinogenesis was investigated in the present study. Oral squamous cell carcinoma was induced in the buccal pouches of golden Syrian hamsters by application of DMBAthree times per week for 12 weeks. 40mg/kg body weight of the drug was given orally for the hamsters on the alternative days of the DMBA treatment.The lipid peroxidation by-products, was measured by the formation of thiobarbituric acid reactive substances (TBARS) and enzymatic antioxidants [superoxide dismutase (SOD), catalase (CAT) and glutathione peroxidase (GPx)], was also analyzed in the buccal mucosa of DMBA-treated hamsters. The tumor incidence and volume was recorded. The histopathological tissue section of the hamster buccal pouch was analysed with HE staining. Our study thus suggests that HCA has significant chemopreventive and anti-oxidant potential in DMBA-induced oral carcinogenesis, probably by interfering with DMBA-induced abnormal cell proliferation in the buccal mucosa and also indicatesthat hydroxycinnamic acid modulates the activity of various antioxidant parameters and enhancesthe defense against reactive oxygen species–generated damage in buccal pouch carcinogenesis.

Keywords: Hydroxycinnamic acid, Caffeic acid, Antioxidants, Free radicals, Anti-cancer, Hamsters, DMBA.

ISCA-ISC-2017-3BS-Guest Speaker-02

Role of women in sericulture, observation of two tribal block of Raigarh district, Chhattisgarh, India

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Abstract: Sericulture is recognized as a women friendly enterprise since it is easily acceptable to rural based women, where women involvement is about 53.45% of total employment generated in silk industry. The study is based on personal interview of the sampled respondents following the structured interview schedule. The present article will mainly explore the role of women in sericulture. This includes the concept of work, division of labour, segregation of occupations, and dimension of labour and household activities. This article will further discuss the preparation of women toward silkworm, feeding and so on. Women are mostly favoured because of their industrious nature. They are employed in a mulberry garden or silkworm rearing or in a grainage. Coming to the post cocoon technology, the involvement of the women is greater, commencing from silk reeling, weaving and garment manufacturing industry. In the Indian socio-economic context, income generation assumes great significance for women, especially rural women. Women constitute more than 50% of the world's population, one third of the labour force and perform nearly two thirds of all working hours However, their work has not always been properly recognized or suitably rewarded. Sericulture is essentially a village based industry that provides employment to both skilled and unskilled labour, women and aged persons at homes at minimum risk. Thus the analysis clearly establishes the importance of sericulture over other crops in the generation of fresh employment opportunities in rural areas. India continues to the second largest producer of silk in the world and has 16.58% share in global raw silk production. Among the four varieties of silk produced as in 2013-14 the production increased up to 26480 MT which is turn into 30265 MTS. The employment generation in the country is raised to 7.85 million persons in 2013-14 & 8.51 million persons in 2016-17 compared to 7.65 million persons in 2012-13. In Chhattisgarh Tasar and mulberry are reared on commercial scale. Tasar is realy named as Kosa. Sericulture practiced by the tribal of traditional Districts of Baster, Raigarh, Bilaspur and Surguja.

Keywords: Women, Sericulture, Employment, Tribal, Income.

ISCA-ISC-2017-3BS-01-Oral

Synergistic activity of the bioactive compound in *Urginea indica* (Kunth.) from Bastar region and its spectral analysis

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Abstract: The integration of traditional and modern medicine is gaining increased recognition globally. In light of vast potentiality of medicinal plants as therapeutics the present endeavor deals with the antimicrobial activity of *Urginea indica*

(Kunth.) (Family: Liliaceae) commonly known as Jungli-Piyaz against Gram-positive, Gram-negative bacteria and two human pathogenic fungi procured from IMTECH, Chandigarh, India. The activity assessment profile showed that acetone root extract exhibited broad spectrum antimicrobial activity and the results were analyzed statistically using ANOVA with DMRT. However, In case of *C. albicans* the extract exhibited significantly higher activity index. The qualitative and quantitative analysis revealed the presence of varied phytochmicals which are responsible to confer antimicrobial activity. The extract exhibiting the highest activity was purified by column chromatography, band pattern was analyzed by TLC and the MIC and MBC was determined. The purified fraction tested for its synergistic or antagonistic potentiality against fungi revealed high synergism with three antifungals *viz*., clotrimazole, ketoconazole and fluconazole. Finally, the purified fraction was chemically characterized by HPLC, UV-VIS, FT-IR, NMR (^{1}H and ^{13}C) and ESI-MS. Thus, in current scenario, there is an urgent need to develop new approaches for alternative antimicrobial therapy for the amelioration of infectious diseases.

Keywords: Medicinal plants, Antimicrobial activity, Synergistic activity, Analytical instruments.

ISCA-ISC-2017-3BS-02-Oral

Moghcia rouriensis (cestode parasite) N.SP from passer domesticus at Rahuri Dist. Ahmednagar, MS, India

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Abstract: Survey of cestode parasites from sparrow species like *Passer domesticus (Linnaeus)* at al from Rahuri *Dist Ahmednagar* from during January 2015 to December 2015 The present parasite is having scolex large, squrish, broad anteriorly and narrow posteriorly. The suckers are large four in number, rounded to oval. The scolex is fooled by neck, broad interiorly and narrow posteriorly, followed by indistinct segmentation. Estes are five, cirrus pouch regurly alternate, small, eleongated, sub marginally placed cirrus straight form vas deference reaches up to the middle of segments. Vagina thin tube runs transversly posterior to cirrus pouch. Seminal receptacle is thin tube opens into ootype. Ovary median, oval located almost towards middle of the segments. The parasite is named after locality Rahuri Dist. Ahmednagar, where the parasite and host found abundant.

Keywords: Suckers, Scolex, Vagina, Vasdererence, Cirrus pouch.

ISCA-ISC-2017-3BS-03-Oral

Trop-2 is up-regulated in invasive prostate cancer and displaces FAK from focal contacts

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Abstract: In this study, we show that the transmembrane glycoprotein Trop-2 is up-regulated in human prostate cancer (PCa) with extracapsular extension (stages pT3/pT4) as compared to organ-confined (stage pT2) PCa. Consistent with this evidence, Trop-2 expression is found to be increased in metastatic prostate tumors of Transgenic Adenocarcinoma of Mouse Prostate mice and to strongly correlate with α5β1 integrin levels. Using PCa cells, we show that Trop-2 specifically associates with the α5 integrin subunit, as binding to α3 is not observed, and that Trop-2 displaces focal adhesion kinase from focal contacts. In support of the role of Trop-2 as a promoter of PCa metastatic phenotype, we observe high expression of this molecule in exosomes purified from Trop-2-positive PCa cells. These vesicles are then found to promote migration of Trop-2-negative PCa cells on fibronectin, an α5β1 integrin/focal adhesion kinase substrate, thus suggesting that the biological function of Trop-2 may be propagated to recipient cells. In summary, our findings show that Trop-2 promotes an α5β1 integrin-dependent pro-metastatic signaling pathway in PCa cells and that the altered expression of Trop-2 may be utilized for early identification of capsule-invading PCa.

Keywords: pT2/pT3/pT4 prostate cancer, Metastasis, Gleason grade, TRAMP, Exosome.

ISCA-ISC-2017-3BS-04-Oral

Occupational cancers: prevalence, sample studies and development of preventive antioxidant rich chewing gums

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Abstract: At least one-third of all cancer cases worldwide are preventable. Prevention by nutrition offers the most cost-effective long-term strategy for the control of cancer. Occupational cancers are concentrated among specific groups of the working population, for whom the risk of developing a particular form of cancer may be much higher than for the general population. About 20–30% of the working-age population (people aged 15–64 years) may have been exposed to lung carcinogens during their working lives, accounting for about 10% of lung cancers worldwide [WHO Database]. That occupational carcinogens are causally related to cancer of the lung, bladder, larynx and skin, leukaemia and nasopharyngeal cancer is well documented in this paper. Worldwide overview of occupational cancer scenario and a close-ended survey of workers from some carcinogen exposure prone industries revealed significant facts regarding onset of cancer and gave a clear picture of the carcinogenic environment in workplaces. Avoidance of certain kinds of foods and following a diet rich in antioxidants have long been documented for in favour of cancer prevention. The presence of increased levels of exogenous antioxidants has been shown to prevent the types of free radical damage that have been associated with cancer development. Antioxidant rich chewing gums (IC_{50} value of 4.5-8mg/mL) of sweet (Sample A) and sweet-sour (Sample B) flavours were developed using established food sources of antioxidants. The chewing gums were found to have a good amount of total phenolic and flavonoid content validating their richness in terms of antioxidants.
Keywords: Cancer, Occupational, Exposure, Carcinogens, Environment, Antioxidants.

ISCA-ISC-2017-3BS-05-Oral

Studies on plasmid-borne antibiotic resistance and heavy metal tolerance among sewagewater bacteria, India

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Abstract: The antibiotic resistance and heavy metal tolerance of sewage bacteria are reported from different parts of the world. The current study aims to antibiotic susceptibility testing and heavy metal tolerance in sewage water in and around Malda, India. Six samples were collected from municipality sewage system near university of Gour Banga, Malda (India). Bacteria isolated from sewage water and identified by conventional methods. Antibiotic susceptibility testing was performed by disc diffusion method and heavy metal tolerance of the isolates was determined by agar dilution techniqueusing six salts. Plasmid DNAs isolated from bacteria were subjected to agarose gel electrophoresis and visualized under UV-gel doc.All the samples were contaminated with gram- negative (n=6) bacteria: *Escherichia coli* (n=3), *Pseudomonas aeruginosa* (n=1), *Proteus mirabilis* (n=1) and *Budviciaaquatica* (n=1). Multiple antibiotic resistance (MAR) index of isolates ranged from 0·2 to 0·9. The order oftoxicity of heavy metals was: $HgCl_2 > CdCl_2 > K_2Cr_2O_7 > CuSO_4 > ZnSO_4 > BaCl_2$ against the testbacteria. *E. coli* showed the highest resistances to antibiotics. A single plasmid band of ≈ 54 Kbwas observed in the isolated bacteria.
Keywords: Antibiotic resistance, Heavy metal tolerance, Plasmid DNA.

ISCA-ISC-2017-3BS-06-Oral

In vitro evaluation of the antioxidant and antidiabetic activity of the polar solvent extract of *Laetiporus sulphureus* (Bull.) Murrill

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Abstract: *Laetiporus sulphureus* (Bull.) Murrill belongs to the family of Polyporaceae, which is a appears strident orange or sulphur with yellow coloration, commonly known as chicken of the wood, which found in hardwood and cautiously consumed by the human. The recent research revealed it is having the prominent sources of antioxidants and other pharma active component. Therefore led to carry *in vitro* determination of antioxidant and antidiabetic properties of *L. sulphureus*. In the current studies, employed various polar solvent for extracts preparation. The experimentation was recorded that the methanol solvent had shown a maximum yield of extracts. The significant results were obtained for antioxidant and antidiabetic assayed. The recorded values decrease dose dependently with increasing order of concentration of extracts with

IC_{50}. The studies are suggested that the *L. sulphureus* having therapeutic and nutritive values, which will be used for various human ailments and also provide alternative sources for pharmaceutical industry instead of chemically synthesized materials.
Keywords: Chicken of the wood, Antioxidant, Antidiabetic, Suitable solvent and human ailments.

ISCA-ISC-2017-3BS-07-Oral

Impact of pesticide tolerant rhizobacteria on *Macrophomina* disease management and growth promotion in cowpea

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Abstract: Cowpea (*Vigna unguiculata* L.), an important annual legume, suffers from charcoal rot, root rot and seedling blight disease caused by *Macrophomina phaseolina* (Tassi.) Goid infecting from seedling till harvest. The present study involves biological management of *Macrophomina* diseases in *Vigna* by pesticide tolerant isolates of rhizobacteria namely *Bacillus cereus* (NCIM 5557), Tn-4, *Bacillus safensis* (NCIM 5558) and Tn-6 tolerant to at least 0.1% methomyl, imidacloprid, carbendazim and *Pseudomonas* Tn-1 tolerant to 0.1% carbendazim and methomyl only. Of these, Tn-6 exhibited maximum antagonistic activity against pathogen *in vitro,* inhibiting up to 63.3%. Antibiosis, production of volatile and non-volatile organic compounds, cell wall degrading enzymes (CWDE), siderophore as well as IAA production and phosphate solubilization ascribed to the mechanism of biocontrol and plant growth promotion to the rhizobacteria. Field evaluation of the bioagents for disease control and growth enhancement resulted highest (74.7%) percent of disease control by Tn-6. Tn-1 increased root length whereas Tn-6 increased shoot length, nodule counts, fresh and dry weight as well as yield per *Vigna* plant. The PGPRs induced systemic resistance (ISR) in *V. unguiculata* under challenged inoculation with pathogen by triggering enhanced production of enzymes like Peroxidase (PO), Polyphenol Oxidase (PPO), Phenylalanine Ammonia Lyase (PAL) and Chitinase.
Keywords: *Macrophomina phaseolina,* Cowpea, Pesticide tolerant Rhizobacteria, Disease control, Growth promotion, ISR.

ISCA-ISC-2017-3BS-08-Oral

Duplication and divergence of MIPS gene family among green plants in relation to functional expression

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Abstract: Phylogenetic analysis of essential gene family among the distinctly evolutionary separated groups provide important clues for assessing their functional variance. MIPS (myo inositol 1-phosphate synthase, EC 5.5.1.4) is a key regulating enzyme in the inositol biosynthesis, reported from wide range of taxa. The enzyme has been reported to the activity in differential biotic and abiotic stress responses, development and essential signal transduction. However, the lineage specific functional disparity of all its existing variants is meagrely understood so far. Present study involves in fishing out the corresponding MIPS varieties from sequenced plant genomes and detailed downstream analyses towards understanding its differential function performances. Distribution of specific isoforms among the evolutionary divergent taxa through duplication and compositional variations were investigated. Due to the tandem or genome duplication varying number of copies are observed. Bioinformatics analysis provides important insight into the divergence pattern of MIPS among green plants. Particular isoforms were found to be constituent throughout all members investigated whether some of were confined within specific taxa supporting the source plant to express varying stress resistance. Differential expression and promoter analysis of the corresponding genes are in congruence with the earlier findings. Overall, the study provides important findings regarding the link between diversity in existence and function of MIPS gene family toward unveiling their diverse role in plant life.
Keywords: Duplication, Evolution, Functional specificity, Isoforms, Myo inositol 1-phosphate synthase, sequence variation.

ISCA-ISC-2017-3BS-10-Oral

Effect of carbamate, organophosphate and organochlorine pesticides on nitrogen fixation of cyanobacteria *nostoc paludosum*: a quantitative assay

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Abstract: During the present investigation, four commercial grade pesticides as two carbamate pesticides, Furadan and Sevin and one each of organophosphate and organochlorine, Rogor and Endotaf respectively, were used to study their effect on the nitrogen fixation of commonly occurring Cyanobacteria (blue-green alga), Nostoc paludosum. Total nitrogen (%) fixed by

the tested alga at each concentration (ppm) of studied pesticides was estimated by conventional Micro- kjeldahl method. The results obtained in the laboratory cultures indicates that, Nostoc paludosum showed a progressive decrease in the total nitrogen content with increasing concentrations of the Furadan, Sevin, Rogor and Endotaf pesticides. However, at lower doses of the pesticides viz. 2.5 ppm to 10 ppm of Furadan, Sevin and 2.5 ppm to 5 ppm Rogor and 2.5 ppm of Endotaf, total nitrogen fixed by the tested alga increased over the control. While at higher dose level i.e. 250 ppm Furadan, Sevin, Rogor and 100 ppm Endotaf, the Nostoc paludosum showed 76.5%, 81.4%, 88.2% and 94.8% decline in total nitrogen content than the control respectively. In general, it was seen that at higher doses of pessticides application i.e. more than 10 ppm Furdan, Sevin, Rogor and Endotaf adversely affected the nitrogen fixation efficiency of Nostoc paludosum in the laboratory cultures. Further it was concluded that, indiscriminate use of studied pesticides had deleterious effect on survival and nitrogen fixation of Nostoc paludosum and at the recommended doses of pesticides had no deleterious effect under various crop fields.

Keywords: *Nostoc paludosum*, Furadan, Sevin, Rogor and Endotaf pesticides, Nitrogen fixation.

ISCA-ISC-2017-3BS-11-Oral

The toxic effect of roger pesticide on fresh water male crab *Barytelphusa guerine*

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Abstract: India is the second largest populated country in the world, as the food demands increases cultivation of crop is also increases. For the production of food crop, pest management is one of the challenges for the crop cultivators. Pest managementof Indian former totally relies on the chemical pesticide. In the last few decade Indian former used excessive amount of pesticide to control pest that leads to cause pollution of land, water and air ecosystem. Water is one of the key factors of the ecosystem. Pesticideresidue reaches in water bodies and biomagnified in aquaticanimals. Crab is common food among the tribes in Marathwada region in Maharashtra state (India), it also has the medicinal properties. Pesticide in water bodies poses impact on crab and other species in water bodies. Pesticide is one of the important compound behind extinction of many species.In the present investigation impact of roger pesticide on fresh water crab *Barytelphusa guerine* was studied in controlled condition and the effect of pesticide on oxygen consumption and the lethal dose of roger was studied. This study showed that 0.4 ppm of roger exposure from 24 to 94 hours does not fatal to the crab, whereas 4.0ppm of roger from 24 to 94 hour is lethal and the mortality rate is up to 90%.The rate of oxygen consumption increase at 24 hour and then slowly decline up to 96 hours.

Keywords: *Barytelphusa guerine*, Pesticide, Roger, Mortality, Ecosystem.

ISCA-ISC-2017-3BS-12-Oral

Avian fauna of forest Pimpaldari, Aundha Dist. Hingoli, MS, India

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Abstract: Pimpaldari is village in aundha (Nagnath) forest area, near about 17 km. from aundha. The pimpaldari forest is densiely cultivated teak forest. This forest exhibits typical forest birds fauna. A study was conducted during the year June 2014 to May 2016. In this study near about 20 species of birds are observed. These species are belong to the family- Accipitridae, Columbidae, Psittacidae, Cuculidae, Apodidae, Alcedinidae, Meropidae, Coracidae 12 family Dicraridae, Sturnidae, Corvidae, Pyeonotidae, (Timalinase) Subfamily, Syluinae, Turnidinae, Passerinae, Estrididae, order – Faiconiformes, Columbiformes, Psttaciformes, Cuculiformes, Apodiformes, Coraciformes, Passeniformes = 07 Orders. The maximum number of family species is observed in Psittacidae family. The minimum number of family species are observed in Aecipitradae. Species distribution is also studied seasonal impact of birds population is observed in study and this is discussed in the text.

Keyword: Avian Fauna, Pimpaldari Forest Aundha.

ISCA-ISC-2017-3BS-13-Oral

Role of the DEAD-box RNA helicases in regulating responses to multiple abiotic stresses in the Arabidopsis thaliana plant model

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Abstract: Rapid global climate change has had a huge direct impact on crop productivity off late. Abiotic stresses are key environmental factors directly affect crop productivity. Most of recent research directed towards single stress factor.

However, research focus towards multiple abiotic stresses instead of single stress would be an ideal solution for developing multiple abiotic stress tolerant plants to sustain crop productivity to cope with climate change. DEAD-box RNA helicases are involved in several cellular processes including responses to multiple abiotic stresses. The genomic screening of DEAD-box genes of model plant *Arabidopsis thaliana* showed up- and down- regulation to different abiotic stresses and *in silico* and *in vivo* protein-protein interaction with key DEAD-box RNA helicases and STIPs. Multiple early abiotic stress results of *eIF4A-III, atrh37, drd1* and *strs1* DEAD-box gene knock outs have shown negative regulation to multiple abiotic stresses. Our research aimed at elucidating the molecular mechanism of negative stress regulation of DEAD-box RNA helicases in multiple abiotic stress responses using a range of molecular genetics, cell biology and functional genomics approaches. Our findings would be applicable in developing multiple abiotic stress tolerance in crop plants using breakthrough multiplex-multi gene CRISPR/Cas9 genome editing which is underway in our laboratory.

Keywords: Multiple abiotic stress, Climate change, DEAD-box RNA helicases, Negative regulation, CRISPR/Cas9, *Arabidopsis thaliana.*

ISCA-ISC-2017-3BS-14-Oral

Distribution of oral microflora among dental caries infected 3-19 year olds in Allahabad, India – A pilot study

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Abstract: Oral health influences the general quality of life and poor oral health is linked to chronic conditions and systemic diseases. The relation between Streptococcus mutans and the human race has been well documented over the centuries that witnessed the disease at its helm. Approximately 80% of the world inhabitants rely on traditional medicine for their primary health care and plants also play an important role on the health care system of the remaining 20% of the population. Dental caries is a public health problem due to its widespread characteristic, cost of treatment and effects on the quality of life. The World Health Organization (WHO) has also laid out strategies to preserve oral hygiene. The major objective is to correlate this multi factorial disease with simple "non-risky" habits of any population unaware of the impact caused by dental caries. The dietary habits and oral hygiene defines whether or not a particular strain of Streptococcus mutans would become pathogenic. Prevalence of dental caries is reported to be about 50-60% and very few Indian studies have been carried out. In the present pilot study, out of the total 202 patients the distribution of the Oral flora was 94.18% among Gram-positive and 5.82% among Gram-negative micro organisms respectively.

Keywords: Distribution, microflora, dental caries, 3-19 year.

ISCA-ISC-2017-3BS-15-Oral

Development of organic carrier based PGPR bio *formulation* for growth and yield enhancement in rice

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Abstract: Organic crop cultivation has always posed innumerable challenges on farmers. In today's world, crop cultivation strategies are changing towards sustainable agriculture production with less impact on environment. PGPR plays a pivotal role in maintaining the fertility of the soil. The present study helps in the development of an organic carrier as well as an inorganic based bioformulation for plant growth enhancement and improvement of soil health. A total of 128 bacterial isolates were isolated from pristine soils and screened for IAA, Phosphate and EPS production. Three promising bacterial isolates FS11.1, AG1.4 and FS18.1 were selected for the preparation of bioformulation. The *in vitro* growth promoting efficacy was tested using FS11.1 by roll towel method in rice IW ponni. The bacterial isolates FS11.1 and FS18.1 were identified by 16s rDNA sequencing as *Bacillus asahii* and *Bacillus thuringiensis.* Fruit peel powder and talc based bioformulation was used as organic and inorganic carrier respectively. The enriched organic, inorganic carrier based bioformulations were tested in rice variety IW Ponni against control using pot culture studies by CRD method with replicates. The results exhibited that enriched seed and soil treatment showed better growth promotion in comparison with all the other treatments and control. The results obtained were analyzed using statistical tools.

Keywords: Bioformulation, Exopolysaccharide (EPS), Plant growth promoting rhizobacteria (PGPR), Organic and inorganic carrier.

ISCA-ISC-2017-3BS-16-Oral

Screening and identification of biopesticidal compounds from bacterial source for the control of dengue vector *Aedes Aegypti*

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Abstract: *Aedes aegypti* has played a major role in dramatic expansion of dengue worldwide. Our present study focuses on the development of biopesticidal exotoxin for the control of Dengue vectors using *Pseudomonas spp. Pseudomonas* strains KUN1, KUN2, KUN3, KUN4, KUBS isolated from the rhizosphere soil of the agricultural fields in Coimbatore and it was identified by morphological, cultural and biochemical characteristics as *Pseudomonas*. The extra cellular filtrate were separated from *Pseudomonas* strains KUN1, KUN2, KUN3, KUN4, KUBS cultured in four different medium such as Kings B, GPS, NB and modified medium and get lyophilized. The mortality rate was recorded against IV instar larvae of *Aedes aegypti* using the culture filtrate and outermembrane vesicular proteins of above strains. The concentration of exotoxin treated was 100µg/ml. It was interesting to note that the exotoxin of the *Pseudomonas aeruginosa,* KUN2 cultured in modified medium showed 93% mortality in 24hrs and 100% mortality in 48hrs exposure. Further the proteins and secondary metabolite from the culture filtrate of KUN2 were bioassayed separately against the *Aedes aegypti* larvae was noted that the secondary metabolite extracted using petroleum ether showed 100% mortality percentage at 48hrs exposure. The Outer membrane vesicular proteins recorded 30% mortlity in *Aedes aegypti* larvae.
Keywords: *Aedes aegypti, Pseudomonas,* extracellular, omv proteins.

ISCA-ISC-2017-3BS-17-Oral

Metabolic engineering approaches in enhancement of bacterial nanosilver synthesis

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Abstract: Silver nanoparticles have a wide range of applications, the major one being effective antimicrobial agents. The scenario of nanotechnology research in present day is dominated by eco-friendly methods of synthesising nanoparticles. Bacteria have the ability to convert silver nitrate solution to silver nanoparticles as a defence mechanism, and have been explored as sources of silver nanoparticles. The mechanism of this either involves reduction of Ag^+ by NADH-dependent nitrate reductase or the bioadsorption of Ag^+ on to a modified cell wall. However, yield of nanoparticles from bacteria is very less, making industrial-scale production difficult. A potential, yet unexplored, solution to this problem involves the use of metabolic engineering to enhance yield. Metabolic engineering is the recircuiting of the metabolic network to direct the cellular resources towards the product of interest. The first step to this is complete elucidation of the metabolic pathway and its subsequent mathematical modelling to understand it from a quantitative perspective. This reveals information on the flux distributions and control systems of the metabolic pathway, allowing us to perform various strain improvement strategies. The present study critically analyses the feasibility of employing metabolic engineering to enhance the bacterial synthesis of nanosilver.
Keywords: Metabolic Engineering, Silver Nanoparticles, Bacterial Synthesis, Nitrate Reductase, Strain Improvement.

ISCA-ISC-2017-3BS-18-Oral

Optimisation of microbial lipid production: a critical review

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Abstract: The exponentially depleting fossil fuel reserves has led to the growth of lipids being used as an alternate potential feedstock, derived from varied sources including plants, animals and microbes. In comparison to plant and animal sources, microbial sources can generate higher fractions of polyunsaturated fatty acids but their extraction is not industrially feasible or economical. These technical constraints have led to the development of various approaches to enhance the yield and to relatively cut down the cost of production. These approaches include identifying candidate strains, which have high lipid content, statistically optimising culture conditions for the selected strains and genetically modifying metabolic pathways to restrict the production of by-products which interfere with the process of extraction or inhibits the accumulation of lipids and to increase the accumulation of lipids by over expression of enzymes or multiple genes. This review gives an overview and analyses the mentioned approaches used over the recent years. Isolation and identification of oleaginous strains has now been over explored and genetic modification is a costly affair. Hence, statistical optimising the production of already identified oleaginous strains is the most desirable approach.
Keywords: Microbial Lipids, Design of Experiments, Plackett-Burman, Response Surface Methodology, Taguchi Design.

ISCA-ISC-2017-3BS-19-Oral

Evaluation of statistical approaches to optimise single-cell protein production: potential solution to global food crisis

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Abstract: Single-cell protein (SCP) is a potential but under-developed alternative to solve the global food crisis of present day. SCP, the protein extract from single-celled organisms like algae, fungi, yeast or bacteria, has the advantages of being cheaper than conventional sources of proteins from crops and animals, high yield and production rate. However the major challenge faced in industrial scale production of SCP is its limited procurability (around 5% of total biomass). The other components present in the produced SCP can lead to various health issues like nucleic acid contamination leading to gastrointestinal problems. Purification of SCP to get rid of all these by-products increases its cost. In view of this, optimization of process physico-chemical parameters to enhance the quality and quantity of SCP production is a bare necessity for large scale industrial production and commercialization of the process. The present study critically analyses the various methods of SCP production optimisation, their advantages and disadvantages, and their potential in solving the prevailing global food crisis. Additionally, the existing downstream processing practices have been reviewed, and the methods to improve the efficiency of mass transfer, thereby enhancing the efficacy of downstream processing, have been discussed.

Keywords: Single Cell Protein, Design of Experiments, Mass Transfer, Downstream Processing, Nutritional Supplement.

ISCA-ISC-2017-3BS-20-Oral

Quality and shelf life analysis of Mushroom Biscuits

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Abstract: Mushrooms have long ago drawn the attention of human beings for nutritional and medicinal values and now a day it is considered as a leading food. The technology for ready to eat food product preparation is now rapidly advancing in India. The present study deals with the shelf life period of mushroom biscuits developed from *Pleurotus ostreatus* (Oyster mushroom) and stored in aluminum and laminated packaging material at ambient temperature (30±2˚C). The results indicated that the initial composition of protein (35.89 ± 1.21^{a}, 36.41 ± 0.97^{a}), carbohydrate (48.31 ± 2.07^{b}, 48.12 ± 1.05^{b}), fiber (31.41 ± 0.97^{c}, 30.41 ± 0.66^{c}) and ash (12.31 ± 0.64^{d}, 13.02 ± 0.81^{d}) were low in *P. ostreatus* biscuits. As months progressed from 1 to 6, the composition of protein (34.36 ± 0.91^{a}, 36.00 ± 1.53^{a}), carbohydrate (44.93 ± 1.34^{b}, 47.34 ± 1.34^{b}), fiber (30.41 ± 0.81^{c}, 30.24 ± 0.71^{c}) and ash (12.29 ± 0.84^{d}, 12.89 ± 1.05^{d}) in *P. ostreatus biscuits stored in both* aluminium and laminated packaging material were found to be significantly ($p<0.05$) decreased with the increasing storage days. A gradual increase in PH, moisture, FFA, Total Plate Count (TPC) and Sensory were observed biscuits during storage period. No spoilage occurred during the storage period. This could be the preservative action of ingredients on food products till the 6th month of storage period.

Keywords: Biscuits, *Pleurotus ostreatus*, Oyster mushroom, Shelf life, Total Plate Count.

ISCA-ISC-2017-3BS-21-Oral

Studies on some plant species from Western Ghats region of Ahmednagar district India, with respect to conservation

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Abstract: The present work deals with the experience and efforts of promoting propagation and conservation of some endemic; medicinal plant species which are facing threats for their existence from of Western Ghats regions. The endemic and medicinal plant species were abundant in this region and can be exploited due to improper management. Harvesting, grazing, shifting cultivation and uprooting of plant species for the purpose of food, fodder and medicines by tribal and local people; Construction of dams, lakes and roads are found the major cause for their threats. Study shows species of *Ceropegia* L.*, Dioscoria* L.*, Gloriosa* L. became rare. The endemic species of genus *Smithia, Pinda, Pimpinella, Momordica Caraluma* and some important medicinal species of genus *Chlorophytum, Rubia, Rauvolfia, Abrus, Hemidesmus, Mundulea* and *Cullen* were noted. Seeds and propagating material was tried for their conservation. Propagation through seed shows successful results. Transplantation through tubers requires similar ecological conditions. Well-drained soil, rich organic matter and

sunny positions are good for *Dioscoria* L. Seeds of *Gloriosa* L. germinate well in wet and dumpy soil. Plants require rich organic soil and sunny situation.

Keywords: Conservation studies, Plant Species, Western Ghats region.

ISCA-ISC-2017-3BS-22-Oral

Chicken antibodies – an alternative source of antibodies against rabies viral antigen

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Abstract: The study provides a platform to make chicken antibodies (IgY) an alternate source of antibodies to treat rabies infection in developing countries. The study also attempts to provide an overview of the possibility of replacing IgG (antisera) by IgY antibodies. The Egg profiling is also studied in this work. Producing antibodies in a large scale in egg laying chickens is commercially feasible in view of their low body weight and high rate of egg production. It is relatively easy, economical and safe to collect eggs from hens compared to the bleeding the horses, rabbits and other mammals for their serum. HRIG (Human Rabies Immunoglobulin) and ERIG (Equine Rabies Immunoglobulin) are highly expensive and less abundant. In this study, we have analyzed the titer of IgY antibodies and compared with IgG antibodies raised in rabbits. It has been noted that the abundance of antibodies have been procured from white leg horn chickens compared to the anti sera antibodies raised in rabbits. The specificity of the Rabies viral antigen has also been analyzed by Double Immuno Diffusion and ELISA technique.

Keywords: Rabies, IgY, HRIG, ERIG, ELISA.

ISCA-ISC-2017-3BS-23-Oral

DNA barcoding of tea samples to check for adulterants – a novel technology

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Abstract: Tea, manufactured from the perennial tree *Camellia sinensis* is a premium product world over. Lot of value addition have emerged in the tea beverage market to gain consumer satisfaction. Being a product that undergoes significant morphological and biochemical changes during its processing is often targeted to adulterate the final produce for profit and result in likely loss of consumer confidence. Accurate labelling of the product with its ingredients is essential to gain consumer confidence. Most often analytical techniques fail to estimate the amount of biological adulterants in the final produce. Hence, DNA based technologies/barcoding plays a vital role in adulterant check. In the present study, we attempted to identify the tea constituents by DNA barcodes of land plants. Genomic DNA was isolated from the tea germplasm of south India and subsequent PCR was performed for *rbcl* and *matk* regions. Subsequently the DNA was also extracted from the black tea, green and commonly reported adulterants of tea and amplified using the target regions. PCR conditions were standardized to obtain repeatable amplicon of interest. The PCR products were purified and send for sangers sequencing. The sequences obtained will serve as a part of NCBI database for the tea germplasm and cross checking the sequences obtained from samples will help in finding the possible adulterants. Hence, the study will result in labelling the ingredients for its contents there by gaining consumer appreciation.

Keywords: DNA barcoding, Camellia, Tea, Adulterant, PCR.

ISCA-ISC-2017-3BS-24-Oral

Expression pattern of promoters of Indian cassava mosaic virus in tomato fruit

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Abstract: In the current scenario, heterologous promoters are very much important for expression of any transgene. Although a variety of promoters have been isolated from numerous organisms over the past several years, very few of them are commercially available. Unavailability of a large number of well-characterized promoters is a serious impediment in formulating transgene expression strategies. Geminiviruses, in particular, are diverse with respect to its hosts (natural and artificial) as well as genome diversity among different genera, making them more suitable source for promoter hunt. In the present investigation, the bidirectional promoters of Indian cassava mosaic virus (ICMV) and their deleted versions cloned to express GUS reporter gene were agro-inoculated in tomato fruit which is considered a model fruit for easy and rapid detection of transient expression. Among the tested promoters, two of the deleted versions expressed strongly than the parent promoters. In silico analysis of transcription factor (TF) binding affinity of the promoters using TRANSFAC showed the

involvement of some unique TFs explaining the role of positive and negative regulatory elements of the promoters. This is the first report of deletion analysis of ICMV promoters.

Keywords: Promoter analysis, ICMV, Deletion analysis, TF binding affinity, TRANSFAC, GUS expression, Transient expression.

ISCA-ISC-2017-3BS-25-Oral

Molecular characterization and genetic diversity study of Banana bunchy top virus infecting Banana cultivar Jahaji (Dwarf cavendish) in Assam, India

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Abstract: Banana bunchy top disease is considered a serious threat for banana production worldwide, which is caused by a single-stranded DNA virus, Banana bunchy top virus (BBTV), a member of the genus Babuvirus (family, Nanoviridae). We identified an isolate of the virus infecting banana cultivar, Jahaji (Dwarf cavendish) (named as BBTV-As-JOR) from Jorhat, Assam. The full-length genome sequencing revealed the presence of six genomic segments (DNA-R; 1111bp, DNA-U3; 1059bp, DNA-S; 1075bp, DNA-M; 1046bp, DNA-C; 1019bp and DNA-N; 1089bp). The presence of the conserved regions, namely, the major common region (CR-M) and the stem-loop common region (CR-SL) among all segments was found by in silico analysis. A unique 36nt deletion was found in the DNA-U3 segment of our isolate. The length of both conserved regions and similarity of all predicted proteins, encoded by corresponding ORF's confirms the close relationship of BBTV-As-JOR with BBTV-Lucknow. The phylogenetic analysis based on 313 complete nucleotide sequences of DNA-R segment available in the database, including our isolate, clustered into two major groups, Pacific Indian Oceans (PIO) and South-East Asian (SEA). The genetic grouping revealed clustering of BBTV-As-JOR within PIO group and close relationship with previously reported Indian isolates. Similar results were observed while analyzing phylogenetic grouping of other segments.

Keywords: Nanoviridae, in silico analysis, stem loop, Pacific Indian Oceans (PIO) and South-East Asian (SEA).

ISCA-ISC-2017-3BS-26-Oral

Study of Species Diversity of Butterfly and their post plants from Northern Western Ghat (Khed Tahsil) Pune, District Maharashtra, India

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Abstract: Butterflies are highly sensitive to environmental changes like humidity, temperature therefore they consider as indicators of environmental health and quality. This gave high importance to butterfly study. Diversity of nectar food plants of Khed tahsil attracts varity of butterflies. The attempt was carried out on diversity of butterflies and its host nectar plants from June 2016 to September 2017 using transect lining method. During the course of present studies 46 species of butterflies belonging to 5 families namely papilionidae (4), pieridae (11), Nympholidae (18), Hesperdiidae (4), Lycaenidae (9), were observed .diversity of food plants, varying season provides suitable breading habit to butterflies.

Keywords: Diversity, Lepidoptera, Northern western ghat (khedtahasil), Nectar host plants.

ISCA-ISC-2017-3BS-27-Oral

Heterologous expression of *PDH47* confers drought stress tolerance in transgenic rice by regulating proline metabolism

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Abstract: Proline plays a major role in adaptation to abiotic stresses such as drought and salt by participating as an osmolyte, apart from its role in protein biosynthesis. During stress, recently several reports described activation of genes encoding enzymes for glutamate and ornithine-based proline biosynthesis pathways. Here, we developed transgenic rice by overexpressing *Pea DNA Helicase 47* (*PDH47*) under the control of constitutive 35S CaMV promoter. The overexpression of *PDH47* in the transgenic lines during drought stress was correlated with increased accumulation of osmolytes like proline. Furthermore, the drought responsive DEAD-box helicase gene, *PDH47* was found to regulateproline metabolism genes. Our results also suggested that the glutamate biosynthesis pathway is more dominantly contribute for proline accumulation over

ornithine pathway in transgenic rice overexpressing *PDH47* transcripts during drought stress. These findings correlated with the internal proline concentration in the transgenic rice as well as wild type (WT) rice.

Keywords: Proline, Drought, *Pea DNA helicase 47*, DEAD-box helicases, Rice, P5CS, P5CR, OAT, P5CDH.

ISCA-ISC-2017-3BS-28-Oral

Evaluation of free radical scavenging activities of *Zingiber kangleipakense* (Kishor and Škorničk) and *Zingiber zerumbet* (Linn.) ex. Smith: a comparative analysis

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Abstract: A comparative study of *in vitro* antioxidant properties of *Zingiber kangleipakense* (Kishor and Škorničk) and *Zingiber zerumbet* (Linn.) ex. Smith was done using thiyl free radical scavenging assay, ferric ion reducing power assay, metal ion chelating assay and DPPH free radical scavenging assay. Phytochemical constituents such as total phenol content (TPC), total flavonoid content (TFC) and ascorbic acid content were estimated using calibration curve and expressed in $mg.100g^{-1}$. Fresh matured rhizomes were used for the preparation of extracts using 60% aqueous methanol and aqueous ethanol as solvents. Both plant extracts showed significant antioxidant activities in which 60% methanol extracts had relatively higher efficiency than 60% ethanol extracts. The degree of antioxidant potentials was found to be increased with increasing concentration of the plant extracts. *Zingiber kangleipakense* exhibited relatively higher scavenging activity against free radicals as compared to *Z. zerumbet* in most of the antioxidant assays. The activities to scavenge free radical species may be attributed to the presence of various bioactive molecules such as polyphenols, flavonoids, ascorbic acid and other bio-active molecules. Observed antioxidant potentials of the extracts revealed that the plants are sources of natural antioxidants rich in nutraceutical as has been widely acclaimed in traditional system of medicine.

Keywords: Antioxidant, free radicals, DPPH.

ISCA-ISC-2017-3BS-29-Oral

Effect of aqueous bark extract of *Ficusbengalensis* on carbohydrate, protein and lipid metabolic enzymes of variousorgan tissues in STZ induced type 2diabetic rats

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Abstract: Our aim was to validate the effect of aqueous bark extract of *Ficusbengalensis* on carbohydrate, protein and lipid metabolic enzymes of various organ tissues in STZ induced type 2 diabetic rats.The aqueous bark extract of *Ficusbengalensis* was administered orally to STZ induced type 2 diabetic rats (6 rats /group) in doses 50, 100 and 150 mg/kg bw/day and glibenclamide 100 mg/kg bw/day) for 48 days. Normal and Diabetic control rats were administered with saline. After treatment period the rats were sacrificed and a portion of various organ tissues was used for the assay of key enzymes of carbohydrate, protein and lipid metabolism by standard protocol. The statistical analysis was performed using the SPSS software package, version 16.00. Oral administration of aqueous bark extract *Ficusbengalensis* (50, 100, 150 mg/kg bw/day) significantly ($F>0.05$; $P<0.001$) reversed and normalized the levels of carbohydrate, lipid and protein metabolizing enzymes in various organ tissues in STZ induced diabetic rats when compared to the standard drug glibenclamide (100 mg/kg bw/day). It canbe concluded that glycogenic process delayed the absorption of carbohydrate and decreases the hepatic gluconeogenesis.

Keywords: *Ficusbengalensis*, Carbohydrate, Protein, Lipid, Enzymes.

ISCA-ISC-2017-3BS-30-Oral

A systematic review of publication reports from Assam, India using scientometrics

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Abstract: The world is facing the issue of Big Data and there is no exception with the literature data. Scientometrics provides great insights by performing meta-analysis on publication data. Despite Assam being the hub of bio-resources and growing number of reports from this area, there is no report to represent the scenario of publication in a particular field or at a point of time. Reports from PubMed with affiliation "Assam" on 1st November, 2017 were retrieved and screened based on the availability on the Web of Science (WoS) server. Bioconductor packages and R scripts were used for the bibliometric analysis followed by co-author and collaboration networks. Year wise increasing trend was observed in the number of

publications. Among 3772 PubMed reports retrieved, 2485 were selected based on their presence in WoS, published in a total of 666 journals. The annual percentage growth rate was -7.41 and the collaboration Index was 3.03. we found that USA is the country which has maximum number of collaborated articles(54) with India and a total citation of 1320. The present study provides a systematic review of the published reports from Assam and can be treated as a measure of the changes in research productivity in the past years.

Keywords: Scientometrics, PubMed, WoS, meta-analysis, bibliometrics, R.

ISCA-ISC-2017-3BS-31-Oral

Exploring the impact of mutations infab G1 of M. tuberculosis using Molecular Dynamic Simulations

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Abstract: Tuberculosis (TB) still remains as the most deadly infectious disease in the world. In 2015, the WHO estimated that over 1.4 million deaths are caused world-wide due to M. tuberculosis infection. Therefore, there is an urgent need for developing new drugs to combat M. tuberculosis. The β-ketoacyl-ACP reductase (fabG1) is one of the complex enzymes that is responsible for the production of long chain fatty acid derivatives (key precursors to mycolic acid,) which are the main constituents of M. tuberculosis cell wall. The structural features of fabG1, especially its affinity for long-chain substrates, pave the way towards the development of fabG1-specific substrate analogues, which can lead to the design of novel anti-tuberculosis drugs. According to some of the recent reports, it was proposed that the mutant fabG1 structure should be considered for the in silico drug development instead of wild-type one. Hence, to understand the structural and dynamic behaviour of the mutant(s) and wild-type fabG1, long-range molecular dynamics simulation were performed. The finding of this study indicates that the $fabG1^{WT}$ was found to be more stable in comparison to the mutant ones. Overall, this study will help in understanding the effect of the mutation(s) in fabG1 and will also help in designing novel analogues to combat the M. tuberculosis.

Keywords: Tuberculosis, fabG1, Molecular dynamics simulation, Mutant, WHO.

ISCA-ISC-2017-3BS-32-Oral

Potential of dumpsite bacterial isolate to produce polyhydroxybutyrate in stress prone environment

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Abstract: Different bacterial cultures from dumpsite soils (stress prone environment) were isolated and screened for their potential to synthesize the biopolymer polyhydroxybutyrate (biodegradable bioplastic). Out of 98 bacterial cultures isolated, 38 isolates showed presence of the lipid granules polyhydroxybutyrate. Based on high polymer production, 7 potential bacterial isolates were identified by morphological, physiological and 16SrRNA sequencing and their nucleotide sequences were submitted in the GenBank database under accession numbers KT907042 to KT907047 and KM117225. As biomass production is analogous to polyhydroxybutyrate production, cultural parameters like carbon, nitrogen, pH and temperature were optimized for maximum production of polymer by a potent bacterium *Bacillus pumilus* K8. It could achieve maximum production of 72.93% of PHB with polymer concentration of 5.04 g/l using mannitol, yeast extract, pH7 and temperature 35^{o}C respectively as favourable cultural parameters. *phbC* gene, mainly responsible for polyhydroxybutyrate production was amplified by PCR and this genotypically confirms polyhydroxybutyrate production by the bacterial isolates. *Bacillus pumilus* K8 may be exploited for further industrial production of biopolymer.

Keywords: *Bacillus pumilus* K8, Lipid granules, Sudan Black B, Dump site, Biodegradable polymer.

ISCA-ISC-2017-3BS-33-Oral

A dose dependent comparative study on antifertility and immuno modulartory properties of cytosol fraction and crude extract of spermatheca gland of *Achatina Fulica*

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Abstract: The cytosol fraction of spermathecal extract obtained from species Achatina Fulica showed encouraging results as an antifertility agent. The crude extract of the spermatheca / or ovotestis gland also appeared to be inherent with the immuno

contraceptory properties. This glandular extract was analyzed and found to cross react with antisperm antibodies developed in rabbit. This present experiment was conducted to compare the immuno contraceptive potentiality of the antisera of the spermathecal extract with the crude spermathecal extract and also to explore the biochemical effects of cytosol fraction of spermathecal gland on the gonadal system of vertebrates in vivo. The antiserum of the spermathecal extract was found to interfere in the protein and DNA content in the testis of antisera treated mice compared with the crude extract treated mice and control mice. The observation that the cytosol fraction of spermatheca and / or ovotestis, a complex organ of the mollusks *Achatina Fulica* exhibited antifertility and immune modulatory properties hypothetically could further be employed for many pathological conditions in general including the invention of a suitable antifertility agents from different bio-active substances of invertebrate sources which is still remains a potential area of investigation.

Keywords: Cytosol, Spermatheca, Mollusc, Antifertility, Invertebrate, Bio-active substance, Immuno contraception.

ISCA-ISC-2017-3BS-34-Oral

Can you see us? : Combating the issue of detectability for status evaluation of flying squirrels in a tropical forest, Assam, India

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Abstract: Reliable estimation of population density or abundance is the corner stone of most ecological research and paves the way for sound and robust conservation programs and management plans. However, the tropical forests with its complex physiognomy presents a screening effect to cryptic species like nocturnal flying squirrels, prohibiting researchers from visually tracking them effectively. This results in lack of population status being recorded for most of the flying squirrel species across their distributional range. With the most endangered flying squirrels species occurring in tropical countries with high deforestation rates, the present investigation was undertaken to study the population status of flying squirrel in Hollongapar Gibbon Wildlife Sanctuary of Jorhat District of Assam; conducted from October 2013 to September 2014 and reports two flying squirrel species under two genera of two families from study area. Squirrels were surveyed by applying robust distance sampling method which takes into consideration the detection probability of a species. A total of 18 individuals of *P. petaurista* and 56 individuals of *H. alboniger* were recorded over 60 km of trail.

Keywords: Flying squirrel, Detection probability, Distance sampling, tropical forest.

ISCA-ISC-2017-3BS-35-Oral

Expression of local regulator AcrR is induced in the presence of carbapenem *in Escherichia coli* exhibiting AcrAB-TolC mediated carbapenem resistance

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Abstract: *Escherichia coli* is a well-recognized human pathogen. While most strains do not cause disease, some serotypes are pathogenic. *E. coli* is the most common cause of UTIs worldwide. Gram-negative bacteria, like *E. coli*, have several mechanisms of resistance when it comes to surviving the selective pressure exerted by antimicrobial agents. The study was undertaken to investigate the role of AcrR local regulator of AcrAB-TolC efflux pump providing resistance against carbapenems and their transcriptional response against concentration gradient carbapenem stress from the clinical isolates of *Escherichia coli* from a tertiary referral Hospital of Northeast India. Out of 93 non susceptible *E.coli* isolates 35 isolates were found to acquire efflux pump activity phenotypically. These multidrug resistant phenotypes were tested against all carbapenems and their expressional levels were verified using qRT-PCR under concentration gradient carbapenem stress. Five *E.coli* isolates over-expressing AcrAB and AcrAD efflux pumps against carbapenem stress were selected and subjected to qRT- PCR targeting AcrR gene. According to the result obtained, under normal environment AcrR gene is not expressed but their expression was observed when exposed under sub-inhibitory concentration of carbapenem. All the isolates showed over expression of AcrAB-TolC tripartite efflux pump system. This study underscores the role of local regulators in carbapenem resistance which may be useful in understanding the infection control mechanism in hospital setting.

Keywords: AcrAB, AcrAD, carbapenem, AcrR, *Escherichia coli.*

ISCA-ISC-2017-3BS-36-Oral

Human-wildlife coexistence

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Abstract: Wildlife comprises of all living organisms in their natural habitats which are neither cultivated/domesticated nor tamed. Wildlife is a great source of natural resource comprising of about 81,251 species of animals which accounts for 372 mammals, 1228 birds. During the period of approximately 2000 years, the World has lost by way of extinction about 160 mammals and 88 birds through human interference with nature. Desertification and indiscriminate burning has led to depletion of wildlife. Due to over exploitation of many plants and animals have become extinct. The Indian Blackbuck antelope (*Antilope cervicapra*, L. 1758) was one of the most spectacular and numerous of wild animals living in close proximity to human settlements. Blackbuck, a magnificient symbol of India's indigenous mammals is considered to be the most beautiful of all antelopes because of male's black and white pelage and its long spiral horns. This species, which once roamed in large herds throughout the open woodlands and cultivated tracts of Odisha as well as in India has suffered drastic decline due to combination of poaching and habitat loss. Today it is one of the most isolated and threatened animals in this sub continent (SK Kar. 2001). This animal is an object of special adoration for the people of Balipadar-Bhetnoi areas in the Ganjam district of Odisha. This community is protecting Blackbuck which are associated with their past history, folk lore and religious sentiments. These people still continue to protect Blackbuck in the vicinity of their habitations, despite the damage that the Blackbuck causes to their agricultural crops. These animals do not stay in a particular field for a long time and move from one place to another. Therefore, the loss to any single farmer is minimal Kar. SK. 2000).
Keywords: Blackbuck, Habitat, Census, Biosphere, Gene pool.

ISCA-ISC-2017-3BS-01-Poster

Insights into the probiotic properties of infantile fecal lactic acid bacteria producing antibacterial bacteriocin

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Abstract: The current study determines the probiotic properties of infantile fecal isolates of lactic acid bacteria (LAB) and characterization of bacteriocin isolated from them. Twelve fecal samples were collected and processed microbiologically for the isolation of LAB. The LAB isolates were identified conventionally (three isolates were subjected to 16S rRNA gene sequencing) and subjected to probiotic property and safety profiling. The isolated bacteriocin from three selected LAB were subjected to quantitative, antimicrobial testing, enzyme treatment and PAGE analysis. The LAB isolates were identified as *L. fermentum*, *L. rhamnosus*, *L. plantarum*, *L. acidophilus* and *Lactobacillus* spp. (n=8). The lactobacilli showed tolerance to acid, bile salt and NaCl, and were found γ-hemolytic and gelatin hydrolysis negative. Most of the isolates were sensitive to antibiotics tested. The isolates had excellent antagonistic activity against gram positive and gram negative bacteria. The molecular weight of bacteriocin ranged 10-26 kDa and their yields ranged 0.682-1.128 mg/ml. The LAB bacteriocin inhibited the growth of pathogenic bacteria; zone diameter of inhibition ranged 6-25 mm. The lactobacilli were excellent probiotics, and their bacteriocin had a broad spectrum of antibacterial activity. Thus, the indigenous LAB strains from local niches might be used as excellent biotherapeutics against bacterial infections to humans.
Keywords: Lactic acid bacteria, Probiotics, Bacteriocin, Antibacterial activity, Human pathogenic bacteria.

ISCA-ISC-2017-3BS-02-Poster

Scared groves of Jawahar Sagar sanctuary: a study on vegetation and conservation aspects

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Abstract: The patches of forest dedicated to local deities are known as sacred groves. These groves are usually revered as the adobe of certain God deities and spirits. They are located in areas away from human settlements. The present study involves some sacred groves situated in and around Jawahar Sagar Sanctuary: The study reveals rich vegetation along with some interesting plant species present in these areas. Beside these, the amenity value, role of sacred groves in water conservation and their effect on micro climate of the region and they are the best conservation model of floristic wealth. These sacred

groves are important repositories of floral and faunal diversity and conserved by local communities in a suitable manner and deserve special attention. These groves are important for spiritual, ecological, biological, cultural and historical values.
Keywords: Jawahar Sagar Sanctuary, Groves, Vegetation.

ISCA-ISC-2017-3BS-03-Poster

Effect of different types of malt and hop on ethanol and phenol compound in lager beer

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Abstract: This research was to compare effect of ingredients on lager beer quality by using barley malt and/or mix withrice malt 150g/L and 2g/L of Columbus or Hallertau Hersbruckerhops. After mashing, wort was boiling and hopping thenadjusted the concentration of sugar to 8° brix. The bottom fermentation by *Saccharomyces cerevisiae* M-84 was controlled at 10°C for 14 days. The analysis of sample was taken at day 0, 7 and 14 respectively. Ethanol contents were analysed by Gas Chromatography. Reducing sugars were analysed by using Somogyi-Nelson method while total phenolic compounds were analysed by using Folin-Ciocalteu-phenol reagent method. The results showed that lager beer from Vienna malt and Hallertau Hersbrucker hops had the highest alcohol content at 3.0% at day 14. Reducing sugars were lowest at day 14 of fermentation when using Vienna malt mix with Srisaketjusmine rice malt and Columbus malt. Total phenolic compounds were highest at 603.2 GAE (mg/L) when using Vienna malt mix with Riceberry malt and Hallertau Hersbrucker.
Keywords: Bottom fermentation, Lager beer, Total phenolic compounds, Rice malt.

ISCA-ISC-2017-3BS-04-Poster

MCH values in blood of male and female megachiropteran bat Rousettus Leschnaultii (Desmerest) during reproductive cycle

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Abstract: The Indian fruit bat, Rousettus leschenaultia shows a peculiar breeding cycle. Adult males show double peaks in their testicular weight corresponding to the two pregnancy cycles of the female. The first peak occurs during October–November and the second during February–March. Females show I-pregnancy cycle from December to April and IInd – Cycle from April to July. The blood profile is affected by various factors such as age, gender and reproductive state, by endogenic rhythms of various metabolites as well as by external factors such as season, time of the day, food availability and quality In blood energy is generated almost exclusively through the breakdown of glucose. In Rousettus leschenaulti the Mean Corpuscular Hemoglobin values varied from month to month or in other words according to reproductive status of both the sex in the same direction but with a significant difference. The MCH range in femalewas found to be 13.8 to 36 □mg. The significantly higher values recorded for MCH were in this sequence (November–Oestrous female), (January – mid pregnancy), (March–late pregnancy). An insignificant drop in the higher values were recorded during (December-ovulation + early pregnant), (February-advance pregnancy) and (June-advanced pregnancy/ abortion). The significantly lower values were observed during July, October, April and May, August but variable values were recorded during September. An insignificant sex difference in the MCH values has been observed.
Keywords: Rousettus leschenaultia, MCH, blood, reproductive cycle.

ISCA-ISC-2017-3BS-05-Poster

Bromelain extraction from pinapple (*Ananuscomosus*) stems for powder meat tenderizer

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Abstract: Bromelain extraction from pineapple (*Ananascomosus*) stems for powdered meat tenderizer. Pineapple stem was blended with phosphate buffer at pH 8 for 5 min, after that it was homogenized for 5 min. Crude enzyme solution was filled by muslin cloth and was centrifuged at 10000 rpm. The activity and specific activity of enzyme were investigated. They were found that the activity and the specific activity of the crude bromelain were 23.41 unit/ml and 2.94 unit/mg protein. When the crude enzyme was precipitated with ethanol at 4°C, the ethanol was varied saturated rate. The results showed that at the 60-80% of saturated rate, it had a maximum enzyme activity, specific activity and yield. The results showed that they were 72.98 unit/ml, 2.76 unit/mg protein, 3.19% and 0.28 times, respectively. The precipitation was brought to be lyophilized for 10

hours in order to get some bromelain powder, which gave the total activity and specific activities of 2,042.77 unit/g and 1,483.49 unit/mg protein, respectively. The tenderized meat by bromelain powder was analyzed by texture analyzer, it was showed that 3% (w/w) powdered meat tenderizer of bromelain for 30 min had better quality than the other concentrations and the control.

Keywords: Pineapple, Bromelain, Ethanol precipitation, Meat tenderizer.

ISCA-ISC-2017-3BS-06-Poster

Ariseama murrayi: Ethanomedico practice by Thakar tribal people of Rakshewadi (Chakan), Pune, India

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Abstract: Some of the wild plants are rich source of medicine and these are well known to many tribal peoples. These medicinal plants provide outstanding contribution to the modern therapeutics. The natural medicines are attracting renewed attention from both practical and scientific view points. They have proved their efficiency for primary health care because they are safe and have lesser side effects. Ariseama murrayi (sapkanda) is an ancient plants used as food and medicine for many diseases by tribal peoples from rakshewadi chakan. Present work focuses on the ethano medicinal use of these medicinal plants by thakar tribal peoples from rakshewadi.

Keywords: Ariseama murrayi, Thakar, Ethano medicinal uses.

ISCA-ISC-2017-3BS-07-Poster

Prospecting beneficial Bacteria in Tea soil Metagenome

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Abstract: Tea soil metagenome was studied to identify the bacteria having a beneficial role in tea plant growth and productivity. Bacterial diversity and taxonomic structure was identified using QIIME program, whereas functional insights were derived by screening individual bacteria possessing genes responsible for important plant functions against NCBI database and compared with the metagenome. Several bacterial species were observed in the tea soil metagenome with plant growth promoting factors, mineral solublization, nitrogen fixation, siderophore production, synthesis of the phytohormone, signals for plant root-branching, synthesis of antimicrobial compounds etc. Few species isolated and identified are capable of degrading pesticides and can be utilized for bioremediation of soil. A wide variety of root associated mutualist like *Pseudomonas*, *Bacillus, Rhizobacteria, etc.* capable of mitigating abiotic stress as well as inducing the plants immune system for systemic resistance are observed. The beneficial bacteria like *Pseudomonas stutzeri, Trichomonas azollae, Pseudomonas fluorescens, Serratia marcescens, Burkholderia vietnamiensis, Bacillus cereus, Azospirillum umbrasilense, Pantoea agglomerans, Shewanella sp., Desulfovibrio sp., Achromobacter sp., Serratia fonticola, Paraburkholderia kururiensis, Listeria monocytogenes, Bacillus subtilis etc.* can be exploited *for enhanching tea crop productivity* as well as translation of beneficial bacterial products from basic science to field application.

Keywords: Assam, Tea soil, Metagenome, Bioinformatics, Beneficial bacteria.

ISCA-ISC-2017-3BS-08-Poster

Preliminary study of exploring the potential of *Cleome rutidosperma*- an invasive allelopathic species and its probable role as phytoremediator

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Abstract: *Cleome rutidosperma,* L. (Capparidaceae) commonly known as Fringed Spider Flower or Purple Cleome is an invasive flowering plant, native to Tropical Africa. It is harvested from the wild for local use as a medicine and source of edible leaves. The allelopathic nature of invasive plants may be considered as an inherent silent feature. In order to establish their own existence, invasive plants use diverse mechanisms one of which is release of allelopathic compounds through the roots into the surrounding rhizosphere. *Cleome rutidosperma*, being a herbaceaous plant, mainly release the bioactive compounds required for ensuring its survival through their roots. Root exudates (RE) were collected after growing the plant in a root exudate trapping system. Allelopathic compounds were mainly recovered from the methanol and water fraction and bioassay guided fractionation revealed the methanol fraction to be the most potent bioactive fraction (IC50 400ppm).

Bioactive compounds of the methanol fraction have been isolated and purified by successive running through column chromatography and thin layer chromatography. Identification and molecular characterization of the compound are in progress. Isolation of microbial flora was done by plating 1ml of RE from both healthy and unhealthy plants. An intriguing fact was observed i.e., the fungal colony count in case of healthy roots was drastically greater than that of unhealthy roots. On the other hand, bacterial colony count did not differ much between healthy and unhealthy individuals. Interestingly, this species has a tendency to colonize in areas that are contaminated with sewage wastes. The mechanisms that help the plant to colonize the sewage contaminated sites are to be analyzed to reason the higher fungal colony counts in the root exudates. Such analysis may provide a new dimension to exploit this plant as a potential phytoremediator for decontamination of sewage waste land in aecofriendly, cost-effective and sustainable way.

Keywords: Preliminary, Potential of *Cleome rutidosperma,* Allelopathic species, Phytoremediator.

ISCA-ISC-2017-3BS-09-Poster

Prevalence of arbuscular mycorrhizal fungi in two ginger species of Manipur, India

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Abstract: Association of arbuscular mycorrhizal (AM) fungi in two ginger species i.e. *Zingiber montanum* and *Zingiber officinale* were examined. Spores of ten AM morphotypes belonging to five genera i.e. *Acaulospora, Funneliformis, Glomus, Sclerocystis* and *Scutellospora* were isolated and identified from the rhizosphere soils of both ginger species. *Glomus* was the dominant genus that was represented by five different species. *Funneliformis geosporum, Glomus constrictum* and *Glomus etunicatum* were common in both test plants. The AM spore density was highest in *Z. officinale*. *Arum – Paris* type and Intermediate type morphology was observed in *Z. officinale* and *Z. montanum* respectively. Total root length with AM colonization (%RLTC) was maximum in *Z. montanum*.

Keywords: Arbuscular mycorrhiza, Spore morphotype, Spore density, AM morphology, Root colonization.

ISCA-ISC-2017-3BS-10-Poster

Analysis of codon usage pattern of chloroplast genes in *Camellia sinensis var. Longjin 43*

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Abstract: Codon usage bias analysis of chloroplast genes of *Camellia sinensis var. Lonjgin 43* may provide a basis for understanding the evolution of *C. sinensis* and for selecting appropriate genetic modifications to improve gene expression. In the present study, the pattern of codon usage and the factors that influence the codon usage of *C. sinensis var. Lonjgin* genes were analysed. Relative synonymous codon usage analysis revealed that preferred codons are either A/ T- ending. Parity rule 2 plot showed that mutation pressure along with natural selection might have influenced the codon usage of chloroplast genes. Neutrality analysis, showed that natural selection had played a major role, while mutation pressure played a minor role. The results of 4s synonymous sites analysis of chloroplast genes revealed that transcription-associated selection due to G↔C and A↔T transversion acted in the same direction in both strands of DNA duplex. Selection on amino acid usage for G↔C and A↔T transversion acted in opposite directions on leading and lagging strands, and these results support the hypothesis that the formation of *Camellia sinensis var. Lonjgin* codon usage bias was dominated by natural selection.

Keywords: *Camellia sinensis var. Longjin 43*, mutation pressure, natural selection, 4s sites.

ISCA-ISC-2017-3BS-11-Poster

Prediction of essential parasites proteins (*Plasmodium falciparum*) expressed during intra-erythrocytic stage

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Abstract: Malaria is still a threat to the mankind and responsible for the death of millions. Due to the emergence of many drug-resistant parasite there is an urgent need of effective approaches to find new drug targets. Genes essential for the survival of the parasite are the most appropriate therapeutic targets. For the identification of these genes, a strategy of comparative genomics study was planned out by using PlasmoDB as the primary database. PlasmoDB is a genomic database for *Plasmodium* genus containing information from multiple sources including both experimental and computational. In this study, we made an attempt for the identification of novel drug targets in the parasite genome using a sequence of computational methods from PlasmoDB. Cross-species analysis were carried out using the integrated tools in the database to

find out parasite genes that lack orthologues in their host as well as are evolutionarily conservative genes and are present as essential orthologues in close and distant relatives. By combining all these orthology and essentiality criteria we get a list of 22 essential proteins in *Plasmodium falciparum* which is absent in human host but present in Class Aconoidasida. These resulted proteins might be regarded as potential novel drug targets.

Keywords: *Plasmodium falciparum,* Malaria, Plasmo DB, Essential proteins, Drug target.

ISCA-ISC-2017-3BS-12-Poster

Biochemical responses of *Solanum melongena* L. cv. Longai tissue culture on pesticide stress

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Abstract: Eggplants (*Solanum melongena* L.) are widely cultivated and economically important vegetable crop in many countries. The indigenous "Longai Brinjal" in the Karimganj district of Assam is mostly infected by ESFB and EFSB, for which the farmers use excessive amount of organophosphate pesticide like Malathion (PM) and Tricel (PT) to protect the crop plant. In the present study, optimum callus induction and regeneration was achieved on MS medium supplemented with 0.5 mg/L 2,4-D and 0.5 mg/L Zeatin. MS medium supplemented with different concentrations of malathion and tricel (25, 50, 75 and 100 ppm) was used to study the effect of pesticides on callus induction. The activity of antioxidant enzymes such as SOD, APX, CAT and Proline, was found to be maximum at 100ppm compared to control ($p<0.05$), whereas the activity of protease decreases with increased pesticides concentration. The increase in enzyme activity proved to be more significant in pesticides resistance and effectiveness of its detoxification. The abiotic stress induced by different pesticides was counteracted by increasing the enzymatic activity. It was concluded that the effect of pesticides stress could alleviate on plant growth by enhancing antioxidant enzyme system in callus.

Keywords: *S. melongena* L. cv. Longai, Pesticides, Oxidative stress, Biochemical markers.

ISCA-ISC-2017-3BS-13-Poster

Comprehensive *in-silico* analyses of GWAS SNPs associated with Exfoliation glaucoma (XFG) to prioritize their probable regulatory potentials

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Abstract: Exfoliation syndrome (XFS) is an age related systemic disorder affecting over 60 million people worldwide. Eventually half of the XFS patients develop exfoliation glaucoma (XFG) in their lifetime. XFG is the most common identifiable form of Open angle glaucoma, accounting for the majority of glaucoma cases in some countries.XFG is characterized by deposition of white flaky material in the anterior segment structures of eye, including the lens capsule, iris, ciliary body, zonules and trabecular meshwork. In the current study, we tried to prioritize, through *in-silico* analyses, all the single nucleotide polymorphisms (SNPs) found to be associated with XFS-XFG during Genome Wide Association Studies. 20 different SNPs from 12 different loci were checked in rSNPBase, RegulomeDB, HaploReg, SNP Function Prediction (FuncPred), and Variant Effect Predictor. After prioritizing the regulatory effects of all the 20 SNPs we performed STRING analyses to predict the functional association, if any, between the loci found to be harbouring probable regulatory SNPs and the ones functionally associated with collagen cross-linking pathway, elastin fibre formation pathway, and TGF-beta pathway. Our study is the first attempt to prioritize all the GWAS SNPs found to be associated with XFS-XFG based on their predictive regulatory and functional roles, employing *in-silico* tools.

Keywords: Exfoliation glaucoma, XFG, Exfoliation syndrome, XFS, In silico prediction, Single nucleotide polymorphism, SNP, GWAS study, GWAS SNP, Regulatory role.

4. Chemical Sciences

ISCA-ISC-2017-4CS-Guest Speaker-01

Review on synthesis and application of metal nanoparticles through green technology

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Abstract: In this review we focused on the green synthesis of nanoparticles which has achieved a great attention for its cost effective process. Utilizing green substances has several advantages including low energy consumption and moderate operation conditions (without using any toxic chemicals. Metallic nanoparticles possess unusual chemical, physical, optical and thermal properties due to their high surface area to volume ratio in comparison to metallic elements in bulk form. The aim of this study is to describe a green approach for production of metal NPs by using plant extracts; to evaluate its advantages and disadvantages as compared to the conventional synthesis methods, and to investigate the common techniques to characterize nanoparticles.
Keywords: Green Nanotechnology, Plants, Synthesis.

ISCA-ISC-2017-4CS-Guest Speaker-02

Application of disposable electrodes for trace analysis of organic pollutants

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Abstract: A reproducible and sensitive Voltammetric procedure has been developed for the determination of organic pollutants by square-wave Voltammetry (SWV), Differential pulse Voltammetry (DPV) and cyclic Voltammetry (CV) using disposable electrodes without any modification procedure. These electrodes have several advantages compared to other carbon-based electrode such as low cost, no need for time-consuming processes like surface polishing and disposability. The surface can be modified easily, has high electrochemical reactivity and surface area. This method offers a renewal surface which is simpler and faster than polishing procedures, common with solid electrodes, and result in good reproducibility for individual surface.
Keywords: Pollutants, Square wave Voltammetry, Differential pulse Voltammetry, Cyclic Voltammetry, Organic pollutants.

ISCA-ISC-2017-4CS-01-Oral

Micro and nanocrystalline ruby skin care products and their applications

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Abstract: A ruby (aluminium oxide with chromium, Al_2O_3:Cr) is a pink to blood-red colored gemstone, a variety of the mineral corundum (aluminium oxide). The red color is caused mainly by the presence of the element chromium. Rubies are one of the oldest traditional healing stones. Cosmetics created by a jewelry manufacturer contains real diamonds, pearl powder and real ruby powder. It sparkles like jewelry and makes our skin look beautiful. This review attempts to guide the reader between the various micro and nanocrystalline ruby skin care products and their applications, with a particular focus on Giordani Gold Ruby Lipstick. Paper also deals with Scanning Electron Microscope (SEM) images, Transmission Electron Microscope (TEM) images and FTIR spectra of Giordani Gold Ruby Lipstick. This research, along with better regulation and reporting, will enable consumers to choose products with confidence. This in turn will allow companies to benefit from these novel technologies in the long term while retaining customer confidence. Morphological graphs of the Giordani Gold Ruby Lipstick samples are provided by scanning electron microscopy (Digital Scanning Electron Microscope - JSM 6100 - JEOL) with a Link analytical system operating at 15 KV (acceleration voltage) and transmission electron microscope (Transmission Electron Microscope, Hitachi H-7500, 120 kV). Scanning Electron Microscope images of Giordani Gold Ruby Lipstick shows that the material mainly consisted of spherical particles with 1-2 μm in diameter. Although the majority of material consists of micrometer, smaller particles with nanoscale (1-10 nm) are also present in the TEM images. Transmission Electron Microscope images of Giordani Gold Ruby Lipstick shows that the material mainly consisted of spherical particles with 1–10 nm in diameter. Investigations well confirm the presence of Ruby crystals with nanometric size between 1 and 10 nm. FTIR can be routinely used to identify the functional groups and identification/quality control of raw material/finished products. FTIR spectra of Giordani Gold Ruby Lipstick is obtained at room temperature by using an FTIR Spectrophotometer - Perkin Elmer - Spectrum RX-IFTIR. The spectra is collected in a range from 450 to 4000 cm^{-1}.
Keywords: Giordani Gold Ruby, Scanning Electron Microscope (SEM), Transmission Electron Microscope (TEM), FTIR.

ISCA-ISC-2017-4CS-02-Oral

Corrosion mitigation in context of oil and gas industries and application of suitable corrosion inhibitors

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Abstract: This paper throws light on the corrosion inhibition of steel in acidic media. A wide range of corrosion inhibitors for steels in acidic solutions are shown in this paper. A great emphasis has been made on HCl solutions in drilling and acidizing operations low-grade steels, at high temperatures. A combination of corrosion inhibitors with surfactants, solvents, natural extracts as well as intensifiers in order to improve the strength or we can also say efficiency of individual compounds at higher temperatures. The purpose of this review is to give a pretty good idea about the corrosion problems encountered in drilling and acidizing operations and the inhibition techniques adopted in order to tackle the problem.
Keywords: HCl acidizing, Oil and gas industries, Corrosion inhibition.

ISCA-ISC-2017-4CS-03-Oral

Exploration the potential of natural dyes as alternatives to chemical dyes in textile industries

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Abstract: Dye is any colouring material that colours commodities of our daily use. Dyes are applied everywhere, from plastic toys, to the fabrics you wear, from food to wood. Hardly there is any industry where dyes are not used commercially. Natural dyes are colorants derived from plants, animals or minerals. These dyes are applied on the substrates with the addition of mineral or metals salts such as alum, iron, etc. Numerous plants have been in use for extraction of natural dyes since ancient times, the best examples of which can be traced in Ajanta and Ellora cave paintings and block printing industries in many parts in India. Today we find that the use of these natural colours has reduced to almost negligible and has been replaced almost 100% by synthetic dyes. Though more favoured, in the long run it has been now proved that these chemicals are causing serious alarm to environmental health and hazardous to human health as well. It has become imperative that, though immediate replacement is not possible, we can find alternatives to these toxic dyes with natural products at least up to some extent. The present work deals with extraction of natural dyes from plant sources viz. *Beta vulgaris* (Beet root) and *Spinacia oleracia* (Spinach leaves) and exploring their potential in textile industry.
Keywords: Natural Dyes, Textile Industries, *Beta vulgaris* (Beet root) and *Spinacia oleracia* (Spinach leaves).

ISCA-ISC-2017-4CS-05-Oral

Synthesis of copper nanoparticles and their catalytic activity in oxidation of threonine

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Abstract: In this study the synthesis of copper nanoparticles (CuNPs) in an aqueous medium using ascorbic acid as a reducing agent via the chemical reduction method. The effect of different concentration of L-ascorbic acid on the particle size of copper nanoparticles was investigated. The synthesized copper nanoparticles have resistance to oxidation by atmospheric oxygen for two months. The copper nanoparticles were characterized by UV–Visible spectrophotometry, FTIR spectroscopy, scanning electron microscopy (SEM) and transmission electron microscopy (TEM). The average sizes of copper nanoparticles were found to be 28, 16, 12 nm at increasing concentrations of L-ascorbic acid respectively. Interestingly, it was found that, the catalytic activity depends on the size of nanoparticles. The catalysis by colloidal copper nanoparticles was studied kinetically with the oxidation of L-threonine (Thr) by peroxodisulfate (PDS) in aqueous medium. The copper nanoparticles are expected to be a suitable alternative and play an important role in the field of catalysis and environmental remediation.
Keywords: Copper Nanoparticles, L-Ascorbic Acid, Peroxodisulfate, Threonine, Catalysis.

ISCA-ISC-2017-4CS-06-Oral

Evaluation of novel N / S containing heterocyclic metal complexes as biologically potent agents

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Abstract: Some nitrogen and sulphur containing aromatic ligands are ubiquitous components both for physiologically active products and important pharmaceuticals. The study of binuclear complexes of these ligands with transition metals is highly interesting due to their significance in physical and bioinorganic chemistry, material science and multi-electron redox chemistry. It definitely creates zeal to synthesize improved versions of previously reported aromatics. Hence, significant properties seem to be a result of Chelation behaviour between ligands and the concerned metal ion. In the thematic issue we synthesized transition metal complexes with N/S donor ligands. The structures of the obtained complexes were characterized by FT-IR, NMR, elemental analysis, ESR spectral studies, conductometric and magnetic moment measurements. The magnetic moments and electronic spectral studies suggests that the complex has distorted octahedral geometry with unpaired electron lying in $d_x^2 - _y^2$ orbital giving $^2B_{1g}$ as the ground state. The synthesized metal complexes were successfully investigated for biological activities namely antibacterial, antifungal, DNA binding and cleavage activity and plant growth regulatory activity. Based upon their widest applicability performa and in an effort towards the development of metallodrugs as chemotherapeutic agents with some interesting biological activities, we report herein the synthesis and characterization of metal complexes and the pronounced valuable activities of the novel complexes.
Keywords: Antibacterial, Antifungal, DNA Cleavage, Plant Growth Activity.

ISCA-ISC-2017-4CS-07-Oral

One pot synthesis of mesoionic indazol-3-one derivatives: A new class of OLED material

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Abstract: The cyclization reaction of 2-Iodobenzamides to thiocyanate ion is one of the most expedient and facile synthetic routes to mesoionic indazol-3-one derivative. Here a novel regioselective Cu(I)-catalyzed, intramolecular cross-coupling reaction of thiocyanate ion to benzamide on solid support with fully compatible microwave-assisted indazol-3-one synthesis is reported. The final products were characterized by FTIR, ^{1}HNMR, EPR and ESI-mass spectra. The physicochemical studies are significant to yield structural information on the mesoionic nature. Mesoionic compound emits at 490-495nm, with quantum yield estimated as 0.25-0.28, upon excitation at 350nm. Indazol-3-one derivative achieves extraordinarily intense blue emission (Φ_{PL} = 86-92%) for a mesoionic heterocycle which is compared with a reference cationic iridium complex and solution processed Organic Light Emitting Diodes (OLEDs) have been fabricated from this new class of mesoionic Indazol-3-one derivative.
Keywords: Synthesis of mesoionic, Indazol-3-one, Derivatives, OLED material.

ISCA-ISC-2017-4CS-08-Oral

New approach of solar energy conversion and storage

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Abstract: The scientists of all over the world are working to find out renewable source of energy. Apart from the renewable energy resources like geothermal, biomass wind, tidal and hydro energy etc. The solar energy has required characteristics for present day suitable energy source. Solar energy is not only none polluting, inexhaustible and harmless but clean, low cost and hazardless having no disposal problem. In the present study it is proposed to investigate the conversion and storage capacity of solar energy taking different types of surfactants with the photosensitizers in the presence of suitable reductant .This field of research is still in the infant stage with respect to its viability and applicability, requires through exploration to increase the conversion efficiency and storage capacity by selecting the suitable redox couple of Photosensitizer and the various types of surfactant. Mix surfactants are very much useful for increasing the conversion and storage capacity due to formation of micelles in the reaction mixture.
Keywords: Photo potential, Photocurrent, Fill factor, Conversion efficiency, Power point, Storage Capacity.

ISCA-ISC-2017-4CS-09-Oral

Eco-friendly synthesis and biological significance of some new heterocyclic compounds containing β-lactam ring: Microwave Assisted Synthesis

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Abstract: Microwave Chemistry has made significant contribution over the past two decades. The combination of solvent free reaction condition microwave irradiation leads to large reduction in reaction time, enhancement in the conversion and sometimes in selectivity with several advantages of eco friendly approach, termed as Green Chemistry. Microwave activation as a non-conventional energy source has become very popular and useful technology in organic chemistry. The concept of green chemistry and its applications in synthetic heterocyclic chemistry has emerged as a major advantage for the development of neat and benign chemical methods. The short reaction time and expanded reaction range that is offered by microwave assisted synthesis suited to increased demands in the industry. Five and six member heterocyclic compounds have attracted much attention for the pharmaceutical industry for the last several years because of their large biological applications. Azetidine-2-ones and their various derivatives have been extensively studied for their utility in the field of medicine. Azetidine-2-ones are of great importance because of the use of β-lactam derivatives as an antibiotics and antimicrobial agents. Heterocycles containing –NH group were used as target for chemical modification. Several new classes of 4- aryl-substituted-3-chloro-2-oxo-azetidine-heterocycles have been synthesized in the laboratory by the use of microwave technology and compared their reaction time and yields with the conventional method. The structures of the products were confirmed by spectral and chemical methods. Most of the synthesized products were screened for antibacterial, antifungal and antimycobacterial activities. Some of the compounds displayed pounced and acceptable activity.
Keywords: Novel synthesis of biological active molecules.

ISCA-ISC-2017-4CS-10-Oral

Synthesis and characterization of some new series of heterocylic-thiazolidinone-5-arylidines: Bioactive molecules of medicinal significance

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Abstract: Synthesis of relevant compounds, drugs, agrochemicals and other useful functional materials is an important and major area in academic, industrial and biological sciences. The pharmaceutical sector has tradionally been an vibrant, innovation-driven and highly successful component of the chemical enterprises. Heterocyclic compounds exhibit a wide variety of biological activities, many of which can be exploited for medicinal and pharmaceutical usefulness. Organic synthesis is a principle route to produce chemical products of practical significance. The biological and chemical properties of the heterocyclic derivatives have attracted the much attention to the organic chemists, medicinal chemists, biologist and pharmacist. 4-oxo-thiazolidines and their 5-arylidines derivatives possess a different types of therapeutic activity. The N-C-S and N-S linkages present in thiazole makes them of versatile biological interest as chemotherapeutic agents. A new strategy has been developed for the synthesis of thiazolidinone and its arylidines bioactive compounds using azines, thiazole and azoles as the potent intermediate heterocyclic compounds. Several heterocycles have been selected in the laboratory and synthesized several new 2-substituted-aryl-4-oxo-thiazolidine-4-ones and 5-arylidine-2-aryl-1,3-thiazolidin-4-ones. Most of the synthesized products were screened for their antibacterial, antifungal, antiinflammatory, analgesic and diuretic activities. Some of the compounds displayed remarkable and acceptable biological activities.
Keywords: New molecules of biological interest.

ISCA-ISC-2017-4CS-11-Oral

Comparative studies for additives blended recycled low density polyethylene film

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Abstract: In recent times, plastics have become an important part of modern life and are used in different sectors of applications like wrapping, constructing materials, consumer goods many more. Each year about 100 million tons of plastics are manufactured worldwide. India's per capita plastics consumption estimated at 9.7 kilograms in 2012-2013 is far under the 109 kg range in United States and 45 kg in China. Synthetic plastics were set in blown film ratio and the thickness is 40

micron to 65 micron. The process parameters are optimized from fed zone to die monitored from 24°C to 215°C. Oxo-biodegradable low density Polyethylene film engineering properties were calculated. Tensile strength was calculated before and after degradation, the values were 99.1kg/cm^2± 6.2kg/cm^2, 70.0kg/cm^2±3.7 kg/cm^2 and percentage elongation at break were measured 99.6%±4.1%, 95.2%±5.0%, bursting strength 295kPa±5kPa, 68kPa±5kPa, light transmission 29.8% ±1.7%. Degraded Polyethylene confirmation results are accelerated fluorescent UV ageing is 48hr -528 hr, 48hr-1200 hr, accelerated thermal ageing at 70°C is 0 hr-576 hr, 96 hr-576 hr. The additive blended recycled and virgin LDPE, additive blended recycled values were bursting strength before degradation 295±6kPa, 295±8kPa after degradation 68kPa±5kPa, 70kPa ±9kPa. The result clearly reveals that the waste plastics with additive films would bring better value.

Keywords: Polyethylene, Recycled plastics, Additive, Degradation.

ISCA-ISC-2017-4CS-12-Oral

Synthesis of green/cyan fluorescent protein chromophores using amino acids

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Abstract: Nitrogen containing heterocycles are of special interest in synthetic organic chemistry, since they occur in a wide variety of natural products. Among them, imidazolinone is a fundamental non-aromatic naturally-occurring heterocycle that has been intensively used in the synthesis of functional materials and pharmaceuticals. The imidazolinone substructures are found to act as chromophores of the fluorescent proteins (FPs) in nature, for example, green fluorescent protein (GFP), cyan fluorescent protein (CFP), blue fluorescent protein (BFP) and red kaede fluorescent protein (RFP). In continuation to our interest in N-containing bioactive compounds, the convenient synthesis involving aromatic amino acids, acetyl chlorides, and anilines in the presence of phosphorous trichloride has been established for the rapid synthesis of functionalized imidazolinones. With all the starting materials which are commercially available, low cost and stable, the construction of the target products has been accomplished via tandem transformations involving a key C–N coupling process, leading to the formation of two C(sp2)–N, one C=N, and one C=C bonds.

Keywords: Amini acids, Imidazolinones, Chromophores, Anilines, Tandem.

ISCA-ISC-2017-4CS-13-Oral

Alcohol fuel cell: electrooxidation study of aliphatic alcohols

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Abstract: It has been widely accepted that our industrialized modern planet requires new ways to solve most urgent energy and environmental associated problems. Conventional power sources of electrical energy pollute the in nature as the power sources run by traditional fuels (coal, oil etc.). Fuel cell technology offers promising and sustainable options for the future generation energy scenario. Recent commercialization of fuel cell has been given importance due to their higher efficiency and reduced polluting nature. Among the different kinds of fuel cell, alcohol fuel cells draw attention as power sources in various applications. Recently aliphatic alcohols have been used as promising fuels for direct alcohol fuel cells (DAFCs) in particular ethanol and propanol. This is due to the better energy efficiency, easy handling during storing and transporting. This article presents the electrooxidation of aliphatic alcohols applying cyclicvoltammetry technique. The effect of scan rate on the electrooxidations was studied using a three electrode cell. Anodic peak potentials as well as the corresponding peak currents changed with scan rate. In cyclicvoltammetric experiments a gradual increase of the oxidation peaks with the increasing scan rate has been observed and shifts the peak potential in the positive direction.

Keywords: Fuel cell, Electrocatalyst, Ethanol, Isopropanol, Cyclicvoltammetry.

ISCA-ISC-2017-4CS-14-Oral

One-pot multicomponent synthetic route for new pyranothiazole derivatives

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Abstract: A rapid, energy efficient and economically viable protocol for the synthesis of pyrano [3,2-*c*] pyridine-2-one derivatives have been developed. A series of aromatic aldehyde and active methylene compounds have been used to obtain Knoevenagel condensed products. The reaction carried out in ethanol as a solvent using DABCO as catalyst giving excellent yields of knoevenagel products.

Keywords: Multicomponent, Pyrano [3,2-*c*] pyridine derivatives, DABCO, Knoevenagel Condensation, Excellent yield.

ISCA-ISC-2017-4CS-15-Oral

Synthesis and characterization of Fe-doped TiO_2 nanoparticles by modified sol-gel method

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Abstract: Undoped and iron-doped TiO_2 nanoparticles ($Ti_{1-x}Fe_xO_2$ where x = 0.00 – 0.05) were synthesized by acid catalyzed sol–gel method. The synthesized products were characterized by sophisticated instrumental techniques like X-ray diffraction (XRD), transmission electron microscope (TEM) and ultraviolet–visible spectroscopy (UV-Vis-DRS) XRD pattern confirmed the tetragonal structure of synthesized materials. Average grain size was determined from X-ray line broadening using the Debye–Scherer relation. The crystallite size was found to be in the range 5.6 to 17.9 nm when calcined at 500°C temperature. The doping of 1–5 mole% Fe into TiO_2 proved a great decrease in the size of nanocrystals as compared to undoped TiO_2. The TEM micrographs revealed the spherical-like morphology with average diameter of about 8 to10 nm which is in agreement with XRD results. UV-Vis-DRS clearly showed the shift in the absorption towards visible region of the spectrum.

Keywords: Sol-gel, XRD, TEM, UV-DRS.

ISCA-ISC-2017-4CS-16-Oral

Synthesis of flower-like ZnO nanostructures and optical properties by hydrothermal process

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Abstract: Flower-like ZnO nanostructures, which consisted like ZnO nanorods, have been synthesized by hydrothermal process. The synthesized ZnO nanostructure morphology was characterized by different type of technique like as a XRD, Scanning electron spectroscopy, Transmission electron spectroscopy equipped with FT-IR spectra. The XRD results indicated that the flower-like ZnO nanostructures with hexagonal. The SAED and HRTEM results implied that like ZnO nanoflower were single crystal in nature and significantly grew up along the (001) way. The temperature effects and pH value on the morphology have been also investigated. It is considered that pH value is the main factor to influence the morphology because of its effect on the initial nuclei and growth environment of ZnO. Finally, the mechanism for hydrothermal process of the flower-like ZnO nanostructure is discussed.

Keywords: Hydrothermal process, Nanostructure, XRD, FTIR, SEM, TEM and PL etc.

ISCA-ISC-2017-4CS-18-Oral

Quantitative analysis of Iodine content in table salt: comparison of Iodine content in various brands of table salt available in Samtse Town, Samtse Bhutan

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Abstract: A detailed analysis of iodine content in various brands table salts that are available in Samtse town, Samtse Bhutan were carried out in the year 2016-2017. The analysis of iodine content in various table salts were done in the chemistry laboratory of Samtse College of Education. The results revealed the iodine content in table salt ranges from 6ppm to 40ppm. Iodine is an essential micronutrient in human body. It helps in the production of thyroxin, a hormone that is required for balancing cell metabolism. Inadequate iodine in the body leads to a range of adverse health disorders with varying degrees of severity, from thyroid gland enlargement (goiter) to severe physical and mental retardation known as cretinism. It has adverse effects in all stages of development but is most damaging to the developing brain. Iodine deficiency is one of the major public health issues faced by the developing world. The plants and seafood found at coastal areas are rich in iodine. But the soils found inland especially in the mountains contain typically less iodine, and the major part of the human population still cannot access seafood, hence their food is iodine deficit. As all people consume table salt, supplementation of iodine in human diet is done commonly done by adding iodine to table salt.

Keywords: Iodine, Micronutrients, Table salts, Thyroxin, Cretinism.

ISCA-ISC-2017-4CS-19-Oral

Synthesis of bioactive chromone derivatives

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Abstract: Chromones (1-benzopyran-4-ones) and Chromone derivatives are naturally occurring compounds ubiquitously found in the plant kingdom, and therefore present in representive amounts in a normal human diet.These phytochemicals possess a wide spectrum of biological activities – such as anti-inflammatory, antifungal, antimicrobial, antiviral, antitumour and anticancer-mainly due to their well-recognized antioxidant properties, which stem from their ability to neutralize active forms of oxygen and to cut off free radical processes. Here we successfully synthesize some chromone derivatives by using substituted phenols in laboratory at room temperature. Crystalline products were characterized using sophisticated techniques such as FT-IR, NMR and mass spectrophotometric methods.
Keywords: Chromones, Derivatives, Biological activity.

ISCA-ISC-2017-4CS-20-Oral

Synthesis, characterization and photocatalytic activity of strontium doped nickel ferrite

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Abstract: Series of Sr-doped nickel ferrites were synthesized by modified sol–gel method. The synthesized products were characterized by sophisticated instrumental techniques like X-ray diffraction (XRD), scanning electron microscope (SEM) and Energy Dispersive X-Ray Spectroscopy (EDS). The XRD pattern confirmed the formation of spinel ferrite. Average grain size was determined from X-ray line broadening using the Debye–Scherer relation. The crystallite size was found to be in the range 21 to 23 nm when calcined at 700°C temperature. The doping of Sr into $NiFe_2O_4$ proved a great decrease in the size of nano crystals. The SEM micrographs revealed the agglomerated nanoparticles with irregular morphology. EDS confirms the presence of proper proportion of elements in the nanocomposites.
Keywords: Sol-gel, XRD, SEM, EDS, Rh-B.

ISCA-ISC-2017-4CS-21-Oral

White cabbage polysaccharide as green corrosion inhibitor for mild steel in 1M hydrochloric acid medium

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Abstract: Mild steel is an indispensible alloy used in petro-chemical Industry, oil and gas Industry, nuclear industry, pulp and paper industry. Hydrochloric acid solutions are used in several industrial process such as acid pickling, descaling and the chances of mild steel corrosion is high. Several methods are used to control the corrosion process but use of inhibitor is the most effective and practical method. The present investigation describes the use of cabbage polysacharide as green corrosion inhibitor on the surface of mild steel in 1M hydrochloric acid medium. Inhibition of mild steel corrosion by the aqueous solution of cabbage polysaccharide was studied using gravimetric, electrochemical impedance spectroscopy and electrochemical polarization techniques. Studies showed that inhibition efficiency is concentration dependent and increased with increasing concentration of the extract. Temperature study shows that on increasing temperature inhibition efficiency of the inhibitor decreases. Polarization study showed that the extract acted as a mixed inhibitor. Adsorption of these compound obeyed Langmuir adsorption isotherm and thermodynamic parameters suggested that adsorption is physical in nature.
Keywords: Green inhibitor, Acidic corrosion, Mild steel, White cabbage, Electrochemical studies.

ISCA-ISC-2017-4CS-22-Oral

Removal of methylene blue dye from aqueous solution by magnetic nanoparticle activated carbon composite

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Abstract: The removal of methylene blue dye from aqueous waste by Magnetic nanoparticle activated carbon composite (MNPACC) was investigated. Magnetic nanoparticle activated carbon (MNPAC) was synthesized by mixing aqueous

suspension of activated carbon (AC) and Fe_3O_4 by chemical co-precipitation method. This Magnetic Nanoparticle Activated carbon (MNPACC) was characterized by Transmission Electron Microscope (TEM), Fourier Transform Infrared Spectroscopy (FTIR) and Vibrating Sample Magnetometer (VSM). TEM image of the Fe_3O_4 showed nanoparticles Fe_3O_4 have the mean diameter 5-20 nm and having supermagnetic property under external magnetic field with saturation magnetization value of 22.80emu/g. FT-IR Spectrum of MNPACC shows the presence of various surface groups. The adsorption equilibrium study of methylene blue dye by MNPACC shows an excellent adsorption capacity of MNPACC for methylene blue (500 mg g^{-1}). A Langmuir kinetic model is fitted well for methylene blue adsorption on MNPAC.
Keywords: Magnetic nanoparticle activated carbon, Methylene blue dye, Adsorption isotherms, Kinetics.

ISCA-ISC-2017-4CS-01-Poster

The study of the catalytic reforming process using the bifunctional catalyst Pt / Re for obtaining high octane number of the gasoline

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Abstract: The original function of the process of platforming is to develop heavy naphtha (HSRN), coming from the atmospheric unit of distillation with a weak octane number (NO = 44), to obtain a mixture of fuels â number octane raised by catalytically supporting specific groups of chemical reactions. The installation is divided into two sections: Section hydrobon. Section platforming. The rafinat coming from the bottom of column 12C2 to feed the section platforming, is divided into two parts whose flows are controlled and mixed with gas rich in hydrogen. Bottom of the column, we obtain stabilized reformat which is aspired by there pump to ensure the heating of the column whereas a part is sent towards storage after being cooled by the air cooler and the condenser. In catalytic catalyst of reforming, there is voluntarily associated a hydrogenating function - dehydrogenating, brought by platinum deposited, with an acid function brought by the alumina support (Al_2O_3. The mechanism of action of this bifunctionnal catalyst depends on the severity of the operation, of the quality of the load and the type of catalyst. The catalyst used in the catalytic process of reforming is a very elaborate bifunctional catalyst whose performances are constantly improved thanks to the experimental research supported on an increasingly large comprehension of the phenomena. The American company Universel oi1 petroleum (UOP) marketed several series of bimetallic catalysts such as R16, R20, R30 and R62 consisted Platinum / Rhenium on an acid support consisted the alumina added with a halogenous compound (chlorine).
Keywords: Platforming, Amelioration, Octane Number, Catalyst.

ISCA-ISC-2017-4CS-02-Poster

A review on oriflames royal velvet skin care products and their applications

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Abstract: Oriflame Royal Velvet Cream contains a powerful fusion of Iris flower isoflavones and precious meteorite minerals. This modern miracle reinforces the skin's resilience and restores bounce. Iris Isoflavones extract is derived from the majestic Iris flower and is a proven anti-oxidant, with exceptional anti-ageing properties to help revitalise and drastically improve skin firmness. Black Iris Infusion technology stimulates skin firming matrix and hence skin looks firm and smooth. This review attempts to guide the reader between the various Oriflames Royal Velvet skin care products and their applications, with a particular focus on Royal Velvet Firming Day Cream SPF 15. Paper also deals with FTIR spectra of Royal Velvet Firming Day Cream SPF 15. This research, along with better regulation and reporting, will enable consumers to choose products with confidence. This in turn will allow companies to benefit from these novel technologies in the long term while retaining customer confidence. FTIR can be routinely used to identify the functional groups and identification/quality control of raw material/finished products. FTIR spectra of Royal Velvet Firming Day Cream SPF 15 is obtained at room temperature by using an FTIR Spectrophotometer - Perkin Elmer - Spectrum RX-IFTIR. The spectra is collected in a range from 650 to 4000 cm^{-1}. Interpretation of FTIR Spectra of Royal Velvet Firming Day Cream SPF 15 shows presence of various functional.
Keywords: Royal Velvet, Iris flower isoflavones, Meteorite minerals, Black Iris Infusion technology, FTIR Spectra.

ISCA-ISC-2017-4CS-03-Poster

Traditional uses in phytochemistry and pharmacology of *madhuca longifolia* linn. plant

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Abstract: *Madhuca longifolia* Linn. plant (Sapotaceae) is commonly called as *Butternut* tree or *Mahua.* It is a medium to large sized upto 17m height tree and distributed in India, Nepal and Sri Lanka. *Mahua* seeds are of economic importance as they are good source of edible fats. Plant is reported to contain sapogenins, triterpenoids, steroids, saponins, flavonoids and glycosides. It is used as spasmogenic, oxytoxic, uterotonic, antibacterial, anti-implatations, anti-tumor, anti-progestational, anti-estrogenic activity against monorrhagia and anti-cancer. Present study contain the traditional uses of various parts of plant like phytochemical constituents and reported different pharmacological activity. Flowers are used as tonic, analgesic, diuretic and traditionally used as cooling agent, aphrodisiac, astringent, demulcent, helminths, acute and chronic tonsillitis, pharyngilis as well as bronchitis. Bark is used for rheumatism, chronic bronchitis, diabetes mellitus, swelling, fracture and snake-bite poisoning. Leaves are expectorant and also used for chronic bronchitis and cushings diseases. Seeds are used in skin diseases, rheumatism, headache, laxative and piles. As the global scenario is now changing towards the use of non-toxic plant product having traditional medicine uses. The development of modern drug from *Madhuca longifolia* Linn. plant should be emphasized for the control of various human diseases.
Keywords: Phytochemistry and pharmacology of *Madhuca longifolia.*

ISCA-ISC-2017-4CS-04-Poster

A new fluorogenic probe for creatinine detection in aqueous medium: application to human blood serum

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Abstract: The Jaffé reaction established in 1886, where creatinine reacts with alkaline picrate to form an orange colored product, is extensively used in clinical laboratories as a routine screening for the evaluation of kidney function, but still the assays of this colorimetric method have several shortcomings, e.g. high pH, low selectivity etc. Several conventional methods to determine the creatinine, were reported in the literature. However, most of these methods are applicable over a high range of concentrations, drastic reaction condition and suffer from various interferences. To overcome these problems, for the first time in our research, we have designed and developed a new Pd^{2+}-naphthalimide based fluorescence light-up probe, FCP-Pd, to enable the selective fluorescence detection of creatinine(cr) in aqueous buffer (PBS) of pH 7.2. The probe is also efficient to detect creatinine in human blood serum samples. The detection in fluorescence platform is succeeded based on fluorescence recovery of FCP by the removing of Pd^{2+} from the FCP-Pd complex. FCP-Pd represents a unique chemical tool that features a selective 'turn-on' response to creatinine over a variety of interfering species present in human blood serum.
Keywords: Creatinine, Fluorescence, Probe, Palladium, Blood serum.

ISCA-ISC-2017-4CS-05-Poster

A turn-on fluorogenic probe for carbon monoxide detection in aqueous medium

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Abstract: Carbon monoxide has shown an essential regulatory role in a variety of pathophysiological and physiological processes that take place within the nervous, cardiovascular and immune systems. CO produced in the vessel wall by heme oxygenase enzymes possesses vasorelaxing properties, and has been revealed to prevent vasoconstriction and also both acute and chronic hypertension through soluble guanylate cyclase stimulation. CO gas has been described to facilitate potent anti-inflammatory effects at concentrations ranging from 10 to 500 ppm. Many aspects of CO in chemical and biological systems remain elusive owing to having the significant signal dichotomy because of the lack of ways for selective monitoring of this transient small molecule. In this research, we developed a coumarin-based fluorogenic probe, for the selective detection of CO in HEPES buffer of pH 8.0. The detection of CO in a fluorogenic platform is achieved with a concomitant increase of fluorescence intensity by 150 times using Pd(0)-mediated chemistry through intramolecular cyclization-elimination reaction. The probe represents a unique chemical tool that features a selective 'turn-on' response to CO over reactive oxygen, nitrogen, and sulfur species and can be used to image CO in living cells.
Keywords: Carbon monoxide, Fluorescence, Coumarin, Palladium.

ISCA-ISC-2017-4CS-06-Poster

A new fluorescent chemosensor based on boronic acid: pH detection and application in imaging live cells

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Abstract: pH monitoring by the technique based on fluorescence is well established for both sensing and imaging applications in comparison to the other conventional methods. Although a limited number of pH–responsive fluorescent probes has been developed to monitor diverse physiological and pathological processes. The currently available pH responsive chemosensors suffer from low sensitivity and selectivity. To overcome these difficulties, we have designed and synthesized a boronic acid based new chemosensor, (2-(((4*H*-1, 2,4-triazol-4-yl)imino)methyl)phenyl)boronic acid (FCP-1) which acts as a fluorescent chemosensor for pH detection with a pK_a value of 7.45 (±0.06) in phosphate buffered saline (PBS) at 25°C. The sensor displayed more than 95-fold fluorescence enhancement when pH is shifted from 5.5 to 8.5. Also the pH dependency nature of FCP-1 was examined by UV-vis spectrophotometric titration in the same experimental condition. Remarkably, addition of biologically relevant ions i.e. Ca^{2+}, Mg^{2+}, Fe^{2+}, Fe^{3+}, Zn^{2+} etc. and the other important heavy metal ions e.g. Pb^{2+}, Hg^{2+}, Cd^{2+} etc. do not affect the fluorescence behavior of FCP-1. To the best of our knowledge, this type of small molecule, easy to make, as a new fluorescent chemosensor for the detection of biological pH through cellular imaging in living cells is still unexplored.

Keywords: Fluorescence, Chemosensor, pH, Cellular imaging.

ISCA-ISC-2017-4CS-07-Poster

Photoluminescence studies of 3 at.% Eu^{3+} doped BaF_2 nanomaterials

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Abstract: Cubical crystalline 3 at.% Eu^{3+} ion doped BaF_2 nanomaterials have been successfully synthesised by ethylene glycol route. The cubical crystalline structure of BaF_2 was confirmed by XRD analysis. FTIR study shows the significant capping of nanomaterials by ethylene glycol. There is no change of phase of prepared nanoparticles up to 900°C and stability of the samples up to higher annealing temperature was confirmed by XRD. Microscopy study indicates the change of shape of nanoparticles from spherical to rod at higher annealing temperature (900°C). Photoluminescence studies give the characteristic emission of Eu^{3+} at 587 ($^5D_0 \rightarrow {}^7F_1$, magnetic dipole transition) and 613 nm ($^5D_0 \rightarrow {}^7F_2$, electric dipole transition). The decay time of as-prepared sample is longer than 900°C annealed samples. The CIE chromaticity coordinates diagram shows the prepared nanomaterials can be used as orange-reddish emitter. The samples were dispersed in different organic solvents and observed emission intensity increases with increase in chain length of the solvents.

Keywords: Fluoride nanoparticles, Nanocube, Nanorods, Orange reddish emitter.

ISCA-ISC-2017-4CS-08-Poster

Naphthalimide-based turn-on fluorosensor for aqueous sulfide ions for staining in living cells

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Abstract: Hydrogen sulfide, an important pollutant often found in environments, is emitted from industrial processes or microbial reduction of sulfate and sulfur-containing amino acids. The toxic and explosive gas can rapidly deaden the sense of smell, which greatly increases the exposure risk. Hydrogen sulfide has also been found endogenously produced in endothelium cells and played important roles in biological systems. The relevant species of hydrogen sulfide (S^{2-}, HS^- or H_2S) have been discovered involving many physiological processes, depending on various pH conditions. There are several conventional methods of H_2S detection but these are often restricted to low temporal resolution, suffer from various interferences, poor compatibility with living cells and extensive sample preparation requirements. Fluorescence is an attractive non-destructive technique due to its simplicity, sensitivity and real-time response. Keeping this in mind, we have designed, synthesized and characterized a newly naphthalimide derivative (L) acts as a highly sensitive chemosensor for aqueous sulfide ions in water/DMSO (3:1, v/v) medium as L offers distinctive reactive properties toward aqueous sulfide ions to be converted to L^A of potential turn-on fluorescent properties over other competitive anions based on ICT process. The new interesting sensing pathway was established by the detailed spectroscopic and theoretical (DFT) studies. The probe (L) detects aqueous sulfide ions as low as 2.4 μM in biological pH within a very short responsive time (15-20 s) and this non-

cytotoxic probe, L is also useful in acquiring the fluorescent image of the distribution of sulfide ions in living cells using fluorescence microscope.

Keywords: Cell imaging, Napthalimide based, Sulfide ion sensor.

ISCA-ISC-2017-4CS-09-Poster

Application of heterogeneous catalyst, SiO_2-$HClO_4$ on the synthesis of 2-Alkyl-1,3-diaryl-2,3-dihydro-*1H*-naphtho[1,2-*e*][1,3]oxazine derivatives

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Abstract: Dihydro-1,3-oxazine derivatives are important heterocyclicmolecules, which exhibit a wide range of pharmacological activity, including antibacterial, fungicidal, antitumor, antituberculosis, and anti-HIV. In this report, an efficient synthesis of 2-Alkyl-1,3-diaryl-2,3-dihydro-*1H*-naphtho[1,2-*e*][1,3] oxazine derivatives from the β- naphthol, amines and aldehydes using heterogeneous catalyst, SiO_2-$HClO_4$ with ethanol as solvent is described. The reaction protocol is environment friendly as it uses ethanol as solvent and the catalyst can be recovered and reused. The work up process for this reaction is also very simple.

Keywords: Heterocyclic molecules, Heterogeneous catalyst, Dihydro-1,3-oxazine, β-naphthol, Amines, Aldehyde, Antibacterial, Fungicidal, Antitumor, Antituberculosis, anti-HIV.

ISCA-ISC-2017-4CS-10-Poster

Synthesis of Coumarin from S,S-acetals using Vilsmeier-Haack reaction

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Abstract: Vilsmeier-Haack reagent is an efficient, economical and mild reagent for the formylation of reactive aromatic and heteroaromatic substrates. The Vilsmeier-Haack reaction can also be applied to introduce an acetyl group on activated aromatic or hetero aromatic compounds, many other conversions can be achieved with this technology. Coumarin is an oxygen containing heterocycle widely distributed throughout the plant kingdom. Compounds containing, the coumarin moiety, exhibit useful and diverse biological activity and, occupy an important place in the realm of natural products and synthetic organic chemistry. In continuation of our investigational works on the synthesis of coumarin derivatives, we applied the Knoevenagel reaction for the synthesis of coumarins by refluxing 2-aroyl-3, 3-bis(alkylsulfanyl)acrylaldehydes with various β-naphthol using cupric chloride as catalyst under solvent-free condition.

Keywords: Vilsmeier-Haack, Formylation, Heteroaromatic, Coumarin.

ISCA-ISC-2017-4CS-11-Poster

Pyridine promoted synthesis of highly functionalized 4H-Thiopyrans via heteroannulation of beta-Oxodithioesters

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Abstract: A highly convergent and heteroannulation protocol for the synthesis of hitherto unreported (2-(methylthio)-4,6-diaryl-4H-thiopyran-3-yl)(aryl) methanone derivatives has been developed. This domino coupling of beta-oxodithioester and alpha, beta-unsaturated ketone is promoted by pyridine in solvent as well as under solvent free condition. The methodology involves Michael addition reaction. The merit of this cascade Michael addition and cyclization is highlighted by its high atom economy, excellent yield and efficiency of producing two new bonds (one C-C and one C-S).

Keywords: 4H-Thiopyrans, beta-oxodithioesters, alpha, beta-unsaturated ketone, pyridine, Michael addition.

ISCA-ISC-2017-4CS-12-Poster

Green synthesis of silver nanoparticles using Nerium Odorum flower extract and evaluation of their antimicrobial activities

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Abstract: The exploitation of various plant materials for the biosynthesis of nanoparticles is considered as a green technology as it doesn't involve any harmful chemicals.There were numerous work have been produced based on the plant

extraction mediated synthesis of nanoparticles. Here in this study, green and eco-friendly techniques were explored for the biosynthesis of silver nanoparticles through flower extraction. The plant Nerium Odorum flowers were used as a reducing and stabilizing agents for the aqueous extraction. Silvernanoparticles were rapidly synthesized with in 20 min after the addition of $AgNO_3$ solution to aqueous extraction of Nerium Odorum flower.The physico-chemical properties of the synthesized AgNPs were characterized by UV-Visible, X-ray diffraction, scanning electron microscope (SEM) techniques. The characterization data reveals that the particles were crystalline in nature and triangle shaped with an average size of42nm, further the biological activity of these nanoparticles were studied and found to be toxic against different bacterial species.

Keywords: Silver nanoparticles, Green synthesis, Antibacterial activity.

ISCA-ISC-2017-4CS-13-Poster

Synthesis, characterization and antimicrobial studies of trivalent Ce, Nd, Sm, Eu, Tb, Gd, Dy and Ho complexes with4-[(*1E*)-N-octadecylethanimidoyl] bezene-1,3-diol

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Abstract: Eight Ln(III) complexes,$[LnL_2Cl_2]\cdot Cl\ 2H_2O$ where Ln = Ce, Nd, Sm, Eu, Tb, Gd, Dy, Ho were synthesized by reacting hydrated $LnCl_3$ with 4-[(*1E*)-N-octadecylethanimidoyl]bezene-1,3-diol, Land characterized by elemental analysis, magnetic moment, conductivity, TG/DTA and spectral studies. Elemental analysis and TG/DTA data conform with the formation of complexes having 1:2 metal: ligand stoichiometry. Presence of two lattice water molecules is indicated by the thermal studies. All the complexes are paramagnetic and behave as 2:1 electrolyte in 10^{-3}M DMF at 25°C. Eu(III), Sm(III) and Tb(III) complexes are luminescent. The morphology of the complexes was observed using SEM images. Powder XRD data shows crystalline nature of the ligand while the complexes are amorphousin nature.The complexes exhibit high antimicrobial activities.

Keywords: Lanthanide, Schiff-base, luminescent, Morphology, Antimicrobial, Spectroscopic.

ISCA-ISC-2017-4CS-14-Poster

Attempts on the synthesis of Dihydopyrano[C] Chromene derivatives using Knoevenagel and Michael addition reaction

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Abstract: An efficient three multicomponent synthesis of dihydropyrano[c]chromene derivatives via Knoevenagel condensation, subsequently Michael addition reaction and finally heterocyclization of methyl ketone, 4-hydroxy coumarin and malononitrile using molecular Iodine, Triethyl amine in DMSO. In this protocol, there is an introduction of an acyl group. The experimental details will be presented.

Keywords: Multicomponent, Knoevenagel, Michael, 4-hydroxy coumarin, Malononitrile, DMSO.

ISCA-ISC-2017-4CS-15-Poster

Environmental benign synthesis of some novel chalcone derivatives

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Abstract: Considering the medicinal importance of the pyrazole derivatives as the active therapeutic agents and chalcones as biologically important scaffolds, we directed our efforts to synthesize the novel chalcones containing pyrazole, pyridine and thiophene moieties. Here we synthesized various substituted (*E*)-1-(2-hydroxyphenyl)-3-(1-phenyl-3-(pyridine-4-yl)-1*H*-pyrazole-4-yl)prop-2-en-1-ones (3a-h) (Scheme A) and (*E*)-3-(3-(5-chlorothiophene-2-yl)-1-phenyl-1*H*-pyrazole-4-yl)-1-(2-hydroxyphenyl)prop-2-en-1-ones (5a-h) (Scheme B) by Claisen-Schmidt condensation between various substituted 2-hydroxyacetophenone (1a-h) and 1-phenyl-3-(pyridine-4-yl)-1*H*-pyrazole-4-carbaldehyde (2) and 3-(5-chlorothiophene-2-yl)-1-phenyl-1*H*-pyrazole-4-carbaldehyde (4) respectively. Here we use ultrasound irradiation for synthesis of chalcones. Compared to conventional methods the main advantages of the present procedure are less reaction time, higher the yield and environmental benign.

Keywords: Chalcones, Pyrazole, Thiophene, Pyridine, Eco-friendly.

ISCA-ISC-2017-4CS-16-Poster

Synthesis and anti-bacterial evaluation of new *Thieno-Pyridine Oxazolidinones*

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Abstract: In the present work, a series of novel oxazolidinone derivatives containing thieno-pyridine ring system (11a-n) were synthesized in six steps. Synthesis of amino oxazolidinone scaffold (10) involved nucleophilic substitution of thienopyridine (4) over chloro nitrobenzene (3) provided nitro derivative (5) which was reduced in catalytic hydrogenation condition to obtain amine (6). Addition reaction between obtained amine (6) and oxiran (7) provided hydroxyl amine derivative (8) followed by insertion of carbonyl group between hydroxyl and amino group leads to formation of phthalamide protected oxazolidinone (9). Phthalamide deprotection was removed using hydrazine hydrate in methanol provided amino oxazolidinone scaffold (10). The developed synthetic approach was operationally simple and high yielding. The structures of the synthesized compounds were elucidated by MS, ^{1}H and ^{13}C NMR. Synthesized compounds (11a-e) were tested for qualitative and quantitative antibacterial activity against a panel of Gram positive bacteria comprising Staphylococcus aureus and Streptococcus pyogenes. The investigation of antimicrobial screening data revealed that, most of the compounds tested have demonstrated sensible to good bacterial activity.

Keywords: Oxazolidinone, Amides, Sulfonamide, Thieno-pyridine, Antibacterial agent.

ISCA-ISC-2017-4CS-17-Poster

One-Pot synthesis of bioactive heterocyclic Pyrimido-Pyrimidiones under solvent free conditions

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Abstract: An efficient one-pot, eco-friendly synthesis of 1,3-dialkyl-5-phenyl-2,7-dithioxo-2,3,5,6,7,8-hexahydropyrimido [4,5-d] pyrimidin-4(1H)-one derivatives can easily be prepared through a three-components condensation reaction of thiobarbituric acid, urea (or thiourea) and the aromatic aldehyde under solvent free condition in the presence of sodium ethoxide as catalyst. In conclusion, we have developed a simple, eco-friendly and efficient method for the synthesis of a variety of pyrimidopyrimidinone derivatives as biologically active compounds via improved Biginelli-type reaction catalysed by sodium ethoxide. This method does not involve the use of toxic solvents thus; it is an environmentally friendly process. The structures of the products were confirmed by IR, 1H- and 13C-NMR spectroscopy, as well as by elemental analysis.

Keywords: Pyrimidopyrimidinones, Condensation Reaction, Heterocycles, Biginelli Reaction, Catalysts.

ISCA-ISC-2017-4CS-18-Poster

Novel synthesis of Pyrimido-Thiadiazolo-Pyrimidine derivatives in One-Pot Biginelli type reaction

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Abstract: Over the past decades, researches havedisplayed exceptional physicochemical properties and versatile biological activities of various five membered heterocyclic compounds. Along these lines, Thiadiazole and its derivatives have recently received significant importance in a number of biological systems. Because of its wide range of intriguing biological activities, considerable attention has been given to the development of methods for the synthesis and investigation of a variety of ring systems containing thiadiazole derivatives. In continuation of this, we have reported a facial method for the synthesis of base catalyzed Biginelli type reaction of 2-mercapto-5,7,9-triphenyl-6-thioxo-6,7-dihydro-5H-pyrimido[5,4-e] [1,3,4] thiadiazolo [3,2-a]pyrimidin-8(9H)-one. The multi component reaction is accomplished via the formation of N-benzylidenesin the presence of sodium ethoxide in ethanol under reflux conditions. The salient features of the reaction are mild reaction conditions, shorter reaction time, good yields and formation of C-N bonds.

Keywords: Heterocyclic, Biginelli Reaction, Thiadiazole, N-benzylidene, Sodium ethoxide, Pyrimidine.

ISCA-ISC-2017-4CS-19-Poster

Hydrolytically active tetranuclear $[Ni^{II}_2]_2$ complexes: synthesis, structure, spectroscopy and phosphoester hydrolysis

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Abstract: The storage and processing of genetic information is of utmost importance for all living organisms. Nature has chosen phosphodiesters for this task due to their resistance to hydrolytic cleavage, with estimated half lives of tens to hundred of thousand to hundred of billions of years for DNA and about 110 years for RNA. Thus it's essential to design some model complexes which can act as artificial restriction enzymes capable of selective cleavage of phosphodiester bonds in DNA or RNA for use in molecular biology. To put a small-step in the above mentioned knotty area, three new tetranuclear nickel(II) complexes, $[Ni_4(H_2chdp)_2(H_2O)_4]Br_2.4CH_3OH.3H_2O$ (1), $[Ni_4(H_2chdp)_2(H_2O)_4](PF_6)_2$ (2) and $[Ni_4(H_2chdp)_2(H_2O)_4](ClO_4)_2.3.2CH_3OH.0.8H_2O$ (3) have been synthesized by exploiting the flexibility, chelating ability and bridging potential of a new symmetrical μ-bis (tetradentate) ligand, H_5chdp (H_5chdp=N,N'-bis[2-carboxybenzomethyl]-N,N' -bis[2-hydroxyethyl]-1,3-diaminopropan-2-ol). Complexes 1, 2 and 3 have been synthesized by carrying out reaction of the ligand H_5chdp with stoichiometric amounts of $NiCl_2.6H_2O$/NaBr, $NiCl_2.6H_2O/NH_4PF_6$, and $Ni(ClO_4)_2.6H_2O$, respectively, in methanol–water in the presence of NaOH at ambient temperature. Characterizations of the complexes have been done using various analytical techniques including single crystal X-ray structure determination of complexes 1 and 3. Molecular architecture of each complex is built from the self-assembly of two monocationic $[Ni_2(H_2chdp)(H_2O)_2]^+$ units which are exclusively bridged by two benzoate functionalities of the ligands. Single crystal X-ray structure analyses reveal that the metallic cores of complexes 1 and 3 consist of four distorted octahedral nickel(II) ions with intra-ligand Ni-Ni separation of 3.527(7) Å and 3.507(1) Å, respectively. Complexes 1 and 3 display a rare $\mu_3:\eta^2:\eta^1:\eta^1$ bridging mode of two benzoate groups of H_2chdp^{3-} ligand with each bridging among three nickel(II) ions. Mass spectrometric analyses suggest that all the tetranuclear complexes are stable in solution. Potentiometric titration results and the corresponding species distribution curves show that all the complexes exist predominantly in their tetrameric species in solution, in the pH range of 6–12. The catalytic activity of all the three complexes toward phosphoester hydrolysis has been investigated in methanol–water (1:1; v/v) solution by UV-vis spectrophotometric technique using bis(p-nitrophenyl)phosphate (BNPP) as a model substrate.

Keywords: Nickel complex / Phosphoester hydrolysis.

5. Computer and Information Technology

ISCA-ISC-2017-5CIT-01-Oral

Evaluation of classifier models for the detection of diabetes disease

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Abstract: Diabetes is one of the major disease which is commonly found among all age groups and people of different origins. Diabetes is a disease which may lead to failure of different organs, and causes high risk of blindness, kidney failure, heart disease and problems in the nervous system. Data mining algorithms could be used as an alternative way for diagnosis this disease by discovering patterns from the history of patient data and also by capturing the experience of experts. In this paper, different classifier models will be presented for predicting presence or absence of diabetes as well as predicting type 1 and type 2 diabetes disease from positive class, performances measure is evaluated for identifying the optimal model. The classifiers proposed will be using the following approaches: decision tree, Support Vector Machines, and Artificial Neural Networks. The optimal model identification will be done by using performance evaluation measures, such as Accuracy, specificity, sensitivity and precision. The models is tested using the following databases: Pima Indian diabetes database from UCI Machine learning repository and also data set obtained from VCU data base collected from 139 hospitals across US. It is also proposed to develop an interface for the model in assisting the personnel to detect and predict diabetes disease either positive or negative.

Keywords: Evaluation, Classifier models, Diabetes disease.

ISCA-ISC-2017-5CIT-02-Oral

Threats and vulnerabilities in virtualization in cloud computing

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Abstract: Virtualization is a high-tech buzzword in broad use today, but its increasing importance is based on more than just the passing fancy of the crowd. To minimize capital expenses and energy costs, virtualization presents a powerful solution for endeavor looking to save money and generate value from their IT savings. Now days many of the freeware and proprietary based virtualization models are available for implementation with in cloud computing. All of these models also having risk and vulnerabilities that causes less secure and more expansive to users. Here, the paper examines various existing risks in different virtualization models.

Keywords: Virtualization, Cloud Computing, Threats/vulnerabilities in Virtualization.

ISCA-ISC-2017-5CIT-03-Oral

Computational assessment of Hsp90A homology across various Plant species

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Abstract: When a cell is exposed to various biotic or abiotic stresses, the protein components of the cell face the risk of getting denatured. In such situations, they are brought back to a state of homeostasis with the help of heat shock proteins (Hsp), which are also known as molecular chaperones. These Hsps, specifically Hsp90A, is involved in the conformational activation of the affected proteins. The nucleotide sequence of the Hsp90A gene, however, differs across species. This variation reveals the phylogenetic development of the protein. In the present study, nucleotide sequence of HSP90A for six different plant species were studied using the nucleotide substitution models HKY85 and K80.But these models cannot be handled manually since the sequences are long. Hence, the models were implemented using java and Eclipse IDE and result matrices were obtained as program output. The methods were optimized in order to reduce the time and space complexity. The various parameters of the two models were calculated using java and the output of the given code was compiled and generated using Integrated Development Environment. The results obtained implied that *Chlamydomonasreinhardtii* can be considered as a model organism because of its similarity with all other species. Moreover, a high similarity was observed between the three species, *Zea mays*, *Pennisetumglaucum* and *Triticumaestivum*.

Keywords: Computational modelling, Evolution, Heat shock protein, IDE, Java.

ISCA-ISC-2017-5CIT-04-Oral

Feasibility study of developing chat application in Bhutan

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Abstract: The paper explores the need of development of chat application in Bhutan. Taking a sample size of 371 population of Bhutan, a traditional survey and interview were conducted in major towns and city of Bhutan. The results revealed that 74% of the Bhutanese people were willing to use chat application if ever developed in our country. Moreover, the survey also revealed the existence of 64% population using smart phone and chat application in Bhutan. Among 64% of users, dominant percent of users felt comfortable to use chat application rather than texting or calling via phones. The survey analysis supportsa feasible and potentialchat application market in Bhutan. The paper further targets future Bhutanese chat developer in developing relevant chatting applications.
Keywords: Chat application, smart phone, Bhutan, survey.

ISCA-ISC-2017-5CIT-05-Oral

Online bus ticket reservation system to implement paperless initiative and G2C services in Bhutan

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Abstract: In the immense advancement of Information and Communication Technologies, theRoyal Government of Bhutan has been taken an move inimplementing several G2C e-Services applications under e-government initiatives towards improving public service delivery and administrative efficiency. However, it is indeed frustrating and waste of time and limited resources to go to bus booking station just to reserve a ticket. In the recent decades, there has been an incredible advancement in public transportation in Bhutan. Yet people have to physically visit booking stations in order to reserve a bus ticket. Visiting booking station physically is costly as well as time consuming and there is a chance that the tickets are all sold-out. In order to address these problems, the web-based Bus Ticket Reservation System is proposed and developed its prototype system. This paper presents the design and development model of the proposed Bus Ticket Reservation System and its benefits in enhancing public transportation services in Bhutan.
Keywords: Bus ticket reservation, e-Ticket, Bhutan bus ticket, Paperless initiative, G2C services.

ISCA-ISC-2017-5CIT-06-Oral

Information security awareness among the students of rub colleges (CST and Gaedu College, Bhutan)

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Abstract: A lack of information security awareness still exist in many parts of the world and due to which many of people become the victim of different attacks causing a huge financial loss and huge impact to their lives. The purpose of this seminar is to study information security awareness (ISA) level of students of the management college (Geadu College Business Studies) and technical college (college of science and technology) and to analyse their knowledge and behaviour towards ISA. Through descriptive survey approach, online questionnaire was send to the final year students of CST, resulting in 78 valid responses and a hard copy of questionnaire was circulated to GCBS and got 77 valid responses. In total 155 valid responses was received. Here the ISA level considered are knowledge and behaviour. The question was set into three parts, part 1 for social demographic of the students and part 2 consists of security question based on knowledge and behavioural. The part3 consists of User view on security awareness. Excel was used for analysing the data.
Keyword: Information Security, Awareness, Information Security Awareness (ISA), Threats.

ISCA-ISC-2017-5CIT-01-Poster

Computer and Information Technology

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Abstract: In most countries of the world, the "information revolution" has altered many aspects of life significantly: commerce, employment, medicine, security, transportation, entertainment, and on and on. Consequently, information and communication technology (ICT) has affected – in both good ways and bad ways – community life, family life, human relationships, education, careers, freedom, and democracy (to name just a few examples). "Computer and information ethics", in the present essay, is understood as that branch of applied ethics which studies and analyzes such social and ethical impacts of ICT. IT is a driving factor in the process of globalization. Improvements in the early 1990s in computer hardware, software, and telecommunications greatly increased people's ability to access information and economic potential. While advancements in Internet-based tools over the past five to ten years, such as social networking websites, twitter, and other Web2.0 applications are changing the way people use and share information for personal, political, and commercial purposes. These developments have facilitated efficiency gains in all sectors of the economy. IT drives the innovative use of resources to promote new products and ideas across nations and cultures, regardless of geographic location. Creating efficient and effective channels to exchange information, IT has been the catalyst for global integration. Products based upon, or enhanced by, information technology are used in nearly every aspect of life in contemporary industrial societies. The spread of IT and its applications has been extraordinarily rapid. Just 30 years ago, for example, the use of desktop personal computers was still limited to a fairly small number of technologically advanced people. The overwhelming majority of people still produced documents with typewriters, which permitted no manipulation of text and offered no storage.
Keywords: Entertainment, Improvements, Information, Communication, Impacts.

ISCA-ISC-2017-5CIT-02-Poster

Implementation of image compresssion by discrete wavelet transform using vedic multiplier

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Abstract: The discrete wavelet transform (DWT) represents images as a sum of wavelet functions (wavelets) on different resolution levels. The basis for the wavelet transform can be composed of any function that satisfies requirements of multiresolution analysis. It means that there exists a large selection of wavelet families depending on the choice of wavelet function. The choice of wavelet family depends on the application. In image compression application this choice depends on image content. A fundamental shift in the image compression approach came after the Discrete Wavelet Transform (DWT) became popular. In this paper, the design of DWT with new Vedic multiplier is presented. In 2d-DWT structure, Digital FIR filter is used to increase the image resolution and remove the unwanted noise present in the image. This research work presents the efficiency of Urdhva Triyagbhyam Vedic method for multiplication which strikes a difference in actual process of multiplication itself. Multiply Accumulate unit (MAC) is a key component in the most of the digital signal processors, in order to make a balance in the key performance characters such as speed, power and area, a gate level implementation of the design is adopted in the entire research work.
Keywords: Discrete wavelet transform, PSNR, Image quality, Image reconstruction, Vedic multiplication, Kogge stone adder.

6. Earth and Geology

ISCA-ISC-2017-6EG-01-Oral

Waste water reclamation strategies

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Abstract: Water is a prime natural resource fulfilling our needs and is a precious asset. We must act to preserve and utilize every drop of water. Keeping in view the diverse use of water resources by the various states and realizing the importance of water and its sustainability, National Water Policy was adopted in September, 1987 for the first time. Since then a number of problem and challenges have emerged and day to day scientific development in the field of water resources have necessitated review and updating the National Water Policy (1987). Water for domestic consumption is an essential right of society, which must be over secured. Water reclamation and reuse provides a unique and viable opportunity to augment traditional water supplies. As a multi-disciplines and important element of water resources development and management, water reuse can help to close the loop between water supply and wastewater disposal. Effective water reuse requires integration of water and reclaimed water supply functions. In this paper, fundamental concepts of water reuse are discussed with an emphasis on the integration of the alternative water supply into water reclamation and reuse practices from wastewater to re-purified water. The expenditure on water reclamation must be taken as investment, which gives a very good dividend in terms of tangible and intangible as well.

Keywords: Resource, Precious, Preserve, Sustainability, Consumption.

ISCA-ISC-2017-6EG-02-Oral

Evaluation of shallow groundwater quality for irrigational use in the southeastern part of the Imphal valley in Manipur, Northeast India

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Abstract: The suitability of groundwater for irrigation was assessed from a total of 173 groundwater samples collected from 32 locations from southeastern part of Imphal Valley. Among the 32 locations, 21 were from piedmont, 6 from alluvial plain and 5 from flood plain. The hydrochemical parameters like pH, Temperature, EC and TDS were determined in the field. Major cation and anion such as Ca, K, Mg, Na, Cl, SO_4 concentrations were analyzed using ICP-AES and ion-chromatograph respectively and HCO_3 and CO_3 were tested by titration method. Based on these analyses, parameters such as sodium absorption ratio (SAR), sodium percentage (%Na), Kelly's Index and permeability index (PI) were calculated. On the bases of these determined and the calculated parameters, it is concluded that majority of the groundwater in the study area is suitable for irrigational use. However, few sampling sites belonging to piedmont zone where salt springs are encountered and its adjacent alluvial plains shows deteriorating groundwater quality. Thus, appropriate remediation and management plans are needed in these areas to improve soil quality for sustainable crop production.

Keyword: Irrigation, Sodium adsorption ratio (SAR), % Sodium, Kelly's Index, Permeability Index (PI).

ISCA-ISC-2017-6EG-03-Oral

Intergrowth textures of Kyrdem Granitoids, Meghalaya, northeastern India and their significance

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Abstract: Various intergrowth textures are observed in Kyrdem Granitoid (KG), Meghalaya, northeastern India. Perthites and myrmekites form the two major types of intergrowth textures found in the Early Ordovician Kyrdem Granitoid. Three types of perthite are observed in KG viz. flame, braid and vein types. These perthites show the characteristics of magmatic origin. Myrmekitic intergrowths are associated with perthitic intergrowth and albitic rims around the plagioclase. They occur when the plagioclase is in contact with alkali feldspar and partly or wholly surrounded by alkali feldspar. They show the characteristics of bulbous, rim and intergranular types. These myrmekites were formed by substitution of potash feldspar by plagioclase.

Keywords: Intergrowth textures, Perthite, Myrmekite, Albitic rim, Kyrdem Granitoid, Meghalaya.

ISCA-ISC-2017-6EG-04-Oral

Morphometric study and Tectonic aspects of Zilpui Watershed, Aizawl District, Mizoram: an integrated approach of remote sensing and GIS

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Abstract: The present work on "morphometric analysis of the Zilpui watershed has been carriedout by using the earth observation data and geographical information system (GIS) techniques. To achieve the morphometric analysis of the watershed, Survey of India (SOI) toposheets on 1:50,000 scales are used for the drainage boundary by joining the crestal points of the ridges. DEM data is used for delineation and generation of the drainage networks and demarcation of sub watersheds in the study area. The Zilpui watershed covers an area ofabout 56.35 sq km in the Aizawl district of Mizoram. The total drainage network of the watershed spreads over the dominant lithology of sandstones of Tertiary age. The mean Bifurcation ratio of is 3.66, which indicate that the basin developed in an undulating topographic terrain and basin having structurally controlled. The drainage density of watershed is 3.06 km/sq km indicates the closeness of spacing of channels. The values of form factor is 0.31 indicates the basin is elongated shape and circulatory ratio of 0.43 indicate that the watershed is characterized by low relief and impermeable surface.The Relief ratio of the watershed is 0.07 which shows lessresistant rocks in the study area. The sub watersheds in the study area show highly asymmetric in nature, which indicate that the study area is tectonically active.

Keywords: Morphometry, Tectonics, Zilpui watershed, Remote sensing, GIS, Aizawl district.

ISCA-ISC-2017-6EG-05-Oral

An account on bed form features and lithofacies types of the Brahmaputra River found in Kakari Kata Bar, Majuli District, Assam, India

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Abstract: Brahmaputra River, one of the largest rivers in the world flows from Himalaya and debouches its enormous sediment into the Bay of Bengal. During its journey through Assam it exhibits braided pattern and forms various bars. One of such bar, Kakarikatais present in the district of Majuli which is got separated from the main land area of Majuli by a second order channel of the Brahmaputra River. The present study focuses on the study of various bed form features and lithofacies types on both the northern as well as southern part of the stabilized bar. The bed form features found in the study area are ripples, mega ripples, scours, mud cracks etc. The lithofacies types found on the channel sediments of both sides are Sh, St, Ms, Sr whereas the lithofacies types found on the bank sediments of both side are Fm, St, Sp,Sr, Sm, Fl and Sh. On the bank sediments alteration of mud and sand layer were found. The study reveals that the lithofacies types found in the area were formed in different hydrodynamic conditions of the Brahmaputra River.

Keywords: Braided River, Brahmaputra River, Bed form feature, Lithofacies.

ISCA-ISC-2017-6EG-06-Oral

Reflections from the compositional attributes of the Gondwana sandstones exopsed in and around Kalijhora, Darjeeling District, West Bengal, India

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Abstract: Kalijhora in Darjeeling Himalayas happens to be one of the few locales wherein Gondwana rocks are exposed in extra-peninsular India. The Gondwana rocks (Rishi Group) here are sandwiched between Precambrian Dalings towards north and Siwalik rocks towards south and exist in a roughly E-W trend in the vicinity of the MBT. Various compositional attributes of the Gondwana sandstones were investigated in detail vide petrographic studies, statistical analyses, SEM, major, minor and REE analyses to determine their type, provenance, source area weathering conditions, palaeoclimate and tectonic settings. Mineralogically the sandstones are largely sub-arkose to sub-litharenite with a few being quartz arenite. The detritus were derived from mainly continental block and recycled orogen provenance under humid climatic conditions. Medium to high grade metamorphic and plutonic source rocks contributed the detritus which were water laid near the trailing edge of a rifted margin. Post depositional events have influenced the maturity of the sandstones where locomorphic stages of diagenesis can be seen. Geochemically, the sandstones are found to vary from lith-arenite to arkose. The enrichment of LREE

over HREE, negative Eu anomaly and chondrite normalized REE patterns suggest derivation of the sandstones from upper continental crust. The sediments have undergone recycling and show more affinity towards active continental to passive margin setup. Palaeoweathering study indicates intensive weathering of source rocks. Trace elemental analyses indicate prevalence of intermittent oxidized condition in the depositional setup.

Keywords: Reflections, compositional, Attributes, Gondwana, Sandstones, Exposed.

ISCA-ISC-2017-6EG-07-Oral

Petrography and heavy mineral analysis of Surma sediments in and around Nungba, Tamenglong district, Manipur, Northeast India

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Abstract: A thick sedimentary succession belonging to Surma Group (Miocene) is well exposed along the road side (NH-37) in and around Nungba, Tamenglong district, Manipur. A total of 32 samples were collected from Nungba to Barak bridge for determining the provenance of the sedimentary rocks. Sandstones of Surma sediments shows poorly shorted Arkose to Sub-Arkose types with quartz showing the monocrystalline and polycrystalline crystal forms. From the QmFRt triangular plot, it is inferred that the Surma sediments were derived from Transitional continental. Triangular plot QFRt of the Surma sediments (after Dickinson, 1985) shows that the provenance of these Surma sediments were mainly of continental block provenance with sources on stable cratons and uplifted basements. The Predominance of monocrystalline quartz (Undulose and Non-Undulose quartz) which indicates that the constituents of the sandstones under study were derived from medium high and low rank metamorphic sources. The Surma sediments have been analyzed for their heavy mineral suite following heavy liquid separation technique. The research result reveals the dominance of transparent varieties over the opaques. The diagnostic non-opaque variety includes Zircon, Tourmaline, Rutile, Garnet, Phlogopite, Sphene, Scapolite, Humite, Glauconite, Glaucophane, Wollastonite, Sillimanite, Staurolite, Chlorite, Chloritoid, Chondrodite and Hedenbergite. The heavy minerals suite is characterised by the presence Euhedral, Anhedral as well as Rounded to Sub-rounded varieties indicating a mixed provenance for the Surma sedimentation. Among the opaque variety iron-oxide is most abundant. The value for ZTR Index has been calculated to be 40.4 indicating a mineralogically an overall submature for Surma sediments. Further, the absence of hacksaw terminations in the heavy minerals point towards a low grade diagenetic environment. Based on the petrography and heavy minerals suite from the Surma sediments, we conclude that the Surma sediments in the western Manipur were, most possibly, derived from the mixed sources of Transitional Continental Crust and stable Cratons which have been experienced variable metamorphic grades and deposited in the low grade diagenetic environment.

Keywords: Petrography, Heavy minerals, Surma sediments, Barak bridge, Tamenglong district, Manipur.

ISCA-ISC-2017-6EG-08-Oral

Characterisation of hydrochemical parameters in geomorphological units of the Barak Valley, Assam, India

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Abstract: Characterization of hydrochemical parameters in different geomorphological unit is one of the basic tools in groundwater studies. The present paper renders insight of hydrochemical process in different geomorphological units in the Barak valley, Assam. Physico-chemical parameters like temperature, pH, EC, TDS, ORP were determined using suitable field and lab techniques. Mean pH values for piedmont, alluvial plain and flood plain are 5.9, 6.7 and 6.8 respectively indicating neutral type of water. TDS values in all the geomorphological units occurred below 1000mg/l indicating fresh water. ORP values in piedmont, alluvial plain and flood plain ranges from 5 to 83, -45 to 51 and -30 to 76 respectively indicate the anaerobic condition in the alluvial plain and flood plain. The order of general abundance of ion is Fe>As>Mg>HCO_3>Sr>Cl>NO3>Zn>Na>Ca>Mn>Cr>Cd>K>Li. Heavy metals like As, Sr, Fe, and Mn exceed the Indian standard limit in all the geomorphic units. Two types of hydrochemicalfacies which are Ca-Mg-HCO_3 and Ca-Mg-Cl represent the groundwater facies in Trilinear diagram in which flood plain is dominated by the first facies and alluvial plain by the later facies. Durov diagram suggests the groundwater in the study area belongs to initial stage of ion mixing.

Keywords: Hydrochemistry, Groundwater, Condamination, Heavy metals, Barak valley.

ISCA-ISC-2017-6EG-09-Oral

Decision support system for forest fire management in Kambalakonda Reserved Forest, Visakhapatnam, Andhra Pradesh, India

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Abstract: Forest ecosystems are our priceless natural resource and are a key component of the global carbon budget. The development of a Spatio Wildfire Decision Support System (SWDSS) for prevention planning and emergency management of forest fire events that incorporates weather data management, a geographical data viewer, a priori danger forecasting and fire propagation modelling, automatic fire detection, and optimal resource dispatching. The utilization of Spatio Wildfire Decision Support Systems (SWDSS) by managers of forest fires has quickly expanded. Collection, input, storage, management, and assessment of the information depend on sophisticated and programmed approaches utilizing remote sensing, GPS, digital mapping, and geographic information systems. The outcomes included instant active fire risk indices developed for better and practical prevention and pre-control development. Moreover, SWDSS was produced with the advancement of covering wild land fire risk management totally, giving a total scope of specialized and regulatory exercises that support decision creators continuously. DSSs includes, utilization of database management systems and scientific/ economic algorithms for spatial streamlining of fire fighting forces; forest fire simulators and drone remote sensing for quick recognition and expectation of advancement of forest fires; GIS stages that combine a few tools to control, process and investigate geographic information.

Keywords: Decision Support Systems, Fire Behaviour Simulation, Drone Remote Sensing, Geographic Information System, Risk Management.

ISCA-ISC-2017-6EG-10-Oral

Petrographical Study of sandstones of Kopili Formation of Eocene age, East Jaintia Hills, Meghalaya, India

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Abstract: The Kopili Formation is exposed in the South Shillong Plateau, which is part of the Shelf facies of the Assam-Arakan Basin. The Kopili formation forms the upper part of the Jaintia Group of Eocene age. Kopilis are exposed as narrow linear outcrop in the Garo, Khasi and Jaintia Hill along the southern fringe of the Shillong plateau. This formation is represented by alternation of thick grey to black splintery shales and sandstones. The present study is carried out to find out the Mineralogical classification, Depositional environment and provenance and palaeoclimatic condition of the Kopili Formation, Jaintia Group, exposed in an around the Sonapur of Eastern Jaintia Hills. Petrographic study of sandstone shows that the sandstone is composed mainly of quartz (average 84.26%), feldspar (average 0.42%) and rocks fragments (average 1.84%) in order of abundance and cemented by silica and iron oxide. Sandstones are classified as quartz arenite. Ternary plot of framework mineralogy indicates that they are derived from recycled orogen and continental block provenance. Sandstones show the mix provenance which are derived from metamorphic, plutonic and sedimentary rocks of Shillong plateau. Dominance of angular and sub rounded mineral fragments indicate shorter distance transportation. The sediments were deposited in a near shore/deltaic environment.

Keywords: Eocene, Kopili, Sandstone Petrography.

ISCA-ISC-2017-6EG-11-Oral

Biostratigraphy of the Eocene larger benthic foraminifera, Manipur, Northeast India

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Abstract: Age diagnostic species of larger benthic foraminifera (LBF) belonging to the genera *Nummulite, Discocyclina, Alveolina* and *Miliolina* have been identified from the calcareous sandstone of Upper Disang Formation of Ukhrul District, Manipur, India. Base on the faunal assemblages these sandstones are assigned to Eocene age. Distribution of the larger foraminifera shows deposition in relatively calm waters. Along with the microfossils the presence of calcareous algae are indicative of shallow water restricted to sheltered marine environment.

Keywords: Calcareous sandstone, Lager benthic foraminifera, Upper Disang Formation.

ISCA-ISC-2017-6EG-12-Oral

Geochemistry of Chandel limestone of Indo-Myanmar Range, Manipur, Northeast India

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Abstract: Geochemical studies of the carbonate rocks in and around Toupokpi, Chandel District of Manipur, India have been carried out through investigation of major oxides and trace elements geochemistry to determine their chemical composition, to establish the distribution pattern and mutual relationship of the elements, for chemical classification of the limestones and also to decipher environmental conditions that existed during the time of deposition of the calcareous sediments. The Ca\Mg and Mg\Ca ratio of the studied carbonate rocks indicate that the sediment was deposited in the marine environment. The XRD study indicates that the grains of more than 0.0035 mm (3.5 microns) are less than 5% indicating low energy environment, suggesting neritic to upper bathayal environments. Presence of foraminiferal fossils and low concentration of strontium also suggest shallow marine environment of deposition during the Upper Cretaceous-Eocene sedimentation.
Keywords: Geochemistry, Chandel limestone, Indo-Myanmar Range, Manipur.

ISCA-ISC-2017-6EG-13-Oral

Assessment of Bank Erosion of Brahmaputra River in Morigaon District, Assam (India) using Geospatial tools

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Abstract: River bank erosion in the Brahmaputra river of Assam is a serious problem. Morigaon is a district located to the south bank of river Brahmaputra where the bank line of Brahmaputra is migrated southward through bank erosion. Therefore, through this paper an attempt has been made to assessment of river bank erosion of Brahmaputra in Morigaon district of Assam from 1970 to 2010 at 1:50,000 scale using satellite data. Geographic Information Systems (GIS) are frequently used to prepare land loss maps of river bank. Land loss map is carried out using available data from government agencies and maximum risk zones of the district are mapped accordingly. It can identify high risk locations and routing development activities away from the areas vulnerable to river bank erosion and support planning and development.
Keywords: River morphology, Bankline migration, Bank erosion, Remote sensing and GIS.

ISCA-ISC-2017-6EG-14-Oral

Hydrochemical analysis and evaluation of the groundwater quality in parts of Dimapur District of Nagaland, Northeast-India

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Abstract: Quality analysis of water is one of the most important aspects in groundwater studies. Water in the study area were analyzed to understand the groundwater hydrochemistry and also to determine the water quality and its suitability for drinking purpose. Groundwater is the major source of drinking water in the study area. The study area falls within the Dimapur valley which is mainly made up of alluvium deposit of Quaternary age. In Dimapur valley, groundwater occurs under water table condition in shallow aquifer and under semi-confined to confined conditions in deeper aquifers. The groundwater samples were collected from 25 open wells located in different geomorphic units like hilly tract, piedmont, flood plain, palaeo-channel and alluvial plain for chemical analysis. The physical parameters such as pH, TDS, EC and temperature and water table were measured in the field. Major ions (Na^+, Ca^{2+}, Mg^{2+}, Cl^-, SO_4^{2-}, HCO_3^-) and heavy metals (Fe, Mn, Pb, Zn, As and Cu) were analyzed in the laboratory. The groundwater samples were mostly acidic in nature during the dry period and entirely acidic during the wet period. Majority of the water samples falls in Ca-HCO_3 water type. The result of the Hydrochemical analysis indicates that groundwater is suitable for human consumption. However, the concentrations of Fe and Mn are found to be exceedingly high in few groundwater samples. It is recommended to adopt appropriate methods to reduce the Fe and Mn concentrations from these sites for maximum utilization.
Keywords: Groundwater, Hydrochemistry, Water quality, Water type, Geomorphic units.

ISCA-ISC-2017-6EG-15-Oral

Characterisation of heavy metal contamination process using multivariate statistical methods in shallow aquifers of Imphal valley, Northeast India

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Abstract: Multivariate statistical methods have been the basic tools in elucidating the groundwater contamination process in an aquifer system. This paper emphasizes on the use of multivariate statistical methods to describe the heavy metal contamination in shallow groundwater in Imphal valley which has nearly 2 million people. The Imphal valley is an intramontane basin filled with alluviums of fluvio-lacustrine origin of Quaternary age. 17 parameters (pH, T, ORP, TDS, Ti, V, Cr, Cu, Ge, As, Rb, Sr, Nb, Mo, Hf, Ta and W) were determined in 124 shallow groundwater samples. The order of abundance of metals in groundwater is identified as Sr>As>Rb>Ti>Cu>V>Cr>Mo>Ge>W>Hf>Ta>Nb. Sr, As, Cr, Cu and Mo are highly elevated than WHO limits. High Sr elevation is attributed to weathering of gypsum, evaporate and rock salt intercalated in Disangshales and it is depicted in factor 5 in factor analysis. High elevations of Cr, As and Mo is reflected by factor 2 and it is attributed to geogenic origin of ultramafic rocks. Factor 3 represents elevations of Rb, V and Cu which is due to natural weathering of clay, Fe-oxyhydroxides along with dissociation of solid organic carbons. Analysis on Pearson correlation and cluster analysisalso strongly support these observations.
Keywords: Multivariate statistical methods, Heavy metals, Contamination, Imphal valley, Northeast India.

ISCA-ISC-2017-6EG-16-Oral

Petrography of sandstones occurring in and around Mariyang area of Arunachal Pradesh, India: Implications for tectonic provenance and palaeoclimate

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Abstract: Thin section study of sandstones of Mariyang and its adjoining areas were attempted to understand their genetic type, provenance and palaeoclimatic condition of deposition. All total 21 representative samples from three selective sections consist of sandstone and shales were studied. Petrographically the sandstones are Lithic Wacke consists of quartz, feldspar, muscovite, biotite, heavy minerals and some rock fragments among which quartz is found as most dominant framework grain. Plotting of recalculated percentage of framework constituents in both Q_tFL and Q_mFL_t diagram reveals a Transitional Recycled Orogenic Provenances for the sandstones. However, log/log plot of (Q_p/F+RF) versus (Q_t/F+RF) indicates that the sediments were generated and deposited under Arid to Humid paleoclimatic regime.
Keywords: Sandstone Petrography, Mariyang, Arunachal Pradesh, Yinkiong Group, Himalayan orogenic belt.

ISCA-ISC-2017-6EG-17-Oral

Pressure- temperature condition of metamorphism in the Precambrian Gneissic Complex rocks of Western Assam, India

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Abstract: The investigated area around Goalpara district in Western Assam represents northwestern extension of the Precambrian Gneissic Complex of the Shillong Plateau straddles a group of amphibolites facies gneisses with metabasic intercalations representing a volcano sedimentary rock series. Intercalated and co-folded bands of a group of gneisses comprising calc-silicate gneiss, hornblende gneiss. The gneissic group comprises biotite and /or hornblende bearing quartzofeldspathic gneiss, calc silicate gneiss, hornblende gneiss, banded –magnetite quartzite. The metabasic rocks, which occur as lenticular or discrete layers, represent amphibolite and garnetiferous amphibolite. These rocks are characterized by the following minerals: hornblende (tschermakite -pargasite), clinopyroxene (salite -ferrosalite), plagioclase (andesine, anorthite), garnet (grossular -almandine), clinozoisite, calcite, quartz, grunerite (XFe=0.81) and opaque phases, hydrous minerals (secondary epidote-clinozoisite, bluish green hornblende) stabilized at the expense of matrix forming minerals due to enhanced fluid activity during retrograde metamorphism. Thermodynamic analysis of phase equilibria in rocks using EPMA analytical data of relevant minerals permit estimation of pressure, temperature fluid activity condition of metamorphism of the rocks. The intersection of clinopyroxene-plagioclase- garnet- quartz equilibrium with the Fe- Mg exchange reaction between garnet and biotite, garnet and clinopyroxene limits the temperature –pressure condition of metamorphism at 650^0C $\pm 30^0$C and 6kb ± 0.5kb.
Keywords: Precambrian, Amphibolite, Fugacities, Goalpara district.

ISCA-ISC-2017-6EG-18-Oral

Major element geochemical characteristics of Granitoid rocks in Morigaon district, Assam, India

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Abstract: Granitoid rocks which constitute a major part of the "Shillong Plateau" is recently attracted to several geoscientist. Late intrusive granitoid is a spectacular feature within quartzofeldspathic country gneisses in Morigaon district, Assam. The present area is a northern extension of Shillong Plateau. It is known from the literature that many intrusive granitoids (granite, diorite, tonalite) characteristics of "I type" granite, a common constituent of the continental crust are found to be generated by partial melting of the gabbroic-basaltic oceanic crust during subduction. Petrographically the rocks are medium to coarse grained, massive and essentially composed of anhedral quartz, k-feldspar, plagioclase, biotite, muscovite and hornblende. Major accessories are sphene, zircon, rutile, allanite and opaque oxides. Epidote and sericite are secondary in origin. Two distinct petrographic features of the rocks are the variation in modal composition of hornblende and biotite, and increase of anorthite content of plagioclase with modal increase of biotite indicates the post intrusive metasomatism of the granitoids. The major element oxide geochemistry reveals several genetic issues on the rocks. One of the important chemical criteria is a high Na_2O/K_2O ratio which indicate that the original rock derived by partial fusion of pre-existing meta-igneous rocks. Petrographic features such as universal presence of hornblende and metaluminous nature are characteristically shows that the present granitoid is "I" type. It is inferred that the origin of the granitoids are related to the partial melting of lower crust which is of gabbroic composition in subduction related tectonic environment. Geochemical study shows that the present granitoids are syn-collisional to post-orogenic plutonic.
Keyword: Petrography, Geochemistry, Granitoid, Mayong, Govali-Kasu Hilla.

ISCA-ISC-2017-6EG-19-Oral

Proximate analysis of Lower Gondwana sequences of coal along Bhalukpong-Bomdila transect, Arunachal Himalaya, India

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Abstract: A narrow belt of Lower Gondwana rocks trending ENE - WSW is exposed along the Bhalukpong - Bomdila road section of Arunachal Pradesh. Here, this formation is represented by alternative beds of sedimentary rocks and coal. The coal samples collected from the area under study are dark coloured, soft and friable in nature and show dull to glossy lustre. The fractures of the coals are irregular and on weathering they break parallel to the bedding planes. Proximate analysis has been done for 17 coal samples collected from the area by channel sampling method. The analysis includes the determination of moisture, volatile matter, ash and fixed carbon. The first three tests were carried out in laboratory and fixed carbon was found out by the procedures as recommended in Indian Standard methods for test of coal and coak (ISI 1981). The results have shown moisture percentage within the range of 0.198 to 4.6%, ash contents between 7.96 to 42.65% and fixed carbon 81.32 - 23.50% in air dried basis. In ASTM classification, the coals from the study area fall in low volatile group of anthracite type to sub bituminous type. The low volatile matter in the coal from the study area indicates that the studied coals have been thermally metamorphosed.
Keywords: Proximate analysis, Lower Gondwana, Coal, ASTM classification.

ISCA-ISC-2017-6EG-20-Oral

Age and palaeoenvironment of the sylhet limestone formation, Mawlong village, Cherrapunjee, Meghalaya, India

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Abstract: Identification of different species of Larger Benthic Foraminifera and their biozonation as well as correlation of biozones with Shallow Benthic Zonal (SBZ) scheme suggest an age of these limestones as Late Palaeocene (Thanetian) to Mid Eocene (Lutetian). Presence of *Ranikothalia*, *Operculina* sp., *Miscellanea*, *Glomalveolina* assemblage in Lakadong limestone indicates their deposition in an outer shelf, fore reef facies under low water energy carbonate environments however petrographically limestones are Type-II limestone with texturally Packstone nature which suggest a weak, short lived current in depositional basin. The dominance of *Alveolina* in Umlatdoh limestone indicates deposition in an inner

platform and slightly deeper depth range. The Umlatdoh limestone indicates both Type-II and Type-I nature which are texturally Wackestone, Packstone, Grainstone, Boundstone nature suggesting relatively fluctuating energy condition from weak, short lived to powerful or persistent current during their deposition to wash away the most of the micritic matrix. The assemblage of Prang limestones are dominated by *Nummulite*, *Discocyclina* and *Assilina* suggesting deposition in an outer shelf setting or outer ramp area indicating deposition in a somehow deep, low energy setting with reduced light condition. Petrographically these limestones are Type-I and Type-II limestones and texturally Packstone and Grainstone nature which reveal energy condition from powerful or persistent to weak, short lived one.

Keywords: Shillong Plateau, Sylhet Limestone Formation, Petrography, Biostratigraphy, Palaeoenvironment.

ISCA-ISC-2017-6EG-21-Oral

Heavy mineral characteristics of sediments deposited in a compound bar of the Brahmaputra River near Dibrugarh, Assam, India

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Abstract: Heavy minerals are minor constituents of sediments and usually form between 1-2% of its total mass or less than 1% of the constituting rock volume. They have a specific gravity equal to or greater than 2.89. The Brahmaputra River carries a huge sediment load during the rainy seasons. A compound bar of almost 100 sq kms has been build up by the river at Dibrugarh. This study investigates the Heavy Mineral suite which develops at different localities within the bar. The heavy mineral content of sediments of the study area were analysed through petrographic methods. For this, a total of sixty samples were selected from twenty one trenches which were excavated at different locations of the compound bar. The Heavy Mineral species that were found to be present in the Brahmaputra River sediments were Hornblende, Actinolite, Andalusite, Biotite, Chlorite, Chloritoid, Epidote, Garnet, Kyanite, Muscovite Sillimanite, Hypersthene, Enstatite, Sphene, Staurolite, Tourmaline and Rutile. Thus, the Heavy Minerals assemblage comprises both stable as well as unstable minerals with variable proportions.

Keywords: Heavy Mineral, Sediments, Compound Bar, Brahmaputra River, Dibrugarh.

ISCA-ISC-2017-6EG-01-Poster

Hydrocarbon potential of Kopili Shales from Litang Valley, Meghalaya, India

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Abstract: The hydrocarbon potential of the Kopili Formation of Litang valley was assessed by Rock-Eval pyrolysis and palynological analysis. Two borehole sections of Litang valley namely Umphyrluh Block; Borehole no. BUM-14 and Shyrwang Block; Borehole no. JS-06 were selected for the present study. The analysis of these samples pretends to determine quantity, type and thermal maturity of the associated organic matter. The Rock-Eval and TOC analysis of the studied samples suggest that the total organic carbon (TOC) values range from 0.2 to 1.54 wt. % (averaging 0.38 wt. %) and the genetic potential (GP) and hydrogen index (HI) values range from 0.05 to 0.89 mg HC/g rock and 9 to 61 mg HC/g TOC respectively. These values of the studied samples imply that all these shale samples have very low total organic carbon (TOC<0.5%), S1, S2 and hydrogen index (HI) values. Almost all the samples are in mature stage as average T_{max} value is 447.77^0C and production index (average 0.24) indicate their potentiality towards oil generation, but low genetic potential (S1+S2) and TOC do not support to generate oil from them. In these Kopili shales, the most often encountered is amorphous organic matter in associated with other forms of organic matters such as charcoal, partly biodegraded terrestrial organic matter, black debris, spores and pollens grains and dinoflagellate cysts. Most of the samples indicate of gas potential in consisting mainly of terrestrial plant debris and in Van Krevelen-type diagram, the organic matter content is predominantly of type III and type IV. Thus, the source rock potential for the Kopili shales of this valley is considered to be poor potential of sourcing gaseous hydrocarbon.
Keywords: Litang valley, Meghalaya, Rock Eval, Kopili shales, Borehole.

ISCA-ISC-2017-6EG-03-Poster

Heavy minerals and Granulometric studies on coastal sediments between Kandivalasa and Nagavali river mouths, North AP, East Coast of India

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Abstract: In this study, granulometric and heavy minerals analysis were carried out in coastal sediment samples from Kandivalasa to Nagavali river mouths, north Andhra Pradesh, east coast of India to examine the feasibility of energy conditions that had prevailed during the deposition and its respective heavy mineral assemblages. The grain size spectrum shows a marked variation in the low tide line (LTL), berm, high tide line (HTL) and dune microenvironments. Abundance of the medium sand to find sand shows the prevalence of comparatively moderate to low energy condition in the present study area. Variation in energy conditions is controlled by geomorphology of the sedimentary beach. Linear discrimination function of the samples indicates shallow marine deposition by aeolian and beach processes. CM pattern of the present studied sediments suggests that deposition takes place by graded suspension and this is also supported by the wave energy by the tractive currents. The heavy minerals also identify in different size fractions from different microenvironments and predominance of total heavy minerals nearby river mouths. The total heavy mineral (THM) in the study area ranges from 2.59 to 51.43% (av.20.22%). The heavy mineral assemblages found in this study are dominated by Garnet, Sillimanite, Ilmenite, Magnetite, Rutile, Monazite, Zircon and Kyanite. The studied sediment samples consists rutile and zircon and the average RuZi index is high i.e. 61.87, which denote rutile bearing lithologies (metapelitic and/or metamafic rocks) are abundant in the source region.
Keywords: Heavy minerals, Grain–size, Coastal sediments, Metapelitic rocks, East Coast of India.

7. Engineering, Energy, Architect and Planning

ISCA-ISC-2017-7EEAP-01-Oral

Production and characterization of agro-based briquettes and estimation of calorific value by regression analysis

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Abstract: Biomass in the original form having low bulk density results in huge transportation and storage costs, and cannot be used as an effective combustible fuel. Densifying biomass by briquetting / pelletizing technology helps to reduce the above said problems and improves the effectiveness of biomass as combustible fuel. In the present study, briquettes were produced by using rice husk and carbonized rice husk with starch and bentonite clay as binders. The bulk density and compressive strength of briquettes produced were determined. It was observed that bulk density values of briquette samples increased with increase in binder percentage in the mixture up to 6% and decreased with further increase in binder concentration. Similar trend was also observed for compressive strength of briquettes. Proximate analysis of briquettes was evaluated as per the standard methods. A mathematical equation to predict calorific value of biomass briquettes based on the proximate analysis of briquettes was developed by using regression analysis. It was found that the predicted data from the proposed model closely match with the experimental data with a R^2 value of 0.94 and root mean square deviation (RMSD) of 0.0659.

Keywords: Briquettes, Regression analysis, Binder, Compressive strength, Bulk density.

ISCA-ISC-2017-7EEAP-02-Oral

Study of solidification and melting problems of metals and alloys by using ansys fluent

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Abstract: The phenomena of solidification and melting are of great importance in basic manufacturing processes like casting, welding etc. In earlier days, only analytical solutions were available, which did not give a clear idea about the process. Moreover, some effects (like natural convection, density change due to phase transformation) were also neglected in those days. Therefore, numerical techniques for this kind of problems gather attention for both present and future research. Phase change problems of metals and alloys are moving boundary problems, the interface changes with respect to time. The basic mathematical formulation pertaining to these problems is has been obtained from the governing equations as shown below:

$$\nabla . (\rho \mathbf{u}) = 0$$

$$\frac{\partial (\rho \mathbf{u})}{\partial t} + \nabla . (\rho \mathbf{u}\mathbf{u}) = -\nabla p + (\nabla . \mu \nabla \mathbf{u}) + \rho \mathbf{f} + A\mathbf{u}$$

$$\frac{\partial (\rho e_T)}{\partial t} + \nabla . (\rho \mathbf{u} e_T) = \nabla . k \nabla T - \frac{\partial (\rho e_L)}{\partial t} - \nabla . (\rho \mathbf{u} e_L)$$

Currently enthalpy method is used for simulation. At first, phase change problem is formulated without convection effect. Initially, pure solid is kept inside the cavity at its melting point temperature ($T_m = 0$). Suddenly, the temperature of the all the boundary faces are increased. It is observed that the interface changes with respect to time and finally the whole domain becomes liquid. Nevertheless, in case of alloys phase change occurs over a wide range of temperature. The zone bounded by solidious and liquidious temperature line is called the mushy zone. To observe the mushy zone and its effect on solidification the aforesaid problem has been altered by changing the property of the material and adding natural convection effect and it has been observed that the phase change occurs rapidly due to convection effect. Grid independence test and three dimensionality effect has also been observed carefully.

Keywords: Solidification, Melting, Metals, Alloys, Ansys fluent.

ISCA-ISC-2017-7EEAP-03-Oral

Design and simulation of a PID controller for motion control systems

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Abstract: Motion control system plays important role in many industrial applications among which are in robot system, missile launching, positioning systems etc. However, the performance requirement for these applications in terms of high accuracy, high speed, insignificant or no overshoot and robustness have generated continuous challenges in the field of motion control system design and implementation. To compensate these challenges, in this study a PID controller has been designed using mathematical model of a DC motor based on classical root-locus approach. The reason for adopting root locus design is to remodel the closed-loop response by putting the closed-loop poles of the system at desired points. Adding poles and zeros to the initial open-loop transfer function through the controller provide a way to transform the root locus in order to place the closed-loop poles at the required points. This process can also be used for discrete-time models. The Advantages of root locus over other methods is that, it gives the better way of pinpointing the parameters and can easily predict the fulfillment of the whole system.The controller performance was simulated using MATLAB code and a reasonable degree of accuracy was obtained. Implementation of the proposed control scheme was performed using MATLAB-Simulink and the result obtained shows that the PID controller met the transient performance specifications with both settling time and overshoot less than 0.1s and 5% respectively. In terms of steady state error, the PID controller gave good response for both step input and ramp.

Keywords: PID Controller, MAT-LAB.

ISCA-ISC-2017-7EEAP-04-Oral

Development of fire detection algorithm using fire color and shape information

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Abstract: Fire can be defined as a state in which substances or materials combined chemically with oxygen from the air and give out heat, smoke and flame; combustion or burning. In general, fire occurs only when 3 essentials elements come together: heat (sufficient), material (Fuel), and oxygen. Most of the available fire detection techniques have a problem of travelling delay and also give a high false alarm. The proposed algorithm detects fire at its early stage in both indoor and outdoor using video image processing with fewer false alarms. The algorithm begin by loading the selected video clip from the database developed to identifythe present or absence of fire in a frame. In this approach, background subtraction was employed which is comparing the current frame with the reference frame. If the result of subtraction is less than the set threshold, the difference is ignored and the next frame is taken. However, if the difference is equal to or greater than the set threshold then it subjected to color and shape test. This is done by using combined RGB color model and shape signature.

Keywords: Development of fire, Detection algorithm, Fire color, Shape information.

ISCA-ISC-2017-7EEAP-05-Oral

A case study on flexible pavement condition of a national highway of Sylhet by PCI method

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Abstract: The major assets of highway infrastructure are Pavements. The performance evaluation of pavement by using pavement condition indicators is a basic component of any pavement management system. Various indicators like Pavement Condition Index (PCI), Roughness Index (RI), Present Serviceability Rating (PSR) etc. have been commonly used to assign a maintenance strategy for the existing pavements and to identify a road condition. The study is concerned with the adjustment methodology of visual condition survey and it has found PCI variations at different points of the road.

Keywords: Flexible Pavement, PCI, RI, PSR and survey.

ISCA-ISC-2017-7EEAP-06-Oral

Biodiesel production from unused algae in India

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Abstract: The main constraint of biodiesels is their high market price and most of the energy resources are concerned with high environmental pollution. Algae is comparatively the better option to produce biofuel. Utilizing carbon di-oxide for their photosynthesis algae reduce atmospheric pollution. The oil content of algae is comparativelybetter than other crops. In India algae of most ponds remain unused. This experiment was carried out with those algae. At first the algae got dried in the sun. Then those were powdered. Oil extraction from this powder was done by solvent-extraction using hexane as a solvent. 10-15% oil was extracted by the process. Biodiesel, from this algal oil, was produced by transesterification. The optimized conditions for the bodiesel production were 6:1 molar ratio, 2.5% catalyst concentration, reaction temperature 60°C, 60 minutes reaction time.
Keywords: Biodiesel, Algae, Transesterification, Free fatty acid, Energy, Solvent extraction.

ISCA-ISC-2017-7EEAP-07-Oral

The use of parametric design for better built environment

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Abstract: Computer aided design are used to create virtual model that help the designer, developer and the installer to better understand the built form and its relationship to the context. 2 dimensional drawings are being taken over by 3 dimensional drawings however even the 3Dimensional models have limited use and cannot easily include variables that change in actual built environment. Parametric design based on algorithmic thinking provides higher control to the modeler to create, alter, visualize and analyze spaces, objects or elements to produce innovative design alternatives. The research paper will discuss how parametric design using Grasshopper can be used as a planning and design tool in the design and layout of buildings and for use in renewable energy system installation. The application of parametric design will be demonstrated at urban setting with primary focus on sun path for sunlight hours, radiation study and sky view factor for better environmental performance. Climate data based on different IPCC scenario will be used in the analysis. The research will demonstrate how results from these studies can help in the development of urban plans, in the indoor environment and in arriving at optimized installation of RE systems based on the climate data and the context.
Keywords: Parametric design, Grasshopper, 3D modeling, Environmental performance, Urban study, Climate data and renewable energy.

ISCA-ISC-2017-7EEAP-01-Poster

Study of Cohesion and Internal angle of friction of Soils by artificial neural net work model through index properties

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Abstract: The shear strength Parametre is very essential engineering properties of soil. It affects the different aspects of soil such as bearing capacity of Foundation, Slope stability, Dam's inclination and Retaining structures. It is not always possible to obtain undisturbed samples and conduct the triaxial shear test to get cohesion and Internal angle of friction of soils. In order to counteract such difficult situation, numerical solutions can be developed to such parametres with available data. In this study three groups of index properties, has formed (A) Consistency limit i.e Liquid limit, plastic limit, plasticity index (B) grain size analysis Gravel %(GP), Sand %(SP), Silt %(STP) and clay %(CP), Bulk density, Dry density, Specific gravity, Water content an attempt has to made to develop Neural Model to predict shear strength "C" and Internal angle of friction with Individual groups and set of groups. A Multilayer perception net work with feed forward back propagation to be used for this model, for this purpose a total nos. of 80 nos. experimental results has to be used to construct and model, out of which 50 are to be used for training and remaining 30 nos. has to be used for testing and Validity. By varying the number of hidden layers, the best neural net work shall be identified. The Value of cohesion and internal angle of friction shall be predicted by the model will be comparable with Laboratory results.
Keywords: Cohesion, Soil, Consistency limit and Friction.

ISCA-ISC-2017-7EEAP-02-Poster

Drying characteristics of bitter gourd slices

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Abstract: Bitter gourd is an excellent source of vitamins, minerals along with immense health benefits. Enzymatic browning in bitter gourd is a quality deteriorative phenomenon, which reduces its value and marketability among consumers. Thus, this study was focused to evaluate the effect of pre-treatment (blanching) condition and drying behaviour of Bitter gourd.The blanching operation was optimized based on peroxidase inactivationand found out to be 3.5 min in 0.2% potassium metabisulfite concentration. Further, drying of pre-treated samples were carried out at 60, 70, 80°C and optimum drying temperature was obtained as 60°C for hot air convective drying on the basis of chlorophyll and ascorbic acid retention. Equilibrium moisture content obtained by subjecting the sample for 24 h to hot air oven method at different treatments and temperature were found to be ranging from5.93 to 3.70% (db). This shows that lower equilibrium moisture content could be attained with higher temperature. The drying data was fitted with Lewis model and the drying rate constant was obtained at different temperature were found to be ranging from 2.7 to 3.2 (1/h). The diffusion co-efficient obtained were ranging from 2.600×10^{-9} to 3.220×10^{-9} (m^2/s), It was observed that the highest diffusion co-efficient obtained was at 80˚C. In addition, the activation energy obtained was 551 KJ/kg mol.The measured value of ascorbic acid is 56 mg/100gm andthe chlorophyll retention was 4.62×10^{-3}-3mg/gm.Rehydration ratio measured was 3.7 and the water uptake was 270% for the optimum condition. Also, swelling index 1.2 and shrinkage ratio obtained was 0.8. Thus, drying of pre-treated bitter gourd at 60° C proposed inorder to retain its quality, shelf life and high value.

Keywords: Bitter gourd, Hot air oven, Drying method, Lewis model, Diffusion co-efficient.

ISCA-ISC-2017-7EEAP-Civil-01-Oral

Feasibilty evaluation for replacement of 'coarse' aggregates in bituminous concrete grade-1 mix and semi-dense bituminous concrete grade-2 mix with 'e-waste ceramics'

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Abstract: Due to the upsurge in the demand, there has been however a serious decline in the availability of the raw materials needed for road constructions. In this regards, the present study attempts to replace E-Waste ceramic as coarse aggregate in Bituminous Concrete Grade-1 Mix (BCG) and Semi-Dense Bituminous Concrete (SDBC) Grade-2 Mix. For both of these setups, Coarse aggregate of 4.75mm was partially replaced by E-waste ceramic from 0-20% in increments of 5%. The selected materials were then blended together as per Marshall Method of mix design with 2% cement as filler by weight of total aggregate mix. The Marshall Specimens were later casted in triplicate for 5%, 5.5% and 6% binder by weight of total mix under replacement of 4.75 mm sized aggregates from 0-20%. The specimens so casted were then subjected to various standard tests of/for Marshall Stability, Flow value, Bulk density, Optimum Binder Content, Voids in mineral aggregates and Voids filled with bitumen, to study and compare the strength and physical properties. While in BCG, stone dust was not added; in SDBC 42 gm of Stone Dust was added. From the experimental results, it has been generally found that the optimum binder content was found to remain constant with the increase in E-Waste ceramic. The bulk density and volume of bitumen was found to increase with the increase in percentage of E-Waste ceramic. The percentage replacement of aggregate with E-Waste ceramic of size 4.75mm IS sieve was found therefore to be effectively replaced upto 10% by weight of total aggregate mass, with adherence to MORT&H 4th Revision Standards for both BCG and SDBC. However, while the results have confirmed that for 5.5% Optimum Binder Content at 10%, optimal results were obtained for both the cases; BCG was found to have more stability than SDBC. For paving 1 km road of 50 mm thickness of pavement and 65 mm thickness of pavement; the amount of E-waste Ceramics required will be around 170 and 221 tonnes respectively. Hence, In India, wherein about 2.7 million tonnes of E-wastes are generated annually and the rate of road construction across India is estimated at 3 km per day; the savings would be about INR 8891 per km with replacement by 10% e-waste ceramics and 5.5% bitumen.

Keywords: Bituminous, Ceramics, E-waste, Environment, Aggregates.

ISCA-ISC-2017-7EEAP-Civil-02-Oral

Prediction of dissolved oxygen in Surma River: application of layer recurrent neural networks and radial basis function neural networks of artificial neural networks (ANNs)

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Abstract: The objectives of this study are to develop a layer recurrent neural network (LRNN) model and a radial basis function neural network (RBFNN) to predict the dissolved oxygen concentrations of the Surma River, Bangladesh. The neural networks models were developed using experimental data which are collected from four sampling stations during a three years long study. Phosphate, pH, BOD, total solids (TS), total dissolved solids (TDS), alkalinity, nitrates, carbon di oxide, potassium, temperature, iron (Fe^{+2}), turbidity, hardness and electrical conductivity were the input variables of the ANN models to predict the DO concentrations. The input combinations were prepared based on factor analysis method. It is revealed that, the DO can be successfully predicted by radial basis function neural network model with pH, BOD, TDS and temperature as input variables. This model shows significant correlation coefficient (R) for training (0.924), testing (0.944), validation (0.943) and whole arrays (0.916) with a minimum root mean squared error and high model efficiency. The best ANN model then compared with multiple linear regression (MLR) using statistical performance parameters. Moreover, the discrepancy ration also indicates that RBFNN model is perfectly trained hence can be used as a tool for the prediction of DO in river water.

Keywords: Radial basis function neural network, Layer recurrent neural network, Dissolved oxygen, Surma River.

ISCA-ISC-2017-7EEAP-Civil-03-Oral

Study on efficiency of single unit Up-flow anaerobic sludge blanket reactor for pre-treatment of kitchen and sewage water sample at sub-tropical region of Bhutan

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Abstract: An experimental research was conducted in order to study the feasibility of Up-flow Anaerobic Sludge Blanket (UASB) reactor in Jigme Namgyel Engineering College for the pre-treatment of wastewater. A prototype UASB reactor model was set up for the pre-treatment of wastewater. Kitchen and sewage wastewater samples were collected for the pre-treatment process in the single unit UASB reactor. The influent and effluent wastewater samples were collected after consecutive weeks and tested for the parameters such as pH, turbidity, COD, conductivity, salinity, temperature and dissolved oxygen using the Horiba U-53 water quality meter and through chemical tests. A large scale UASB reactor was designed for 6 households having a design population of 432 heads considering 52,488 liters per day of wastewater.Through the water tests done on the influent and effluent wastewater samples, the COD removal efficiency of the prototype UASB reactor model was determined to be 62.40% and 56.15% respectively during the treatment of kitchen wastewater and sewage wastewater.

Keywords: UASB, Turbidity, COD, Waste Water Pre-Treatment, Anaerobic Treatment, Up-flow, Sludge Blanket.

ISCA-ISC-2017-7EEAP-Civil-04-Oral

Removal of iron (II) from ground water utilizing wooden charcoal, stone chips and sand by Breakthrough column studies

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Abstract: In this paper an attempt has been taken to evaluate adsorptive capacity of prepared wooden charcoal (PWC), processed sand (PS) and processed stone chips (PSC) to remove dissolved iron through column studies in a continuous mode. The experiments were carried out utilizing synthetic water containing Fe (II) at a fixed pH (5.5) value and zero dissolved oxygen level. The breakthrough time and bed adsorption capacity were assessed using standard formula for different bed depth and two selected flow rates. The adsorption breakthrough curve indicates an increase in breakthrough time with an increase in bed depth. On the other hand, the uptake of Iron (II) concentration by the adsorbents decreases with the increase of flow rate through the filter bed. PWC shown highest attraction to Fe (II) as compared to PS for higher bed depth (18 cm) under the experimental condition. Moreover, the up-scaled columns perform better comparing with the indigenous unit

models of same bed heights and flow rates. The result also found that adsorption bed capacity is higher when the inlet iron concentration is higher.

Keywords: Iron, Breakthrough, Adsorption, Low cost adsorbent, Wooden charcoal.

ISCA-ISC-2017-7EEAP-Civil-05-Oral

A blend of carbon and polyethylene Terephthalate (PET) as fine aggregate

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Abstract: The paper proposes to incorporate carbon in Polyethylene Terephthalate (PET) and identify it as a construction material. A blend of carbon soot and PET bottle waste were prepared in molten state. Carbon soot was added at a percentage of 0%, 5%, 10%, 15%, 20%, 25% and 30% to the molten PET waste and were cooled and crushed into the required size of fine aggregate. Tests on fine aggregates were performed to examine the effect of carbon addition with various percentage to PET waste. Specific Gravity, water absorption, grading, bulking and bulk density test results were obtained for the above samples and also for natural sandto perform comparative analysis. The results of each samples were compared and analyzed with the result of natural sand to determine the most feasible percentage of addition of soot carbon in the PET bottle waste. It was found that an optimum of 10% soot carbon filled PET fine aggregate gave similar results to that of natural sand and better results than that of 0% carbon added PET waste fine aggregate.

Keywords: Carbon soot, PET waste, Percentage of addition, Fine aggregate, Comparative analysis.

ISCA-ISC-2017-7EEAP-Civil-06-Oral

A review on vernacular insulating techniques in Bhutan

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Abstract: The building industry contributes to maximum impact on the environment consuming a substantial amount of the world's energy. Vernacular buildings have evolved with minimal effect on the environment and preserved the natural resources for future generations. This study is a comprehensive review on how vernacular materials are to its climate and geography providing thermal comfort to its occupants. Vernacular architecture was divided into three archetype according to the climatic and geographical zones. A thorough review on each of these zones has been made through literature review and case studies and a comparative analysis has been done to determine and conclude that the vernacular materials are indeed the most suitable materials to provide thermal comfort in a building envelop.

Keywords: Vernacular materials, Geographical zones, Thermal properties, Thermal comfort.

ISCA-ISC-2017-7EEAP-Civil-07-Oral

Application of jump formwork in the construction of flyover for integrated check post at Rinchending, Bhutan

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Abstract: Jump formwork or the climbing formwork is the special type of formwork which is used to enhance the construction process for structures which are repetitive in forms such as towers and skyscrapers. It helps to bring down the cost and speed up the construction process. Most of the construction projects in Bhutan use typical traditional formwork and the construction of flyover for Integrated Check Post (ICP) at Rinchending, in Phuentsholing is the first project in country to make use of Jump formwork. This paper investigates the application and benefit of using jump formwork in the construction of flyover for integrated check post at Rinchending, Phuentsholing and its applicability in future bridge projects.

Keywords: Climbing Formwork, MF 240, flyover, integrated check post, Work Flow, Project Profile.

ISCA-ISC-2017-7EEAP-Civil-08-Oral

Application of Vastu Shastra and Feng Shui in planning aspect of Bhutanese Dwellings

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Abstract: Traditional Bhutanese architecture has been the mirror of the rich culture and tradition of Bhutan since the 7th century and is closely associated to Buddhism. However, the traditional structures were constructed without proper concepts,

designs and drawings. While the intricate detail designs in the building facade are in line with Buddhism adding rich ornamentation, sophistication and beauty, spatial planning aspects are often neglected. This paper aims to analyze the spatial planning aspects of Bhutanese dwellings from the traditional and religious concepts of Feng Shui and VastuShatra. It is carried out through case studies of vernacular as well as contemporary dwellings and study how the principles of Feng Shui and VastuShatra are applied in Bhutanese dwellings. The paper will comes with guidelines to implement these principles in in a Development Control Regulations for a town to complement the traditional Architecture of Bhutan.

Keywords: Traditional Bhutanese Architecture, Vastu Shastra, Feng Shui, Spatial planning, Ornamentation.

ISCA-ISC-2017-7EEAP-Civil-09-Oral

Daylighting in Bhutanese Buildings

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Abstract: Human performance is greatly affected by the amount of lighting and it has greater effect on human health. Daylighting is also the most sustainable and efficient way of saving energy in buildings. Despite the importance of day lighting highlighted in Bhutan Green Building Guidelines and other policy documents Bhutanese houses are built without proper studies on it. This paper investigates the both the vernacular and modern design of Bhutanese dwellings from a daylighting perspective by doing cross case studies and suggests concepts for its application in contemporary designs.

Keywords: Day lighting, Bhutanese architecture, Human performance, Sustainable, Energy efficient.

ISCA-ISC-2017-7EEAP-Civil-10-Oral

Soil characteristics study for rammed earth construction in Bhutan

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Abstract: Earth is a popular construction material in traditional architecture in Bhutan. It is currently gaining popularity due to cost effective and sustainable advantages over conventional materials but its suitability in an earthquake zone is questionable. Improvement of the quality of earth using contemporary methods is needed in order to meet the comfort and seismic specifications. This research is focused on studying the soil characteristics to improve the quality of current rammed earth construction in Bhutan.

Keywords: Rammed earth, Stabilized rammed earth (SRE), Linear shrinkage (LS), Plasticity index (PI), Sand, Silt clay.

ISCA-ISC-2017-7EEAP-Civil-11-Oral

Bamboo as a sustainable building material in Bhutan

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Abstract: Bamboo is emerging to be a valued sustainable building material around the world. They are easy to avail, cause less harm to the environment and are blessed with their renewable nature and quick growth. This study contains critical analysis on bamboo as a building material in Bhutan. The study compares bamboo to conventional building materials such as steel and timber in cost, weight, strength and cultivation. The paper recommends the best species that can grow in Bhutan to provide an opportunity for its commercial cultivation as an alternative sustainable building material in Bhutan.

Keywords: Bamboo construction, Commercial cultivation, Sustainable materials, Renewable nature.

ISCA-ISC-2017-7EEAP-Civil-12-Oral

Color psychology for better learning environment

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Abstract: This research is mostly based on review of other papers on colors and its psychological effect and aims to analyze the effect of colors on creating a stimulating academic environment. It is aimed to find out the most suitable color for the classrooms in Bhutan so that psychological stimulation leads to create better learning environment. This will guide the policy makers, designers, educators and investors to decide for the best suited color for the academic spaces and improve the classroom environment.

Keywords: Academic spaces, Color psychology, Psychological stimulation, leaning environment.

ISCA-ISC-2017-7EEAP-Civil-13-Oral

Derivation of strategies for sustainable riverfront township in Bhutan by comparative analysis

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Abstract: Rivers are the most essential resource in life and have always been a pivotal element in shaping the livelihood of the people living in its shed. As the country embraced development and opened its door to the world, the rivers lost its value while the economy and development gained importance. Bhutan has seen tremendous development over the past decades that have led to the growth of two major cities, Thimphu and Phuntsholing. Both of the cities have a riverfront area but these areas have been neglected and uncared for. In this paper, we have adapted strategies that can be applied in these cities to have a sustainable growth of these two riverfront areas based on review of strategies followed by successful riverfronts in other countries. This paper provides a reference platform for planners and designers to use while framing waterfront development or re-development projects.

Keywords: Riverfront Township, Riverfront development, Sustainability, Strategies.

ISCA-ISC-2017-7EEAP-EE-01-Oral

Small hydro clustor development in Kullu - a green gateway of socio-economic development platform

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Abstract: Small hydro project development activity started in this hilly state in 1900's during the British Raj while the Ruler Kings were responsible for wellbeing of their small kingdom. The young king of Chamba (HH Bhuri Singh) while returning from overseas study in UK returns with a hydro turbine for 630KW for the hydro electric power station. The transport facility and other disadvantages could not stop his philanthropic zeal to serve the masses under his command. He establishes first small hydro station 1902 which is still running as a live example of a small hydro project as displayed now as a world heritage project in India. The project has passed over a century but it still has a royal charisma of tiny power plant. It shows the path but somewhere we are missing the track in developing this perennial technology driven path in the midst of policy, tariff, open access, other conflicting idea forgetting the very basic aspect of harnessing natural resources at affordable cost at the doorstep of rural, hilly consumers at the demand side.

Keywords: Small Hydro Power Plant, Hydro Turbine, Natural Resource, Socio-economic aspect of hydro power, Entrepreure aspect of micro hydel project, Hilly hydro project beauty.

ISCA-ISC-2017-7EEAP-EE-03-Oral

Low cost solar water heater

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Abstract: The presented project presents the implementation of low cost solar water heater system using materials that are economical, waste and light providing comfort and welfare to the people. Specifically, the project uses sand, bottles, pipes and glass to absorb and generate enough heat to increase the temperature of water. The presented prototype also offers an attractive feature of portability for convenient transportation. The system is based on closed loop system providing an efficient performance with minimum loss of heat and high heat retention capability. The prototype fabrication took about a month with its verification at different weather conditions for greater precision. The project was demonstrated and it invited numerous recommendations for its implementation in various rural areas of Bhutan. The project targets majority of population who are economically backward and are looking for efficient means to reduce the fuel cost incurred due to use of conventional heating system.

Keywords: Recycling of raw materials (bottles), Solar collector (sand), Low cost, Efficiency, Energy saving.

ISCA-ISC-2017-7EEAP-EE-04-Oral

Improvement of power flow in Bhutan's power network using UPFC

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Abstract: The objective of this paper is to present a comparative study on power flow of Bhutan power network, with and without the insertion of unified power flow controller in the system. The study has been done using the DIgSILENT Power Factory 15 software. The proposed algorithm provides generic guide line to determine the optimal location of the UPFC. The function FMINCON from MATLAB@2012 has been employed to determine the optimal parameters of the UPFC which is then used in determining the optimal location of UPFC. The obtained end results show the improvement of power flow and total grid loss minimization in the Bhutan power network.

Keywords: UPFC, Generic algorithm, Active power loss minimization, FMINCON.

ISCA-ISC-2017-7EEAP-EE-05-Oral

Modeling, short circuit result and distance relay settings of Bhutan transmission network

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Abstract: This document discusses on the network modeling of Bhutan Transmission network using DIgSLIENT Power factory software tool, short circuit results obtained after performing short circuit analysis on the model developed and the distance relay settings for different protection path defined. The network model is designed for the transmission line voltages of 66 kV, 132 kV, 220 kV and 400 kV including the neighboring transmission network of India. A comprehensive comparison between geometrical as well as manufacture data of tower types and transmission lines respectively has been done to decide which data is more realistic to be used in the model. The line parameters are also calculated using Matlab software to validate the tower data to be used in the model. Maximum and minimum three phase to ground short circuit analysis has been performed and the result obtained are available in a tabular report for deciding the ratings of different protective devices. A distance protection scheme is also developed for the network designed with all the relay models as well as associated voltage and current transformers at desired location of the network along the strategic path defined. Form this protection scheme, a proper relay setting for better coordination among the different relays has been proposed.

Keywords: Short Circuit, Protection Coordination, Geometrical Data, Relay Setting, Time Distance Plot.

ISCA-ISC-2017-7EEAP-EE-06-Oral

Voltage stability study of Eastern Bhutan's transmission network

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Abstract: Voltage stability of the system is the ability to sustain stable voltages at all buses in a network during disturbance. Voltage instability occurs when the voltage in the network drops or increases continuously and the power supply is disturbed. To maintain equilibrium of the system, it is important to do voltage instability studies in electric power system. This paper presents the voltages instability analysis of Bhutan transmission network especially in Eastern grid by using power-voltage (PV) curve and reactive power-voltage (QV) curve, and East-West Interconnection. The power flow analysis for mesh-type power network is carried out in DIgSILENT Power Factory and the plotting of PV and QV curve is carried out in Microsoft Excel. The two load scenario: peak generation with corresponding load, mean generation with corresponding load is used to perform the load flow and corresponding voltage stability studies. During peak generation, the voltage profile in all the buses in Bhutan power network is equal to nominal voltage. However, during the mean generation the voltage profile especially in Eastern grid is very poor. For the PV and QV curve method the bus with minimum voltage level is required. Yurmo 132kV bus has the drastic drop in voltage and this bus was used for the studies. The results thus obtained have been validated with MIPower and PSSE software.

Keywords: Voltage Instability, PV and QV Curves, DIgSILENT Power Factory.

ISCA-ISC-2017-7EEAP-Mech-01-Oral

Analysis of the solar power generation system of a green energy vehicle for energy conservation and sustainable development

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Abstract: A solar energy vehicle is a concept of using sun's energy and to convert it into electrical energy in order to substitute the petroleum fuel based vehicles. In modern culture now science is being focusing on the use of renewable energy in order to extract electrical energy from it. This vehicle uses solar energy as a source to convert it into electrical energy with the help of solar panel which consist of photo-voltaic cells. This vehicle consist of solar panel, battery, motor and wheels. Initially the solar energy will convert into electrical energy with the help of solar panel. This electrical energy will be stored in a battery. The battery will drive the motor and motor will drive the wheels.
Keywords: Energy, Electrical, Solar, Vehicle.

ISCA-ISC-2017-7EEAP-Mech-02-Oral

Analysis of the compressed air system of a green energy vehicle for sustainable development

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Abstract: A compressed air vehicle is old concept but it becomes important because of increase in petrol prices as well as increase in pollution. The fossil fuel engines which were good enough for us before 30-40 years but now they are one of the sources of contributor of global warming and pollution with fossil fuel crises. The compressed air vehicle is an eco-friendly vehicle because there is no combustion of fuel. An air powered vehicle uses air as a fuel. An air powered vehicle will use the expansion of compressed air to drive the turbine. An air driven turbine will create useful work by expanding compressed air. There is a DC generator which will be connected to the turbine with the help of shaft. Because of rotation of turbine generator will produce electricity which will be stored in a battery and the electricity will be used for other purpose of vehicle.
Keywords: Compressed air, DC generator, Turbine, Battery, Fossil fuel.

ISCA-ISC-2017-7EEAP-Mech-03-Oral

Analysis of the performance parameters for a duct to optimize its performance

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Abstract: Energy conservation are efforts made to the reduce consumption of energy by optimize maximum of an energy service. This can be achieved by using energy more efficiently and reducing losses of parts of energy. The components and performance of component used in energy transfer process both should be optimum. One of energy transfer components is duct. Ducts play important role in field of HVAC and other flow device. When fluid flow inside the duct there chances to loss of heat energy and pressure energy. So need to reduce the losses from duct and improve the performance of ducts. For making duct more effectively, need to well known about performance parameter and ways optimization. So, an effective study of performance parameter required to optimize duct and reduce losses of energy.
Keywords: Energy, Thermal energy, Duct, Optimization.

ISCA-ISC-2017-7EEAP-Mech-04-Oral

Design of a catalytic converter for pollution control from diesel engine automobiles using nano-particles

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Abstract: Environmental air pollution has emerged as a grave problem for the present generation. Specially, the vehicles based on the diesel engines are major culprits in this cause. This research work is directed on providing an effective and efficient solution for pollution prevention from diesel engine automobiles using a catalytic converter with nano-particles as catalyst. An effective design of a catalytic converter for pollution prevention is proposed in this research work.
Keywords: Air pollution, Catalyst, Catalytic converter, Diesel engine, Pollution.

ISCA-ISC-2017-7EEAP-Textile-01-Oral

Transfer printing: designs inspired from arts and crafts of Manipur in textiles

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Abstract: Manipur is known for its excellent textiles comprising of an array of woven, printed and painted textiles. The exquisite textiles of Manipur showcase the vibrant cultural heritage of the state. Apart from the well known textile designs of Manipur, fresh designs inspired from the arts and crafts of Manipur are experimented as textile designs through transfer printing and their potential of commercialisation in the present study. The mentioned designs were collected from secondary sources, documented and adapted using Corel Draw and Adobe Photoshop. Preparation and selection of designs, design arrangement and colour ways were the subsequent steps followed each of which was evaluated by the same panel of thirty judges at five point rating scale. The final designs were printed on transfer paper using sublimation ink which then transferred to the polyester fabric, due to their affinity towards the dispersed dyes, in heat transfer printing machine and then finished with proper trimmings. The consumers' acceptability test was carried out which proved great acceptance and demand of the printed product in market. Hence, printed textiles inspired from the arts and crafts of Manipur are economically feasible, can help broaden the design base of India and can be commercialised as textile design.
Keywords: Textiles, Designs, Craft, Transfer printing and sublimation.

ISCA-ISC-2017-7EEAP-EC-01-Oral

Design of 4-elements Yagi-Uda antenna operating at 2100MHz for Mobile Networking Applications

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Abstract: The paper presents a design of 4-elements Yagi-uda antenna operating at the frequency of 2100MHz for mobile networking applications such as 3G and LTE (4G). The antenna is cheap and simple to design and has advantage of offering high gain, directivity and impedance matching. It consists of an active driven element (dipole), a reflector and two directors, placed at equal spacing of 42mm.The elements were designed using the material copper annealed and is simulated using the CST Microwave software. The designed antenna has realized gain of 9.71dB, Bandwidth = 174.32MHz and Return loss = -35.86dB. The radiation pattern obtained is unidirectional i.e., towards forward direction.
Keywords: UHF (Ultra High Frequency), Yagi-Uda antenna, LTE (Long Term Evolution), VSWR (Voltage Wave Standing Ratio), Realized gain.

ISCA-ISC-2017-7EEAP-EC-02-Oral

Design of half wavelength monopole antenna offering 2100 MHz

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Abstract: The paper proposes the design and evaluation of half wavelength monopole antenna operating at 2100 MHz. The monopole antenna is applicable in various field including internet networks, broadcasting, cars radio and popularly in cellular communication. The attractive features of monopole antenna in cellular mobile communication are its simplicity, simple fabrication and fast installation. The paper presents the design of monopole over a finite ground plane on CST Microwave 2016 in time domain analysis. The paper evaluates all important antenna parameter bandwidth, radiation efficiency, radiation pattern and gain. These parameters define the performance of an antenna that is fundamental basics for any antenna designers. The parameter requirement varies as per the requirements and the applications demand.
Keywords: Monopole antenna, Bandwidth, Gain, Radiation efficiency, Radiation pattern.

ISCA-ISC-2017-7EEAP-EC-03-Oral

Flexible dual band Microstrip antenna for on-body application

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Abstract: The design of textile basedflexible dual band Microstrip antenna for on-body application operating at 1.55 GHz and 5.5 GHz is proposed. The proposed antenna can operate in ISM (industrial, scientific, and medical radio) band, UMTS

(Universal Mobile Telecommunications System) band, LTE (Long-Term Evolution) band and GSM (Global System for Mobile) band. The dual band antenna achieves bandwidth of 2GHz and 1GHz in first and second operating band respectively. The proposed antenna exhibits directional radiation pattern with minimum back radiation. The use ofthe full ground plane successfully reduces the back radiation qualifying its successful application for on-body communication. Further, the design of full ground plane maintains the robustness of the performance even when placed for on body communication.CST (Computer Simulation Technology) Microwave Studio 2016 is used to design and evaluate the proposed antenna. The simulated results of all antenna parameters are as presentedto illustrate the performance of the antenna.

Keywords: Microstrip antennas, Dual band, return loss, Voltage Standing Wave Ratio, Bandwidth, Multiband operation.

ISCA-ISC-2017-7EEAP-EC-04-Oral

Evaluation of MOSFET inverter using Orcad capture

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Abstract: MOSFET (Metal Oxide Semiconductor Field Effect Transistor) is a unipolar transistor, which acts as a voltage-controlled current device. It works by electronically varying the width of the channel along which charge carrier flows. It has three operating regions, cutoff region, triode region and saturation region and generallyoperates in saturation region.This paper presents the analysis and evaluation of IRF150 n-channel E-MOSFET in OrCAD Capture. The analysis includes the characteristics curve, voltage transfer function and power consumption of MOSFET. The evaluations of the small signal characteristics, analog and digital frequency response and maximum frequency of the MOSFET are also presented. Through the evaluation the minimum threshold voltage required to turn on the transistor IRF150 is found to be 3V. The MOSFET exhibits switching logic threshold voltage of 2.872V. The resulting low noise margin and high noise margin are approximately + 11.928% and - 16.316% respectively. The power consumed with lowinput voltage is 126.020nW and 24.992mW for high input. The MOSFET circuit behaves like a low pass filter with corner frequency of 55.857 KHz and slope of 18.975 dB/Decade.

Keywords: MOSFET, OrCAD Capture, IRF150, Noise margin, Inverter, Power consumption.

ISCA-ISC-2017-7EEAP-EC-05-Oral

E-Shaped Microstrip antenna for ISM Band

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Abstract: Microstrip antenna offers attractive features of low cost, low profile, lightweight and eases of fabrication. It also perfectly blends with the demand of slimmer electronic gadgets that requires smaller and planar antennas. However, the inherent narrow band property of microstrip antenna conserves it's realization in present electronic gadgets. To address the issue the paper proposes E-shaped microstrip antenna operating at ISM (industrial, scientific, and medical radio) band of 2.4 GHz. The proposed E-shaped radiator achieves higher bandwidth than the conventional microstrip antenna. The design and evaluations of the return loss, VSWR (voltage standing wave ratio), radiation pattern and gain are presented. The proposed antenna uses RT Duroid 5880 as substrate and copper as conductors. The substrate with thickness of 3mm and relative permittivity of 2.2 is used to achieve higher bandwidth. The antenna employs microstrip feedline technique to achieve better impedance matching. The design and simulations are carried out in Computer Simulation Technology (CST) Microwave Studio suite 2016 using it's time domain solver. The proposed antenna targets its application in ISM band with wide bandwidth offering high data rate.

Keywords: Microstrip antenna, Industrial, Scientific, Medicine (ISM) band, Wireless fidelity, VSWR, S11.

ISCA-ISC-2017-7EEAP-EC-06-Oral

Renewable mobile charger using piezoelectric transducer

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Abstract: The paper propose to generate electrical energythrough the mechanical stress on the screen of cellular phone. The mechanical stress applied on the touch screen of cellular phone while using is converted to electrical energy using the proposed transparent piezoelectric transducer. The location of the transducer is proposed for its attachment at the back of the cell phone screen. Though it may not generate enough power for successful running of the cellular phone, the method generates sufficient amount of power for automatic and gradual cell phone charging. The charging through such proposal increases the battery life of the cellular phone for longer use time.

Keywords: Piezoelectric Transducers, Mechanical stress, Electrical Energy.

ISCA-ISC-2017-7EEAP-EC-07-Oral

Standby automatic LED light on power failure

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Abstract: The paper presents a Standby automatic LED light. It switches on automatically on power failure. This device has high luminous value, extensive valuable life and small size. Besides, they consume less power and need no manual intervention. The rechargeable battery is used to power up the LED. The battery charges when the power exists. LDR is used to sense day and night. It helps the LED glow only during night when the power supply fails. The proposed device is simple and has low cost. Its core feature is the ease of implementation and reliability. The circuit design of the Standby automatic LED light is verified and fabricated. The output obtained is satisfactory.
Keywords: Light Emitting Diode (LED), Light Dependent Resistor (LDR), Relay circuit, Single Pole Double Throw (SPDT).

ISCA-ISC-2017-7EEAP-EC-08-Oral

Design of Four Element Yagi-Uda antenna operating at 91.1 MHz

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Abstract: This paper presents the design and evaluation of four-element Yagi-Uda antenna as receiver to receive the signal from college campus radio. The designed antenna operates at 91.1MHz.To our best knowledge this four elements Yagi-Uda antenna provides the maximum gain of 9.7dB that covers the greater range as compared to conventional dipole antenna. Moreover, it is suitable for campus radio station due to its directive property with large gain. We present the design procedures using antenna design software, CST (Computer Simulation Technology) Microwave Studio 2016. The paper presents the evaluation of various antenna parameters gain, input impedance, radiation patterns, S-parameter and VSWR (voltage standing wave ratio).
Keywords: Yagi-Uda antenna, S-parameter, Gain, Campus Radio Station, VSWR, Radiation pattern.

ISCA-ISC-2017-7EEAP-EC-09-Oral

Design of λ/2 Monopole antenna operating at 2.45GHz

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Abstract: The paper proposes the design and evaluation of λ/2 monopole antenna operating at 2.45GHz. The frequency falls under the free and unlicensed ISM (industrial, scientific and medical radio), used for many applications worldwide. The designed antenna operates at the operating frequency of 2.45GHz having the frequency bandwidth of 0.377GHz and 3.124dB gain. The designed antenna achieves high impedance matching with transmission line and exhibit omnidirectional radiation pattern. The elements were designed using the copper annealed and the ground plane with PEC material. The obtained frequency band can be used in various applications such as mobile, Radio location and satellite service.
Keywords: VSWR (Voltage Wave Standing Ratio), ISM band (Industrial, Scientific and Medical Radio Frequency Band), Monopole antenna, PEC (perfect electric conductor).

ISCA-ISC-2017-7EEAP-EC-10-Oral

Design of complementary metal oxide semiconductor inverter

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Abstract: Complementary MOS or CMOS has become the building blocks for most of the VLSI digital circuits today. Earlier, n-channel MOSFET was used but with the advancement in processing technology, CMOS has completely replaced the NMOS inverter. This paper presents the detailed simulation and evaluation of CMOS inverter using ORCAD Capture. The evaluations were carried out through analysis of voltage transfer characteristics (VTC) and its transient response. The beneficial features of CMOS inverter are its low static power consumption and high speed compared to NMOS inverter. The paper also presents the evaluations of these features. The paper presents the evaluation of both high and low high noise margin comparing to the NMOS inverters.
Keywords: Complementary Metal Oxide Semiconductor (CMOS), Voltage Transfer Characteristics, Noise margin.

ISCA-ISC-2017-7EEAP-EC-11-Oral

Design and evaluation of 6 elements Yagi-Uda Antenna at 1900MHz

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Abstract: Yagi-Uda antenna is one of the most successful RF antenna design for directive antenna applications. The 6 element yagi-uda antenna is exclusively designed and optimized to operate at 1900 MHz. Outline of this paper is to design 6 elements antenna with one reflector, one driven element and four directors to achieve the highest gain at 8.835dB. The design also considers the minimization technique of front-to-back radiation. The design and simulation of proposed antenna is carried out using CST (Computer Simulation Technology) Microwave Studio. Conventionally the gain of yagi-uda is increased by adding more directors. But here the paper presents the technique of increasing gain and directivity by varying space between conductors, its length and diameter. It has been observed that the lengths and diameters of the directors and reflectors, as well as their respective spacing determine the optimum gain and directivity. The proposed antenna is suitable for Cellular communication. The detailed evaluations of each parameter is presented.
Keywords: Yagi-Uda antenna, Gain, Bandwidth, Efficiency, Radiation pattern.

ISCA-ISC-2017-7EEAP-EC-12-Oral

Half wave dipole antenna for cellular communications

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Abstract: The half wave dipole antenna is most popular and has omni-directional radiation pattern. The paper present the design and evaluations of half wave dipole antenna operating at 2100 MHz. The proposed antenna is suitable for cellular communication. The antenna is designed and evaluated using CST (computer simulation technology) Microwave Studio 2016. The simulation results obtained for return loss, realized gain, bandwidth and radiation pattern of antenna are present.
Keywords: Half wave dipole, Voltage Standing Wave Ratio (VSWR), Bandwidth, Radiation pattern.

ISCA-ISC-2017-7EEAP-EC-13-Oral

Simulation of 5 element Yagi-Uda antenna operating at 2.45GHz

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Abstract: The paper describes the design and simulation of a 2.45 GHz antenna which can be used for WLAN as well as for other purposes. The antenna was designed to have lowest gain at 2.45 GHz although it can have highest gain up to 11dB. The paper describes the evaluations of antenna parameters and antenna dimensions. The design was simulated using CST (Computer Simulation Technology) Microwave Studio 2016. The design achieves gain of 9.51 dB at 2.45 GHz. The paper also covers a brief comparison of other antennas operating at 2.45GHz. The antenna can be used for increasing the received power level of a wireless internet signal.
Keywords: Yagi-Uda antenna, Antennagain, ISM (Industrial, Scientific, and Medical radio frequency band).

ISCA-ISC-2017-7EEAP-EC-14-Oral

Design of half wavelength dipole antenna resonating at 5 GHz

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Abstract: Half wavelength dipole antenna operating at 5 GHz is proposed for its application in Wi-Fi. To our idea this antenna operating at 5 GHz has faster data transfer in communication field. Earlier dipole antenna has found its parameter without comparing the initial with optimized results. It was simulated using microwave studio. The port signal was in phase as desired. The half wavelength dipole antenna obtained a bandwidth of 0.62083 GHz which is good enough to cover various wireless applications. The obtained gain was 2.266 dB with the impedance of 37.044 dB. The achieved return loss was -41.526 dB. It effectively decreases the length of antenna for it cheaper cost. This is important to differentiate some of the basic antenna's parameters. A complete theoretical and simulation assessmentof half wavelength dipole antenna is performed in CST microwave software.
Keywords: Dipole antenna, Bandwidth, Gain, Efficiency, Radiation pattern.

8. Environmental Sciences **ISCA-ISC-2017-8EVS-Guest Speaker-01**

Conservation of *Nothapodytes nimmoniana* Graham, a camptothecin producing plant through conservation traslocation to semi-arid region of North Western India

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Abstract: *Nothapodytes nimmoniana* Graham is a medicinal tree species of the Western Ghats of India. It yields camptothecin (CPT), an alkaloid known for its anti-tumor activity. In recent years, because of the enormous demand for the chemical worldwide, there has been an indiscriminate harvest for trade and an estimated 20-80 % decline in the population of this species over the last decade. The species has a threat status of endangered/vulnerable. With the ever increasing demand for camptothecin supply, it is essential to establish a feasible system not only for its conservation but also for a sustainable and economically viable large scale production of CPT. Translocations are increasingly used to aid in the recovery of threatened plant species. This is achieved by augmenting declining populations and supporting species recovery through the establishment of new populations. In the study translocated seedlings as well as locally seed germinated plants of *N. nimmoniana* were raised at Rohtak, in the south west region of Haryana. The climate of Rohtak is drastically different from the historical range area, with sever summer and winters. Comparable meteorological data has been presented. Survivability has been more than 90%. Flowering without seed setting has occurred after three years. Camptothecin the economically important compound in all plant parts is comparable to plants in historical range.
Keywords: *Nothapodytes nimmoniana*, Camptothecin, Translocation conservation.

ISCA-ISC-2017-8EVS-Guest Speaker-02

Green technology: leadership for clean and sustainable communities

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Abstract: A dawning era of creativity and innovation in "green technology" or "clean technology" is bringing the promise of a healthier planet - as well as the prospect of growing businesses that can sustain its health. The excitement building around this sector is reminiscent of the early years of the information technology revolution. Through policy, research, education, incentives and forward-looking relationships with industry, government can play a central role in building a green future, community by community. The prospects for success have never been greater. Green Technology is a non-profit initiative designed to inform government efforts toward sustainability, providing a forum in which government officials can communicate with those in the private sector who are developing and distributing green technologies Like Green energy, Green Nanotechnology, Green Buildings, Green Purchase, Environmentally Proffered Purchase etc. Green technology promotes the efficient energy utilization, conserve the environment and minimize the impact on the environment; enhance the national economic development and finally Social improvement in the quality of life of communities. Green manufacturing / green technologies are able to reduce waste and pollution by changing patterns of production & consumption. Green Technology refers to products, equipment or systems which satisfy the following criteria: This technology minimizes the degradation of the environment; These technology has zero or low greenhouse gas (GHG) emission is safe for use and promotes healthy and improved environment for all forms of life; This conserves the use of energy and natural resources; It promotes the use of renewable resources; Requires less maintenance so you don't have to shell out a lot of money to operate it; Renewable which means we will never run out; Can slow the effects of global warming by reducing CO_2 emissions.
Keywords: Nanotechnology, Global warming, Green Purchase, Sustainability, Ecofriendly /Clean Technology.

ISCA-ISC-2017-8EVS-01-Oral

Biosorption of hexavalent chromium by *Aspergillus fumigatus* isolated from coal mine soils of Jharkhand, India

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Abstract: This study reports for the first time on the fungal population of the coal mine soils of Ranchi and Dhanbad in Jharkhand, India. These areas were reported to contain high amount of heavy metals such as chromium, nickel and lead and

can harbor wide variety of metal resistant fungal populations. The pH of these samples was slightly acidic in nature with moderate amount of available carbon and nitrogen content. A total of 15 fungal isolates were obtained from 8 soil samples which belonged to the genera *Aspergillus*, *Penicillium* and *Fusarium*. Among these isolates, *Aspergillus fumigatus* (S101) was found to tolerate upto 5 mM Cr(VI) and showed maximum biosorption ability of 93.4% of initial 0.5 mM Cr(VI) in 48 h and was selected for further optimization. The sorption capacity of the isolate was standardized following Langmuir and Freundlich absorption isotherm models and the process was optimized for several parameters such as, initial metal ion concentration, incubation temperature, pH, presence of additional cations and chemical treatment of the biomass. The results show that biosorption ability of S101 was maximum at pH 5 and at 32ºC. With the increase in biomass concentration and Cr(VI) concentration the sorption capacity of the fungal isolate decreased. The sorption capacity of the isolate increased in presence of metal ions such as Fe(III) and Cu(II) showing complete removal of 0.5 mM Cr(VI) within 36 h, but remained unaffected in presence of Ni(II). Tween 80 treated biomass resulted in maximum sorption accounting for 100% removal of 0.5 mM Cr(VI) in 24 h. The results suggests that the mycelial mass of *Aspergillus fumigatus* (S101) is capable of removing Cr(VI) from aqueous solution.

Keywords: Cr(VI) biosorption, *Aspergillus fumigatus,* Isotherms, Coal mine soils.

ISCA-ISC-2017-8EVS-02-Oral

Quantification of the dose of fluoride exposure in children via drinking water, soil and foodstuffs of Bankura district, West Bengal, India

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Abstract: To assess the potential health risk from fluoride exposure in children through the consumption of drinking water and foodstuffs, and also due to the incidental ingestion of soil the present study was conducted in fluoride affected Bankura district of West Bengal. The dose of fluoride exposure (mg/kg-day) from drinking water in children was observed to be 0.01–0.53 against the standard value of 0.05. The cumulative estimated daily intake (EDI) value of fluoride in children considering all the possible fluoride exposure pathways was found to be 0.17 mg/kg-day, which was also greater than the Institute of Medicine (IOM, US) Standing Committee recommended 'Tolerable Upper Intake Level' (UL) value for fluoride. The evaluated hazard index (HI = 2.9) for children of the study area reveals that they are at high risk from developing dental fluorosis.

Keywords: Fluorosis in children, Exposure risk assessment, Fluoride in West Bengal.

ISCA-ISC-2017-8EVS-03-Oral

Eco-tourism in Mukandhra hills tiger reserve: a refreshing journey through a highly diversified Hadoti Region, Rajasthan, India

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Abstract: India throughout the decades has been a one stop eco-tourism hub housing a good population of flora and fauna. Role of tourism is essential in the economic development of a country. Tourism is the second largest foreign exchange earner in India. Mukandhra Hills Tiger Reserve (MHTR), Kota in Hadoti Region can be one of the best eco-tourism destinations in Rajasthan for a refreshing journey to explore the pleasure treasure. The tiger reserve is spread over an area of 759 sq km with 417 sq km earmarked as the core tiger habitat and 342 sq km been notified as the buffer zone. MHTR is going to be the new abode for the dispersing tigers of Ranthambhore Tiger Reserve in Sawaimadhopur, Rajasthan. The reserve is a haven for wildlife enthusiast as it houses a wide range of animals, birds, insects, amphibians and plants. One can indulge in activities like forest trails, trekking and wildlife photography. It gives shelter to a good population of animals including the endangered and vulnerable species like leopard, sloth bear, mugger, gharial, ratel (honey badger), Indian phyton, black buck and other commonly spotted mammals like chital, chinkara, sambar, nilgai, wild boar and hyeana. River Chambal passes through the reserve, a place where eco-tourism can widely gain attraction due to its excellent abode for bird watching and crocodile watching. Boating in Chambal River is another important attraction. With such a rich ecology the reserve makes for a refreshing escape into the wild for eco-tourists and wildlife photographers. The present paper discusses the prospects of eco-tourism in MHTR and also makes some policy suggestions to address the constraints in promoting sustainable tourism.

Keywords: Eco-tourism, Tiger Reserve, Flora, Fauna, Sustainable Tourism.

ISCA-ISC-2017-8EVS-04-Oral

On the association of severe Bay-storms and climate change

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Abstract: North Indian Ocean shows a rising trend for 0-700m depth of oceanic layer with drops during 1965 and 2000. This change in ocean heat content has obvious effects on regional Sea Surface Temperature and so on the cyclogenesis over the Bay of Bengal and Arabian Sea. Distributions of genesis and dissipation locations of storms over the Bay of Bengal are studied during three seasons of cyclonic activity *viz.* March-April-May (MAM: Pre-monsoon), June-July-August-September (JJAS: Monsoon) and October-November-December (OND: Post-monsoon). Deviation in Genesis locations prominently change from -7 to +5 to 0 to +7 after 1975 latitudinaly. Longitudinal deviations are found to incline towards negative trends. Mean latitude location for genesis occurs at 15.7±5.20 suffers a shift to 11.06±4.36 after 1975. A decrement is observed in monsoon storm frequency after 1964 with a rise in post-monsoon storm number. Decade of 1976-1985 is observed to hold a transition phase for SST anomaly and storm frequency anomaly over the bay.
Keywords: Climate Change, Severe Storms, Genesis, Dissipation, Seasonal occurrence.

ISCA-ISC-2017-8EVS-05-Oral

A comprehensive review on chromium induced alterations in fresh water fishes

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Abstract: Chromium is considered as one of the most common ubiquitous pollutants in the aquatic environment, but the pure metallic form is absent naturally. There are three oxidation states in case of Chromium viz., Cr (II), Cr (III), Cr (VI). Among which Cr (II) is most unstable. Cr (III) and Cr (VI) are the stable oxidation state of Chromium in the environment. Being one of the commonly used metals Chromium and its particulates enter the aquatic medium through effluents discharged from different industries like textiles, tanneries, electroplating workshops, ore mining, dyeing, photo-printing and medical industries. Among these, hexavalent chromium is considered as the most toxic form because it easilypasses cellular membranes and then is reduced to trivalent form. This trivalent chromium combines with several macromolecules including genetic material inside the cytosol, and is ultimately produces the toxic and mutagenic alterations due to its natural toxicity. Chromium is usually taken up either through gastrointestinal tract or respiratory tract. The amount varies depending upon the medium and the form of chromium. In this review, an attempt has been made to accumulate the mammoth available data about the impact of chromium on fresh water fishes and to convert them into a systematic representation. The main objective of this review is to provide a future guideline for the scientist communities and public officials involved in health risk assessment and management ensuring a better environmental condition for human health.
Keywords: Chromium, Hexavalent, Trivalent, Fresh water fishes, Risk assessment.

ISCA-ISC-2017-8EVS-06-Oral

Is drınkıng water treatment system feasıble and mıcrobıologıcally safe from a sustaınable poınt of vıew?-a case study

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Abstract: The present study aims to determine the efficiency of water treatment process to reduce the microbial load during conventional water treatment process. The work was focused on four water treatment plants in and around Mysore city, Karnataka, India. A total of 144 samples were collected and analyzed during three seasons for microbiological and physico-chemical parameters. In this study we used most probable number (MPN) method to assess the microbiological water quality and heterotrophic plate count (HPC) to assess microbial load reduction during each stage of treatment. The result of the present study shows that not much variation in raw water and stage-1 treatment (coagulation/flocculation/Sedimentation). The significant level of reduction was observed in stage-2 (Filtration). The final water remains clear for consumption. In Mysore all the four water treatment plants (WTP's) using the same method of treatment and almost same level of reduction in terms of microbial load for three seasons (winter, summer and monsoon). To avoid increasing incidences there is a need to

further optimize the conventional treatment processes nearly all utilities use for the removal and control of microbial pathogens. In addition, water quality managers and water treatment plant operators must be supplied with the knowledge and tools required to confidently apply conventional water treatment processes during microbial blooms.

Keyword: Coliforms, Water treatment plants, MPN, HPC, Water quality.

ISCA-ISC-2017-8EVS-07-Oral

Seasonal growth and succession of Euglenophyceae, Charophyceae and Dinophyceaen algae of river Godavari, India with reference to pollution status

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Abstract: Hydrobiological studies were made for one year covering monsoon, winter and summer chiefly to understand the seasonal growth and succession of algae of river Godavari with reference to Euglenophyceae, Charophyceae and Dinophyceae. Some observations of pollution on the Godavari river with special reference to some algal groups were made. Godawari river is one of the important water resources in South India. It originates at Trymbakeshwar in Western Ghats just 30 km upstream of Nasik city. Flowing through Maharashtra, Andhra Pradesh, it joins the Bay of Bengal. River receives huge quantity of domestic waste and municipal sewage of Nasik city causing organic pollution. It resulted the growth and population of number of phytoplankton. During present investigations, water qualities of Godavari river was monitored for one year (August 2003-July-2004). From five sampling stations, water samples were collected and monitored for physico-chemical parameters and algal studies. Seasonal growth and succession of algae of river Godavari with reference to Euglenophyceae, Charophyceae and Dinophyceae has been monitored. At station 2 and 3 the dominance of this group might be due to higher values of alkalinity, nitrates, phosphates chlorides, hardness, free CO_2 and BOD. The pollution tolerant genera of Euglenophyceae, Charophyceae and Dinophyceae and raised values of physico-chemical parameters showed the organic pollution of river water and indicate its unsuitability for potable purpose. Present study revealed that water flow, higher values of temperature, alkalinity, chlorides, free CO_2, BOD, nitrates and phosphates influenced the occurrence and abundance of Euglenophyceae, Charophyceae and Dinophyceae forms.

Keywords: Godavari river, Euglenophyceae, Charophyceae, Dinophyceae Pollution.

ISCA-ISC-2017-8EVS-08-Oral

Anaerobic digestion of spent mushroom substrate: effect of pre-treatment on COD evolution

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Abstract: Anaerobic digestion of spent mushroom substrate (SMS) offers effective strategy for waste-management and energy recovery. Biological methane potential of Rice-straw based SMS collected from local farm was evaluated at different feedstock to effluent anaerobic sludge ratios (*i.e.*, 1:2, 2:1, 3:1) in this study. Two additional sets containing reconstituted SMS with autoclaved aqueous extract, and pre-boiled SMS slurry were included in the design. Alkalinity were adjusted to 5000 mg/l and sets were incubated at 37°C. Biogas production was recorded in all experimental sets during 7-day period. Surprisingly, COD content in all sets increased in between 6.94-31.61%, particularly at low feedstock to effluent ratio and in thermal pre-treatment (autoclaving).Extension of incubation period to 21 days with intermittent addition of effluent sludge (5% v/v) resulted in increased COD, particularly in sets where COD increase were not much in initial 7-day incubation. VFA content across all the experimental sets varied between 117.19-151.45 mg/l and VFA inhibition could be ruled out. It is anticipated that SMS gets hydrolysed increasing COD level but inhibited methanogenic activity hindered COD utilization. Decrease in COD were more evident in where SMS was partially hydrolysed by heating.

Keywords: Anaerobic digestion, COD removal, Methanogenic activity, Pre-treatment, Spent mushroom substrate.

ISCA-ISC-2017-8EVS-09-Oral

Impact of irrigation with sewage water on heavy metal content in soil and crops of Raver area in Khandesh region of Maharashtra, India

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Abstract: In the present investigation, we conducted a study to find out the addition of heavy metals in to an agricultural field through sewage water irrigation for crops in the farmlands of selected areas of Raver in Jalgaon district (M.S.). We

observe that the use of sewage water for irrigation improved chemical properties and fertility status in soil because sewage water contains essential elements for plant growth but the adverse effect of sewage water is that heavy metals also contribute in soil which may be toxic for animals if their concentrations exceeds than permissible limits. In this investigation, the concentration of heavy metals in sewage water were in the proposed food and agriculture organization range. Our results show that soil concentration with sewage and irrigation water and treated sewage water induces significant decrease of soil pH when compare to mixed water and control treatment with ground water. The accumulation of heavy metals such as Fe, Mn, Cu, Zn and Pb in crops was significantly increased by sewage water irrigation. It may be due to uptake of metals which may increase nutritional values and improve the soil properties, plant growth and yield without any contamination in soil and toxicity in crops. The waste water irrigated soil and vegetable grown on sewage water zoneshows extent of heavy metals was enriched with Fe, Mn, Cu, Zn and Pb.

Keywords: Sewage water, Raver area, Heavy metals, Plant growth.

ISCA-ISC-2017-8EVS-10-Oral

Study on diversity and distribution of Myna around Bilaspur city, India

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Abstract: Man and birds have profound relation in the scheme of nature. Birds have occupied almost all habitats on this earth. Many birds are found abundantly around human settlements; hence they show natural coexistence with human beings. These birds are seen foraging around houses, fields, gardens in search of food like grains, insects, fruits and even leftover food. Some birds select nesting site near human settlement. Birds like crow holds special position in Hindu rituals. Birds commonly seen around human settlement are Blue Rock Pigeon (*Collumba livia*), House Sparrow (*Passer domesticus*), Common Crow (*Corvus splendens*), Red- vented Bulbul (*Pycnonotus cafer*), Asian Koyal (*Eudynamys scolopacea*), Magpai Robin (*Capsychus saularis*), Blue jay (*Coracias benghalensis*), House Martin (*Apus affinis*), Rose Ringed Parakeet (*Psittacula krameri*)and Mynas. Myna is most commonly seen bird near human settlement. It is an omnivorous bird. Present investigation was carried out during 2014 - 2016 to note different species of mynas near human settlement in and around Bilaspur city and their distribution in different habitats. Six habitat types were selected for present study i. garbage dumping grounds, ii. Housing colonies, iii. Area around ponds, iv. Gardens, v. Cultivated lands, vi. Wooded land, Five Species of mynas were seen during study period namely Pied Myna *Sturnus contra*, Bank Myna *Acridotheres ginginianus*, Common Myna *Acridotheres tristis*, Brahminy Myna *Sturnus pagodarum*, Rosy starling *Sturnus roseus.* Out of these species *Sturnus contra* was the most abundant among all followed by *Acridotheres tristis*. It was observed that *Sturnus contra* and *Acridotheres ginginianus* were found in large numbers around garbage dumping grounds, while *Acridotheres tristis* was less frequent. *Sturnus roseus* did not found throughout the year, it was spotted in mid September to mid February, showing local migration. Generally two mynas namely *Sturnus contra* and *Acridotheres ginginianus* frequented around garbage dumps within city, as Swachh Bharat Abhiyan implemented in the city since 2016, shifting of these two birds were observed in outskirts dumping station. In general rapid urban sprawl in both horizontal and vertical directions has decreased the chirping and tweeting of birds within city.

Keywords: Myna, *Acridotheres sp., Sturnus sp.*, city, garbage dumping.

ISCA-ISC-2017-8EVS-11-Oral

Removal of lead from aqueous solution using natural biosorbent- *Terminalia catappa* and its application in industrial wastewaster

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Abstract: The Contamination of water by toxic heavy metals is a world-wide environmental problem. Lead is introduced into water bodies which can cause severe effects on human health such as nervous system, brain, kidney and reproductive system. The goal of this project is to remove the amount of lead present in the industrial effluent (cracker industry) by using a bio-adsorbent. The capability of almond shell (*Terminalia Catappa*) is examined as an adsorbent for the removal of lead. The dried shells are crushed and sieved such that the particle size is at the range of 200µm. The sieved particles are treated using chemicals for activation. The operational parameters such as concentration of metal, contact time, agitation speed, adsorbent dosage and pH are studied to render efficient removal of lead by the almond shell powder. The experiment is carried out at room temperature. The optimized sorption characters are concentration 300ppm, contact time 180 min, agitation speed 300rpm, adsorbent dosage 3g and pH 5. The metal uptake by the almond shell powder is quantitatively estimated using sorption isotherms. The equilibrium sorption data are satisfactorily fitted in the order: Freundlich > Langmuir > Temkin. It has been derived that intra-particle diffusion kinetics is better suited for adsorption of lead ion. The optimized parameters are

then applied to industrial waste water for efficient removal of lead by the adsorbent. The maximum removal of lead from industrial waste water of cracker industry is desired to be 44.45%.

Keywords: Indian almond shell, Sorption, Equilibrium, Adsorbent, Cracker waste water.

ISCA-ISC-2017-8EVS-12-Oral

Nanocellulose and its relevance in environmental protection

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Abstract: Cellulose is naturally abundant biomaterial and employed as preparation of nanocellulose. Nanocellulose has been recently considered as the renewable bioadsorbent as virtue of its powerful properties, biocompatibility, low toxicity and low production costs from natural resources. In present study nanocellulose was prepared by chemical method and its relevance was studied as removal of heavy metals from aqueous medium. The bioadsorbent was characterized by using Transmission Electron Microscope (TEM), Scanning Electron Microscope (SEM), X-Ray Diffraction, Particle Size Analyzer (PSA) and Fourier Transform Infrared Spectrometer (FTIR). The effect of different conditions including adsorbent dose, contact time, initial metal ion concentration and pH were studied and optimized. The metal uptake by nanocellulose was investigated by various isotherm models.

Keywords: Nanocellulose, Characterization, Bioadsorption, Adsorption Isotherm.

ISCA-ISC-2017-8EVS-13-Oral

Study of green alternatives for selected hazardous substances used in electronic devices

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Abstract: Variety of hazardous substances used extensively in the production of electronic equipment are exposed to environment due to unsafe disposal of electronic waste endangering ecosystem and human health. Use of green alternatives in place of hazardous substances during manufacturing process of electronic devices will prevent waste generation right at the initial stage. This paper presents a comprehensive overview of green alternatives of some of the elements and organic compounds with very high environmental concern, namely lead, mercury, cadmium, chromium, brominated chlorinated compounds and phthalates used in electronic devices and evaluates their feasibility and compatibility with environment and human health. It also discusses the factors responsible for effective implementation of green alternatives. The review of data indicates that some green alternatives studied are environment friendly and can minimize the use and generation of hazardous wastes but some of them still needs modification. It is suggested that synchronization between manufacturers and suppliers along with regulations and policies will pave the path for development and innovation of new materials and chemicals with better environmental profile and contribute to achieve sustainability.

Keywords: Green alternative, Electronic waste, Hazardous substance, Environment, Human health.

ISCA-ISC-2017-8EVS-14-Oral

Macro invertebrates as an indicator for water quality: A case study at *Bodhidrang* stream, Kanglung, Bhutan

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Abstract: Water is a basic necessity for all the living organisms and the natural ecosystem. Due to natural and anthropogenic activities, the health and quality of water is deteriorating. However, very few studies are done on the Bhutanese rivers, particularly streams. This paper aims to study the biological parameters and macro-invertebrates of *Bodhidrang* stream to examine the quality of water along with seasonal variations emphasizing on pre and post monsoon. In each season, three sites were selected for the study i.e. site-I which is 500 meters below the bridge, site-II directly under the bridge and site-III which is 500 meters above the bridge. Samples of macro-invertebrates were collected and examined to analyze the water quality variation below and above the bridge for both the seasons. The differences were observed in the population of macro-invertebrates between site-I and site-III with a higher population of stoneflies in site-III during pre-monsoon. Except for mayflies, it was also observed that the diversity of macro-invertebrates in the stream has decreased significantly. According to miniSASS (Stream Assessment Scoring System), the quality of water during pre-monsoon at site-I can be considered fair with moderate modification while site-II and site-III can be considered good, largely in natural condition. Post-monsoon data

indicate that site-II was in fair condition with moderate modification while site-I and site-III were in natural condition. Over all, *Bodhidrang* stream is fairly in its natural state with minimal modification.

Keywords: Macro-invertebrates, Bodhidrang, streams, miniSASS, fair, good, pre-monsoon and post-monsoon.

ISCA-ISC-2017-8EVS-15-Oral

Isolation and characterization of mosquitocidal activities of *Clostridium bifermentans* strains isolated from environmental samples

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Abstract: To isolate new mosquitocidal strains of *Clostridium bifermentans* strains, soil samples of slaughterhouse, Gwalior and fish intestine sample from Tuticorin, India were collected. Samples were directly inoculated in 30 ml tryptone peptone yeast-extract glucose (TPYG) broth medium. After enrichment, culture was serially diluted and pour-plated on liver veal agar. Selective pressure of cycloserine, formation of lecithinase positive colonies and ability to anaerobically growth at 37^{o}C is the criteria for qualifying colonies as presumptive *C. bifermentans* isolates. Out of 110 bacterial isolates thirty isolates of *C. bifermentans* were selected and screened for mosquitocidal activity against three species of mosquitoes (*Aedes aegypti*, *Culex quinquefasciatus* and *Anopheles stephensi*). Out of thirty isolates, only two strains viz., SL1 and SL5 demonstrated appreciable larvicidal activities. These strains were identified as *C. bifermentans* on the basis of morphological and biochemical studies, and again confirmed by 16S rRNA gene sequencing. The sequences of both the strains were submitted to NCBI (Bankit). Maximum toxicity of both isolates was reported during sporulation phase after 5-8 h of inoculation. In mosquitocidal bioassay, crude protein of both the strains was found more toxic than purified protein. Present studies also proved that the proteins of 16 and 18 kDa were responsible for toxicity in mosquitoes. Interestingly the protein of 16 kDa of SL5 strain was reported to be highly toxic to mosquito. Both the strains were non-toxic for mice and presumed to be harmless for non-target organism, thus both isolates can be used as effective bio-insecticide.

Keywords: *Clostridium bifermentans*, Culture supernatant, Larvicidal, Bacillus strains, Anaerobic bacteria.

ISCA-ISC-2017-8EVS-16-Oral

Identifying rice farming systems for sustainable food security and mitigating climate change, Barak Valley- A case study

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Abstract: Rice farming systems of Barak Valley, Assam were studied on the basis of extensive field survey, detailed questionnaire and laboratory tests. Four distinguished RFS were identified based upon physical characteristics of landscape, and crop constituent and residue management. Located at the North East India (geographically inaccessible) this region has evolved traditional farming practices giving rise to ecologically sustainable rice farming systems, which could meet the food security of rural populace. Among the four types the lowland system is the most widespread, while semi-deepwater system and boro system were recognized to store higher soil organic carbon. Through better management practices the rice soil can play significant role in lowering atmospheric carbon dioxide level thus mitigating climate change. Further these rice farms help conserve traditional rice germplasm. The study also showed occurrence of rice crop throughout the year indicating the potentiality of agriculture and allied business could go long way in increasing the livelihood of the region.

Keywords: Soil Organic Carbon, Rice Farming System, Rice Germplasm, Traditional Farming Practices, Mitigating Climate Change, Food Security, Barak Valley, Rice Soil.

ISCA-ISC-2017-8EVS-17-Oral

Effect of environmental contamination on birds

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Abstract: The study was carried in Keoladeo National Park, Bharatpur, Rajasthan. Of the various contaminants present in nature pesticides are most dangerous because pesticides bioaccumulates and biomagnifies at every higher trophic level. Twenty three types of pesticides which includes organophosphates and organochlorines are used in the field around the park. Pesticides enter the park through water system. The pesticides in water and in the soil are ingested by the organisms at various trophic levels. The birds gets magnified doses of pesticides from fish, insects and vegetation. Lethal levels of pesticides were detected in fish and many species of birds. Birds are the indicators of the health of the wetlands and to protect the nature from these dreaded terrorist effective measures should be taken before it is too late.

Keywords: Birds, Pesticides, Organochlorines, Organophosphates, Bioaccumulates.

ISCA-ISC-2017-8EVS-18-Oral

Assessment of environmental impacts of vehicle wash centres at Olakha, Thimphu Bhutan

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Abstract: Vehicle washing consumes lot of freshwater and generates potentially toxic wastewater. This study comprising of a survey and physico-chemical analysis were carried out in commercial vehicle wash centres located at Olakha, Thimphu. Survey questionnaire focused on current washing practices and management of wastewater. Physico-chemical characteristics of vehicle wash wastewater and potential ramifications of this wastewater on receiving stream Olarong Chhu were investigated. Vehicle wash wastewater from influent and effluent of Effluent Treatment Plant (ETP) and water samples of Olarong Chhu were collected on monthly basis and analysed for pH, temperature (T), electrical conductivity (EC), turbidity, total suspended solids (TSS), total dissolved solids (TDS), dissolved oxygen (DO), biological oxygen demand (BOD), chemical oxygen demand (COD), oil and grease, total nitrogen (TN), total phosphorous (TP), alkalinity, and Heavy metals (As, Cd, Cr, Cu, Cu, Fe, Mn, and Zn). Findings showed that vehicle wash centres are operated with poor environmental ethics despite of restrictive laws and regulations. In effluent pH(8.45), TSS(364.29mg/l), TDS(204.45)mg/l), oil and grease (154.57mg/l), Cu(0.11mg/l), Fe(15.06 mg/l) and Mn(0.73 mg/l) were not within the permissible limits of Environmental Standards[ES] (2010) of Bhutan. Physico-chemical analysis of Olarong Chhu depicts degradation in water quality especially at wastewater discharging zone. However analytical results and statistical testing revealed that existing ETP is efficient in reducing the contaminants levels of TSS, BOD, COD, oil and grease, Fe and Mn. These findings are excellent baseline database for the policy makers as provisions pertaining to management of wastewater are not implemented properly in Bhutan. Other recommendations include compliance with guidelines for establishment of vehicle wash centres, establishment of ETPs, proper monitoring on the quality of wastewater prior to dischargeand environmental safety education for the wash centres' operators.

Keywords: Bhutan, Vehicle, Wash centres, Wastewater, Physico-chemical parameters, Wastewater management.

ISCA-ISC-2017-8EVS-19-Oral

Exploring the effect of environmental factors, population density and occupancy on fire incidents – a case study of South-West division of Delhi, India

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Abstract: Due to rapid increase in population, the fire and other emergency incidents has increased significantly in Delhi. The number of fatalities and injuries in fire and emergency incidents has been increased by 68% and 53% respectively since 2001. This paper investigates the causal factors for large number of fire incidents and their association with environmental factors like weather conditions, population density and different types of occupancies. Statistical analysis of the study revealed that there is a positive relationship between temperature and number of fire incidents whereas the humidity has a negative relationship but the population density is not found to be significantly associated with fire occurrence. Fire incidents in low rise private dwellings and apartment houses, under residential occupancy, account for the highest number of incidents *i.e.* about 38% of total fire incidents. Approximately more than 50% fatalities and injuries in fire incidents are found to have occurred in low rise residential occupancy buildings. The timings of fire incidents of about 50% of total fatalities in these residential occupancy occurred between 0000 hrs to 0600 hrs and the number of total injuries of about 34% were between 1800 hrs to 2400 hrs.

Keywords: Low Rise, Residential fires, Fire Risk, Life Safety, Fire Prevention.

ISCA-ISC-2017-8EVS-20-Oral

Concept of bionic plant technology in wild trees to achieve Bhutan's sustainable development goal

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Abstract: Carbon dioxide is the leading greenhouse gas emission produced by humans, contributing most dramatically to worldwide climate change. The paper aims to present the concept of introducing bionic plant in Bhutan and its benefit of

balancing development and environmental conservation. Bhutan is a leader in environmentally sustainable development with 72% of the country currently under the forest cover. The country has made an ambitious pledge at the Paris Climate Summit to maintain its status of carbon neutral and plans to reach zero net greenhouse gas emission and produce zero waste by 2030. However, the country is not spared from impending global issues like climate change, pollution and deforestation due to expanding human population, industrialization and other developmental activities. This means a comprehensive plan of action has to be put into place to tackle these imminent issues. The evolvement of nanotechnology has made it possible to increase the photosynthesis rate of bionic plants, thus increasing the rate of carbon dioxide absorption from the atmosphere. The ability of the carbon nano tubes in the bionic plant to act as an artificial antenna opens up to many wireless communication applications and detection applications.

Keywords: Greenhouse Effect, Nanotechnology, Bionic Plants, Photosynthesis, Carbon dioxide, Wireless Communication.

ISCA-ISC-2017-8EVS-21-Oral

Assessment of groundwater quality alongwith seasonal variations near Ghazipur landfill Site, Delhi, India

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Abstract: The present study was aimed to assess the physico-chemical characteristics of groundwater quality alongwith seasonal variations near the Ghazipur landfill site, Delhi. The sampling points were selected within the radius of two km from landfill location. Groundwater samples were collected during pre and post monsoon seasons and physico-chemical parameters were analyzed. The findings of the study reveal that groundwater near Ghazipur Landfill site is significantly affected by the leachate percolation. Most of the results have shown higher concentration of chemical parameters in ground water samples in pre-monsoon as compared to post monsoon season which may be due to dilution effects during monsoon season. Total Dissolved Solids (TDS), hardness and iron exceeded the maximum permissible limits in most of the locations. However, the alkalinity, fluoride and chloride contents were within the permissible limit but they were found much above the desirable limit. Interestingly, the concentration of nitrate was found below permissible limit and was well in the desirable limit except one location which is contrary to the earlier studies and requires further research. These results showed that there is deterioration in the ground water quality and hence the water is not suitable for drinking purpose. This situation needs urgent attention and immediate action to prevent the further contamination of groundwater.

Keywords: Landfill, Leaching, Groundwater Contamination, Seasonal Variations.

ISCA-ISC-2017-8EVS-22-Oral

Phosphorus fractionation of core sediment from Begnas Lake of Pokhara Valley, Nepal

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Abstract: In lake, the major portion of suspended particles with nutrients received from the catchment eventually sinks to the bottom. The recently deposited sediment with nutrients like P (phosphorus) lying at the surface is exposed to intensive diagenetic changes and can be released back to the water column. Thus, sediment acts as sink as well as source of nutrient including P. Although, P exists in various forms, all forms are not likely to be released easily. The only mobile/labile form is readily soluble and easily available for algae and phytoplankton resulting in eutrophication. In Begnas Lake, the increased tourism, growing population and intensive agricultural practices in the catchment has caused water quality deterioration. Therefore, assessment of various forms of P is crucial for the sustainable utilization and management of the lake. The forms of P were extracted using SMT (Standards, Measurements and Testing) protocol and estimated by ascorbic acid method. The results revealed that concentration of NaOH-P ranged from 36.20 to 139.40 mg kg^{-1} dw (dry weight) with average value 96.50±37.80 mg kg^{-1} dw, showing decreasing trend with the depth. Likewise, the HCl-P ranged from 5.00 to 63.70 mg kg^{-1} dw with average 17.50±18.30 mg kg^{-1} dw, and was <8.70 mg kg^{-1} dw in sediment depth >25 cm, while it was >14.70 mg kg^{-1} dw in the sediment depth <25 cm. Similarly, inorganic phosphorus (IP) ranged from 41.60 to 151.80 mg kg^{-1} dw with average 95.80±40.90 mg kg^{-1} dw, showing higher concentration towards the surface. The organic phosphorus (OP) concentration varied between 28.20 and 41.90 mg kg^{-1} dw with average 28.20±9.60 mg kg^{-1} dw. The total phosphorus (TP) ranged from 28.30 to 130.60 mg kg^{-1} dw (85.18±32.54 mg kg^{-1} dw). The result showed significant negative correlation between depth-NaOH-P and depth-TP indicating increased amount of TP, with substantial available form of P, is being loaded in recent periods. This further suggests increased anthropogenic activities being responsible for phosphorous loading in the lake in

recent period. Further extensive work required to be carried out for tracing the source of phosphorus for sustainable utilization and management of the lake.

Keywords: Available phosphorus, Eutrophication, P-loading, Total phosphorus.

ISCA-ISC-2017-8EVS-23-Oral

Physico-chemical characterization of dams of Jashpur district, Chhattisgarh, India

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Abstract: Life cannot be imagined without Water. Hence small or large dams are constructed on rivers or local nala. This dam water is supplied for drinking as well as agricultural purposes. Jashpur is one of the districts of Chhattisgarh. Water pollution is an acute problem all over India. The present study objectively conducted to analysis the physic-chemical parameters of dams of Jashpur district. Hence it is essential to study the quality of this dam water. In the present study quality of water of Jashpur is studied with respect to some physicochemical characteristics as Temperature, PH, EC, DO, BOD, COD, TH, NO*R*3*R*, SO*R*4*R* and PO*R*4*R*. It is concluded from the study that the values of studied parameters are in the permissible limits and water of Dam is useful for water supply.

Keywords: Water, Dam, Physico-chemical characteristics etc.

ISCA-ISC-2017-8EVS-24-Oral

An assessment of plankton diversity and climate change relationship in physiochemical environment of Son River in Bhojpur area of Bihar, India

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Abstract: This paper deals with study of physicochemical climatic changes in the river water of Son along the Bhojpur stretch during a period of 18 months from March 2014 to August 2015. It also deals with interrelationship between the changes in climatic factor with plankton diversity in the river. Thermometric factors have been found to be most remarkable showing inverse relationship with plankton diversity upto a limit. Low dissolved oxygen has been related with high plankton production especially cyanophyceae and copepods. Dominance of cyanophyceae and copepods, low dissolved oxygen, high COD and high phosphate contents indicates river being under stress and organic pollution. Different community diversity parameters like Species Diversity Index (H'), Richness Index(S), Evenness Index (J) and Dominance Index (D) also report the fact that the river is under stress and Zooplanktons being more responsive to physicochemical climate changes than Phytoplanktons in the river.

Keywords: Plankton Diversity, Bio Indicator, Biotic Indices, Interrelationship, Physicochemical Environment.

ISCA-ISC-2017-8EVS-25-Oral

An assessment of solid waste management (SWM) in urban area of Ara in Bhojpur District, Bihar, India

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Abstract: The present paper deals with the status of solid waste generation in urban area of Ara, Bihar along with its ways of disposal and management. Management of solid waste is an issue of grave concern for this area as all the ponds, water bodies and water logged areas become the dumping site of DSW including huge amount of plastics. The data collected for total solid waste generation in the area is alarming and poses a huge problem. This problem needs immediate attention from all the agencies of government and NGOs to find out all possible ways of management to mitigate this problem.

Keywords: Solid Waste Management (SWM), Incinerator, Sewage, Domestic Solid Waste (DSW), Industrial Solid Waste.

ISCA-ISC-2017-8EVS-01-Poster

Ichthyofaunal diversity of Kolar River, Saoner, Dist. Nagpur, MS, India

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Abstract: Ichthyofaunal studies were undertaken during July 2015-June 2016 to census and commercially important fishes in the Kolar River. The present paper deals with the variety and abundance of fresh water fishes in Kolar river at Saoner,

Nagpur District (M.S.) India. The results of present investigations reveal the occurrence of 24 fish species in Kolar River. The majority of species belongs to 10 species of Order Cypriniformes, 7 Species of Perciformes, 5 Species of Siluriformes and 1 Species of each Osteoglossiformes and Synbranchiformes were identified in river Kolar.

Keywords: Kolar River, fish diversity, Saoner, Ichthyophis.

ISCA-ISC-2017-8EVS-02-Poster

Lead doped iron oxide nanoparticles as adsorbents for removal of Congo red dye from wastewater samples

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Abstract: Size controlled $Pb_{0.06}Fe_{0.7}O_3$ nanoparticles (Pb-FeONPs) were synthesized by thermal co-precipitation method. The Pb-FeONPs were characterized by FE-SEM, EDX, XRD and IR techniques. The SEM and XRD image shows the average size distribution of 19.21 nm and average crystallite size is found to be 4.9 nm respectively. Pb-FeONPs utilized as an efficient adsorbent for removing of Congo red (CR) dye from two effluent streams such as laboratory and industrial wastewaters. The maximum CR adsorption was found to be at pH of 6.5 and the percentage of removal was increased with increasing adsorbent dose up to 0.2 g. A short contact time of 20 min was sufficient for efficient adsorption of dye. Because of the high specific surface area and nano-scale particle size, Pb-FeONPs indicated favourable adsorption behaviour for Congo red dye. It is confirmed that the adsorption capacities of Pb-FeONPs still maintained higher than 93% even after the 5th adsorption–desorption cycle. It was found that in most cases more than 94% of dye removal was achieved through direct application of Pb-FeONPs on industrial wastewater samples.

Keywords: Pb-FeONPs, Congo red, Adsorption.

ISCA-ISC-2017-8EVS-03-Poster

Geospatial technology for mapping spatial variations of drinking water quality index in Erandol area of Jalgaon District, Maharashtra State, India

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Abstract: Water is an elixir of life and influencing a lot on their multifaceted development. Due to rapid industrialization and extensive use of fertilizers and pesticides in agricultural sector, water quality is heavily deteriorating and ultimately it is affecting to the life. Along with traditional methods for water quality evaluation, geospatial technology is playing very important role for precise mapping spatial variations of different water quality parameters. In present study, investigations for drinking water quality index is carried out for 25 villages of Erandol region, Jalgaon district of the Maharashtra state. Total 25 integrated water samples were collected from different locations and analyzed for water quality parameters viz. pH, Temperature, Hardness, Dissolved Oxygen, Chlorides, Total Dissolved Solids, Sulphate, Sodium, Potassium, Calcium, Alkalinity, Acidity, Nitrates, Phosphates, Most Probable Number (MPN) and Fluoride. Geospatial tools like high resolution multispectral remote sensing data (RESOURCESAT-2, LISS IV), GIS software (Arc GIS 10.2) and GPS are used to generate database, sample collections and for mapping spatial variations of different water quality parameters. Drinking Water Quality Index mapped by geospatial tools reveals that, 22% of surface water sources exhibits poor water quality and not suitable for drinking purpose, whereas 4% of ground water sample shows poor water quality and not suitable for drinking purpose. Out of total samples, fluorides were found beyond the limit in 12% of ground water sample as per BIS standards and 85% of surface water sites were contaminated with E-coli Bacteria.

Keywords: Geospatial Technology, Spatial mapping, Water Quality Index, Erandol area.

ISCA-ISC-2017-8EVS-04-Poster

An investigation of noise pollution in Udgir City, Maharashtra, India

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Abstract: Noise is that which disrupts daily routine and quality of life. Noise level when more than permissible level in environment then it is called noise pollution. When sound disturbs the normal activities such as working, sleeping and during conversations it becomes undesirable. Noise pollution is underrated because we can't see, smell or taste it. It is defined by the World Health Organization as noise emitted from all sources, except noise at the industrial workplace. Community noise includes the primary sources of road, rail and air traffic, industries, construction and public works and the neighborhood (WHO, 1999). The study has been focussed on noise levels and its impact on Udgir city. Noise pollution can damage

physiological and psychological health. The main cause of headache, dizziness and high blood pressure are due to high level of noise. In this view the investigation had been made on four sites with Sound Level Meter to assess day noise level viz.. Shivaji Chowk, Bidar Naka, Shyamlal High school and MU College. In this study it is observed that noise levels are more than permissible standards at Shivaji Chowk, and Bidar Naka. The db levels at Shivaji Chowk is high 75 to 81db. All other locations are having higher db levels. Udgir is situated in the three state boundaries the city is rapidly developing more and more vehicles are used regularly and heavy transportation vehicles are trespassed though the city daily which are increasing the noise level in the city which in turn create many health issues.

Keywords: Noise Pollution, Vehicles, BIS.

ISCA-ISC-2017-8EVS-05-Poster

Episodic levels of PM_{10}, $PM_{2.5}$ and PM_1 during Diwali: A study in urban area of Delhi, India

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Abstract: Diwali is one of the biggest festivals celebrated every year during the period October-November all across India. During the festival days, extensive burning of firecrackers takes place and results in high emission of air pollutants. This year the Supreme Court of India has banned over the selling of crackers during Diwali month in Delhi. Shahdara, an urban area, Delhi has been selected for observing the effect of pollution after banning of the crackers. The monitoring of particulate matter for peak hours has been done six days before, six days after and on Diwali days by using aerosol spectrometer (Grimm 1.108). The Pre-Diwali concentration of PM_{10}, $PM_{2.5}$ and PM_1 has been ranged as 614-1307, 246-375 and 195-266 µg/m^3 respectively while the Post-Diwali concentration of PM_{10}, $PM_{2.5}$ and PM_1 has been ranged from 861-1101, 295-453 and 211-364 µg/m^3 respectively. The concentration of PM_{10}, $PM_{2.5}$ and PM_1 on Diwali has been found to be 1484, 580 and 447 µg/m^3 respectively. Despite cracker ban, the presence of such higher concentration of particulate matter in ambient air during Diwali needs immediate actions for better implementation of policies to ensure healthier public health.

Keywords: Diwali, Particulate Matter, Firecrackers, Air pollution, Delhi, Public Health.

ISCA-ISC-2017-8EVS-06-Poster

Banana peel waste for microbial Polyhydroxyalkanoate (PHA) production

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Abstract: Various microorganisms produce polyester compounds that are called as Polyhydroxyalkanoates. The wide range of applications of these compounds has attracted researchers worldwide. These compounds are biodegradable, renewable, biocompatible and eco-friendly. However, poor rate of microbial production and high production cost are present limitations for large scale manufacturing of these compounds. In this study we have attempted at reducing the production cost by introducing inexpensive raw materials as carbon sources for microbial growth. Polluted soil and water samples were used to isolate fourteen different bacterial isolates out of which four bacteria showed the ability to produce good amount of Polyhydroxyalkanoates. Banana peel was used as sole carbon source in different ratios in combination with nitrogen source (C:N). The amount of PHA accumulation was monitored in selected bacterial isolates for four continuous days with withdrawal of sample at equal intervals. PHA producers determined by 16s rRNA studies were found to be *Staphylococcus aureus* JH1, *Geobacillus stearothermophilus* R- 35646, *Bacillus subtilis* JCM 1465 and *Bacillus siamensis* PD- A10. *Cupriavidus necator*, a reference bacterium for PHA production served as a positive control and the results obtained were 79.73%, 75.94% and 74.69% with C: N ratio of 3:1, 1:1 and 4:1 respectively up to 96 hours of incubation. The summary of best results obtained by various isolates with different time intervals are as follows:- *Geobacillus stearothermophilus* R-35646 produced 84.63%, 71.58% and 62.68% of PHA with C: N ratio of 4:1, 3:1 and 2:1 respectively up to 96 hours of incubation. *Bacillus subtilis* JCM 1465 accumulated 71.78% and 62.23% of PHA with C:N ratio of 4:1 and 3:1 at 24 hours of incubation. *Bacillus siamensis* PD- A10 accumulated 77.55% at 24hours, 69.70% at 72 hours and 65.75% at 72 hours of incubation with C: N ratios of 3:1, 3:1 and 4:1 respectively. While *Staphylococcus aureus* JH1 showed PHA accumulation of about 70.02% at 24 hours and 52.74% at 48 hours of incubation with C: N ratio of 2:1 and 4:1 respectively.

Keywords: Biopolymers, Biodegradable, Inexpensive carbon sources, Polyhydroxyalkanoates, Microbial polysaccharides, Zero wastage.

ISCA-ISC-2017-8EVS-07-Poster

Composition and periodicity of eugienophyceae in Lake Udaisagar, Udaipur, Rajasthan, India

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Abstract: The present study highlights composition of Euglenophyceae in eutrophic Lake Udaisagar, Udaipur (Raj.). Presence of *Euglena* is indicative of the high level of pollution in Udaisagar Lake. Presence of rich organic matter has been observed. The abundance of Euglenophyceae in rainy season might be associate with somewhat higher temperature values. It is an establish fact that lake Udaisagar is now highly polluted and eutrophic lake.
Keywords: Euglenophyceae, Organic matter, Dissolved Oxygen, Temperature, Eutrophic, Heterotrophic.

9. Forensic, Medical, Dental and Nursing

ISCA-ISC-2017-9FMDN-01-Oral

Immunization reminder system using mobile technology

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Abstract: 27 million new births annually in India - the largest birth cohort in the world. Yet less than 44 percent of these children complete full schedule of immunizations. Reaching each and every one of such a huge cohort every year is a daunting task. Delayed or missed vaccination, especially in infants, puts them at risk of serious diseases and infections. Not showing up for immunization appointments remains a worldwide challenge for care suppliers. SMS facilities on mobile phones introduced in the early 1990s now represent one of the most widely used methods of communications. To create awareness about the immunization reminder system among nursing mother and to evaluate parental acceptance and readiness for immunization reminder system. The participants were registered, by sending SMS text message to the national short code 566778. The participants were followed up by calling on the mobile phone numbers provided, for a period at 6th week and 10th week. Of 125 nursing mothers, 86% were homemakers, and educated upto higher secondary school. 50% were not good at recollecting their appointment dates, whether for themselves or their child. 40 participants in the non-intervention group, 8 nursing mothers failed to immunize their child on the scheduled vaccination date. All mothers in the intervention group had vaccinated their child on the scheduled vaccination date, due to SMS reminder system. The recorded results at 6th week were found to be statistically insignificant by using Fisher's exact test score (p=0.199). Owing to its ubiquitous nature and affordability mobile devices have massive potential to improve the immunization coverage by reaching larger populations at affordable cost.

Keywords: Immunization Reminder, Nursing Mother, SMS, Immunize India – Operation Indradhanush.

ISCA-ISC-2017-9FMDN-02-Oral

Gingival biotype assessment in healthy periodontium: a biometric approach

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Abstract: Periodontal biotype assessment is an important element in the diagnostic and prognostic phase of treatment in implant dentistry. The gingival biotypes have been stated to be thick or thin. The purpose of the study was to evaluate the prevalence and correlation of gingival biotypes in relation to gender, ethnicity and different sizes of maxillary central incisors. A total of 150 dental and medical students participated in the study. Three clinical parameters were recorded by one examiner. This included the crown width/length ratio of the two central incisors, papillary height and gingival thickness. The mean Width /Length ratio of crown was 0.88. Any ratio falling below 0.88 indicates, longer and narrow central incisior (CI) and greater than 0.88 has shorter and broad CI.The thicker biotype was more prevalent in male population (53%) with long, narrower forms of maxillary central incisors ($p < 0.05$) while the females had thinner biotypes and short, wider form of maxillary central incisor (47%). The findings of the present study can be utilised in determining the response of the gingiva to dental operative procedures as gingival tissue ability to cover subgingival margins is important in esthetic zone.

Keywords: Gingival biotype, Periodontium, Implants, Thick biotype, Thin biotype.

ISCA-ISC-2017-9FMDN-03-Oral

Screening of acetylcholinesterase inhibitor from *Lactobacillus platarum*

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Abstract: Alzheimer's disease (AD) is a neurodegenerative disorder that causes problems with memory, thinking and behavior. It is estimated that 1 in 3 senior citizens is plagued by this disease, which is caused due to oxidative stress and excessive free radical production. At present there is no cure for Alzheimer's disease. The symptoms of AD are connected with the reduction of brain neurotransmitters, like acetylcholine, noradrenalin and serotonin. Therefore the treatment is based on restoring the cholinergic function by using inhibitors of acetylcholinesterase. The inhibitors which are available in the market have a high cost and side effects, making it necessary to search for new substances for the treatment of AD. *Lactobacillus plantarum* species is a common probiotic bacteria. It has been reported to improve cognitive abilities of dementia patients. In this study, the bacteria is grown in 3 different fermentation medium; MRS with pantothenic acid, MRS

with Cinnamon and MRS with pantothenic acid and cinnamon. The bacterial extracts were then tested for the presence of Acetylcholinesterase inhibitor.

Keywords: Alzheimer's disease, Acetylcholinesterase inhibitor, *Lactobacillus platarum,* acetylcholine, neurodegenerative disease.

ISCA-ISC-2017-9FMDN-04-Oral

Study on antiviral activity of secondary metabolites from *Xenorhabdus species* against deny type 2 infected *aedesaegypti* cell line

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Abstract: Dengue disease is a global disease that has no effective treatment. Dengue is a prevalent viral disease that is transmitted by *Aedesaegypti* mosquito worldwide. Approximately 50,000 people suffer from dengue annually, and relatively 10% of the total cases involved dengue hemorrhagic fever. Creating an alarming situation to develop an effective anti-dengue compounds to combat this epidemic infection. The use of bioinformatics tools, molecular modeling programs and high performance computing has been leading the process of designing and in silico searching for therapeutically useful molecules. The chemical insecticides that are used for the eradication of mosquito vectors are not safe because if its harmful side effects to living beings. This study documents that isolation and extraction of compounds from *xenorhabdusstockiae* shows 80% above larvicidal activity against *Aedesaegypti.* And also MTT Assay was done against salivary gland of *Aedesaegypti* with the extracts and Percentage of inhibition was recorded.

Keywords: Dengue fever, *Xenorhabdusstockiae*, *Aedesaegypti*, Larvicidal, DENV Type 2 virus.

ISCA-ISC-2017-9FMDN-05-Oral

Potential of *Theobroma cacao* extract as an inhibitor of oral ulcer

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Abstract: Oral ulcers induce extreme level of discomfort when manifested. An oral ulcer is medically defined as a breach in the epithelium which results in a white or yellow lesion formation surrounded by erythema. The exact reason for ulceration is still unclear. Extreme cases of ulceration have even been reported to have drastic effects on the immunological conditions of an individual. To prevent the onset of the disease the oral environment must be kept healthy at all times. One of the best ways employed to do so is the application of mouthwashes. Most of the commercially available mouthwashes concentrate on plaque or cavities, leaving aside the problem of ulceration. Extensive studies have suggested that antioxidants serve as an excellent source to treat ulcers and also their application prevents further outbreaks. In this study, *Theobroma cacao* extract has been analyzed for compounds which are responsible for imparting its antioxidant nature. Further the antimicrobial and hemolytic activity of the extract has been studied. From this study, it may be elucidated that *Theobroma cacao* is a suitable supplement to mouthwashes in order to not only increase its antimicrobial property but also add anti-ulcerative properties too.

Keywords: Cocoa, Mouthwash, Ulcer, Antimicrobial, Hemolysis.

ISCA-ISC-2017-9FMDN-06-Oral

Analysis of Dermatoglyphic markers with reference to impulsive behavior and executive functions

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Abstract: Fingerprint observed as unique biometric identity of person, it has various usage of identity checkmark, physical and logical access control, biometric attendance system, National population and identity count system (ADHAR card), employment background checks, user authentication, protected financial banking transaction and forensics investigation process. Despite the success of fingerprint recognition technique, it can also be used as forensics identity for characteristics of socially challenged and criminal intent personality. Impulsivity observed as emotional isolation, impetuous reaction, lower moral values, negative approach, lack of planning, anti-social lifestyle. Executive functions are significant factor of the ability to fit in the society, conceptualized as certain higher-order abilities which include sequencing planning, attention, organization of information in memory, multitasking, impulsive control, reasoning, flexibility. Fingerprint is print impression drawn left from human in trace form of friction ridges by any part or hand (palm) and non-homogeneous nature to each. Dermatoglyphic pattern in relation of impulsive behavior and poor executive function can draw data analysis of specific

pattern to identify anti-social personality as precognition step of law and justice system beneficial to nation. Modern forensics investigation requires to develop new prevention technique by correlational analysis of forensic Dermatoglyphic pattern, impulsivity, executive function, psychological history to diagnose/protection from crime.

Keywords: Fingerprint, Dermatoglyphic, Fingerprinting, Crime, Criminal identity, Executive function, Impulsive behavior.

ISCA-ISC-2017-9FMDN-07-Oral

Estimation of MMP-13 and TIMP-1 in chronic periodontitis patients - A diagnostic exploration study

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Abstract: Over the years the key molecular factors responsible for the loss of attachment and destruction of alveolar bone in chronic periodontitis has been sought by many researchers. In spite of various documentations in the literature, little is known regarding the interactions of inflammatory mediators produced locally in the gingival tissue and its systemic manifestations. This paper will highlight a diagnostic approach in chronic periodontitis patients by estimation of two important biomolecular factors.

Keywords: MMP-13, TIMP-1, Chronic periodontitis, Gingival tissue, Serum.

ISCA-ISC-2017-9FMDN-08-Oral

Development of a novel local drug delivery system as an adjunctive therapy for chronic periodontitis patients

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Abstract: Periodontitis is a chronic inflammatory disease of the gums wherein the deepening of gingival sulcus leads to the formation of periodontal pockets. Till date, scaling and root planning still remains to be the gold standard nonsurgical therapy. However, owing to the pitfalls, sometimes antibacterial substances are administered systemically or locally as adjunctive therapy. This presentation will highlight the development and characterization of a novel drug delivery system containing a stilbene compound found in berries and red wine followed by the results obtained from a clinical trial.

Keywords: Local drug delivery, Chronic periodontitis, Adjunctive therapy, Stilbene.

ISCA-ISC-2017-9FMDN-09-Oral

A comparative evaluation of healing pattern in different flap design procedure in endosseous dental implant placement

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Abstract: Dental implants are increasingly used to replace single tooth to multiple missing teeth and emerged with a predictable solution for edentulous jaw, which requires surgical intervention. Various types of flap design are required for endosseous dental implant placement. Due to different anatomical and surgical situations in individual cases, selection of flap design has an impact on the surgery as well as post-surgical outcome. This paper will highlight the comparative evaluation of a series of cases with various types of flap design during endosseus dental implant placement and there after the healing pattern.

Keywords: Endosseous dental implant, Healing, Flap design, Post-surgical outcome.

ISCA-ISC-2017-9FMDN-11-Oral

Maternal falicide-killing of own motherhood

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Abstract: Many a times it comes in mind why a mother kills her own child, either in womb or after giving birth (Neonaticide) or even after also. Is our society responsible for that or economic and financial conditions are responsible. There are numerous reasons behind such a heinous crime. The psychology behind killing her own child is fully incapable of being understood and it is completely beyond the thinking of a normal human being that what are those strong reasons which carry away a mother to kill her child or what are those reasons which compel her to do so OR how mothers unconditional

love for a child convert into such a hateredness so as to kill her own child. Out of many reasons few are as follows - to save child from eternal damnation, illegitimacy, female foeticide, postpartum depression etc. The abovementioned reasons are still true and prevalent today in 21st century in one or other manner. Is it sufficient to keep such patients in confinement till then they become no longer pose a danger to their own or others or some other punishment should be given to her.

Keywords: Falicide, Eternal damnation, Postpartum depression.

ISCA-ISC-2017-9FMDN-12-Oral

Effect of yoga hand mudra on hypothyroid patients

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Abstract: Hypothyroidism is defined as failure of thyroid gland to produce sufficient thyroid hormone to meet the metabolic demands of the body. A significant number of women as compare to male are suffering from hypothyroidism. It is characterized by elevated thyroid stimulating hormone. Regular practices of yoga hand mudra are useful in preventing and managing a wide range of clinical condition such as diabetes, anxiety, depression, pain, thyroid disorders and hypertension. Our study includes seven subjects suffering from hypothyroidism aged between 30-65 years. All the subjects performed yoga hand mudra as per study protocol. The pathological parameters T3, T4, TSH and parameters from 4G-Quantum magnetic resonance Analyzer T3, FT4, Thyroid secretion index and Pituitary secretion index for hypothyroid patients were recorded before and after performing the mudra. There was a significant improvement in pathological as well as 4G-Quantum Analyzer parameters. We propose, this yoga hand mudra shows its effect on autonomic nervous system and endocrine system through peripheral system and central nervous system. This yoga hand mudra is an important alternative traditional therapy apart from medication to support patient's health. Hence, we coined this mudra as "T Mudra" - a possible cure for hypothyroidism.

Keywords: Thyroid, Hypothyroidism, Yoga hand mudra, T3, T4, TSH, T mudra, Thyroid secretion index (TSI).

ISCA-ISC-2017-9FMDN-13-Oral

E-Health monitoring system

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Abstract: Despite tremendous advancement in the communication technologies, there still remains a wide gap in realizing and commercializing its benefits in the field of wireless health monitoring system. This makes an informative reason to design and implement a wireless based e-Health Monitoring System for novel applications. This paper presents the design and implementation of e-health monitoring system. The system consists of intelligent bio-sensor nodes capable of sensing and processing the vital body signs. The system also communicates wirelessly for remote health diagnosis. The system measures four physiological parameters; temperature, pulse rate, acetone level and blood pressure (systolic and diastolic). These parameters are compiled and processed by the heart of the system; Arduino. The processed data are further analyzed and the evaluation of the health status are displayed using LCD. If the evaluated data requires medical attention, it is transmitted wirelessly to receiving station via GSM. The system promises to revolutionize the medical diagnosis by allowing inexpensive, non-invasive, continuous ambulatory health monitoring and provides the real-time updates of physiological data. To ensure reliability and accuracy the proposed system has been field tested. The test result indicates the proposed system is able to measure the patient's physiological condition with equivalent accuracy.

Keywords: GSM, Arduino Mega2560, physiological sensors, LCD.

ISCA-ISC-2017-9FMDN-14-Oral

Cloud environment forensics investigation and challenges

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Abstract: The huge demand of computing power, resources, fast data services and application access have formed cloud as a strong technology in recent trend. Cloud environment is new era of computing and internet technology which make fastest accessibility of data with storage, computing, data sharing and rapid e-transaction services, regardless of location time and

data size (e.g. AWS, Dropbox, SkyDrive, Google Drive). Mostly corporates and organizations prefer IT solutions with less infrastructure, human resources and immediately scalable, where cloud fits adequately. The large-scale usage of cloud services in computing also rise the cybercrime activity accordingly. As Cloud services are not managed or owned by organization itself, if criminals leverage the service then very less amount of traceable evidence can be acquired from it. Cloud service providers must need to manage audit and logs data capabilities to trace the digital trail for effective cloud forensics as a prognosis step of e-crime detection and prevention. Various cloud environment components which are becoming challenging to digital forensics where data-bits changes in real time with rapid network transfer. Cloud forensics is also essential to law enforcement as public has have stated utilizing financial transaction online, which is crucial to map. The effectiveness and reliability cyber forensics in cloud context require new methods of identification, collection, preservation, analysis and testimony of digital artifacts collected from the same.

Keywords: Cloud Computing, Digital forensics, forensics, cloud forensics, Network forensics analysis, Cloud component analysis, Cloud Forensics Process, Cloud forensic challenges.

ISCA-ISC-2017-9FMDN-15-Oral

Morphological and morphometric analysis of normal formalin fixed human mitral valve

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Abstract: The present study was conducted on 50 formalin fixed human adult hearts of both sexes obtained from Department of Anatomy, Gandhi Medical College, Bhopal. Hearts showing any indication of valvular disease were excluded. Circumference of valve orifice, commissural height and width, height and width of individual valve cusps of mitral valve were measured along with number of scallops in posterior cusp of mitral valve. Records were made about other additional findings. Circumference of MV orifice in formalin fixed hearts is 7.65cm ± 0.75(in males) and 7.12cm ± 0.57 (in females). No accessory cusps were seen in MV. AML is not divided into scallops. Width of PML is more (3.75cm ± 0.55 in males and 3.45 cm ± 0.49 in females) than AML (2.25cm ± 0.36 in males and 2.04 cm± 0.44 in females). Posteror cusp may have 2 – 4 scallop. Measurements of various parameters are found to be less in fixed hearts as compared to normal individuals. These parameters will help cardiothoracic surgeons in various mitral valve surgeries. Formalin causes some amount of shrinkage of tissues.Records of other findings will be presented in the conference.

Keywords: Morphometry, Morphology, Mitral valve, Circumference, Anterior mitral leaflet, Posterior mitral leaflet.

ISCA-ISC-2017-9FMDN-16-Oral

Screening of acetylcholinesterase inhibitor from *Lactobacillus platarum*

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Abstract: Alzheimer's disease (AD) is a neurodegenerative disorder that causes problems with memory, thinking and behavior. It is estimated that 1 in 3 senior citizens is plagued by this disease, which is caused due to oxidative stress and excessive free radical production. At present there is no cure for Alzheimer's disease. The symptoms of AD are connected with the reduction of brain neurotransmitters, like acetylcholine, noradrenalin and serotonin. Therefore the treatment is based on restoring the cholinergic function by using inhibitors of acetylcholinesterase.The inhibitors which are available in the market have a high cost and side effects, making it necessary to search for new substances for the treatment of AD. *Lactobacillus plantarum* species is a common probiotic bacteria. It has been reported to improve cognitive abilities of dementia patients. In this study, the bacteria is grown in 3 different fermentation medium; MRS with pantothenic acid, MRS with Cinnamon and MRS with pantothenic acid and cinnamon. The bacterial extracts were then tested for the presence of Acetylcholinesterase inhibitor.

Keywords: Alzheimer's disease, Acetylcholinesterase inhibitor, *Lactobacillus platarum,* acetylcholine, neurodegenerative disease.

ISCA-ISC-2017-9FMDN-17-Oral

Malassezia, the yeast species isolated from individuals with hair disorders: a new dimensional study

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Abstract: *Malassezia*, a lipophilic yeast under basidiomycetes fungi has been known to medical microbiology for its association with human skin and other warm blooded animals' flora. Several classical and modern techniques used for

identifying different *Malassezia* species ultimately leave further study on it due to difficulty in its long term preservation and easy revival. In a hair disorder study, *Malassezia* was found predominantly (74%) of the cases with *Malassezia furfur* (37.93%), *Malassezia restrictum* (22.41%), *Malassezia Pachydermatis* (17.24%) along with other fungi on the scalps of individuals in an age group of 18-35 years. Interesting observations are recorded during the progress of this study like *Malassezia* is a part of rare to mild infected scalp (50%) but not necessarily in the heavily infected (14.28%) dandruff scales. A novel method of long term preservation of *Malassezia* was also achieved with selected broth coated ceramic beads at -20^{0}C. A trial with only water as medium in the vial to store this fungus at – 20^{0}C has also worked out. Repetitive storage and thawing of the same culture vial to be avoided for mutational effect as well as revival alteration effect are understood, while results add new dimensions to the study of *Malassezia* and its cost effective preservation.

Keywords: *Malasseziasps.*, Dandruff, Tween assimilation, Lipophilic yeasts, Preservation.

ISCA-ISC-2017-9FMDN-18-Oral

Impact of sickling on hepatic function among population of Rajnandgaon of Chhattishgarh, India

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Abstract: Sickle cell anemia is one of the congenital hemoglobinopathy which is characterized by deformed red blood cells, acute episodes of pain attacks, pulmonary compromise, widespread organ damage and early death. Chhattisgarh state in particular is highly vulnerable to the disease. In the present study we have analyzed the prevalence of SCD from six different areas in various communities (563) of Rajanadgaon district of Chhattisgarh, India by slide test and electrophoresis method and also analyzed related hepatic function in sickle positive subjects (25). We report that there is a prevalence of 8.88% of sickling population in the above six areas of the district. We also report significant abnormal variations in the levels of SPGT, SGOT, Total protein, Billirubin Alkaline phosphatase, Albumin and Globulin (@5% P value) indicating disruption in the normal hepatic function of the sickle positive subjects.

Keywords: Sickle Cell Anemia, Electrophoresis, hepatic, Renal, Chhattisgarh.

ISCA-ISC-2017-9FMDN-01-Poster

Comparative analysis of effect of various mobile phases in forensic examination of pepper spray residue by HPTLC

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Abstract: The exploitation of plants, toxins and certain synthetic chemicals is incredible as the collective knowledge of chemical production has increased tremendously around the globe. Pepper spray is a lachrymatory agent, a fine example of critical use of oleoresin capsaicin, the active component of chilli peppers, a plant product used in policing, riot control, crowd control and self- defence by women. Incidences of substance-facilitated criminal activities like robbery, sexual assault & crime against women have been reported to be on rise in recent years by "Mirchi-Gangs". The present study underlines the importance of detection of chemical moieties, an integral part of trace evidence at scene of crime as forensic chemical examination of residues is sought by investigating agencies in such cases. The most critical parameter is choosing the right mobile phase for separation as confirmation depends upon successful extraction and separation of capsaicinoids from the exhibits. Eight different mobile phases for High Pressure Thin Layer Chromatography (HPTLC) analysis of capsaicin in pepper spray has been studied to test their efficiency and its confirmation has been carried out using Gas Chromatography-Mass spectrometry (GC-MS).

Keywords: Forensic science, Defensive Devices, Pepper Spray, Capsaicin, High Performance Thin Layer Chromatography, Gas Chromatography-Mass Spectrometry.

ISCA-ISC-2017-9FMDN-02-Poster

Autogenous bone graft material derived from freshly extracted tooth: a chairside method

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Abstract: In the quest of achieving regeneration of lost periodontium various graft materials from different sources have been tried and tested clinically. Such procedures carry the risk of antigenic reaction, transfer of infection, tissue morbidity

and lastly cost factor. Oflate, a novel graft material has been developed from the extracted tooth. This poster will highlight the clinical relevance of using the Autogenous fresh demineralized tooth graft in various regenerative procedures.
Keywords: Auotgenous, Tooth graft, Regeneration, Periodontium, Extracted tooth.

ISCA-ISC-2017-9FMDN-03-Poster

Perioveda: an insight to the effect of phytotherapy on periodontal diseases

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Abstract: Since ancient times herbal extracts and formulations have been extensively used as traditional therapeutic measures for warding off various ailments and periodontal diseases are no exception to it. Although periodonto -pathogens play a pivotal role in the pathogenesis of periodontitis (inflammation of supporting structures of tooth), oxidative stress has its own detrimental effect on disease initiation and progression. This poster will highlight the effectiveness of various herbal formulations in controlling production of pro-inflammatory mediators as well as their ability to control tissue damage caused by reactive oxygen species (ROS) to the progression of periodontal diseases, thereby holding a promising future.
Keywords: Perioveda, Herbal extracts, Antioxidant capacity, Periodontitis, Periodontal disease, Reactive oxygen species, Periodonto-pathogens.

ISCA-ISC-2017-9FMDN-04-Poster

A one on one battle

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Abstract: Probiotics are microorganisms which, when administered in adequate amounts, confer a health benefit for the host against harmful bacteria. The beneficial impact of probiotics on gastrointestinal infections is a well sort after treatment, with recent developments in the field of Periodontics as well. The benefits are evident in species of Lactobacillus, with recently tested Bifidobactrium species as well. Hence, this poster aims at emphasizing on probioics as a new avenue for maintenance of gingival health, prevention of gingival and periodontal disease and aid in treatment.
Keywords: Probiotics, Periodontitis, Periopathogens, Lactobacillus, Bifidobacteria.

ISCA-ISC-2017-9FMDN-05-Poster

Toxicity study of cell free lactic acid extracted from a non pathogenic strain of *Kocuria marina* (BMKo-1)

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Abstract: Since ages, synthesis of fermentation products has been credited to microbial systems. Currently there have been reports of *Kocuria spp.* belonging to the family *Micrococcaceae*. Most clinical microbiology laboratories ignore such bacteria as laboratory contaminants. Here we report about the dermal toxicity study of 16s r DNA sequenced *Kocuria* strain (BMKo-1) isolated from a health care system. Previous studies had inferred about substantial production of Lactic acid (LA) by the bacterium. Hence, a toxicity study of its Lactic acid was undertaken which is a mandate in bio efficacy experiments. Albino mice were used as animal models housed by VIMSAR, Burla, Odisha, India. Two groups of healthy mice were taken comprising a control group and a test group, each having 3 no. of mice. The crude Cell free extracted LA was applied on skin surface area ($1cm^3$) on test group. The control group was kept unapplied. After 15 days of regular observations, it was found that, the test group had developed insignificant inflammation for a period of 72 hrs. After 15 days, there was no trace of inflammation. This toxicity testing helped to calculate the no observed adverse effect level (NOAEL) dose as this test is a prerequisite in clinical trials.
Keywords: Kocuria, Lactic acid, Toxicity, Mice, Clinical.

10. Family, Community and Consumer

ISCA-ISC-2017-10FCC-01-Oral

Brocades of Chanderi: problems and prospects

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Abstract: Madhya Pradesh, a state of India, is well known for a distinctive style of brocaded sheer sari known as *Chanderi*. It is named after the town Chanderi which was a powerful kingdom known for spinning and weaving of fine quality cotton and rich gold thread. It is a sheer fabric that is intricately woven by hand and interspersed with delicate motifs made with extra weft yarns. The aim of the study was to document the past and present of *Chanderi* as well as provide solutions to the problems faced by the industry. To achieve the formulated objectives an exploratory cum experimental study was planned. Secondary information was obtained through review of literature and a detailed study of old pieces which were sourced from various museums, government institutions and books. Primary data was collected through observation and interview schedules during field visits to Chanderi. The sample included master weavers, weavers, dyers, designers and officials of various organizations linked with the industry. These were selected through purposive sampling technique. The craft details in terms of raw materials, loom set-up, dyeing, weaving process, types of Chanderi saris, colours and motifs was documented through photographs and supplemented with text. Several interesting and important aspects of this heritage textile and its process have come out in this study. It was found that most of the traditional processes continued as were used earlier however the raw materials of traditional chanderi were no longer being used by artisans due to their non availability. The results revealed that dyeing of silk is one of the major problems faced by the industry. In the subsequent section, dyeing conditions for undegummed silk, which is used in large quantity in manufacture of *Chanderi* were standardized. Interventions with the artisans were carried out by conducting various interactive workshops on dyeing procedures using synthetic and natural dyes. These workshops helped in capacity building of the artisans and proved vital. Further interventions were provided for design and product development. These helped the artisans to reorient themselves towards sustenance of the traditional form of craft.
Keywords: Brocade, Chanderi, Undegummed silk, Naal pherma.

ISCA-ISC-2017-10FCC-02-Oral

Appreciating and preserving the heritage of enigmatic India special focus on Dabu Print of Bagru; Rajasthan, India

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Abstract: Traditional textile craft is a disparate subject of a country that exists across time and space only if it is exchanged and shared amongst each other. It is essential to gain and insight and a better understanding of the heritage framework that is only possible with the information of the practical realities of the craft. The intrinsic beauty of textile is enhanced by surface ornamentation with multi colored effect. This ornamentation in fabric can be achieved by various methods, of which dyeing and printing are the most popular and extensively used. Indian textile exhibits, exuberant prototypes that abound in the surface design. The superior quality of dyed and printed textile of certain states of India mainly Rajasthan, Gujarat, Uttar Pradesh, Maharashtra and West Bengal are as the leading hub for creating this enriched craft. The "golden corridor" of Rajasthan has been famous for its printing and painting on textiles. Bagru is a rural Indian village in Rajasthan famous for printing on cotton in natural dyes also renowned as Dabu Prints or Bagru Prints. The craftsmanship proceeds from father to son for several generations. Production of Bagru prints is a thirteen steps laborious and time consuming process. An interdisciplinary approach is needed to enrich the cultural diversity and traditional craft of a country.
Keywords: Craft, Dabu, Traditional.

ISCA-ISC-2017-10FCC-03-Oral

Need of medium for finding blood donor in Bhutan

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Abstract: Finding a blood donor at right time is a big issue around the globe. Though the issue is a major concern even in our country Bhutan, it is left unaddressed until now. Here, in this paper an effort is presented to address this issue using the mobile application. The paper presents the current practices and issues faced by Bhutanese people in finding a right donor atright time. The data werecollected from around 210 people around Bhutan either using online questionnaires or through

paper based interviews. The survey analysis showed that there is difficulty in finding a right donor at the right time.The study also found that majority of the people dominantly uses the platform of social media to find blood donor in Bhutan. The respondents unanimously supported the urgent need of easier technology that would ease the problem. The paper proposes the use of mobile application as a solution to address the current issue to find theblood donor in Bhutan.

Keywords: Blooddonor, Mobile application, Issues, Current practice.

ISCA-ISC-2017-10FCC-04-Oral

Advertisement of hospitality industry using mobile application

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Abstract –The hospitality and foodservice industry is one of the booming business industries in Bhutan. As of the current state, proprietors of various hospitality industry like restaurants and hotels have no solid means to promote their business. Moreover, customersare left with just few ways or approach to find out the most suitable and desired restaurants and hotels in the locality during their stay in Bhutan.Currently only restaurants or hotels with high reputation and popularity have access to the advertisement platform. The remaining, dominant number of good restaurant and hotels remain unknown to the people due to poor advertisement. On the other hand, customers spend a lot of time searching for a good restaurant when they are in a new locality. This study reports the feasibility of introducing mobile application to advertise the hospitality services. It also studies the feasible way to provide a convenient platform for customers to have access toquick searching of desired services.

Keywords: Mobile application, advertisement, hospitality business, customer.

ISCA-ISC-2017-10FCC-05-Oral

KAP study of behavioral achievement of obesity among school female teacher

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Abstract: Behavioral treatment seeks to teach persons to modify habit in part by examining the antecedents and consequences of their behavior. Behavior achievement includes self- monitoring stimulus control, dietary pattern and cognitive dysfunction treatment. Obesity is influence by metabolic and genetical factors but believes that recent increase in our nation eating and activity habits that required to need a knowledge, attitude and practice (KAP) study of behavioral achievement of obesity and this study was an effort on this issue. This study was carried out in Barabanki city schools or female teachers. The total number of female teacher(60) were selected for detailed study. The findings of the study that the knowledge and attitude among female teacher to words obesity was found least 26%, for behavior treatment self-monitoring 28%, stimulus control 32%, dietary pattern 48% and cognitive treatment 42%. On the other hand for attitude and practices it was 14%, 18%, 22% and 36%. It was suggestive to carry an awareness programme by health personals and government for teacher and student at each school levels.

Keywords: KAP study, Behavioral, Achievement, Obesity, School teacher (female).

ISCA-ISC-2017-10FCC-06-Oral

Revival of needlecraft of Nilgiris

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Abstract: The Todas are an ancient pastoral people who live in the cool uplands of the Nilgiri mountains of Tamil Nadu. Toda women do an aesthetically great and intricate form of embroidery and it holds a cultural uniqueness for the Toda community. Toda women do an aesthetically great and intricate form of embroidery and it holds a cultural uniqueness for the Toda community. This distinct style of embroidery is locally known as “Pugur” or “Pukhoor”. The embroidery is done on “Poothkuli” which is the traditional shawl of Todas, worn by both men and women at all important social occasions. In the current study an effort has been made to revive the tribal craft through detail documentation and intervention. The study traces the history of the craft through literature survey, visits to the exhibitions and interviews with senior citizens. An intervention was planned for the revival and preservation of this traditional craft. A video on the tribal craft has been made to document the craft in terms of technique, colors and motifs for increasing awareness about the craft through social media and video screening sessions.

Keywords: Nilgiris, Toda, Tribal, Poothkuli, Intervention, Documentary.

ISCA-ISC-2017-10FCC-07-Oral

Elephant trappings – Jhul, cloth of gold

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Abstract: Since ages, the practice of draping and armoring an elephant has been prevalent in most Southeast Asian countries, especially India. The process of decorating the giant is an elaborate process as the animal often played an important (and often, the sole) defense of a kingdom thus it exhibited the greatness of sovereign's supremacy or the temple's affluence. The animal is bedecked with numerous jewelries, twisted ropes and embroidered clothes and Jhul is one of them. Literally, Jhul is a large rectangular unstitched garment caparisoning elephant employed in temple veneration, regal processions and warfare. It is exquisitely embroidered with gilded and silver metallic thread on rich cloth. This research article concerns with the identification of India's languishing textile heritage Jhul – the elephant trappings by documenting the craft with respect to raw materials, techniques, designs and motifs used in making the traditional trappings. This research may also look at the iconography, historical refrences along with a systematic diagram of Jhul and line sketches of borders, jaal, motifs, fillings and central motif used to embroider the fabric.
Keywords: Jhul, Elephant, Rajasthan, Embroidery, Caparison.

ISCA-ISC-2017-10FCC-01-Poster

Development and quality evaluation of protein nibbles for school going children

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Abstract: Protein energy malnutrition (PEM) is a major public health problem in India. This affects the child at the most crucial period of time of development, which can lead to permanent impairment in later life. Hence, a study was undertaken to develop and evaluate the quality of wheat based protein nibbles for school going children. The purpose of the study was to provide a healthy snack for school going children who consume a lot of junk. The developed products were subjected to sensory evaluation by semi trained panelists using the scoring method of 9 point hedonic scale. The product was subjected to proximate analysis. The statistical analysis of the product is based on the results of sensory evaluation. The standardized masala nibble product had the carbohydrate content of 45.70 grams with 423 Kcal. Protein content was found to be 18.10g. Fat content of the product was 23.50g. Total fiber content and ash percentage was 3.21 g 4.93 g respectively. The proximate analysis of the sweet nibbles reveals that carbohydrates content was found to be 56.20 g with 446 Kcal. Moisture content was 2.48 per cent. Protein content was found to be 13.90g. Fat content of the product was 23.60g. Total fiber content and ash percentage was 2.03g 1.86g respectively. It was concluded that the protein rich nibbles would benefit children to attain optimum growth by overcoming the protein deficit status among vegetarians.
Keywords: Protein deficiency, Nibbles, School children, Sensory evaluation.

11. Material Sciences **ISCA-ISC-2017-11MatS-Guest Speaker-01**

Gold Nano particles enhances the efficiencies of energy conversion in solar cell

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Abstract: In the world of solar energy, organic photovoltaic solar cells have a wide range of potential applications, but they still lag behind in their ability to efficiently convert sunlight into electricity. These carbon-based cells, which use organic polymers or small molecules as semiconductors, are much thinner and less expensive to produce than conventional solar cells made with inorganic silicon wafers. It is found that by incorporating gold nanoparticles layer between two subcells, it was able to enhance power conversion by as much as 20 percent. The gold nanoparticles create a strong electromagnetic field inside the thin organic photovoltaic layers by a plasmonic effect, which concentrates light so that much more of it can be absorbed by the subcells.Experimental and theoretical results demonstrate that the enhancement effect was attained from local near-field enhancement of the gold nanoparticles. The results show that the plasmonic effect has great potential for the future development of polymer solar cells. The proposed interlayer structures as an open platform can be applied to various polymer materials, opening up opportunities for highly efficient, multi-stacked tandem solar cells. Surface plasmon resonance refers to the collective oscillating motion of conduction electrons near a metal surface in an external electromagnetic field and can be excited on metallic nanoparticles, such as gold. The .extinction spectra of metallic nanoparticles are usually dominated by one or more well-resolved peaks, which are caused by strong light scattering and absorption. Plasmon resonance frequency is determined by the dispersion relation of the metal, particle size and shape, and the changes in dielectric constant of the surrounding medium. Gold nano particles were synthesized by non toxic reduction method from Green Pudina leaves. Experimental design was developed for incorporating the layer ofnano particles between the two organic solar sub cells.
Keywords: Organic photovoltaic solar cells, Gold nanoparticles, Power conversion, Plasmonic effect, Local near-field enhancement, Surface plasmon resonance.

ISCA-ISC-2017-11MatS-01-Oral

Green synthesis of silver nanoparticles from using Phyllanthus emblica Plant extract and optical properties

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Abstract: Silver nanoparticles (AgNPs) were synthesized using aqueous extract of Phyllanthus emblica fruit and silver salt. Techniques of XRD, FESEM, HRTEM, FTIR, optical absorption and photoluminescence (PL) were calculated and analysed of AgNPs. The synthesized AgNPs exhibits energy absorption band around 400 nm. The effects of various parameters like as an extract concentration, reaction pH, reactants ratio, and temperature as well as interaction time on the synthesis of AgNPs were studied. It was found that the formation of AgNPs improved with time at higher temperature and alkaline pH. The synthesized AgNPs formed were found to have improved pollutant degradation properties. Based on the results obtained, it can be done that the resources obtained from plants can be well used in the production of AgNPs and could be utilized in different fields such as pharmaceutical, pollutant degradation and hydrogen production nanotechnology etc.
Keywords: Green Synthesis, AgNPs, XRD, FESEM, HRTEM, UV-Vis, FTIR and PL.

ISCA-ISC-2017-11MatS-02-Oral

Synthesis and characterization of ZnO nanoparticles and their application in synthesis of substituted quinoline

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Abstract: Nanotechnology is an emerging technology, which can lead to a new revolution in every field of science. The interesting and sometimes unexpected properties of nanoparticles are largely due to the large surface area of the material, which dominates the contributions made by the small bulk of the material. Metal oxides are efficient heterogenous catalysts used in various organic transformations. The abitily of nanotechnology to enhance catalytic activity opens the potential to replace expensive catalysts with lower amount of inexpensive nanocatalysts. The nano-ZnO as heterogenous catalyst has received considerable attention because of its inexpensive, non-toxic catalytic activity as well as for eco-friendly behaviour. In the present paper, the nanoparticles of ZnO are prepared by chemical method and the prepared nanoparticles are further

used as catalyst for the preparation of ethyl-6-chloro-4-phenylquinoline-3-carboxylate. The synthesized product was characterized by IR, NMR specta.

Keywords: Synthesis, Characterization, ZnO, Nanoparticles Synthesis of substituted, Quinoline.

ISCA-ISC-2017-11MatS-03-Oral

Study of influence for various parameters to electrochemical synthesis of polyaniline thin film by galvanostatic method

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Abstract: Polymer films will prepared by galvanostatic electrochemical synthesis, which provides a constant oxidative current at the anode. The electrochemical deposition of monomer of aniline and their copolymer films was carried out by using a galvanostatic technique at temperature 27°C, after synthesis the polymer coated electrodes will rinsed thoroughly in deionized water dried in cold air and then used for subsequent characterization. The synthesized composite films will subjected to various characterizations viz. galvanostatic electrochemical techniques. The FTIR, UV Visible spectroscopy and SEM etc methods use for characterization. Effect of influence of pH, current, monomer concentration and potential etc. these parameters are studied for optimization of the film formation.

Keyword: Galvanostatic, Monomer, Polymer, Thin film, Electrochemical.

ISCA-ISC-2017-11MatS-04-Oral

Robust red emitting $YVO_4:5Eu^{3+}$, xLi^+ (x = 0 – 15 at.%) nanostructures for bioimaging and display devices: Luminescence studies and folic acid conjugation

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Abstract: Red emitting $YVO_4:5Eu^{3+}$, xLi^+ (x=0 – 15 at.%) nano structures were synthesized by hydrothermal method. Water-ethylene glycol (2:1 v/v) mixture is used as solvent. X-ray diffractometry (XRD) confirmed the crystal structure and phase purity. The added Li^+ occupy the interstitial sites as indicated by the increase of unit cell volumes. Shape and size of the nanostructures are determined by transmission electron microscopy (TEM). The Li^+ codoped $YVO_4:Eu^{3+}$nanostructures consist of bundles of cylindrical nanostructures. Each cylindrical nanostructure has about 50 – 100 nm in length and 10 nm in width. Photoluminescence studies revealed that Li^+ codoping enhanced the luminescence intensity. Maximum emission intensity is observed in YVO4:$5Eu^{3+}$, $5Li^+$. On annealing (500 and 850°C), the emission intensities and lifetimes are increased. Also, the annealed samples exhibited enhanced luminescence from ^5D_J (J>0) levels of Eu^{3+}. The luminescence intensities and the lifetimes of the $YVO_4:5Eu^{3+}$ and $YVO_4:5Eu^{3+}$, $5Li^+$ are 710 and 1162 μs respectively. Lifetimes of $YVO_4:5Eu^{3+}$, $5Li^+$ are further increased to 1376 and 1474 μs respectively on annealing at 500 and 850°C. The samples are easily incorporated into the flexible polymer film made of polyvinylidene fluoride (PVDF) and are dispersible in water. The luminescence properties of both the dispersion-in-water and the film are insensitive to oxidising H_2O_2 media. We have also designed folic acid conjugated luminescent material which could be a potential tumour marker via optical imaging. The robustness of the nanoparticles towards oxidation will make them a highly potential phosphor material for luminescence/optical imaging and display devices.

Keywords: Lanthanides, Luminescence, Polymer film, Folic acid conjugation, Optical imaging.

ISCA-ISC-2017-11MatS-05-Oral

A nanobased detection method for citrus greening disease

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Abstract: Bacterial infections associated with various economically important crops remain to be a global threat. Detection of such diseases in a robust, rapid, environment friendly, cost effective method is yet to be commercialized. Use of magnetic nanomaterials is rising enormously with almost every possible field. Application of magnetic nanomaterials for isolation of DNA from bacteria, mammalian cell, and environmental sample is well demonstrated, but isolation from plant samples for rapid disease detection via conventional molecular biological method (PCR) is not reported till now. Here in we report a simple chemical method for synthesis of magnetic iron oxide nanoparticles, which can purify high quality ($A_{260}/A_{280}\approx$ 1.80) insect and plant DNA within 30 mins. That DNA can be directly analyzed by Polymerase Chain Reaction (PCR) for presence

of any disease causing microbes. We successfully used this method for purification and identification of Citrus Greening Disease in citrus plant as well as its Asian insect vector *Diaphorina citri*.

Keywords: Iron oxide nanoparticle, DNA isolation, Polymerase Chain Reaction, Citrus Greening Disease, *Diaphorina citri*.

ISCA-ISC-2017-11MatS-06-Oral

Thermaldegradation of bio-filler boswellic acid incorporated poly (vinyl alcohol) composite films

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Abstract: Polyvinyl alcohol (PVA) is a biodegradable, biocompatible and eco-friendly in nature. Composite films of Boswellic acid (BA)/poly (vinyl alcohol) (PVA) were prepared by solvent casting method. In the current research work, structural properties, transition temperature and thermal degradation of virgin PVA and bio-filler boswellic acid doped PVA composites were studied. The structural parameters were investigated using X-ray diffraction (XRD) technique. From the XRD it is clear that percent of crystallinity decreases with increase in the weight of boswellic acid (BA- 0.02 to 0.06 g) in PVA could be due to development of semicrystallinity in PVA structure. The transition temperatures of PVA and BA/PVA composite films were studied using differential scanning calorimetry (DSC). The DSC studies revealed that the increase in the weight of boswellic acid in PVA, decrease in the glass transition temperature (T_g) and variations in melting temperature (T_m) and decomposition temperature (T_d). The kinetics of thermal degradation of PVA and boswellic acid incorporated PVA composite films was investigated by thermogravimetry analysis (TGA) and confirmed by derivative thermogravimetry (DrTG) analysis data. Experiments under non-isothermal conditions were carried out for PVA and PVA/BA composite films in an inert atmosphere of nitrogen to avoid thermoxidative degradation at heating rates of 7.5, 10 and 15^{0}C/min. The Coats-Redfern method was used to calculate the activation energy (E_a), entropy of activation ($\Delta S^{\#}$), enthalpy of activation ($\Delta H^{\#}$) and the Gibbs free energy change ($\Delta G^{\#}$) for first and second thermal degradation stage of PVA and boswellic acid incorporated PVA composite films.

Keywords: PVA, Boswellic acid, DSC, TGA, DrTG, XRD, Activation parameters.

ISCA-ISC-2017-11MatS-07-Oral

Synthesis and characterization of fullerene doped MoO_3-TiO_2

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Abstract: Fullerene supported MoO_3-TiO_2 composites were prepared and characterized. The material were prepared by Sol-Gel method using cetyl-trimethyl ammonium bromide (CTAB) as a surfactant. The synthesized materials have been tested for chemical and thermal stability, crystalline nature, porosity, specific surface area and the presence of active groups on the surface with the help of sophisticated analytical techniques such as XRD, SEM-EDS, FTIR, and TEM analysis.These composites can be utilized as heterogeneous catalysts.

Keywords: Fullerene, Composite Material, Heterogeneous Catalysis, Nano Crystalline, Sol-Gel.

ISCA-ISC-2017-11MatS-08-Oral

Modification of physicochemical and antimicrobial properties of chitosan/poly (vinyl alcohol) films by *Piper nigrum* leaves extract

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Abstract: The influence of *Piper nigrum* (*P. nigrum)* leaves extract on structural and physicochemical properties of chitosan/poly (vinyl alcohol) (CH/PVA) blend films were studied. The hypothesis of the study was confirmed by using UTM, SEM, DSC, XRD, and FTIR studies. Interestingly, increased mechanical properties were observed with inclusion of *P. nigrum* leaves extract to the CH/PVA films. SEM micrographs revealed that there is smooth homogeneous phase morphology with better compatibility. The results of X-ray diffraction study confirmed that influence of crystallinity on mechanical properties of the blend films. The presence of a single glass transition temperature (T_g) indicated that complete miscibility

among the blend components. The result of FTIR study confirmed the presence of a significant interaction among the chitosan, PVA and *P. nigrum* leaves extract. The antimicrobial study shows significantly increased activity with incorporation of *P. nigrum* leaves extract in the CH/PVA blend films. Hence, this partly stimulated research data obtained from the study might be an advantage for new packaging material preparations in future.

Keywords: Mechanical properties, Morphology, Crystallinity, Glass transition temperature.

ISCA-ISC-2017-11MatS-09-Oral

Dielectric behavior of Al^{3+} substituted Cd ferrites

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Abstract: The spinel ferrite series of $Cd_1Al_xFe_{2-x}O_4$ where x varies from x=0.0 to 0.5 in the steps of 0.1 were prepared by the conventional double sintered ceramic method. The formation of single phase spinel structure was confirmed from XRD. The dielectric measurements were carried out as a function of temperature using two probe method with L-C-R-Q meter. The dielectric constant, dielectric loss and dielectric loss tangent are calculated using the data. The dielectric parameters show normal dielectric behavior. The dielectric properties i.e., dielectric constant (ε′), dielectric loss (tan δ) decrease with Al^{3+} ion doping.

Keywords: Spinal, Ferrite, Composite Material, Dielectric.

ISCA-ISC-2017-11MatS-01-Poster

Optical and elastic properties of Ni-Zn nanoferrite using Sol gel auto combustion method

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Abstract: The $Ni_{0.5}Zn_{0.5}La_xFe_{2-x}O_4$ (where x = 0.025, 0.050, 0.075, 0.100, 0.125) nanoferrite was prepared by doping the rare earth La^{3+} material using sol-gel auto combustion method. The optical properties and elastic properties were studied. The band gap energy was obtained from UV visible spectrum and it was found that varies between 1.5606 eV and 1.7040 eV using the Tauc's Method. The intense absorption bond was observed at 600 cm^{-1} from the FTIR spectrum which shows the characteristic bond of spinel structure. The elastic properties such as Stiffness constant, Modulus of rigidity, Young's modulus, Bulk Modulus, Poisson's ratio etc. was calculated using FTIR spectrum and elastic properties gives the strength of the material.

Keywords: Sol-gel method, Ni-Zn nanoferrite, UV visible spectroscopy, FTIR.

ISCA-ISC-2017-11MatS-02-Poster

Induction heating studies of magneto-luminescent Fe_3O_4@$GdVO_4$:Eu^{3+} hybrid nanomaterials for optical imaging and hyperthermia

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Abstract: Magnetic Fe_3O_4 nanoparticles and magneto-luminescent Fe_3O_4@$GdVO_4$:Eu^{3+} nanocomposites were prepared by simple co-precipitation methods. The ratio of Fe_3O_4 and $GdVO_4$:Eu^{3+} in the magneto-luminescent Fe_3O_4@$GdVO_4$:Eu^{3+} nanocomposites were maintained at 1:1 and 1:2. The crystalline structure was determine by X-ray diffractometry (XRD). No impurity or deleterious phases were detected. FT-infrared (FTIR) spectroscopy confirmed the presnec of polyethylene glycol, from the solvent, are localised on the surface of the nanoparticles. From the images obtained by transmission electron microscopy (TEM), it was found that the Fe_3O_4@$GdVO_4$:Eu^{3+} (1:2) sample contains spherical (< 10 nm) and cubic (~100 nm) shaped partilces. The spherical particles are Fe_3O_4 and the cubic shaped particles are $GdVO_4$:Eu^{3+}. Vibrating sample magnetometry (VSM) was used to measure the saturation magnetization. The saturation magnetization values of the Fe_3O_4, Fe_3O_4@$GdVO_4$:Eu^{3+}(1:1) and Fe_3O_4@$GdVO_4$:Eu^{3+} (1:2) were 55, 23, 13emu/g respectively. The samples show efficient heating effects under the influence of alternating magnetic fields. The heating effects were found to increase with increasing concentrations. The maximum values of specific absorption rates (SAR) achieved for the Fe_3O_4, Fe_3O_4@$GdVO_4$:Eu^{3+}(1:1) and Fe_3O_4@$GdVO_4$:Eu^{3+} (1:2) were 47, 42 and 36 W/g respectively. The sample Fe_3O_4@$GdVO_4$:Eu^{3+} also showed strong red emission under excitation at 300 nm. The strong red emission is due to Eu^{3+} (615 nm) emission. Thus, the madneto-luminescent nanocomposite system will be useful for optical imaging and hyperthermia application.

Keywords: Fe_3O_4 nanoparticles, Fe_3O_4@$GdVO_4$:5Eu^{3+} nanocomposites, Hyperthermia, Optical imaging.

ISCA-ISC-2017-11MatS-03-Poster

Green synthesis of silver nanoparticles from using phyllanthus emblica plant extract and optical properties

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Abstract: Silver nanoparticles (AgNPs) were synthesized using aqueous extract of Phyllanthus emblica fruit and silver salt. Techniques of XRD, FESEM, HRTEM, FTIR, optical absorption and photoluminescence (PL) were calculated and analysed of AgNPs. The synthesized AgNPs exhibits energy absorption band around 400 nm. The effects of various parameters like as an extract concentration, reaction pH, reactants ratio, and temperature as well as interaction time on the synthesis of AgNPs were studied. It was found that the formation of AgNPs improved with time at higher temperature and alkaline pH. The synthesized AgNPs formed were found to have improved pollutant degradation properties. Based on the results obtained, it can be done that the resources obtained from plants can be well used in the production of AgNPs and could be utilized in different fields such as pharmaceutical, pollutant degradation and hydrogen production nanotechnology etc.
Keywords: Green Synthesis, AgNPs, XRD, FESEM, HRTEM, UV-Vis, FTIR and PL.

12. Mathematics and Statistics

ISCA-ISC-2017-12MSS-Guest Speaker-01

Characterization of someone truncation parameter family of distributions through expection of function of order statistics

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Abstract: For characterization of one (left or right)-truncation parameter families of distributions one needs any arbitrary non-constant function of order statistics only in place of various alternative approaches available in the literature. Path breaking different approach for characterization of general setup of one-truncation parameter family of distributions through expectation of any arbitrary non constant differentiable function of order statistics is obtained. Applications and examples are given for illustrative purpose. Most powerful application of characterizations of distribution is to address a fundamental problem of identification of an appropriate model that can describe the real situation which generate the bservations. For instant 60 observations of random phenomena observed and one group of student fit normal distribution where other group fit log-normal distribution with almost same p-value. This is one of case where characterization results provide navigation tools for correct direction of further study (research). Therefore characterizations of distribution is of general interest to mathematical community, to probabilistician and statistician as well as to researchers and practitioner industrial engineering and operation research and various scientist specializing in natural and behavior science, in particular those who are interested in foundation and application of probabilistic model building. Motivated by such future in this paper, identity of distribution and equality of expectation is used to, characterized right. through expectation of any arbitrary non-constant differentiable function of order statistics which includes characterization of negative exponential distribution, Pareto distribution as special case of left -truncation parameter family of distributions where as power function distribution, uniform distribution, generalize uniform distribution as special case of right -truncation parameter family of distributions.

Keywords: Characterization, Someone, Truncation, Parameter, Family, Distributions, Statistics.

ISCA-ISC-2017-12MSS-Guest Speaker-02

Some common fixed point theorem for two self maps in cone metric space

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Abstract: The object of this paper is to obtain a common fixed point theorem for self mapping satisfying new contractive conditions in cone metric space, which generalizes and extend the result of solanki manoj etc.

Keywords: Common fixed point, Self mapping, Cone metric space, Rational expression, Contractive condition.

ISCA-ISC-2017-12MSS-01-Oral

Scale invariant approach to some dynamical systems

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Abstract: World around us is non-linear. Non-linear differential equations and systems play vital role in formulating theories elucidating and expanding the origin, nature and structure of non-linearity (complexity) observed in various natural, biological, financial and other related fields. Although systematic study of such problems were already initiated in the later half of nineteenth century by Henry Poincare in the context of planetary three or many body systems, this field of non-linear dynamical system is still very active. The conventional treatments of non-linear problems generally consider non-linear differential equations when actual non-linearity appears as new terms with one (or more) (small) parameter(s), for instance, the Pendulum equation, the Duffing equation, the vanderpol equation. The standard (regular) perturbation method attempts to find an approximate solution to a non-linear problem, which can not be solved exactly, by starting from the exact solution of a related exactly solvable problem. Perturbation methods are applicable if the problem at hand can be formulated in a way when the non-linearity terms come with a "small" parameter. There are also several limitations of perturbation method. The standard approach in resolving some of limitations of perturbation theory are method of multiple time scales, renormalization group method, homotopy analysis method and so on. Recently a new Scale Invariant Analysis has been developed using the concept of relative infinitesimals and scale free infinitesimals and applying this new formalism we aim at formulating an altogether new approach in the study of nonlinear problems and dynamical systems.

Keywords: Scale invariance, Non-archimedean absolute value, Relative infinitesimals, Nonlinear increment, Non-perturbative method.

ISCA-ISC-2017-12MSS-03-Oral

Three component nearly optimal orthogonally blocked mixture designs for Husain and Parveen's model

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Abstract: Scheffé (1958) introduced models and designs for experiments with mixtures. John (1984), Czitrom (1988, 1989, 1992), Draper *et al.* (1993), Chan and Sandhu (1999) and Ghosh and Liu (1999) discussed orthogonal block designs for Scheffé's quadratic model in three and four components. Aggarwal *et al*. (2002) obtained D-, A- and E- optimal orthogonal block designs for Becker's model in three and four components. Singh (2003) considered optimal orthogonal designs in two blocks for Darroch and Waller's (1985) quadratic mixture model in three and four components. Prescott (1998) considered nearly optimal orthogonal blocked designs based on latin squares for mixtures involving three and four components. In this paper, we have considered John's (1984) designs to obtain D-, A- and E- nearly optimal orthogonal block designs for Husain and Parveen's (2016) additive quadratic mixture model.

Keywords: Mixture Experiments, Process variables, Orthogonality, Additive quadratic mixture model, Nearly optimal.

ISCA-ISC-2017-12MSS-04-Oral

Discussing the possibility of merging for smallest undirected similar 3-regular graphs

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Abstract: As we know that, the merging is possible for smallest undirected similar 2-regular graphs and in the previous article we show that merging is possible and continuous for all types of undirected similar 2-regular graphs. Now according to definition of 3-regular graph, every vertex has three adjacent edges. 3-regular graphs are also called trivalent graphs or cubic graphs. That is every vertex has same number of degree and which is equal to three. Let we are work on 3-regular graph with n vertices. Where n is always even number and begin from n≥4. Here we are work on smallest undirected similar 3-regular graphs. As we know that smallest 3-regular graph is beginning from 4 vertices. Thus simply we are work on undirected similar 3-regular graph with n=4 vertices. Here first we find out the possibility of the merging of smallest undirected similar 3-regular graphs and use our definition of merging technique. Also we are use some definitions and operators for find out the possibility of merging for smallest undirected similar 3-regular graphs. At the time of discussion, we get merging is possible for smallest undirected similar 3-regular graphs or not.

Keywords: Regular graph, Undirected, Smallest, Merging, Operator, Technique, Vertex, Degree, Edge.

ISCA-ISC-2017-12MSS-05-Oral

On the number of cut vertex in connected graph

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Abstract: Connectivity is an essential concept in graph theory. Given a graph, it is natural to ask whether every vertex can reach every other vertex by a path. With this in mind, we say that a graph is connected if for every pair of vertices, there is a path between them. A cut vertex is a vertex the removal of which would disconnect the remaining graph. It is well known that every nontrivial connected graph contains at least two vertices that are not cut vertices. In this paper we show the relation between number of cut vertex and cardinality of connected graph G.

Keywords: Degree of vertex, Block, Longest path, longest chain.

ISCA-ISC-2017-12MSS-06-Oral

Bayesian modeling of econometric models with R using optimization and simulation tools

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Abstract: An Econometric model specifies the statistical relationship that is believed to hold between the various economic quantities pertaining to a particular phenomenon under study. The basic tool of Bayesian analysis is Laplace approximation of Tierney and Kadane (1986 JASA). Sampling importance resampling has also been implemented using estimates obtained from Laplace approximation for Normal proposal. MCMC tools are also used to approximate the posteriors involved. A comparison of Bayesian implementations in LaplacesDemon, JAGS and rstanarm software packages for count data.
Keywords: Bayesian Inference, Optim, Laplaces Demon, Laplace Approximation, MCMC, JAGS, rstanarm, Sampling importance resampling.

13. Pharmaceutical Sciences

ISCA-ISC-2017-13PCS-01-Oral

Primary and secondary metabolite profiling, unravelling the antibiotic susceptability from culture lysed symbiotic colonies of diazotroph bacteria isolate from root nodules of *dolichos lab lab.*

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Abstract: This is the first study demonstrating antibiotic potential of symbionts and their metabolite profiling extract from cultured bacterial endosymbionts associated with root nodules of Leguminaceae plant *Dolichos lab lab*. Our study has significant scope and it has never been reported. Indian farming area especially semi arid areas host varieties of Legumes with novel secondary metabolites-producing organisms. The natural metabolites extracted from root nodule-derived bacteria pave novel therapeutic remedy against various pathogens like Methicillin-resistant *Staphylococcus aureus* (MRSA) and vancomycin resistant *Enterococci* (VRE) when most of them are emerged as extreme drug resistant superbugs. In recent study the bacteria isolated from the root nodule were characterized by standard microbiology techniques. Most of the bacteria isolated were found to be Symbiotic nitrogen fixation of Gram-negative, motile, *Rhizobium leguminosarum*. The potential isolate LNRLS9 was mass cultured for extraction of primary and secondary metabolites. Preliminary screening for identification of Bacterial metabolites by chemical tests was performed using reagents. Ethyl acetate extract prepared from the cell free culture broth of the isolate was analyzed using HPLC-diode array technique to characterize the metabolites and identify the antibiotics. The extract was also subjected to UV, FT-IR and mass spectrometry to gather relavant information. The results of this study suggested that secondary metabolites produced by *Rhizobium leguminosarum* sp. (LNRLS9) could be used as a lead to control drug resistant bacterial pathogens.
Keywords: *Rhizobium leguminosarum* sp. LNRLS9, Drug resistance, Anti-MRSA activity, Anti-VRE activity, Spectroscopic analysis.

ISCA-ISC-2017-13PCS-03-Oral

Biosynthesis of *Elaeocarpus floribundus* mediated silver nanoparticles with broad antibacterial spectrum

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Abstract: This study assesses the olive, *Elaeocarpus floribundus*, fruit mediated synthesis of silver nanoparticles (SNPs) having antibacterial activity and determines the HPLC chromatogram of the extracts. The SNPs were synthesized with aqueous extract of olive fruit parts, seed (AqOS) and mesocarp-epicarp (AqOME) and were subjected to antibacterial activity testing against human pathogenic bacteria. The presence of phytochemicals in the extracts was determined by high performance liquid chromatography (HPLC). The zone diameter of inhibition (ZDI) of SNPs synthesized with AqOME and AqOS were 20.8 ± 3.2 mm and 14.7 ± 1.06 mm, respectively, while the respective ZDIs from the action of AqOME, AqOS and silver nitrate solution, against the test bacteria, were 6.7 ± 1.49 mm, 6 ± 0.00 mm, and 13.3 ± 0.82 mm; the values expressed as mean ± standard deviation. The HPLC chromatograms showed the presence of 8 major compounds in AqOME and 11 major compounds in AqOS with retention times 1.45 – 4.84 min and 1.91 – 4.84 min, respectively. Thus, the olive fruit extracts demonstrated the capacity to synthesize SNPs possessing broad antibacterial spectrum, suggesting their plausible utilization in combating the bacterial drug resistance and the infections caused by them.
Keywords: Silver Nanoparticles, *Elaeocarpus floribundus*, Antibacterial Activity, Bacterial Pathogen, HPLC.

ISCA-ISC-2017-13PCS-04-Oral

Enhancement of compliance and acceptability of Neem oil by formulating its' transethosomal gel

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Abstract: Herbs in nature, is always being a consistent and constant source of medicinal substances for prevention/cure of various ailments, and form basis of ancient Indian traditional medicine system. Plants have been used for medicinal purposes

long before recorded history and WHO also estimated that 80% of people worldwide rely on herbal medicines for some part of their primary health care. Now such herbal drug based remedies have becoming popular, available and also getting manufactured in developed countries. Thus phytotherapeutics is emerging as a new discipline, because of global extension of plant based drug markets due to their several benefits. Neem (*Azdirachata indica*) family Meliaceae, has been known as the wonder tree for centuries in the Indian subcontinent. It has become important in the global context today for its variety of uses, and so have special place in phytotherapeutics due to its anti-inflammatory, anti-infective, antipyretic, antibacterial, skin diseases, dental disorders, smallpox, chicken pox, acne, psoriasis, eczema etc. Owing to its capabilities, United Nations has rightly declared neem as "Tree of the 21st Century". The neem oil, which has topical as well as systemic actions, is used in the manufacturing of modern day medicines, cosmetics, toiletries and pharmaceuticals. Though the neem oil is lipophilic on topical application, but due to its' greasy and odorous nature, there is poor acceptability and compliance. Therefore, the present study was designed for a novel transdermal drug delivery of neem oil by entrapping it into transethosomal vescicular carrier, before final formulation of its gel. Such oil loaded transethosomal gel was not only easily washable but also successfully masked the sulfurous odor and hence could have potential application in the field of herbonanoceuticals to enhance the acceptance and compliance of drugs like neem oil.

Keywords: Phytotherapeutics, Neem, Herbonanoceutical, Transethosomes.

ISCA-ISC-2017-13PCS-05-Oral

Study of antibacterial activity and phyto-chemicals with GC-MS analysis of *withania somnifera* (L.) dunal; a multidrug plant

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Abstract: *Withania somnifera* (L.) Dunal also known as *Ashwagandhā* in Sanskrit, is one of the most versatile medicinal plants in Ayurvedic Medicine with a wide spectrum of actions and applications for the treatment of diseases like; bronchial asthma, chronic fever, cold, cough, malaria, dysentery, convulsions, diabetes, diarrhea, arthritis, emetic syndrome, skin diseases, insect bite etc., and in treatment of gastric, hepatic, cardiovascular and immunological disorders. The objective of this paper was to review and investigate the antibacterial property and phytochemical constituents with GC-MS analysis to signify the use of *Withania somnifera* as a multidrug potential plant. The aqueous and methanolic extracts of the plant are found effective (showing larger zones of inhibitions) against the bacterial strains of *Escherichia coli* and *Klebsiella pneumonia*, which are proven causal organisms for all forms of UTI and also liver infections. The qualitative phytochemical study of different parts of the plant confirms presence of 12 bioactive compounds like Alkaloids, Phenols, Steroids, Terpenoids, etc. The Gas Chromatography-Mass Spectrometry (GC-MS) analysis of methanolic extract of whole plant further validates the qualitative phytochemical data and 13 compounds at molecular level were identified from the extract, such as Oleic Acid, Phytol and n-hexadecanoic acid, etc. These compounds are known for different therapeutic and antimicrobial effects. However, the qualitative phytochemical tests revealed a point of interest that the percent presence of phytochemicals in stem and leaf is more than the root part when extracted in methanol and or other solvents. This finding is in contrast to traditional belief that roots store all relevant active principles of *Ashwagandhā*, for which the plant is overly uprooted. The findings and results of this paper could help to evaluate and assess the therapeutic multipurpose use of *Withania somnifera* (L.) Dunal more rationally and can create an awareness of the need of *in situ* conservation of this most wanted medicinal plant.

Keywords: Antibacterial, Ayurvedic, GC-MS analysis, Phytochemical, Therapeutic, *Withania somnifera* (L.) Dunal.

ISCA-ISC-2017-13PCS-06-Oral

The anti-diabetic properties of 4 methoxy salicylic acid: An *in-vitro* and *in-silico* study

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Abstract: Our aim was to study the anti-diabetic properties of 4 methoxy salicylic acid (4MSA) using*in-vitro* and *in-silico* analysis. A large number of indigenous medicinal plants are being used in modern health care system for their various medicinal properties and lesser side effects as compared to synthetic drugs. In our previous studies, the hypoglycemic property of 4MSA was established in streptozotocininduced diabetic rats. In this study, we are focusing on investigating the

α-amylase and α-glucosidase inhibiting activity of 4MSA, through *in-vitro* analysis and molecular docking studies. The α-amylase and α-glucosidase inhibitory activity of 4MSA was determined using the DNSA method. The results were compared with standard drug Acarbose. The compound structures were obtained from PubChem and the structures of the targeted proteins were retrieved from RCSB PDB. Using Autodock 4.2, we docked the selected ligands with the protein targets. The compound had a significant α-amylase and α-glucosidase inhibiting activity, as compared to the standard drug Acarbose. Further studies are needed to determine the detailed mechanism of action and toxicity of the compound.

Keywords: α-amylase inhibition, α-glucosidase inhibition, 4 methoxy salicylic acid, Acarbose, Molecular docking, Anti-diabetic.

ISCA-ISC-2017-13PCS-07-Oral

Comparative evaluation of effects of *Pithecellobium dulce (Roxb.), Benth,* Barks and Glibenclamide on diabetic male Swiss albino mice based on antioxidant enzyme markers and their genetic expression

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Abstract: Hyperglycemia, lack of glucose metabolism and increased oxidative stress levels majorly affects the diabetics. The over-production of Reactive Oxygen Species (ROS) leads to variations in the normal values of oxidative stress biomarkers, such as superoxide dismutase (SOD), catalase (CAT), glutathione peroxidase (GPx). This study was done to compare the treatment of *P.dulce* Bark extract (PDBE) against the well-known standard drug Glibenclamide on the antioxidant enzyme action and their genes in diabetes induced male swiss albino mice. For this, investigational animals were separated into four groups (seven mice in each group), namely: Normal Control (NC), Diabetic Control (DC), Glibenclamide Treated (GT) and Bark extract Treated (BT). The animals of groups DC, GT and BT were made diabetic by a single intraperitoneal injection of Alloxan Monohydrate. The animals of groups NC and DC were treated with normal saline, while those of groups GT and BT were treated with Glibenclamide (10mg/kg of body weight) and PDBE (300mg/kg of body weight) respectively for a period of 45 days. After the experimental period the animals were dissected and analyzed for the oxidative status of their liver and Kidney homogenates by different biochemical parameters. RNA isolated from the liver and kidney of treated animals of each group was used to investigate the expression of genes encoding SOD, CAT and GPx by qPCR analysis. It was observed that the genetic expression of antioxidant marker enzymes and their activities, both were reduced to a enormous extent in group DC as compared to NC. The treatment with PDBE almost refurbished the lowered genetic expression as well as the enzyme activity, as compared to Glibenclamide. Thus, it was concluded that treatment of diabetic animals with hydro-ethanolic extract of *P. dulce* Barks was better than that of the standard drug, Glibenclamide.

Keywords: Oxidative stress, glibenclamide, P.dulce, Bark extract, qPCR, Diabetes.

ISCA-ISC-2017-13PCS-01-Poster

Investigation of Pyridoxamine in Prevention of Cataract in Streptozotocin induced Diabetic Rats

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Abstract: The purpose of the present study was to investigate the anticataract activity of pyridoxamine (PM) on the basis of lens biochemical parameters against streptozotocin (STZ) induced diabetic cataract in Sprague Dawley Rats. Diabetes was induced by single dose of streptozotocin (65 mg/kg i.p). Pyridoxamine was administered at a dose 30mg/kg and 60mg/kg after 14 days of STZ administration. Serum glucose level and body weight were measured weekly. Various biochemical parameters were analyzed after 6th week of drug treatment. Streptozotocin induced animal model showed significant increase in the level of serum glucose and alteration in the various enzymes and oxidative stress marker enzymes. Oral administration of pyridoxamine almost normalizes the altered levels of oxidative stress marker enzymes. Analysis of results shows that pyridoxamine prevents the cataract formation in a dose dependent manner. The delay in the progression of cataract after the administration of pyridoxamine in diabetic rats is possibly due to other factors in addition to its glucose lowering property. The reduction may be due to the formation of high molecular weight aggregates of proteins. However, it may be concluded that pyridoxamine treatment to STZ induced diabetic rats significantly prevents catarctogenesis.

Keywords: Diabetes, Anticataract, Pyridoxamine, Streptozotocin.

ISCA-ISC-2017-13PCS-02-Poster

Synthesis of some 2-(N-substituted)-3H-phthalazin-1, 4-diones derivatives for their antihypertensive activity

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Abstract: Novel 2-(N-substituted)-3H-phthalazin-1, 4-dione derivatives were synthesized and mean arterial blood pressure was measured in conscious rats using CODA Non Invasive Blood Pressure Recorder by Tail–Cuff method (Kent Scientific Corporation, USA). It showed a significant decrease in blood pressure with reference to standard. The findings suggest that piperazine substituted compound showed best antihypertensive activity and activity was due to the piperazine and pthalazine hetero nucleus present in the structure.

Keywords: Anti-hypertensive, Pthalazinedione, 2-(N-substituted)-3H-phthalazin-1, 4-dione, Hydralazine.

ISCA-ISC-2017-13PCS-03-Poster

In vitro Antilithiatic activity of *Caesalpenia crista* Seeds Extract

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Abstract: The purpose of the present study was to investigate the antilithiatic activity of *Caesalpenia crista* seeds alcoholic extract (ACC). The effect of extract on CaOx crystallization was determined by the time course measurement of turbidity changes due to the crystal nucleation and aggregation in the synthetic urine on addition of 0.01M sodium oxalate. The precipitation of calcium oxalate at 37°C and pH 6.8 has been studied by the measurement of turbidity at 620 nm. Aliquots of 2 ml of artificial urine were distributed into test tubes. 0.1ml ACC of various strength 10%, 20% and 40% were added to test tubes and incubated at 37°C. Similarly 0.1ml of isolated compounds of ACC; oleanolic acid of various strength 1%, 2% & 4% were added to test tubes and incubated at 37°C. The tube without extracts or isolated compounds served as control. Finally 0.1 ml of sodium oxalate was added to each test tube and absorbance was taken at 620 nm at 15 sec time interval after incubation at 37°C for 5 min. Test was performed in triplicate. ACC/ oleanolic acid decreased nucleation and crystal growth of CaOx crystal in dose dependent manner. It was found to increase induction time for nucleation and attained the plateau earlier than control and prevents the crystal growth. The effects produced by oleanolic acid was higher than ACC. It may be concluded that both oleanolic acid and ACC significantly prevents urolithiasissis.

Keywords: Urolithiasis, Oleanolic acid, CaOx, Crystal growth.

ISCA-ISC-2017-13PCS-04-Poster

Kinetic and mechanistic study of ciprofloxacin in aqueous alkaline medium

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Abstract: The presence and accumulation of antibacterial drugs in environment, may pose threats to the ecosystem and human health. Hence the present study aimed to oxidative degradation of antibacterial drug ciprofloxacin by hexacyanoferrate (III) in aqueous alkaline medium at 40˚C temperature. The stoichiometry of the reaction indicates that the oxidation of one mole of ciprofloxacin requires two moles of hexacyanoferrate(III). The reaction exhibited first order kinetics with respect to [hexacyanoferrate(III)] and [ciprofloxacin] and less than unit order with respect to [OH^-]. The products were also identified on the basis of stoichiometric results and confirm by the characterization results of LC-MS and FT-IR analysis**.** The major product of the reaction obtained by the decarboxylation of the quinolones moiety and hence it may retain the antibacterial activity. From the above experimental results the following rate law is derived.

$$\frac{Rate}{\left[Fe(III)\right]} = k_{obs} = \frac{K_1 k\left[OH^-\right][CIP]}{1+K_1\left[OH^-\right]}$$

The activation parameters with respect to the slow step of the proposed mechanism were evaluated and thermodynamic parameters are also determined.

Keywords: Kinetics, Oxidation, Mechanism, Ciprofloxacin, Hexacyanoferrate(III).

ISCA-ISC-2017-13PCS-05-Poster

Simultaneous validation of amoxicillin trihydrate and carbocisteine in pharmaceutical dosage by reverse phase high performance liquid chromatography

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Abstract: A high performance liquid chromatography method is developed for simultaneous validation of amoxicillin trihydrate and carbocisteine from the combine formulation i.e. capsules. The separation of amoxicillin trihydrate and carbocisteine was carried on a BDS hypersil C18 (150x4.6 mm i.d.) 5µ particle size. The mobile phase made up of water and methanol in the ratio of 80:20% (v/v). The detection wavelength set at 220 nm. The column BDS hypersil C18 was found to be most suitable for chromatographic separation. The parameters like system suitability, linearity, accuracy, precision, robustness and stability of solution were validated. The amoxicillin trihydrate showed linear range at 125 - 375 µg / ml and carbocisteine at 75 - 225 µg / ml respectively. The proposed method is successfully used to analyze capsules containing 250 mg of amoxicillin trihydrate and 150 mg. of carbocisteine i.e. commercial solid dosage.
Keywords: Amoxicillin trihydrate, Carbocisteine, Methanol, RP - HPLC.

ISCA-ISC-2017-13PCS-06-Poster

Pharmacognostic study of *bacopa monnieri* L.

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Abstract: *Bacopa monnieri* L. is small green herb commonly called Brahmi. The plant is used to treat jaundice, skin diseases, asthma, swelling, joint pain and bronchitis. Pharmacognostic study of plant drug is carried out for evaluation of drug and to detect the adulteration. It includes dermal characters like stomata, trichomes and anatomical features etc. The plant is analyzed for its preliminary screening of phytochemicals. It is clear the result that the presence of bioactive constituents in the different plant parts comprising flavanoids, alkaloids, saponins and tannins. The present study is helpful for the standardization or evaluation of drugs.
Keywards: *Bacopa monnieri* L., Pharmacognostic studies, Dermal characters, Phytochemicals, Microscopy.

ISCA-ISC-2017-13PCS-07-Poster

Evidence of carbapenem resistance and other multi-drug resistances in sewage water in Delhi-NCR region, India

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Abstract: Resistance against Antibiotics, compounds that inhibit or kill microbes has been spreading widely. The most widely used drug against MDR is Carbapenem, a family of Beta-Lactams but resistance even against them have been found across the world. We isolated 81 antibiotic resistant strains from drains spanning the Delhi-National Capital Region using common antibiotics. 45 high resistant strains were selected on basis of MAR index and tested for susceptibility to 20 antibiotics including Four Carbapenems. Analysis, location and class wise, revealed that Cephalosporins have the widest spread of resistance against it with an average Resistance of 60 percent, while least resistance was found against Aminoglycosides (40 percent) and then Carbapenems (41 percent). Amongst 20 antibiotics tested, Doripenem proved to be best with a resistance of 13 percent, while Cefepime registered the highest resistance of 86 percent. Out of the five sites screened (Najafgarh, Kalindi Kunj, Hindon Cut Canal, INA, and Karnal Bypass), Karnal Bypass registered the Highest MAR Values(0.86). Out of 81 strains screened, 7 have a MAR of more than 0.8, with five strains having MAR=1 (for 20 antibiotics screened). This brings the urgency of developing methods to fight Antibiotic resistance and spreading wise usage of those available.
Keywords: Antibiotic Resistance, Carbapenem Resistance, Multi-Drug Resistance, Beta-Lactam, Beta-Lactamases.

ISCA-ISC-2017-13PCS-08-Poster

Phyto-chemical analysis and anti-microbial activity of *hibiscus rosa – sinensis* L.: a study in the context of hair disorder treatment

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Abstract: *Hibiscus rosa-sinensis* (Linn.), extensively referred as '*Japā* / *Javākusum*' in Sanskrit has been found in the Ayurvedic texts as a constituent of several herbal drug preparations including for 'hair disorders'. Antimicrobial strength and the scientific explanation for the active principles of this plant have been studied to a large extent. But the present study and research is differently focused i.e. to find the significance and relevance of using *Hibiscus* plant in the treatment of 'hair disorders', when the very classical Sanskrit Ayurvedic trinity (*Brihatrayī*) have not quoted in any verse *'Japā* / *Javākusum'* as a constituent for the treatment of 'hair disorder', and name '*Javākusum'* is found quoted in only one herbal preparation verse in *Mādhava Cikitsā* treatise under '*Kshudraroga'*. Interestingly, a market survey of 45 products belonging to 25 Ayurvedic-pharma companies showed *Hibiscus* in the composition contents of the products, especially in hair oils. The anti-microbial activity of *Hibiscus rosa-sinensis* against isolated and cultured scalp infecting microorganisms identified with dominance as *Aspergillus species* and *Malassezia* species (Lipophilic yeast) is very encouraging. And presence of ten important phytochemicals (confirmed by FTIR and GC-MS analysis) in the plant parts reaffirm the medicinal effectiveness of *Hibiscus rosa-sinensis* to be a constituent in the herbal preparations for treating hair disorders. Hence, used in the commercial hair treatment products.

Keywords: *Javākusum*, *Hibiscus rosa-sinensis*, medicinal plants, antimicrobial activities, phytochemical analysis, *Mādhav Cikits, Brihatrayī.*

14. Physical Science

ISCA-ISC-2017-14PhyS-Guest Speaker-01

Study on synthesis and decay processes of stable super heavy nucleus

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Abstract: The recent progress in the accelerator and detector technology has encouraged nuclear scientists to encourage the synthesis of Trans actinide SHE from Z= 105 to112 and unnamed elements from Z = 113 to 116 and Z=118.These elements lie in the cadre of Magic Island and categorized as more stable elements. These elements are formed by projectile- target combinations in cold fusion reaction. In all such reactions the excitation energies of decay product lie between 10-20 MeV and the compound system stay colder than hot fusion reactions and the method is called cluster based fusion. The comparison of cluster radioactivity(CR) a well-known activity in which the compound nucleus with two nucleiof doubly magic elements ^{208}Pb and ^{209} Bi are fused with medium weight neutron rich isotopes of ^{54}Cr to ^{70}Zn to produce the super heavyelements with atomicno. 105-118 at GSI Germany, JINR, Russia and RIKEN in Japan.Instead of normal nuclear reaction, it is an example of reverse cluster based compound nucleus formation.These elements decay by cold decayprocess of spontaneous fission (SF), α emission,β capture or γ decay process in nuclear chain reaction. The cluster elements preformed in the heavier nuclei have a good relation in half life time, decay constant, surface tension coefficient and asymmetry parameter. It is observed that fission process with α emission has greater life time, to support island of stability similar to Plutonium and Uranium series.

Keywords: Z = Atomic no., SHE = Super Heavy Elements, CR = Cluster Radioactivity, α, β or γ = decay products, SF= Spontaneous Fission.

ISCA-ISC-2017-14PhyS-01-Oral

Synthesis of Chitosan ZSM samples for waste water treatment

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Abstract: Waste water generated through domestic use (biological) and pharmaceutical industries, being a major quantity, can be recycled with much ease for it's reuse to fulfil partial demand of potable water by removing toxic hazardous and microbial elements. This paper reports the synthesis of i. Preparation of the Chitosan ZSM-5-H composite (CZSM-5-H), and ii. Preparation of Graphene chitosan ZSM-5-H (G CZSM-5-H) and MWCNT chitosan ZSM-5-H (C CZSM-5-H) films. Such materials are characterised by XRD, TG/DTA, SEM/AFM, Raman, XPS, FTIR to understand their structural behaviour and to explain adsorption mechanism. Additionally, incorporating TiO2 in "GO-HAp" would be useful in increase in removal efficiency, by photo catalytic isolation.

Keywords: Chitosan, Zeolites, ZSM5, Waste water treatment.

ISCA-ISC-2017-14PhyS-02-Oral

Measurement of ambient gamma radiation and distribution of radionuclides in different geological locations of the Karnataka state, India

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Abstract: Radiation and radioactivity are existed any place or anywhere around us on the globe is called natural background radiation. It is divided in to two types terrestrial, and extra-terrestrial. Terrestrial radiation is originated from primordial radionuclides present in soil, rocks, air, water and building materials. The extraterrestrial radiation is originated from sun, star, galaxies of the outer space. It varies according to the geology of location, altitude and seasons. Natural radioactivity is widely spread in the earth's environment and depends primarily on the geological and geographical conditions and appears at different levels in the soils of each region in the world. Measurement of radioactivity can provide information on the natural sources and the knowledge of distribution of these radionuclides in the environment is essential in assessing radiological risk to human beings. The ambient gamma radiation was determined by environmental dosimetry. The activity of primordial radionuclides in soil of the study area was estimated by HPGe detector based gamma ray spectrometry. The activity of

radionuclides mainly depends upon the type of the soil and rocks of the location. The average activities of the primordial radionuclides are slightly higher than the world average value. The radiological hazards such as the radium equivalent activities (Ra_{eq}), external hazard index (H_{ex}), the internal hazard index (H_{in}), gamma index and annual effective dose associated with the natural radionuclides in the soil samples were calculated and compared with global average values. The good correlation was observed between ambient gamma radiation absorbed dose and calculated dose. The results were presented and analysed in this paper.

Keywords: Natural radionuclides, Gamma-ray spectrometry, Soil, Gamma dose rate, External hazard index.

ISCA-ISC-2017-14PhyS-01-Poster

An overview of the nonlinear chaos theory in the atmospheric systems

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Abstract: The nonlinear behaviour of the dynamical atmospheric systems may be properly studied by the chaos theory. The atmospheric flows exhibit fractal fluctuations in space and time. Due to nonlinear complexity, the actual physical mechanism of the atmospheric system is yet to be clearly understood. Thus a comprehensive study of the atmospheric instability in the light of nonlinear chaos theory is highly needed. An overview of the developments of the chaos theory in understanding the atmospheric systems is done in this paper. Proper estimation of the nonlinear chaos theory in meteorology may be significant and helpful for accurate prediction of atmospheric instability.

Keywords: Atmosphere, Chaos, Fractals, Instability, Non -linearity.

ISCA-ISC-2017-14PhyS-02-Poster

A mathematical approach for vaccination on infectious wireless sensor motes

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Abstract: Under the influence of vaccination an epidemic model for wireless network based on infectious wireless sensor motes a mathematical approach has been established. The model is analyzed at equilibrium points to find the conditions for their local and global stability. Numerical simulations are performed to validate the model developed.

Keyword: SIRV, Vaccination, Global stability, Local stability.

15. Physical Education, Sports and Yoga

ISCA-ISC-2017-15PESY-02-Oral

Yoga and management of hypo-kinetic diseases

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Abstract: Every year a great number of people suffer and die from Hypo-kinetic diseases worldwide. In fact, the machinery advantages of the present day civilization makes man idle and has been one of the main causes of hypo-kinetic disease. However, expert says yoga can manage hypo-kinetic diseases if it is practice regularly. Yoga is an Indian nomenclature observed about five thousand years ago. Indian sages used to practice yoga for spiritual development. Today yoga is used to prevent, control and manage different diseases especially the life style diseases like arthritis, hypertension, obesity, diabetes, back problem, osteoporosis, cardio-vascular diseases etc., the commonly known as hypo-kinetic diseases. Hypo-kinetic diseases are also the cause of some other diseases. Experts have identified that participation in regular yoga programmes with some selected exercises, physical activities, play, games, sports and controlling diet, modification of behavior, maintaining of healthy life style and taking of medical assistance prevent hypo-kinetic diseases. Experts say practicing of Yoga at least of 30 minutes session per day may prevent and manage hypo-kinetic diseases. Internally yoga enhance circulation, lower blood pressure, drop pulse rate, lower respiratory rate, better cardiovascular endurance, stimulation of organs, improvement in gastrointestinal health, increased immunity, increase pain tolerance, increase metabolism, renew energy, improved sexuality, improve sleep, helps secretion of hormone from different glands in balanced condition, it regulates the blood circulation properly, it forms antibody to prevent diseases thus it makes the body strong. The external benefits of yoga are limitless Hence it makes body dynamic internally and externally and prevents no movement. Yoga is so good for the persons who are genetically heavier and unable to perform physical activity for them some yoga poses are safe and they can practice easily. The pranayam of yoga helps in breathing controls; this breathing control exercise gives extra energy to the heart and lungs. Therefore, regular practice of pranayam keeps away from the diseases to those organs. Apart from pranayam, meditation also helps to keep away the tension, helps to keep the body fit. Many research works specifies about the name of some effectives yogasanas, mudras, pranayamas, kriyas and meditation.

Keywords: Hypo-kinetic diseases, Yoga, Exercise Prevention, Control, Fitness Guidelines.

ISCA-ISC-2017-15PESY-03-Oral

Sport is a sword of peace! Can change the world, develop peace and harmony: An introduction to role of sport for development and peace in Kashmir, India

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Abstract: The purpose of the present study was to understand the role of sports in reducing conflict and its role in developing peace and harmony. Sport participation has been connected with improved life scenarios such as academic performance and employability forecasts. Sport participation might be a way to increase life prospects, especially for socially vulnerable youth because they are not as much of physically active as their peers. In addition to the view of community-building in geopolitical areas of conflict, and the idea that sport helps the building of local communities, there is also evidence to suggest that child/youth participation in sport aids in facilitating positive behaviour in peer relations. Research also recommends that sport may provide an opportunity for optimistic peer interaction and strong competition for and amongst youth. Recent research suggests that sports play a leading role in developing peace and harmony. As it was seen that sports played a leading role in reducing Kashmir conflict and it bring positive changes among youths in Kashmir. Sport is used to address a variety of social issues, anapproachstated to as Sport for Development and Peace (SDP), is becoming extensively accepted, especially in areas affected by poverty, violence and conflict. There are so many organizations including the United Nations, International Development Agencies (IDA) and N.G.O.'s, which have recognized sport as a significant social catalyst. This research paper aims at firstly Introduce Sport for Peaceand Development. Secondly highlight ways in which sport Mayupkeep peace building and conflict resolve processes and thirdly Present current Sport for Development and Peace initiatives in Kashmir.

Keywords: Kashmir, Sport and conflict resolve, Sport for development and peace.

ISCA-ISC-2017-15PESY-04-Oral

Obesity and health related risk factors in school going adolescent Boys and Girls of Central Kolkata, West Bengal, India

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Abstract: Purpose of this study was to find out the fitness status of the school going boys of private schools of Kolkata. WHO refers Obesity as a global epidemic in their report in the year 2000. Dyslipidaemia, hypertension and insulin resistance are frequently seen in obese children. Dyslipidaemia appears to be related to increased abdominal fat accumulation. The assessment of body type depending on the body fat percentage is very much helpful to assess and to predict various health related risk factors among adolescent children. 300 boys and 300 girls from the four privet schools of central Kolkata were assessed for the study. Their age ranged from 13 to 17 years and were equally divided in to 5 groups. It was found that the only 44 % boys and 52% girlswere in the optimalrange of BMI. More than 5% boys and 8% girls were found in obese category. 32% boys and 13% girls of Kolkata were underweight. Average 32% boys and 39% girls of Kolkata have very high fat percentage.
Keywords: Obesity, Adolescent, Health related risk, Dyslipidaemia, Coronary Heart Disease, Fat Percentage.

ISCA-ISC-2017-15PESY-05-Oral

Relation of body composition and motor fitness performance among state level Athletes of Siliguri, India

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Abstract: The purpose of the study was to observe the relation between the body compositions and selected motor fitness components among state level athletes of Siliguri. 30 state level male athletes were randomly selected from the male athletes of Siliguri Athletics Welfare Organization (SAWO), Siliguri. Their age ranges from 15 to 25 years with an average age of (18.7±2.8) years. They represented their district in the state athletic championships in recent times. The primary data of height, weight, training age etc. were recorded and Body Mass Index (BMI) was calculated from that measurement. Body composition was calculated from the Jackson-Pollock 3 sites skinfold measures. 50 m sprint for speed, standing broad jump for explosive strength and 1600m run for endurance were recorded. Correlation values showed that athletes with higher fat percentage had a higher performance time in sprint (r =0.62) and endurance (r =0.77) test. BMI showed a similar trend but fat percentage was more reliable measure to predict the motor performance. Leg explosive had no correlation with fat percentage or BMI of the athletes.
Keywords: Motor performance, BMI, Body composition, Skinfold, Fat percentage.

ISCA-ISC-2017-15PESY-06-Oral

Effect of visual motor behavior rehearsal on enhancing mental toughness of soccer players

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Abstract: The present study aimed to evaluate the effect of six weeks Visuomotor Behavior Rehearsal on Enhancing Mental Toughness of Soccer Players. For the purpose of the study forty (n=40) soccer players in the age groups of 17 to 21 years belong to Th. Birchandra Singh Football Academy (TBSFA), Imphal West, Manipur were selected. Subjects were divided into Treatment and controlled group (20 players in each group). The data was collected through the administration of the Psychological Performance Inventory (PPI) by James E. Loehr (1996) containing 42 items. To find out the significant effect of Psychological Skills Training Program on Selected Psychological Variables of Soccer Players, MANOVA for psychological variables was used and level of significance was set at 0.05. The findings of the study revealed that there was a significant effect of soccer players those who underwent the PST program as compared to the players in controlled group.
Keywords: Visuo Motor Behavioural Reherasal, Mental Toughness, self confidence, negative energy control, attention control, Visual and imagery control, motivational level, positive energy control and attitude control.

ISCA-ISC-2017-15PESY-07-Oral

Haematological difference between caesarean and non-caesarean school girls

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Abstract: Haematology is the study of blood, the blood formation organs, and blood diseases. Hematology consist of the study of etiology, diagnosis treatment, prognosis and prevention of blood diseases, that affect the making of blood and its components, such as blood cells hemoglobin, blood proteins, and the technique of coagulation. But how can affect the delivery mode of the children and their Hematological profile ! The purpose of the present study is to find out the difference in Hematological profile between caesarean and non-caesarean school Girls. The researcher selected 18 Caesarean and 24 Non- Caesarean total 42 class IX- X-level school girls as the subject from three difference school located at Birbhum, West Bengal, India. This study conducted by testing few difference haematological parameters, like-HB%, RBC count, WBC count, Platelet count, ESR 1st hour%, Nutrophil%, Lymphocyte%, Monocyte%, Eosinophil% and Basophil%. The collecting data were calculated by using descriptive statistics and "t" test and level of significance was set on 0.05 level. There were no significance difference found between caesarean and non-caesarean girls as because cal "t" value (0.487, 0.777, 1.437, 0.212, 0.044, 0.095, 0.220, 1.594, 0.024 and 0.00) in case of HB%, RBC count, WBC count, Platelet count, ESR 1st hour%, Nutrophil%, Lymphocyte%, Monocyte%, Eosinophil% and Basophil% lower than tab "t" 0.05(40)value(2.02). The Mean and Standard deviation of Caesarean and Non-caesarean Girls has been found 11.49± 0.87 and 11.60 ± 0.67 in case of HB% and 4.02± 0.31 and 4.10±0.33 in case of RBC count and 6733.33± 1652.09 and 7562.50±1984.03 in case of WBC count and 2.22± 0.35 and 2.20±0.33 in case of Platelet count and 22.28± 6.79 and 22.38±7.37 in case of ESR 1st hour% and 58.72± 4.60 and 58.88±5.33 in case of Neutrophil% and 34.22±3.89 and 33.92±4.82 in case of Lymphocyte% and 1.83±0.51 and 2.00±0.00 in case of monocyte% and 5.22±1.90 and 5.21±1.79 in case of Eosinophil % and 0.00±0.00 and 0.00±0.00 in case of Basophil%. The finding demonstrated that no significance difference Caesarean and non-caesarean girls in relation to their haematological profile.

Keywords: Haematology, caesarean, Non- caesarean, Gestation, Blood.

ISCA-ISC-2017-15PESY-01-Poster

Study of effect of world yoga day training program on selected physiological and psychological variables on school students

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Abstract: The purpose of the present study was to find out the effect of world yoga day training program on selected physiological and psychological variables on school students. The sample has 40 school students who were study in tenth class in Rajpur residential school; the ages of subject's were from 14 to 16 years. And the selected subjects were divided into two groups i.e. 20 as Experimental group and 20 as Control group. In the present study purposive-random sampling technique was used to select the sample. Heart rate, vital capacity, blood pressure and breath holding capacity were selected in physiological variables and self confidence, anxiety and achievement motivation were selected in psychology variables. After assessment of pre-test, gave treatment to experimental group. World yoga day training program was conducted for 8 weeks. After the completion of 8 weeks training, the post test was conducted to know the significance difference between Experimental and Control. The 't' test was applied to analyze the data. Statistically significant effect of World yoga day training program was significant improvement found on selected physiological variables Heart rate, vital capacity, systolic blood pressure and breath holding capacity and selected psychological variables self confidence and anxiety on school students who were study in tenth class in Rajpur residential school as compare to control group at. 05 level of significance. But there was no significant improvement found in diastolic blood pressure and achievement motivation.

Keywords: Yoga, Physiological and psychological.

ISCA-ISC-2017-15PESY-02-Poster

Comparative study of intelligence quotient and body mass index between selected inter university male players of Kabaddi and Kho-Kho

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Abstract: Objective of the study was to compare the intelligence quotient and body mass index between Kabaddi and Kho-Kho male players at university level. For this study 12 Kabaddi and 12 Kho-Kho male players who were selected for inter-

university level were selected for the study. To measure the intelligence quotient (IQ) of the subjects Dr. Krushnakant Gopalji Desai's Asabdik Samuh Buddhi Test Questionnaire was used and Body mass index (BMI) was measured by standard body composition analyzer. It was hypothesis that there will be significant difference between I.Q. and B.M.I. of Kabaddi and of Kho-Kho male players selected at inter-university level. To compare the Intelligence quotient and body mass index of Kabaddi and of Kho-Kho male players which was selected at inter-university level t-test was applied. Results indicates that there was significant difference in I.Q. of Kabaddi and Kho-Kho male players which was belongs to university level. It shown that Kabaddi male players are better than Kho-Kho male player in I.Q. which was belongs to university level. Results also indicates that there was significant difference in Body mass index of Kabaddi and Kho-Kho male players which was belongs to university level. It shown that Kabaddi male players are better than Kho-Kho male player in Body mass index which was belongs to university level.

Keywords: Kabaddi and Kho-Kho.

ISCA-ISC-2017-15PESY-03-Poster

Comparative study of intelligence quotient of students of master of physical in different institution of physical education in Gujarat, India

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Abstract: The purpose of this study was to comparison of Intelligence Quotient of students of master of physical in different institutions of physical education in Gujarat. The Study was delimited to the only male students. The age group is delimited to 20 to 25 years. Total 75 students studying in various institutes in Gujarat whereas 15 students from Hemchandraacharya uttar Gujarat university, Patan, 15 students from Gujarat University, Ahmedabad, 15 students from Saurashtra University, Rajkot, 15 students from C.P.D.C.P.E. Rajpeepla and 15 students from Gujarat Vidyapith, Ahmedabad were selected for the purpose of the study. To measure the intelligence quotient of the subjects, Dr. Krushnakant Gopalji Desai's Asabdik Samuh Buddhi Test Questionnaire was used. Find out the difference between intelligence quotient of various university students of master of physical education, the one way analysis of variance F- test was applied. The results of the study have been shown there was significant difference found in intelligence quotient of various university students of master of physical education. Result indicated that C.P.D.C.P.E., Rajpeepla students has highest level of intelligence quotient than other university students of master of physical education. Result also indicated that Hemchandracharya North Gujarat University's students have lowest level of intelligence quotient than other university students of master of physical education.

Keywords: Intelligence quotient, Physical, Physical education.

ISCA-ISC-2017-15PESY-04-Poster

A study of sports and physical education in India

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Abstract: Despites efforts by member state to promote and develop Physical Education and Sports with international cooperation; its distinctive nature and importance to education remain a constant source of concern. Physical Education and Sports proved alarming (particularly within educational system), which given the social importance and media-coverage of sports. Its impact may be seen in the shift by Physical Education and Sport Public authorities towards higperformance and high media friendly sports (at a national level, across the public and private system). A significant example in the absence of clear separation between the Ministries of Youth Affairs and Sports and Ministries of Education.

Keywords: Sports, Authorities, Constant.

ISCA-ISC-2017-15PESY-05-Poster

The problems and prospects of physical education in Maharashtra, India

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Abstract: The importance of physical education has never been emphasized more than it is today. It is widely recognized that physical education (PE) and sports is relevant and important in developing an active and healthy lifestyle and the solution to rising obesity rates worldwide. Although in most countries, physical education is part of the school curriculum, lessons are not given, thus leading to a reduced experience of physical activity for children and youth. The practice of a

physically active lifestyle in combination with healthy nutrition, however, needs to be started in early childhood. Therefore, ensuring that all children engage in regular physical activity is crucial, and the schools are the only place where all children can be reached. Quality Physical Education is the most effective and inclusive means of providing all children, whatever their ability/disability, sex, age, cultural, race/ethnicity, religious or social background, with the skills, attitudes, values, knowledge and understanding for lifelong participation in physical activity and sport and is the only school subject whose primary focus is on the body, physical activity, physical development and health. The present study will identify the current trends, issues and challenges in PE and sports based on which future challenges will be addressed.

Keywords: Quality Physical Education, Participation.

ISCA-ISC-2017-15PESY-06-Poster

Sports-related injuries and illnesses in paralympics sport study

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Abstract: Paralympic sport provides sporting opportunities for athletes with a disability, with the Paralympic Games as the main event. Participation in sport is, however, associated with a significant risk for sustaining injuries and illnesses. Our knowledge of sports-related injuries and illnesses in Paralympic sport is very limited and there are no large-scale epidemiological cohort studies. The purpose here is to present a protocol for a prospective longitudinal study: The Sports-Related Injuries and Illnesses in Paralympic Sport Study (SRIIPSS).

Keywords: Paralympic Games, Paralympic sport, Injuries, Illnesses.

ISCA-ISC-2017-15PESY-07-Poster

Benefits of yoga in human life

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Abstract: Throughout the Course of our lives. We are all experience episodes of stress, unhappiness and sadness also. When a covered, one dies we suffer with personal tragedy such as loss of business, loss of family members, loss of job, that time we may feel depressed most of those with their types of stress feel event. That time yoga is very important to give peaceful mind and away from stressful surrounding.

Keywords: Yoga, Pranayama and Injuries.

16. Educational Sciences **ISCA-ISC-2017-16EduS-Guest Speaker-01**

Impact of nutrition education on knowledge level and haemoglobin status among adolescent girls

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Abstract: Adolescence is a key phase of human development. The rapid biological and psychosocial changes that take place during the second decade affect every aspect of adolescents' lives. Thus growth spurts, menarche, poor diet and no added iron supplementation puts them into the high-risk category of iron deficiency anemia. Nutrition knowledge and nutrition education is considered a long term approach to combat iron deficiency and anaemia. Hence an effort made to assess the impact of nutrition education on knowledge level and heamoglobin status among the adolescent girls. A lecture for 45 minutes was delivered using visual aids followed by discussion and reassessment of knowledge after the nutrition education class. Such classes were conducted thrice a week for 3 months. To assess the nutrition knowledge level of respondents, a schedule of 50 questions was developed and the tool was administered thrice during the study period initial (before education), soon after the nutrition education and three months later. And the respondent's heamoglobin level was assessed before and after the education intervention programme. Education intervention showed a significant increase in the mean scores on knowledge level from 14.79 before the intervention to 31.38 immediately after the intervention. The improvement in the knowledge level among the respondents after education intervention was found to be significant as there was a shift in the knowledge level of respondents from inadequate (94 %) to moderate (52%) and adequate (25%) levels after the education intervention programme. There was a shift in the heamoglobin level from moderate to mild range among the respondents. Education intervention was found to be an effective method in improving the knowledge level among the respondents, which in turn helped in improving the heamoglobin status.

Keywords: Anaemia, Nutrition education, Heamoglobin, Iron deficiency.

ISCA-ISC-2017-16EduS-01-Oral

Slow learning causes, problems and solution

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Abstract: There are students do well outside the classroom and show no evidence of having a medical problem and do not fall into the category of special education. They simply do not do well in school or a particular subject. These category students are called slow learners. A slow learner either in a regular class or special class there is an immediate need and challenge of meeting their learning needs for an educator. In this article we discuss about the causes, problems and solution to slow learning in children.

Keywords: Causes, Problems, Solution.

ISCA-ISC-2017-16EduS-02-Oral

On strategies for quality assurance in teacher education

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Abstract: Teacher Education is the pathway to prepare prospective teachers and teacher educators for the sake of advancement in teaching profession which is always considered as one of the most pious, ideal, noble and socially dignified profession among all others but to ensure quality control in teacher education many strategies are suggested and developed by experts in the field. With initiation of universalization of elementary Education and subsequent attempts for extending it up to Secondary level and due to high population growth rate, expansion in the field of knowledge and narrow specialization, social change and mobility, economic and class, caste and gender based disparity, democratic ideals values and needs, inclusive set up, multicultural base of our educational set up, open economic pattern and need of inculcation of decision making and leadership abilities in new generation, need of well qualified and competent teachers is increasing day by day but some basic questions are there to be answered first like whether teacher education is suitable and to be seen as right to all or some basic abilities and interests are assured to be as the preliminary considerations for it and whether quality assurance and control in teacher education is a must. A pilot opinion survey was conducted to find out answers and identify suitable strategies to work upon for ensuring quality control in teacher education. For this purpose, a randomized sample of 100

students, teachers, teacher educators and other stakeholders was selected and with the help of an open ended questionnaire and discussion there upon, the following strategies were identified: Systems approach based strategy, Specialization oriented strategy, Research and innovation linked strategy and professional accountability and capacity building strategy. An attempt has been made in this paper to elucidate and discuss merits and demerits along with procedural aspect of all concerned strategies. It helps as a result to conclude that without implementing appropriate strategy, it is not possible to assure quality measures and ensure control for it in the field of teacher education.

Keywords: Strategies, Quality Control, Teacher Education.

ISCA-ISC-2017-16EduS-03-Oral

Towards being an action researcher: training of teachers for professional self-development and improving the practice of teacher educator

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Abstract: An action research was done by the teacher educator for the session on the topic of action research. The objectives of the research were: i. To develop a three-hour action research module for in-service training of teachers. ii. To make recommendations related to vocabulary recall; iii. To make recommendations to improve training on action research. The before-and-after design was used for the recall test for 25-word included in the word-search-puzzle. The recall of 25 trainees (High school teachers, trained postgraduates, urban English medium schools) improved significantly at 0.01 level as shown by non-parametric analysis. The recommendations that emerged from action research were: i. A five day training module with two days for actual action research be prepared; and ii. a support system for new entrants to action research be set up. The study has implication for teacher education institution and in-service training support instructors for gearing up to produce reflective teachers, who keep on improving their practice through action research.

Keywords: Action research, Professional development, Reflective teacher, Teacher education, Training framework.

ISCA-ISC-2017-16EduS-04-Oral

The impact of life skill education on adolescent sexual health in three Schools of Phuentsholing, Bhutan

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Abstract: Globally half of the new HIV/AIDS cases are among the age group of 15 to 24 years. Within this group, adolescents are also vulnerable to teenage pregnancies, STIs and HIV infections. This article describes the usefulness of life skill approach in handling the adolescents health related issues in schools in collaboration with other stakeholders. A survey was undertaken to examine the adolescent health knowledge in schools of Phuentsholing. Further to address the result of the initial data, interventions were addresses: peer-helper program and a joint sensitization program using promotional songs and a movie. Majority of early adolescent (10-14yrs) were unaware about adolescent issues, however the other (15-19 yrs) had very little knowledge. Peers followed by health professionals and teachers were the most common source of information on sexual-health related issues. There is an urgent need to include comprehensive sex-education in school curriculum along with improved adolescent health facilities in the nearest health centres. The evaluation of the program provides valuable knowledge regarding the processes and outcomes that may have application and assessment in future school based sexual health initiatives.

Keywords: Adolescent health centres, Behavioral change, Community participation, Sexual health, School based initiatives.

ISCA-ISC-2017-16EduS-05-Oral

A study of achievement motivation of secondary school gifted students

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Abstract: It is defended as the desire to excel regards less of social reward and the desire of winning or doing better than someone else. Achievement Motivated people prefer to work on a problem achievement and motivated people seen to be more concerned with their personal achievement rather than the rewards of success achievement motivated a significantly higher rate of advancement in their company compared to others. A paper throws light on the correlation between achievement motivation and study habits of gifted secondary school students. A study is restricted to 9th std students of different schools like, govt, aided unaided of vijayapur district. The paper concentrates to identify the gifted students, the study level of achievement motivation and also the to find out the relationship difference between achievement motivation

.the various tools are developed by researcher for academic thinking and achievement motivation and also the study habits which are used for collecting the data. Further the analysis is carried out using of tests. This paper tries find out the relationship between achievement motivation and study habits of gifted students at higher secondary school level of Vijayapur district.

Keywords: Achievement Motivation, Study Habits, Gifted students, Secondary school students.

ISCA-ISC-2017-16EduS-06-Oral

Causes of dropout among scheduled caste and scheduled tribe students in primary schools - a study in Vijayapur City, India

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Abstract: Dropout is influenced by a series of independent factors (variables), namely school environment, socio-economic and socio-psychological factors, prevalence of child labour, age of the child, negative attitude of parents towards education and need to earn livelihood at an early stage of life among certain sections of children. Coupled with the above, family migrations, changes in residence are also responsible for dropout. Education is most important agent of social change it is more so among scheduled caste and scheduled tribes, who are relatively isolated from the larger society and pronominally engaged in agriculture. Education exposes them to the outside world. The elementary school is concerned with those outcomes of learning which should be the common possession and attainment of all citizens, Language, customs, manners, loyalty cherishes values, history and traditions needed by all for the unity co-operation and smooth workings of society are the foremost responsibilities of the elementary school. In this paper an attempt has been made to examine the cause of dropouts in primary school. The study also aims to find out the reasons for which the students are finding difficult to continue their education.

Keywords: Dropouts, SC/ST student, Primary school, Causes, Research, Factors affecting school dropout in vijayapur.

ISCA-ISC-2017-16EduS-07-Oral

Role of personality traits on adjustments of juvenile delinquent children's

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Abstract: The present research was an attempt to study how the Personality traits are effective on Adjustments of Juvenile Delinquent children's, with the character of an individual, this is usually associated with another word the personality of an individual, though there is not a very great difference between the characters of person of his personality. The concept of personality differ widely among different people. Some people consider that personality is that something with which an individual is born which remains unaffected by environmental influences and which permeates all his actions the other people regard an individual's personality as a person himself. Personality refers to behavior which, though not necessarily right or wrong, is pleasing or offensive to other people, favorable or unfavorable to the individual's standing within his fellows." A child is said to be juvenile delinquents when it starts stealing, assaulting, including in sex offences and develops symptoms like pathological lying and truancy. Traits are dynamic and flexible dispositions, resulting at least, in part, from the integration of specific habits expressing characteristic models of adaptation to one's surrounding."According to the definition, the meaning which is implied is that the behavior of the individual is regulated from within him and is relatively independent of external environmental influences.

Keywords: Personality trait, Juvenile delinquents, Adjustment, Behavior, Personality.

ISCA-ISC-2017-16EduS-08-Oral

A study of academic achievement of OBC rural secondary school students in relation to their emotional intelligence and adjustment

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Abstract: In the present investigation an attempt has been made to study the Academic Achievement of the rural OBC secondary school student in relation to their Emotional Intelligence and Adjustment. The sample consisted of 800 hundred 9th students of Bijapur District. The Academic Achievement is the marks scored by the students in their previous class have been collected and Emotional Intelligence and Adjustment tools by Dr. S.K Mangal and A.K.P Sinha. The statistical techniques used are Mean, SD, correlation, T-test and ANOVA. The present study is to provide knowledge skills and to understanding

the Adjustment problems of OBC rural secondary student's Emotional Intelligence and Adjustment information to Academic Achievement. An attempt is made by research investigator to know the impact of Emotional Intelligence and Adjustment an Academic Achievement of rural OBC Secondary School Student's studying in Five Talukas of rural areas of Bijapur District Karnataka. The study also aims to find out Emotional Intelligence and Adjustment of the students and their difficulties and problem faced by rural student's few studies have been carried out in this area but rare in depth study have not been carried out in Bijapur District.

Keywords: Emotional Intelligence, Adjustment, Academic, Achievement, Study, Rural, OBC, Secondary School Student's, Social status.

ISCA-ISC-2017-16EduS-09-Oral

Study of the college's status before and after NAAC assessment and accreditation

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Abstract: NAAC function through its general council (GC) and executive committee (EC) where Educational administrators Policy makers and Senior academician's from a cross section of the system of higher education are represented. The Chairperson of the UGC is the president of the General Council of the NAAC the chairperson of the Executive Committee is an eminent academician nominated by the president of GC NAAC have the specific purpose of preparing teachers who are effective in a cultural can text by having seven criteria like curricular aspects, Teaching-learning and evaluation, Research consultancy and extension infrastructure and learning resources, and Student support and progression. Survey method will be adopted and 30 NAAC assessed and accredited colleges affiliated to Rani Channamma University, Belagavi will be considered as sample of the study. Cluster sampling technique will be adopted. NAAC assessment and accreditation profile and institution checklist will be used as a tool for the collection of data. Statistical techniques Mean, SD, t-test, coefficient of correlation, regression and ANOVA will be adopted. In my research proposal the main objectives is to study the pre and post status of NAAC assessment and accreditation on colleges its dimensions and its stakeholders Govt. and aided college the aim of the present paper was to highlight the study of the college status before and after NAAC Assessment and Accreditation.

Keywords: NAAC, Assessment, Accreditation and Policy makers.

ISCA-ISC-2017-16EduS-10-Oral

Academic achievement of scheduled and non-scheduled castes, PG students of Karnataka State Women's University, Bijapur, India in relation to their Personality and self concept

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Abstract: In the present investigation an attempt has been made to study the Academic Achievement of Scheduled and Non-Scheduled Castes, PG Students of Karnataka State Women's University, Bijapur in relation to their Personality and self concept. The sample consisted of 600 hundred PG students of Bijapur District. The Academic Achievement is the marks scored by the students in their previous class have been collected and Personality and Self concept tools by Eysenck and Dr. Pratibha Deo. The statistical techniques used are Mean, SD, correlation, T-test and ANOVA. The result shows that the non-schedule postgraduate students have significant higher personality, self concept and academic achievement scores as compared to schedule postgraduate students of Karnataka State Women's University Bijapur. The schedule and non-schedule, married and unmarried postgraduate students have different personality scores, the married non-schedule postgraduate students have significant higher personality as compared to married schedule postgraduate students. The married non-schedule postgraduate students have significant higher personality as compared to unmarried non-schedule postgraduate students. The schedule and non-schedule, married and unmarried, postgraduate students have different self concept, the Married schedule and unmarried schedule postgraduate students have similar self concept of Karnataka State Women's University Bijapur.

Keywords: Personality, Self concept, Academic Achievement, PG Students of Women's university, SC and Non SC of PG Students.

ISCA-ISC-2017-16EduS-01-Poster

Making use of word puzzles for effective vocabulary acquisition of a subject at elementary education level: trialing and favourable response of Bridge School Students

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Abstract: Many educators, teachers and researchers hold that word puzzles can be effective cognitive tools for acquiring new words since they provide challenge, encourage conscious thinking, inculcate a habit making mental effort and acquire correct spelling. Word puzzles as learning and thinking tools can be explored further since the practice of such in a classroom, which can yield some encouraging and interesting results. In some courses, creating word puzzles can work to upswing the learning curve. An intervention cum action research was undertaken for acquiring new vocabulary with intent and mental effort on environment and health topics through the teacher constructed three types of word puzzles. The ten word puzzles created were the word-search, word-fare and word criss-cross types. These puzzles were used by the practitioner during one-hour zero-session daily for a fortnight. The puzzles were used at grade level five. Also, the process of creating puzzles was demystified to enable children to create and share their own puzzles on different lessons of the environmental studies textbook. The intervention was favoured by the students (N=20, bridge school rural girls, age: 9-14 year) at 0.05 levels of significance with degree of freedom of 2 and use of chi-square test. The typical comments of students involved the words like think; play with words; challenge and fun. In some teacher training sessions, science teachers were given the experience of creating word puzzles and urged to make children to acquire science vocabulary by creating word puzzles as part of weekly homework.

Keywords: Action research, Active memory, Cognitive development, Mental rigour, Vocabulary learning, Word puzzles.

17. Commerce, Law and Management

ISCA-ISC-2017-17CLM-01-Oral

A critical evaluation of ragging and anti ragging laws in India

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Abstract: Ragging is uniquely an Indian phenomenon. Present day students are countries future valuable assets. Behind the façade of "welcoming" new students to college, ragging in actually is a notorious practice. The word ragging means the act of teasing, taunting, playing a practical joke upon someone or holding comic parades and other activities during certain period of college terms. Ragging, in one form or other, has been practiced in education institution and institution of higher learning since time immemorial and despite several measure undertaken, including the legal regime established, achieving a ragging free environment is still a distant dream. The Indian Constitution of 1950 guarantees number of fundamental rights to citizens and others. Most important of them are the Right to Equality, Right to Freedoms including the Right to Life and Personal Liberty, and the Right against Exploitation. In so far as ragging is concerned all the aforementioned fundamental rights would be violation by any act of ragging. To eradicate ill practice of ragging various anti ragging Laws have been framed by different states.

Keywords: Ragging, Constitution, Right to Equality, Right to Freedoms, Right against Exploitation, anti ragging Laws.

ISCA-ISC-2017-17CLM-02-Oral

A critical evaluation of railway crime

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Abstract: Indian railways are the biggest transport network in India. Indian railways in the life line of India. Indian railways is state-owned railway company which is own and operates country's rail transport, and governed by the Ministry of Railways of the Government of India. Indian Railways has the largest rail network in Asia and world's second largest one management, transporting 20 million pass angers and more than 2 million tones of freight daily. It is one of world's largest commercial or utility employments, with more than 1.6 million employers. Total station over 7,219 end of 2015-16, Indian Railways is also the biggest source on national income. Meanwhile Indian Railways also faces maximum number of crimes. Crime and Indian Railway runs parallel to each other. Robbery, theft, rape etc. are some of major crime committed in Railway during travelling by rail or in the premises of railways. According to Nation Crime record Bureau in year 2013 it was 26620, year 2014 31609 and in year 2015 it was 39239. The rate of crime in railways are increasing day by day.

Keywords: Indian Railway, Crime, Robbery, Rape, Ministry of India.

ISCA-ISC-2017-17CLM-03-Oral

Critical analysis of environment laws in India

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Abstract: Environment protection and its preservation is today the concern of all. The environment is one of the clearest examples that all human activities on this earth are interconnected. Today, society's interaction with nature is so extensive that environmental question has assumed all proportions affecting all humanity. Environmental pollution and destruction has seriously threatened the human life, health and livelihood. Thus, there has been a thrust on the protection of environment the word over. If the quality of life is to be assured to the present generation and if the future generation is to saved from the environment catastrophe, the nature's gift to us in the form of flora and fauna has to be preserved in the natural form. The main cause of environmental degradation is the human activity in one way or the other. Law is a regulator of human conduct. Hence, the law plays an important role in the protection of environment from pollution by regulating the human activities. In any environment conscious state, environment problems are generally handled at the legislature level. In India, from time to time various laws for the protection of environment flora and fauna have been enacted. But the Indian constitution is perhaps the first constitution in the world which contains specific provisions for the protection and improvement of environment. It reflects the human rights approach to environment protection through various constitutional mandates and laws.

Keywords: Environment Protection, Degradation, Constitutional Provisions, Pollutions.

ISCA-ISC-2017-17CLM-04-Oral

A humanitarian approach to a prisioners' rights in India

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Abstract: Prison is a place where the criminal justice system put its entire hopes. The correctional mechanism, if fails will make the whole criminal procedure in vain. The doctrine behind punishment for a crime has been changed a lot by the evolution of new human rights jurisprudence. The condition of deprivation of liberty as a result of committing a criminal offense is, however, one of the instances in which the protection of human rights appears to be controversial in its applications. The correctional approach is in vogue in the present criminal justice system of India. To avoid any possible abuse of authority, prisoners are given certain basic privileges in the form of rights recognized by the Constitution and other legislations in India. The prison framework in our nation is currently been enhanced much. General impacts of detainment is to weaken the dynamic criminal mental forces and to render the detainees' life fit for useful social life and in result more obligated to reconviction. For the reformation in India, a significant number of the steps are being taken with the goal that it could be conceivable in India in accordance other nations. For this, the education framework and its all facilities have been consolidated with the prison frameworks so that the detainees could get the education and carry on with their life when they are out from the prison in a respectable way. The Supreme Court of India has been very vigilant against encroachments upon the Human Rights of the prisoners by giving a liberal and comprehensive meaning to life and personal liberty. This paper deals with issues of human rights related to prisoners' in the prison system and focuses on the prisoners' rights including under trial and women prisoners. Human rights are the rights people have by virtue of their humanity. The purpose of the present study is to identify the key issues of the problem faced by prisoners and their dependent children in the jail and gather the information and ideas on ways in which these issues could be addressed better. Further the aim is to aid legislation and policymakers in formulating of policies on the basis of the ground reality.

Keywords: Constitution, Correctional measures, Criminal Justice System, Human Rights, Prison, Prisoners' Rights, etc.

ISCA-ISC-2017-17CLM-05-Oral

Corporate entrepreneurship: the role of relational leadership

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Abstract: Corporate entrepreneurship (CE) is initiated in established organizations for the purpose of organizational renewal, innovativeness and competitive advantage. As an insider entrepreneurial activity, CE can be the heart and soul of the very survival and the continued relevance of corporate in the hypercompetitive world of business. CE can take several different forms of administrative, opportunistic, imitative, acquisitive and innovative. CE can also be in the form of giving new strategic direction, initiative from below and autonomous business creation. CE can never take place in a vacuum as it is embedded in the organizational processes. In this process it is apparent that leadership plays a significant role in initiating and maintaining intrapreneurial activities. In this study besides examining the importance of leadership in influencing the processes of CE, the way relational leadership affects CE is brought forward. The concept of relational leadership is viewed as occurring in embedded experience and relationships where hierarchy and structure is not the pattern of influence and interaction. CE is assumed to gain much from the relational model of leadership.

Keywords: Corporate, Entrepreneurship, Leadership, Relational, Leadership.

ISCA-ISC-2017-17CLM-06-Oral

An analytical study of work life balance of working women with reference to private sector banks in Pune, India

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Abstract: The term "Work Life Balance" was first thought about in 1986 in response to the growing concerns by individuals and organization. A study of Work Life Balance has become a very significant issue in today's changing environment. Work Life Balance refers to an individual's ability to balance the commitments, responsibility and goals relating to their paid work with personal commitments responsibility and desires. Inter role conflict occurs because women have to play multiple roles. Each of this role demands precise time, commitment, duties and responsibilities in order to perform the multiple roles in the best possible way. The intern role conflict is more common for women in general and working women in particular because being employee she has to work hard and has to accept risk as well. She intends to manage the demands of work and family

responsibilities and commitments as a challenge while doing the job. This research paper is about the Work Life Balance of working women with reference to private sector Banks in Pune, Maharashtra, India. This research work is about the smooth conduct and balancing the day to day life with proper and effective Work Life Balance.

Keywords: Work Life Balance, Private Sector Banks, Working Women.

ISCA-ISC-2017-17CLM-07-Oral

Internet Banking: An Evaluation

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Abstract: Online banking services have revolutionized the banking industry such that latest in the delivery channel of banking is what is called "pure online banks" where banks operate without the traditional physical infrastructure. The benefits of online banking which can be web-based or mobile based include faster, easier and reliable services to customers where the customers can indulge in multiple transactions from multiple locations and with multiple customers. From the banker's perspective the advantages stem from improving the competitive position, improving bank's image, creating new markets and reducing operational costs. Even with this revolution in the online banking industry, skeptics are wary about the extensive and intensive use of technology in domestic and international banking transactions. With the recent hacking and related frauds reported across the world, there is a need to streamline the use of technology which should result in operating a fool-proof system that must build up the customer confidence on online transactions. This paper attempts to find out the latest revolutionary changes in web-based online banking and mobile banking that sweeps across the banking sector.

Keywords: Internet Banking, Evaluation.

ISCA-ISC-2017-17CLM-08-Oral

Board size and firm performance: a study on BSE 100 companies

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Abstract: The size of the board and its impact on the performance have received much attention in corporate governance. Among the several factors that account for firm's performance, board related issues are one of the most important ones.Human beings work preeminent in groups of a certain size. A board is nothing beyond a group of human beings trying to effort together to generate the best results for the organization. The present research work aims to examine whether board size has any influence on firm's financial performance. The study has been conducted for the year 2016-17 for BSE 100 companies. The study considers Return on Assets (ROA), Return on Equity (ROE), Earning per share (EPS), Dividend per share (DPS) and Tobin's Q as measures of financial performance, whereas board size has been taken as an independent variable. The results show that ROA, ROE and Tobin's Q is more for companies with board size between eight and ten. Also, medium size boards are found to perform better than either very small or very big boards. As regard the impact of board size on firm performance, results suggest that for ROE, ROA and Tobin's Qare statistically not significant. The Board size has an impact on the performance of the firm. It would look that theideal board size as far as human decision making is somewhere between eight and ten. But it's not that simple.

Keywords: Corporate Governance, Financial Performance, Tobin's Q, BSE 100 Companies and Ideal Board Size.

ISCA-ISC-2017-17CLM-09-Oral

Impact of demonetization on Indian economy

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Abstract: In an important move, the Government of India declared that the five hundred (500) and one thousand (1000) rupee notes will no longer be legal tender from midnight, 8th November 2016. The RBI will issue Two thousand rupee notes and new notes of Five hundred rupees which will be placed in circulation from 10th November 2016. Notes of one hundred, fifty, twenty, ten, five, two and one rupee will remain legal tender and will remain unaffected by this decision. This measure has been taken by the Prime Minister Mr. Narendra Modi in an attempt to address the resolve against corruption, black money and counterfeit notes. This move is expected to cleanse the formal economic system and discard black money from the same.

Keywords: Demonetization, Corruption, Black Money, Counterfeit Notes, GDP, Plastic Money, Hawala Transaction.

ISCA-ISC-2017-17CLM-10-Oral

A study on the viability of the commodity exchange in Bhutan with special reference on agricultural commodities

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Abstract: A commodity exchange is a place where the buyers and sellers of commodities come to carry out their transactions. Commodity exchanges can boost market efficiency by uniting the buyers and sellers of physical commodities. The commodity exchange consists of both the spot and futures contracts. Currently in Bhutan the exchange and marketing of agricultural commodities is primarily done through auction yards located in various places in Bhutan. This service is facilitated by the Food Corporation of Bhutan Limited. One of the major problems in Bhutan's commodity trade is the low level of commodity exchanges between Dzongkhags. Setting up of a proper commodity exchange could help resolve this problem. This paper talks about the viability of commodity exchange in Bhutan. It identified the challenges that Bhutanese farmers are facing in commodity trade in Bhutan and then recommended the need for the establishment of the commodity exchange. This paper is exploratory in nature and followed a qualitative research approach. The main source of data for this research was interviews with farmers in Bhutan and farmers groups and cooperatives. The questions were in the form of semi structured, open ended interviews. For analyzing the data collected the researcher used the qualitative analysis method. The findings of this research showed that farmers in Bhutan are exposed to challenges like damage to crops from bad weather conditions and wild animals. They also have difficulties in large production volume due to lack of farmhands and small farm size. Along with these challenges majority of the farmers are exposed to post-harvest challenges like lack of proper storage, price fluctuation, difficulty finding buyers, lack of market accessibility and difficulty with price information. All of these challenges can be taken care by the commodity exchange. The findings of this research could help the Bhutanese government in their goal of developing the agricultural sector by identifying the challenges the Bhutanese farmers, Farmers Groups and Co-operatives are facing in commodity trading. The research would be very beneficial to the participants (farmers and other traders) in the commodity trade and for the future establishment of commodity exchange in Bhutan.
Keywords: Agricultural commodities, Commodity exchange, Futures contract, Forward contract, Spot trade, Seasonal crops, Dzongkhags.

ISCA-ISC-2017-17CLM-11-Oral

Assessing patient satisfaction using SERVQUAL model: a case Mother and Child Hospital, (Jigme Dorji Wangchuck National Referral Hospital), Bhutan

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Abstract: Patient satisfaction has emerged as one of the strategic priorities to assess quality of health care services and to benchmark progress amongst health care institutions. Jigme Dorji Wangchuck National Referral Hospital [JDWNRH], the only national referral hospital in Bhutan strives to provide quality health care service to the citizens as per the mandates of Ministry of Health, Royal Government of Bhutan. This study was carried to assess quality of health care services of Mother and Child Hospital [MCH], of JDWNRH using SERVQUAL dimensions developed by Parasuraman, et.al (1988). A total of 302 clients of MCH was surveyed. Structured questionnaire adapted from SERVQAUL model was used. The result shows that clients are satisfied with MCH and the quality of services. Of the five SERVQAUL dimensions, clients have rated reliability and tangibility higher as compared to assurance, empathy and responsiveness. Upon testing the association, empathy and assurance has higher association with patient satisfaction. Regression result also shows that empathy and assurance predict patient satisfaction significantly. MCH of JDWNRH therefore, needs to focus on empathy and assurance.
Keywords: Patient Satisfaction, SERVQUAL, Mother and Child Hospital, Jigme Dorji Wangchuck National Referral Hospital.

ISCA-ISC-2017-17CLM-12-Oral

Corporate social responsibility and its way towards community development

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Abstract: Corporate social responsibility (CSR) refers to corporates/firm's strategies to conduct their business in a way that is ethical, social and beneficial to community in terms of growth and development. This article analyses the meaning of CSR based on some theories available in literature. It observed that three theories namely utilitarian, managerial and relational

theories of CSR supported by works of other scholars in the area could be used to suggest that CSR becomes an international concern due to globalized nature of business that discerns no border. CSR is surfacing in its meaning and practice. The article then discusses the role of CSR in community development because the very logic of CSR is towards seeing its impact in community socially, environmentally and economically. Proficiencies required by CSR managers are also analyzed in order to have a better understanding of the practical aspects of CSR. Finally, conclusions and implications for future research are discussed.

Keywords: Corporate social responsibility, Community Development, Proficiencies of CSR Managers, practical aspects of CSR.

ISCA-ISC-2017-17CLM-13-Oral

Make in India: challenges and opportunities in research

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Abstract: Major objective of Make-In-India behind initiative is to focus on 25 sections of the economy for Job Creation, GDP growth, high quality standards and minimizing the impact on the environment with the great hope to attract capital and technology investment in India.Management, Science and Technology go beyond the conventional focus on advances in individual technologies, conducting education and research in compound areas such as the theory of technological progress, the relationship between technology and management, and that between innovation and economy. The engineers and scientists to be developed are not only those who can solve engineering and technology-related issues in society by the approach of inventing and developing new technologies, but those who can operate and design social infrastructure systems with awareness of their impact on society and the environment.Skills are essential for all occupation categories other than common skill requirements include technology, interpersonal and customer service skill.Implementation of GST, Labor reforms Government e-Market (Gem), and technology challenges for next generation is widening the scope for researcher in those respective areas. Besides an academic perspective difficult challenges and opportunities are ahead to give right direction to the scholars. Researcher studied and viewed that the Scholars will get the right direction during the academic session, if the management information and systems can be developed. Now mission of the **Make–in-India** is to develop Professionals and researchers who will be able to create and manage organizations for carrying out technology development projects, requiring broad-ranging knowledge.

Keywords: GDP, GST, Skill.

18. Library Science

ISCA-ISC-2017-18LS-01-Oral

Digital information literacy skills and competency among faculty members of Degree Colleges in North Karnataka, India

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Abstract: The present study explores the digital information literacy among the faculty members of degree colleges in north Karnataka. A survey method of research was used for the present study where in questionnaire was designed for the purpose of data collection. The results of the study showed that Faculty members under study have more than average information literacy skills in information locating and searching and they have also better searching skills about different types of electronic resources. The study is also reveals that users are more frequently uses word processing activities and e-mail facility for various academic activities. Computers have become a necessary part of this digital society, and skills for computer use are a common prerequisite on many job applications. Information literacy has become a global issue and many information literacy initiatives are being documented throughout the world information literacy. Forms the basis for lifelong learning it is common to all disciplines to all learning environments and to all level of education.
Keywords: Digital information literacy, ICT, Information Literacy.

ISCA-ISC-2017-18LS-01-Poster

Impact of information technology on College libraries

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Abstract: ICT has changed the Management of Resources or House Keeping operations as well as the way services are delivered. As explosion of Information, a library services highly depends upon the Information and Communication Technology. The Paper discuss about impact of modern ICT on college libraries.
Keywords: ICT, Internet, Blog, OPAC, Wiki, ETD.

19. Language, Literature and Culture **ISCA-ISC-2017-19LLC-Guest Speaker-01**

भाषा की विकास यात्रा : हिन्दी के विशेष संदर्भ में

सुमित्रा वास्केल
माता जीजाबाई शासकीय कन्या स्नातकोत्तर महाविद्यालय, इन्दौर (म.प्र.), भारत

शोधसार: वर्तमान समय में सम्पूर्ण विश्व अनेकानेक परिवर्तनों से गुजर रहा है। जीवन के हर क्षेत्र में तेजी से बदलाव हो रहा है। विशेषकर भाषा के क्षेत्र में अभूतपूर्व परिवर्तन होता हुआ आभास हो रहा है। मानव-जीवन के विकास पथ पर अग्रसर होने के साथ ही उसकी मूलभूत आवश्यकताओं में भूख, प्यास एवं अपनी सुरक्षा की पूर्ति के साथ ही अपनी अभिव्यक्ति के लिये आवाज को बोली के रूप में विकसित करना प्रारंभ किया। मैं समझती हू, कि जैसे बच्चा पैदा होते ही रोना प्रारंभ करता है, उसके रोने की आवाज में प्रथमत ''अ'' स्वर सुनाई देता है, उसके पश्चात् रोने की ध्वनि में अलग-अलग स्वर सुनाई देते है। मेरे मत से मानव की प्रारंभिक अवस्था में इन्ही स्वरों को बोली बुनने का आधार बनाया गया होगा। हिन्दी भाषा एवं उसकी लिपि की रचना का आधार भी यही रहा होगा। इसी तथ्य के कारण विष्व की समस्त भाषाओं में हिन्दी ही एकमात्र ऐसी भाषा है, जिसे जैसा बोला जाता है, वैसा ही लिखा भी जाता है और इसिलिए इसे वैज्ञानिक भाषा का दर्जा दिया जाता है। विकास के इस क्रम में समस्त विष्व की भाषाओं के साथ हिन्दी भाषा का जो स्वरूप देखने समझने और प्रयोग करने के लिये हमारे सम्मुख है, उसी को लेकर मैंने अपना षोध पत्र प्रस्तुत करने का प्रयास किया है।

ISCA-ISC-2017-19LLC-01-Oral

Scientific English language-behaviour, language systems and speech

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Abstract: This research paper addresses the issues such as language and its various definitions and as a means of communication competence, and language-acquisition. Language: This research behaviour and language-systems also discussed. It also differs between language and speech, written and spoken language. Spoken language is used for a wider purposes than the written language. As the communicative needs of society change, so then language will change to meet these needs.
Keywords: Language, Human, Language-systems, Language-behaviour, Cognitive psychology, Language community, Linguistic competence.

ISCA-ISC-2017-19LLC-02-Oral

The perspectives of Indian primary education

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Abstract: From ancient times, people think that knowledge is sacred. Lord Macaulay's theory is now outdated. Modern education system really needs radical changes in it. Mahatma Fule's views still proves right. It was his demand that primary education should be free and compulsory. The teachers should be encouraged to work in hilly and tribal areas. The primary education should be strengthened by providing basic life education in the primary schools. Primary classrooms should be well equipped. So that the attitude of upper classes about primary schools will be changed. The government should see that all these things are done effectively and nobody would be deprived of primary education. This is in the interest of society as well as of nation's development.
Keywords: Primary, Remedies, Percolation, Education, Knowledge.

ISCA-ISC-2017-19LLC-03-Oral

When Hamlet is our neighbour: Reading some of the recent Asian productions of *Hamlet*

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Abstract: Through this article we are trying to find out the reasons behind the eminent success of the adaptations of William Shakespeare's *Hamlet*. We would primarily have to remember that *Hamlet*, as a play, used to be successful even before it

came to be known as a Shakespearean tragedy. Primarily it used to be a comedy and Shakespeare himself started the process of bringing him down to reality. Then, with the advent of modern day theatre works, there has been interesting innovations regarding *Hamlet* and further both the plot as well as the character Hamlet has gone through several dissections. There has been adaptations where Hamlet has been speaking different languages. Then there has been other works where Hamlet, the character, has been played by different artists within the corpus of the same play. Our work looks at finding out the reasons behind these subtle changes and how Hamlet, the play as well as the character, has been used as an instrument to address several issues which were not even present during the time of the Bard. From the Asian perspective, Hamlet, in the modern works, don't even belong to the royal family. Thus, *Hamlet*, no longer is a play about revenge and insanity. There are other and obviously broader issues which has been looked after in the recent times. Hamlet's protest against evil has been currently used as a source for highlighting global issues and that too quite successfully.

Keywords: Shakespeare, Adaptations, Hamlet, Asian.

ISCA-ISC-2017-19LLC-04-Oral

Malana in Himachal Folklore: A select study

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Abstract: Ancient village Malana in kullu district was sometimes referred to as 'Malana Republic'. Isolation and careful avoidance of contact with outsiders have sustained its unique culture, distinct social behaviour, their music, dance, art, architecture, myths, beliefs and their religious observances. Belief in the local deities such as *Mahasu*, *Shirgul*, *Nag*, *Jamlu*, etc. is deep rooted. Presiding deity *Jamlu* rules supreme. He is identified with Rishi *Jamdagni*, father of Parshurama, according to the popular lore prevalent in parts of Himachal Pradesh. The in-built system forms an essential part of socio-cultural system of this area even today. The village language *Kanashi* is different from that of the Kullu people and is allied to Tibetan and Burmese. Interestingly, it is considered to be one of the secrets of the village. Other than Malanese, people from outside are prohibited to use this language for communication.

Keywords: Malana, Jamlu, Native system, Kanashi.

ISCA-ISC-2017-19LLC-05-Oral

Education in colonial Bengal (1854-1947): An authentic discourse

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Abstract: The proposed study "Education in colonial Bengal (1854-1947): An Authentic Discourse" is an attempt to investigate the history of education in colonial Bengal at local level during the above mentioned time frame. The problem that is proposed to be examined in this thesis is designed within the framework of the research paradigm namely anti-colonial discourse or post colonial discourse. Colonialism is much more than political control or colonial policies. It is best seen as a structure within which colonial interests and policies, colonial state and administrative institutes, colonial culture and society, colonial ideas and ideologies each have a fair share. When the British conquered India they were introduced to a new world, both in extent and character. Confronted with problems and unprecedented issues the British masters tried to comprehend them in their own way with the hope of strengthening control over their conquest. India, as a colony, underwent fundamental transformation; the old economy, social formation and structures were uprooted to make way for a structured colonial society. By then it was clearly realized that the country could not be exploited in the new way within its existing economic, political, administrative and socio-cultural setting. This pattern therefore had to be shattered and transformed all along the line. Radical changes in the economic and administrative fields were introduced. Meanwhile colonial ideology underwent a major change. All talk of training the Indians for self government (generated by liberal imperial ideology among several British statesmen and administrators) was given up. The aim of British rule was declared to be a permanent "trusteeship" over India, and Indians were declared as permanently immature, a "child" people needing British control and guidance. Geography, race, climate, history, religion, culture and social organization were cited as factors which made Indians permanently unfit for self government. The British, therefore, was to exercise benevolent despotism over them for centuries to come. The corrupt Indians were to be uplifted by the upright and morally superior British. They were to be ruled to civilization and morality so that the primitive backward inferior oriental society would finally be transformed in Europe's image. Against this background I intend to make an in depth study of the impact of education on social, political, economic and religion lives of certain districts of Eastern Bengal between 1854 and 1947.

Keywords: Education, Colonialism and Civilization, Literature.

ISCA-ISC-2017-19LLC-06-Oral

Role of Mass-Media and the *pala*-performing art of Assam and Orissa, India

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Abstract: *Pala* is a living performing art-form of Assam and Orissa. This art-form is found prevalent in Nagaon and Morigaon Districts of Assam and in some places of Orissa. In the midst of science and technology and the modern Medias, the art-form becomes insignificant but the role that it plays, is undoubtedly remarkable, specially in transforming religious messages through which moral lesson can easily be taught to the new generation of the modern world. So, a step is taken to highlight the importance of *pala*-art-form as a Mass-Media.
Keywords: *Pala*, Mass-Media, Moral lesson.

ISCA-ISC-2017-19LLC-07-Oral

विश्व मानवीयता के निर्माण में रामचरितमानस की भूमिका

(Vishwa Maanviyata ke Nirman mein Ramchartimanas kee Bhumika)

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शोध सार: भारतीय समाज का विकास मूलतः मूल्यों का विकास है। इन्हीं मूल्यों के कारण भारतीय संस्कृति को सर्वश्रेष्ठ माना जाता है। रामचरितमानस ने सम्पूर्ण मानव राशि को प्रभावित किया है। इस ग्रंथ में मानव जीवन और जीवन के अस्तित्व की कला को दर्शाने के साथ साथ मानवीय सशक्तिकरण को प्रोत्साहित करने और मानवीय मूल्यों का प्रसारण प्रस्तुत है। आज के इस वैश्वीकरण, भूमंडलीकरण के युग में जहां हम जी रहे हैं वहाँ राष्ट्र निर्माण, मानवीयता और जीवन के प्रति आहलाद नष्ट होते दिखाई दे रहे हैं। यह महान ग्रंथ वह सेतु है जो व्यक्ति, परिवार, समाज और राज्य के सामंजस्य के आपसी संबंध को स्थापित करती है एवं मानवीय मूल्यों और संवेदनाओं को बड़े पटल पर पेश करती है। तुलसी मानस में संबंध व्यवस्था, विश्वबंधुत्व, आदर्श जीवन शैली को प्रस्तुत कर राष्ट्र निर्माण केलिए राह खोलती है।

मूलशब्दः रामचरितमानस, **संस्कृति**, **मानवीय मूल्य**।

ISCA-ISC-2017-19LLC-08-Oral

Literature in social lifestyle

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Abstract: The world today is ever-changing. Never before has life been so chaotic and challenging for all. Life before literature was practical and predictable, but in present day, literature has expanded into countless libraries and into the minds of many as the gateway for comprehension and curiosity of the human mind and the world around them. Literature is of great importance and is studied upon as it provides the ability to connect human relationships, and define what is right and what is wrong. Therefore, words are alive more than ever before.
Keywords: Social Lifestyle, Literature, Society, Career Concepts, Cultural Pleasure.

ISCA-ISC-2017-19LLC-01-Poster

February 21, International Mother Language Day: a study on language movement of Bengali culture

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Abstract: By the official approval of United Nations, International Mother Language Day annually celebrates language diversity and variety worldwide on February 21. It also remembers events such as the killing of Bengali students on February 21, 1952 in Dhaka of East Bengal. There is no nation of the world who sacrifices their lives for language except of Bengali. In the year of 1947, two independent countries India and Pakistan was created by the British rules. Pakistan had two different parts. East Pakistan (currently known as Bangladesh) it was called East Bengal and on the other hand West Pakistan (currently known as Pakistan). At that time, 56% people's mother language was Bengali, 29% people's mother language was Urdu. 98.42% people's mother language was Bengali in East Pakistan. But Pakistan government declared that, Urdu and only Urdu shall be the state language of Pakistan. By this announcement, they damaged mother language of Bengali Nation and destroyed Bengali Culture. As a result, Bengali Nation compelled to the language movement for save the Bengali Culture. That's makes a different history of the world.

Keywords: Language, Killing, Bengal, Nation, Culture, Movement, History.

20. Social and Humanity **ISCA-ISC-2017-20SH-Guest Speaker-01**

Controversies toward Jihad among Muslims

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Abstract: According to Quran the Jihad in struggle is the name of, or in the defense of, the Islam. It is a means by which to serve God and that is essential component of the "struggle" is internal or spiritual, where by the individual muslim strives to be as good a "servant of God" as possible. The greater, internal, struggle is in striving to resist wrong doing (sin), heedlessness and immortality that was carried out by performing the ritual duties of Islam and by otherwise serving as an example of piety and righteousness to others. The second, external struggle (the lesser jihad) calls upon muslims to act with force, indeed to wage war, when Islam or the Islamic community (umma), i.e. perceived to be under threat. The controversies towards jihad is much more. Many times the Islamic tradition, then is far from monolithic and is the product of many countries of scholarship and internal debate. The internal debates that have shaped Islamic thought can be seen in relation to the concept of jihad. A term that has too often been misrepresented. This misrepresentation of jihad are still present in different Islamic societies and world facing their consequences. The Modern International Law does not allows to do nothing of its second section i.e. war of moral question. To it, war, whether just or unjust, right or wrong, is a fact which alters in a great variety of ways the relation of parties concerned. It was the major issue of the study. The paper was prepared at Barabanki city of Uttar Pradesh. A hundred sample were selected for detailed study. In general population the followers shown much controversies to words jihad up to approx. 90% traditional and modern concepts. The maulana were shown approx. 60% controversies and the Ulamma accepted changes in the concept and shown approx. 20% controversies in accordance with modern international concept. A large population debate should be organized to communicate and remove the controversies among their followers.
Key words: Jihad, Islam, Umma, Servant of God, Quran.

ISCA-ISC-2017-20SH-Guest Speaker-02

Challenges and obstacles for the formation of state and nation building process in Afghanistan

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Abstract: In this research, efforts have been made to address the challenges, barriers to government, nation-building and national identity, from the perspective and modern understanding of the process of nation-building in Afghanistan. Nation-building is a phenomenon and modern thought. The nation takes over from modern political thinking and political, social and economic development, Political, social, and economic development is shaping up and being developed in the context of democracy. The real democracy is formed that is the meaning and concept of the participation of the people in the government is based on accountability and justice. In the same way that this monitoring, participation is in a transparent mechanism, that much fulfillment of the Nation building process formed satisfactory. Moreover n the concept of state nation-building people will be in a realm of a modern national state. While in the classical and communist governments and the ideological totalitarian movements the peasant is subordinated to the state and the forces, and the nations do not see their identity as the state and they are themselves alien to the movement. Nowadays, a groups of Afghan citizens see themselves in a dominant position and their original identity is alien in the State. More than any other country in the world, where democracy has not been rightly depicted, it means still has a totalitarian and intolerable form, Afghanistan is one of those countries whose leaders in their homeland act under the control of foreigners. And the nation's stance towards foreigners is paler. Therefore, internal challenges, foreign affiliations, discrimination and the interference of neighboring countries have led Afghan leaders to fail to shape the nation-building process to see all their citizens in the same nation since 2002-2017.
Keywords: State, Nation Identity, Discrimination, Challenges, Afghanistan.

ISCA-ISC-2017-20SH-01-Oral

Case study of Kaziranga National Park, a world heritage site in Assam, India

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Abstract: Biodiversity conservation emerges more important due to the globalize process of world's economy and also for survival of the world as a balance habitat. Biodiversity of an ecosystem is a vital issue of an economy. Soil, water, Climatic Condition, forest cover and biodiversity are crucial in determining the renewable resource flow of an economy. The "Earth Summit" in 1992 in Rio de Jeneiro (Brazil) elevated the status of biodiversity and the convention on biological diversity was one of the issues resolved in the "Earth Summit". This convention includes certain specific objectives of biodiversity conservation and these are –conservation of biological diversity, sustainable use of biodiversity and fair and equitable sharing of the benefit arising out of the utilization of genetic resources. Sustainable development stresses on economic development along with the object of conservation of environment. Sustainable development stresses on economic development alone with the object of conservation of environment. India is one of the twelve mega diversity country in the world. The country possess about 8 percent of global biodiversity occupying the 10th position in terms of plant species, out of the 25 hot spots of biodiversity in the world. North- Eastern region is one of the hottest hot spots ranking 6th position among the 25 biodiversity hot spots. Assam is one of the richest biodiversity zone in North East region. There are number of tropical rain forest in Assam. Moreover, there are riverine grass lands, bamboo, orchards, and numerous wetland ecosystems. Many of these areas have been protected by developing national park, wildlife sanctuary and reserve forest. The state is enriched with extensive forest areas and famous for floras and faunas. Assam includes 5 number of National of National Parks and 18 number of wild life sanctuaries. As per the assessment by the forest survey of India (FSI), the forest cover in Assam is more than 35 percent of it geographical area. Kaziranga National park declared as world heritage site by UNESCO in 1985, extends over an area of 430 sq. km with its proposed additional area of 429.49 sq.km upto 6th addition. The park has also given the status of Tiger Reverse forest in December 2007. The park has been also recognised as a "biodiversity hotspot" in Indomalaya Ecozone. Kaziranga National park is divided as the Central, Eastern, and Western sectors consisting semi evergreen forested highland, rivulets, marshes and extensive plains. The park with its rich biodiversity resources is the favoured destination of both domestic and foreign tourists and getting the top priority as tourist destination in the state. This study mainly addressed to explore the rich floral and faunal diversity and also focused on the major problems for conservation of biodiversity of this world heritage.

Keywords: Conservation, Biodiversity, Heritage site, Floral and Faunal.

ISCA-ISC-2017-20SH-02-Oral

Swami Vivekananda teaching inculcating basis values and social skills learning in children of ICDS

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Abstract: Integrated Child Development Services (ICDS) which is the world's largest programme mandated to provide ECCE. Early childhood refers to the formative stage of first six years of life, with well-marked sub-stages (conception to birth; birth to three years and three years to six years) having are-specific needs, following the life cycle approach. It is the period of most rapid growth and development and is critical for survival. Growing scientific evidence confirms that there are critical stages in the development of the brain during this period which influence the pathways of physical and mental health, and behavior throughout the life cycle. Deficits during this stage of life have substantive and cumulative adverse impacts on human; development. The entire world appears to be a stage of turmoil, irrespective of its economic condition every nation seems to be torn under several conflicts resulting in loss of peace and harmony. Early childhood Care and Education encompasses the inseparable elements of care, health nutrition, play and early learning within a protective and enabling environment. It is an indispensable foundation for lifelong development and learning, and has lasting impact or early childhood development, it is imperative to accord priority attention to ECCE and invests in it since it is the most cost effective way to break the intergenerational cycle of multiple disadvantages and remove inequity, leading to long terms social and economic benefits. Today the ICDS programme provides services to nearly 80 million children under six years of age, through a network of 1.4 million approved Anganwadi Centers (AWCs). Programmes for universalizing elementary education such as the Sarva Shiksha Abhiyan (SSA) And National Programme for Education of Girls at Elementary level (NPEGEL) have also supported setting up to ECCE centers, attached to primary schools in certain districts of the country as a stop gap arrangement till Anganwadi Centres as universalized in nature.

Keywords: Group work, ICDS, Training, Values, Early childhood.

ISCA-ISC-2017-20SH-03-Oral

Impact of globalisation on social and economic issues in a developing nation

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Abstract: Globalisation is an integration of different economies into a single market. It has given pace to international trade beyond the geographical boundaries of the nation providing resources which were not available in the country. Import/ Export activities have become source of revenue forming the major share of GDP for emerging nations. For developing countries globalisation has come with both pros and cons. On one hand, globalisation has brought opportunities of development through-technological transfer, investment through FDI and managerial skills. On the other hand, it has also brought threats to domestic countries, cultural beliefs and social activities. Globalisation provides employment opportunities and on the same time decreases the demand for unskilled labours. Globalisation has brought social and cultural changes such as- language, dressing, thoughts, social movement, work culture, etc. along with increasing inequality between developed and developing nations, through exploitation of resources in developing countries, and putting political and economic pressure on the government. Maintaining equilibrium between the national identity and regional autonomy both are indestructible in a federal state. The constant jeopardy among them is major challenge because social inequalities and economic disparities focuses on emerging international economic order to produce equity, social and cultural process, and eradication of poverty, illiteracy and unemployment. Thus the purpose of present paper is to highlight the level of equality, harmony, integrity and progress in developing countries of the world due to globalisation.
Keywords: Globalisation, Integration, Development, Exploitation, Inequalities.

ISCA-ISC-2017-20SH-04-Oral

Communication and agricultural development in India

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Abstract: Development consists of such goals as promoting literacy, health, limiting family size, increasing productivity and material advancement which contribute to greater equality, freedom and other valued qualities of life. The developing countries of Asia, Africa and Latin America have taken different strategies for development of their countries after getting rid of western colonial powers. However, most of the western and eastern models of development had emphasis on modernizing agriculture by using modern technology for improvement of rural people of the developing societies like India. As the mainstay of rural life agriculture needs proper communication of new ideas and technological innovations for improvement of the life as a whole. For long, even after Independence, many of villagers in India had to persist with interpersonal mode of communication as they had no access to modern mass media of communication. Of late, many of the villagers are having access even to new media of communication in agricultural development. Besides, modes of communication are somehow related to certain structural factors such as age, sex, caste/community, education, income, size of land etc. The paper deals with the emerging structural patterns, effectiveness and mode of communication in the agricultural development of India. The analyses are based on the data sourced from the literature of the studies conducted on role of communication in agricultural development in India. The paper gives an overview of the studies.
Keywords: Communication, Agriculture, Development, India.

ISCA-ISC-2017-20SH-05-Oral

Negotiating sexuality and rights in HIV/AIDS epidemic; women in contemporary India

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Abstract: In India, unlike cases of homosexual, haemophilic or drug users in the USA, France or Africa, the first case of HIV/AIDS was detected in a heterosexual female sex workers (FSW) in Chennai in 1986 and this image played an important role in understanding HIV epidemic in the country. Contrary to western construction of HIV/AIDS as 'homosexual disease', 'gay cancer' or 'gay plague' etc, the social construction or metaphors of AIDS in India was attributed to women. It was established that women particularly sex-workers were transmitter of the virus to general population via 'bridge population' (NACO, 2014-15). Recent studies claims growing rate of HIV infection among housewives who are generally confined within the domestic sphere with limited mobility and expression. This findings shaped epidemic in India where-in women are constructed as 'sex worker' to 'killer of children' and then their 'protector' thus making them susceptible to stigma and violence. The experience of women are doubly stigmatised and intensified in HIV scenario because of their subordinate role

in the society. Women generally lack the right to negotiate safe sex, condom use or influence the sexual behaviours of their husbands and stand highly susceptible to sexual and physical violence, which in many parts of the world violence is more often accepted as normal part of heterosexual relationship. Globally, the number of women with HIV/AIDS continues to increase and nearly 50% or more adults infected with the epidemic around the world are women, therefore not only is AIDS emerging as a 'disease of women' but it increases vulnerability of women to social atrocities at large. In the context of HIV/AIDS epidemic, women are positioned as 'culprit' 'victim' and 'transmitter', within the biomedical research and discourses. In this light, the present paper explores lived experiences of HIV+ve women with regard to their sexual and reproductive rights against the backdrop of patriarchal structure.

Keywords: Women, HIV/AIDS, Social Construction, Sexual/ Reproductive Rights, Patriarchy.

ISCA-ISC-2017-20SH-06-Oral

Hydrographic surveys – tool for marine resource management

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Abstract: Hydrographic surveys have been used as a reconnaissance tool in various marine related infrastructural development, shipping, port establishment, marine trade, oil exploration and marine environmental studies. The geospatial technology has spread its arms in multidimensional perspectives towards qualitative and quantitative outputs. With the change in technology and need of the marine world, the hydrographic survey techniques have been improved by adopting latest geospatial techniques and precise instrumentation.

Keywords: Hydrographic surveys, Tool for marine, Resource management.

ISCA-ISC-2017-20SH-07-Oral

Renaissance was an attempt of secular spiritualization of Humanity in India

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Abstract: When religion could not provide a system with security, there was an attempt in the west for a change in the existing system through 'renaissance'. Though the western philosophers succeeded in separating the religion from their social life and from affairs of State, there remained an alien dissatisfaction and yearning for something unknown made them refuse to be secular in front of their parents' tombs. Western Philosophers also wanted the social institutions based only on ethics without religious interference. Whereas, in India the renaissance leaders believed in secular use of religion and accounted for the material conditions of human existence by making a deft use of the concept of spirituality. They also tried to humanize the traditional institutions through modernization. At no point they tried to disconnect tradition from modernity, science from religion or position of ethics in society and its relation with religion and spirituality. Rather they tried to reform and redefine the torn and confused parts of parts of religion and recommended to put a balance for betterment of society. As such there has been a historical controversy whether the concept of 'renaissance' is applicable to India or not. They laid stress upon secular concept of religion and connected it with spiritualism for upliftment of individual soul. But, they never neglected or overlooked the importance of ethical values and its connectivity with religion. They were to bring back the ancient glory of Indian culture which could make individual strong and at the same time provide healthy social system. Social system with traditional and cultural values associated with religious beliefs provides a strong institutional framework with 'Ashrama dharma' and 'varna vyavastha'. Thus the social institutions help the individual to work for wholesome development while enjoying the security and comfort of the social system. Individual depending upon his/her nature tries to achieve this upliftment through any of Gyana, karma or Bhakti yoga or all of them. My paper covers social, religious and secular philosophies of Aurobindo to highlight and show the clarity of Renaissance leaders have had in their approach for the betterment of humanity. The need of the hour is the light to be focused for the confused world which is standing at cross roads without knowing to which way to go and its consequences.

Keywords: Secularisation, Traditional Values, Swadharma, Varna Vyavastha, Religious Values, Ethics.

ISCA-ISC-2017-20SH-08-Oral

Beta-thalassemia Carrier detection and Molecular screening among Bhanushali population of Gujarat, India

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Abstract: Thalassemia is a genetically transmitted autosomal recessive hemoglobonopathy characterized by reducing the rate of synthesis of one or more of the globin polypeptide chains of hemoglobin. It is the most common single-gene disorder, with

carrier frequency ranging from 3 to 17% in India. So far, more than 350 β-thalassemia mutations have been reported worldwide. Approx. 28 mutations have been documented in Indian patients. This paper aim to understand the extent of distribution of β-thalassemia mutations among the Bhanushali populations of Gujarat. A total of 305 individuals of either sex in the age group 14-30 years, unrelated up to a first cousin, belonging to Bhanushali population of Jamnagar district, Gujarat were recruited for the present study. The recruited individuals were screened for the β-thalassemia trait using standard biochemical methods, i.e. Complete Blood Count (CBC) and HPLC method. Out of total 305 individuals, 27 people detected thalassemia carriers and 4 people with other hemoglobinopathy in the present study. Thalassemia carrier was detected on the basis of HbA2 level, 'F' level, RBC, Hb, MCV, and MCH level. The present study also conducted interviews for evaluating the Knowledge, attitude, and practice (KAPs) regarding thalassemia. As the people of India have a traditional marriage pattern which encourage caste endogamous in marriages. The frequency of thalassemia carriers among Bhanushali population remains high. There is an urgent need for proper genetic counseling to those diagnosed as thalassemia carriers in order to combat with the genetic risk involved.

Keywords: Beta-thalassemia, Molecular screening, Bhanushali, Gujarat.

ISCA-ISC-2017-20SH-09-Oral

Puzzling democracy within a military role: the Pakistani experience

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Abstract: Pakistan as a state has already lost its autonomy due to overwhelming interference and influence of military and ISI. By mid of August 1949, the Pakistani Army had begun to transform itself from a paper Army into a well-organized one. A new officer training academy, the Pakistani Military Training Academy was established in Kakul, Abottabad (in the North West Frontier Province), in January 1948, and the first batch of Army Officers graduated in November 1949. In 1951-1952, Ayub Khan had set up a Planning Board in the army general headquarters to create an infantry division Secret American documents provide further evidence of the military leadership's determination to influence and control the trajectory of the political affairs of the state. By 1952-1953, military pessimism civilian incompetence and lack of interest in nation building depended to the extent that the army under General Ayub Khan began to participate liberally in, perhaps even to encroach on, non-military missions through the instrument of 'aid to the civil power'. In early 1951 Pakistani Army had conducted several nation-building activities, through which it acquired confidence. In the name of security, Pakistan Army had operated several incidents. Gradually, it had tried to deployed forces in major cities, especially, in Lahore. The Pakistani Army was mobilized its troops across the countries. Army's entry in civil society was gradually accepted. The military involved itself in repairing roads, bridges, constructing pavements, public parks, cleaning up shops and controlling the prises of essential goods. Within a very short-span Army entered in family life or daily life also. Its surveillance on social evils is remarkable. It was hyper active in campaigning against excessive on marriages and parties. Military spending is imperative for Pakistan because of the country's complex, ambiguous and volatile strategic environment.

Keywords: Army, Democracy, Pakistan, Political, Nation-building.

ISCA-ISC-2017-20SH-10-Oral

Occupational mobility among the Kaibarttas: the study based on three urban fringe villages of Dibrugarh district of Assam, India

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Abstract: Occupation refers to a set of activities usually associated with the earning of the individuals. It may be defined as specific activity with a market value which an individual continually pursues for the purpose of obtaining a steady flow of income. In traditional Indian Society each caste pursued particular occupations which are regarded as hereditary by tradition and custom of Hindu social system. Occupational mobility is the movement of individuals, families or groups from one social position to another. It is a process of movement from one occupation to another. Occupational mobility may be intra-generational or inter-generational and horizontal or vertical. The basic objective of the present paper is to examine occupational mobility among the Kaibarttas (SC) living in urban fringe villages. The study has been confined in three urban fringe villages of Dibrugarh district of Assam, India. The head of the family were the respondent in this study. The respondents of the present study were selected randomly by using sequential list method. Both primary and secondary data have been used in this study. The study reflects a clear picture of occupational mobility from the generation of grand fathers to the present generation i.e. respondents generation with the change of their traditional fishing occupation.

Keywords: Occupation, occupational mobility, Kaibartta, Urban fringe village.

ISCA-ISC-2017-20SH-11-Oral

Gendered perspective of access to rights in India

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Abstract: This paper attempts to explore the access to rights in a democratic state of India through a gendered lens. Exercising the right to take part in the democratic processes to make one's voice audible to political representatives is deeply embedded in the unequal power relations often obscured under the carpet of democratic procedures that do not intrinsically promise to address gender inequality though provide opportunity to do the same. Women in India have embraced participatory democracy as means to address their concerns and unequivocally supported the same albeit it has been a rocking horse, riding back and forth on the public opinions serving the exigencies of electoral politics yet not invigorating the functionality of rights for women. We adopt a qualitative research method of analysing relevant literature and a case-oriented and conceptual approach to explore the relationship between democratic state and access to rights by women.
Keywords: Democracy, Gender, Justice, Rights, Patriarchy.

ISCA-ISC-2017-20SH-12-Oral

The role of the Indian Diaspora in India's foreign policy – an assessment of the Modi doctrine

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Abstract: The conception of Indian Diaspora and the perception of the Indian state have undergone significant changes over the last two decades. There seems to be a marked shift in the official discourse about the Indian diasporas, over a period of time which had began with the claims of the Diaspora with the conventional definition of nationalism to a the broader principles which facilitate conditions for citizenship beyond the physical boundaries of the nation in the present times. This has found resonance in the Prime Minister Modi's remarks when he stated in his address to the Indian diasporas in Johannesburg, that, "We may be on different time zones. Our ancestors may have been separated in history. Our nationalities may be different and our support may be for different cricket teams. But our common heritage makes sure we remain connected in hearts and minds".This trend clearly hints at identity being a 'production', which is never complete and always constituted within, not outside identity as an already accomplished fact, which the new cultural practices seek them to represent. Hence in a globalized world the rise of the transnational linkages and construction of identities seeks to transcend the notions of territoriality. However it is yet to be seen if ascribing to a past epoch, and its role in nationalizing the global images and signs in the present order could facilitate the recovery of the Indian Diaspora. This has led to both the state and non-state actors using diasporic practices of identity formation as a means of generating economic and political support. The paper seeks to open a dialogue, on the emergence of the Indian Diaspora and their role and relevance in Indian foreign policy after the attempts to of the Indian state in reclaiming and positioning them as an important stakeholder. The paper would also emphasize on role of communication with specific reference to media (soft power) its relevance in the study of the present world order and its role in reclaiming the Indian Diaspora and construction of the national identity outside the national territory.
Keywords: Diaspora, Identity, Cultural, Economic, Nationalism.

ISCA-ISC-2017-20SH-13-Oral

Contextuality and public policy – are they mutually constitutive? a case study of medical pluralism and typical myopic policy responses in India

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Abstract: Public policy is an intriguing terrain, which involves complex interplay of administrative, social political and economic components. There is hardly any fit-for all formulation of public policy as Lindbloom has aptly categorized it as a science of muddling through. In fact, policies are both temporally and contextually determined as one the proponents of policy sciences Harold D. Lasswell has underscored it in his 'contextual-configurative analysis' as early as 1950s. Though, a lot of theoretical efforts have been made to make sense of this intricate dynamics of policy making, at the end of the day the applied area of public policy negates any such uniform, planned and systematic formulation. However, our policy makers seem to have learnt very little of that. The present paper in the light of public health policy in India seeks to underscore the importance of innumerable social and cultural norms and practices in the overall performance of public policies, which are

normally ignored in the policy making process. Until recently, policy making was deemed as an absolutely specialized exercise to be conducted by a cadre of professionally trained seasoned mandarin. Attributes like homogeneity, impartiality, efficiency, and neutrality were considered as the watchwords of delivering common goods. Citizen or clientele was conceptualized as universal political or economic construct, to be taken care of uniformly. Moreover, policy makers usually have the proclivity to put anything into straightjacket, and to ignore the nuances therein. Hence, least attention has been given to the ground level reality, especially the socio-cultural milieu where the policy is supposed to be applied. Public policies rarely touch social and cultural practices, customs, and precedence embedded in the social milieu. Consequently, a substantial amount of public money goes in vain as the intended beneficiaries remain indifferent to the delivery of public policies.

Keywords: Contextuality, Socio-cultural milieu, Medical pluralism.

ISCA-ISC-2017-20SH-14-Oral

Impact of development on the socio-cultural life of India's smallest primitive 'Toto' tribe

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Abstract: Total population of West Bengal is 9, 13, 47,736 as per 2011 Census. Out of them 4, 69, 27,389 are male and 4, 44, 20,347 are female. Out of them tribal people's share is only 52, 96,963 which is 5.8% of the total population of the state and 5.08% of the country's population. There are 40 Scheduled Tribes communities in the state. Out of the 40 communities 3 communities namely Lodha, Birhor and Toto have been declared as primitive tribes by the Government of India. The total populations of these three communities are only 57,186. Out of them Totos are only 1385 in number as per Census report 2011 and report delivered by the Block Development Office, Madarihat in 2016 mentioned that the number is 1575. This tribe of West Bengal is a smallest ethnic tribe. They belong to the Mongolian stock. They are of medium height with sturdy body and brown skin. They have straight hairs, with scanty beards and moustache.They are living in the Totopara village, foothills of Bhutan Himalaya under Madarihat block of Alipurduar district of West Bengal.The geographical area of the village is 1991.59 acres or 808.03 hectors (3.12 sq. miles). The shape of the village is trapezoid with tapering ends. The length of the villages is 2.5 miles from north to south, while the east west distance is about 1 mile, with a narrow end on the north and south east corner. The village is bounded in the north by the Tading hill, a noseband east-west spur of the Bhutan Himalayas. On the south and west lie a river Houri- Kungning-Tee and the Titi forest. On the east the village is bounded by the river Merem-Tee and Mu-Tee (Torsha).The existence of the Toto people was first mentioned by BabuKishenKanta Bose, a British Government employee of Rangpur collector in 1815. He found people called Toto in a village called Lukepur, under the FalakataTahashil of western Daurs, present Totopara village. The village is also traced by the D. Sunder in course of his survey and settlement operation in 1895. Since then, the Totos has become a popular topic for discussion both among the official and academic circle for their distinct culture, life style, livelihood activities and socio-economic activities. So it is very necessary to analysis the impact of various developmental projects and programme undertaken by the Government after their recognition as Scheduled tribe on 29 October 1956, under the scheduled Castes and Scheduled tribe list (modification) order, 1956 by the Government.Since their inclusion in Scheduled Castes and Scheduled Tribe List the government has giving special attention for the development of the community and their locality. After their inclusion various plans and programmes are taking by the government and non-government organizations for the development of the socio-cultural status of the community. So the aim of the present study is to analysis the impacts of various developmental plans/programmes on the socio-cultural status of the community.

Keywords: Socio, Cultural, Status, Development, Primitive, Ethnic, Scheduled, Tribe.

ISCA-ISC-2017-20SH-15-Oral

In quest of the next liquid gold: insecurity, hydro-politics and India-Bangladesh Relation

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Abstract: The emergence of Human Security approach has brought in the ambit of Security many new concerns like health, food, disease, poverty, environment etc. Among them one of the most important environmental challenge faced in this century is the water crisis which has resulted in many inter-state and intra-state conflict and insecurity. As we can see its demand in rise and its influence in geopolitics it can well in future be regarded as the next liquid gold. In Asia, the Himalayas are home to numerous rivers flowing in the region but the growing scarcity of water and the demand for it has involved many states in this region, in conflict with each other. One such environmental issue that hinges the relationship between India and Bangladesh is the scarcity and sharing of water resources, the problem of water allocation from the Ganges, Brahmaputra and Teesta River. Disagreement and competition between the two in harnessing from the same resource or supply have challenged growth, stimulating conflict situations and shaping politics. Therefore, this paper scrutinizes how both the states

are engaging themselves in case of sharing water, as it is evident that various agreements and policies has also not been able to solve this prolonged water management conflict between the two. It also focuses on the interplay between political developments and strategic management of the two countries which causes insecurity and its spillover effect in diverse domains. Some conceivable recommendations is also integrated so as to best serve the possibilities for cooperation and sustainable development at the same time maintaining diplomatic relations between India and Bangladesh.

Keywords: Water, Security, India, Bangladesh, Hydropolitics.

ISCA-ISC-2017-20SH-16-Oral

The impact of obesity on health-related quality of life - a systematic review

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Abstract: Obesity is defined as the excessive accumulation of body fat relative to body mass. The prevalence of obesity in children, adolescents, and adults has risen in both developed and developing countries in recent decades. This is an issue of concern due to its association with various co-morbidities like hypertension, type 2 diabetes mellitus, elevated cholesterol, joint problems, and stroke. This increasing prevalence of obesity in both developed and developing countries impose a burden on individuals including their daily activities and healthcare systems. Also, reduced physical health associated with obesity can contribute to impaired mental well-being. Therefore, it impacts individual's quality of life in terms of both physical and mental functioning. Health-related quality of life refers to the self-reported effects of a medical condition on physical and mental functioning and well-being of patients. Various studies provide an evidence of the close association between obesity and quality of life in various age groups. The present review gives a brief overview of major factors that influence physical well-being in individuals with obesity. Also, how they are impacting the health-related quality of life of individuals in different age groups. Pub Med, Scopus, Science direct, and Google Scholar searches were conducted to identify literature that addresses the key question: How health-related quality of life is being affected by obesity in various age groups?

Keywords: Obesity, Health, Quality of life, Physical activity, Children, Adults.

ISCA-ISC-2017-20SH-17-Oral

Supplementary exercise training: impact on fitness, injury rates and aesthetic competence of dancers - a systematic review

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Abstract: The current life of dancers demands high level of fitness, free from injuries for flourishing career in the field of dance. Many researchers have arrived at the conclusion that there are gaps in the structure of dance training programs. Accordingly, besides skill development, improving physiology and fitness of the body is highly important. This can be achieved by supplementary exercise training which will not only enhance fitness level but will also reduce chances of dance injuries without affecting artistic and aesthetic requirements of the dance. It has become essential to demonstrate not only for dancers and athletes but for general public as well, that any reduction in energy intakes for maintaining body weight or achieving fitness is not going to work out. In the light of current research, this article reviews the effect of supplementary training and exercise on fitness, injury rates and aesthetic competence of various levels of dancers performing various dance styles. Four search engines - Google Scholar, Science direct, Pub Med and Scopus were searched to identify research studies with empirical data on impact of supplementary exercise training on dancers. The result clearly indicates a positive effect of supplementary exercise training on the fitness level of both student and professional dancers. The article concludes with suggestions for creating awareness and improving research in the field of supplementary exercise training for various dance forms.

Keywords: Supplementary training, Exercise, Dance, Fitness, Injury, Pilates.

ISCA-ISC-2017-20SH-18-Oral

Watershed management through peoples contribution: a case study of Ustal Dumala Village, MH, India

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Abstract: Ustal Dumala is a small village located at distance of 10km. NE of Newasa Town. It lies between $19^0$29'09''North latitude and $74^0$55'27''East longitude. The region is characterized by hot summer and general dryness during major part of

the year. Rainfall is uncertain, which creates shortage of water except months after monsoon season. To mitigate shortage of water villagers evolved a watershed management project through raising fund by public contribution. Particularly youths and senior citizens remain ahead for contribution and to adopt engineering work of watershed. The project recharged wells and tube-wells, erased water scarcity, raised water table, provided water for irrigation and agricultural work for labors, improved agricultural output which leads to improve economic conditions of the families.

Keywords: Watershed management, Engineering work, Agricultural work, Economic condition.

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Association of angiotensin converting enzyme gene polymorphism (ACE I/D) with hypertension among Gaur Brahmin of NCR Delhi, India

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Abstract: This study aimed to observe the prevalence of hypertension among Gaur Brahmin population and investigate their association with ACE I/D polymorphism. This was a population based study conducted on 390 individuals (i.e. Male 182 and Female 208). The prevalence of hypertension observed in accordance with JNC VII guideline and ACE I/D polymorphism identified by allelic specific PCR. It was observed that 25.3% of the individuals (Male 13% and female 12.3%) were hypertensive and 64.2% individuals were pre-hypertensive which indicated that in future more than half of the population were at the risk of hypertension. ACE I/D polymorphism show that present population is a heterogeneous population. Prevalence of hypertension among ID and DD individuals (i.e. 58.6%; 24.2%) were higher as compared to II individuals (17.2%) but it was not significant and this could be attributed to the chance of the sample size. The prevalence of D alleles carrying individuals were higher within pre-hypertensive and hypertension categories indicated that the present population are at a higher risk of hypertension. In future, Pre hypertensive individuals were at a higher risk to become hypertensive.

Keywords: prevalence, Blood pressure, Pre-hypertension, Hypertension, Angiotensin converting enzyme (ACE I/D) polymorphism.

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Risk of cardiovascular diseases with bad reproductive history: an anthropo-genetic study among Gaur Brahmin women of NCR/Delhi, India

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Abstract: Bad reproductive health would be a major cause of increased risk for cardiovascular disease among women and leading risk factors for the maternal mortality and morbidity worldwide. Cardiovascular diseases are major health concern in women. The challenge of CVD in women is not limited to developed countries but also for economically emerging countries like India. Bad reproductive health is influenced by both genetic and environmental factors. Among women, several other independent risk factors are associated with an increased risk of Cardiovascular diseases including stillbirth, preterm, miscarriage, Induced abortions, Spontaneous Abortion, Prenatal mortality etc. in compare to males. The renin-angiotensin system (RAAS) plays a major role in the expansion and betterment of cardiovascular diseases by promoting vasoconstriction, sodium reabsorption and it shows the correlation between genes–gene interactions. Somatometric measurements (Anthropometry) and Blood sample were collected from Gaur Brahmin women (N=300) and they were unrelated up to first cousins. ACE I/D polymorphism was considered in the present population, mutant homozygotes found to be in a higher frequency among females as compared to the males. Awareness regarding cardiovascular adversities and its risk factors needs to be addressed in this population especially in regards to their reproductive health, diet and physical activities to decrease the burden of increasing risk factors of cardiovascular adversities in this population.

Keywords: Reproductive health, Cardiovascular disease, Brahmin, National capital region, Delhi.

ISCA-ISC-2017-20SH-21-Oral

Prevalence of depression among adolescents in Haryana, India

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Abstract: Individuals often experience negative physiological effects of distress that disrupt the quality of their lives. Distress may also have psychological or emotional effects, such as depression and loss of interest or ambition. It is a psychological problem or condition that changes how you think and feel and also affects your social behavior and sense of

physical well-being. The present study was conducted on 500 adolescents i.e., 250 adolescents form urban area and 250 adolescents from rural area studying in 10th, 11th and 12th classes. Children Depression Inventory (CDI) developed and standardized by Kovacs (2003) was used to assess the depression status among adolescents. Results exposed that adolescents living in urban areas were more depressed than the adolescents living in rural areas and significant differences were found in depression among adolescents across family structure and residential area. Results also revealed the positive as well as significant differences in ineffectiveness of adolescents and residential area. One way of addressing the issue of depression among adolescents in India is conducting studies that give an estimate of proportion of adolescents who experience depressive symptoms at a given time.

Keywords: Adolescents, Depression, Family structure, Haryana, Residential area.

ISCA-ISC-2017-20SH-22-Oral

Monitoring land use land cover (LULC) using RS and GIS techniques – a case study of ShirurTahsil, Pune District, Maharashtra, India

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Abstract: The land use/land cover (LULC) pattern of a region is an outcome of natural and socio –economic factors and their utilization by man in time and space. Land, which is a finite resource, is becoming scarce due to immense agricultural and demographic pressure. Profound information on LULC assists the planners in monitoring the dynamics of land use resulting out of changing demands of increasing population. Keeping in view the importance of LULC change and rapid urbanization, the present study focusses on the nature of LULC of Shirurtahsil (Pune) of Maharashtra state between 2002 and 2015 using remote sensing and GIS techniques. Apart from finding out the LULC of the study area for 2002 and 2015, a change detection analysis was performed to understand the nature and rate of increase and decrease in LULC of the study area. Further through change detection matrix, the area transformation amongst the various classes in the span of 13 years was also studied.

Keywords: LULC, LULC change, Waste land, Irrigation.

ISCA-ISC-2017-20SH-23-Oral

Reformation of female prisoners: case study of an Indian correctional house

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Abstract: The tool of social control forreforming law breakers into peaceful and law-abiding citizens is known as prison or correctional house. Though the fundamental principles of incarceration are "reformation" and "rehabilitation but,the process of reformation demands more than just confining law breakers behind the bars especially in case of female prisoners. Change in core behavioural tendencies of prisoners is not possible unless prison environment is enriched with value based activities, stress management activities, recreational, counselling and educational facilities for their children. Besides carefully planned daily routine, zero tolerance for abuse of fellow inmates and compulsory participation in self-help activities, literacy programmes and skill based activities can also be very helpful for formulating a constructive environment for inmates. As far as role of social agencies is concerned inside prison the charity based outlook of social workers needed to be changed into rehabilitation based approaches. On the other hand, at societal level awareness needed to be created regarding the purpose of prison institute and giving another chance of normal life to offenders who have served their sentence.

Keywords: Female Prisoners, Incarceration, Prison environment, Reformation, Social Agencies.

ISCA-ISC-2017-20SH-24-Oral

Journey from surviving to fighting acid attack: a societal perspective

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Abstract: In this shining world of 21st century, the casual attitude of society is encouraging the deep rooted social problems like acid attack. Survivors of this brutal crime are mostly confined to four walls of their house just because they cannot withstand the way society treats them. Disfigurement followed by unbearable pain and repeated surgeries, staring eyes of people and loss of self-esteem remains the only option in front of them if they do not get opportunity to prove themselves worthy for the society. The purpose of this article is to draw the attention towards how the society determines the fate of acid attack survivors. Other than severe punishment for attackers, understanding the survivors and motivating them to live life in "every day and every way" must be the fundamental approach of society to tackle this challenge. Society need to understand

and recognise that they are the real hero, true fighter and inner beauty with purpose. Agencies are working for acid attack survivors at national and international level but as elite member of society, professionals can also make a remarkable change in their lives by motivating them to live their life at fullest and minimizing the social obstacles in their path of success.
Keywords: Acid attack, Motivation, Self-esteem, Social obstacles, Survivors.

ISCA-ISC-2017-20SH-25-Oral

Change in social relations; an observation among the Mishing tribe in the state of Assam in India

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Abstract: Human beings are also known as social beings as they have social relationships; human beings are always associated to one another either by Consanguineal or by affinal relations. The social relations among human beings is an age old phenomena, and these social relations begins from the family; the basic unit of human society. A child starts learning from his family and starts building a relation within the family members and later meets his friends and builds another social relation which is followed by his social relationship when he or she grows up and moves out for maintaining their livelihood and after attaining marriage he or she has another social relationship which remains throughout one's life time. Human beings cannot live in isolation they need relationships and the above example shows how important is social relations to human beings. However in due course of time and space these social relations are being hampered, although social relations are still being maintained but there are a lot of change that has taken place with the passage of time and development. This paper is an attempt to understand the change in social relations among the Mishing tribe of the state of Assam in India.
Keywords: Social Change, Development, Time and Space, Mishing tribe, Assam.

ISCA-ISC-2017-20SH-26-Oral

Sociological study of open deffcaton free district mission (on special perfective of Salfa Village of Mungeli District, CG, India)

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Abstract: India is a country inhabiting large explosive population residing in towns and villages. For providing them all a better environmental conditions and fresh healthy condition, attention is needed to bring upon cleanliness of surrounding. According to recent survey of **UNICEF** over 26 million people in India defecate in open. Around 60 percent of Indians do not have safe access and private toilets. Such overwhelming majority of those without access to sanitation facilities poses a formidable obstancle in the development of the nation. Sanitation has emerged as a key issue since the 2011 census highlighted glaring data on lack of toilets in the country by revealing data. Therefore lanched with an estimated cost of around Rs. 62,009 crore Swachh Bharat Mission aims to achieve the elimination of open defecation in the country.
Keywords: Sociological, Study, Open deffcaton, Free district mission.

ISCA-ISC-2017-20SH-27-Oral

Social exclusion and child schooling in Koraput District of Odisha, India

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Abstract: Education has become a fundamental right of all Indian citizens with the enactment of Right to Education Act. It has now become a mandate to provide free and compulsory education to every child in the age group of 6-14 year. Education became a right after the 86th constitutional amendment, which made primary education a fundamental right for children between the age group 6 to 14 years. The Right of Children to Free and Compulsory Education Act, popularly referred to as the Right to Education Act (RTE Act, 2009), came into effect on 1st April 2010. It also laid down a three year timeline for improvement in school infrastructure. However, while this deadline expired on March 31 2013, yet considerable numbers of children in Indian schools still do not have access to basic infrastructure facilities. Some empirical evidences suggest that children from economically disadvantaged or socially excluded families exhibits lower levels of cognitive functioning, lower academic achievement, and lower social development than children from more advantaged families. The concept of social exclusion is relatively new. It has conceptual connection with poverty and deprivation and it is described when individuals suffer from many problems such as unemployment, poor skill, low income, poor housing, displacement, high crime environment, bad health and family breakdown, the inability to participate effectively in economic activity, and social,

political and cultural life, and alienation from the mainstream society. This study will try to understand social exclusion using alternative approaches and examines the child schooling pattern among children of socially excluded households. This study is explorative in nature and proposed to use primary data on different domain of social exclusion and child schooling. The study was conducted in Koraput district in southern region of Odisha state in India.

Keywords: Social Exclusion, Education, Koraput, Odisha, India.

ISCA-ISC-2017-20SH-28-Oral

Ethnic identity on the basis of macro features

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Abstract: The concept of ethnicity and ethnic identity is complex and multi-faceted. An ethnic group is represented by an assemblage of peculiar biological and socio-cultural traits. There are various social characteristics, biological markers, cultural and behavioural traits which form the basis of their ethnic identity. Assessing ethnic identity of an individual has important application in the field of anthropology and forensic science. Handwriting has been identified as one of the important characteristics for identification from the ancient history. Handwriting has many important features which can throw light on the neuro-physiological dimension in a society. Macro-features are one of them. Macro features here refer to attributes that are obtained from handwritten samples. They represent important element of a handwritten specimen that can establish the discriminating power of handwriting. The paper attempts to assess ethnic identity on basis of examination of macro-features extracted from handwritten specimen. Variation in macro features is also observed with reference to age and sex. Thus the paper focuses on analysis of handwritten samples for English script to observe the variation in two ethnic groups of North India. This approach aids to characterize ethnic groups on the basis of macro features of handwriting.

Keywords: Ethnicity, Class characteristics, Biometric trait, Micro features, Perceptual-motor task.

ISCA-ISC-2017-20SH-29-Oral

Communitisation: A new paradigm in governance

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Abstract: This study examines the concept of communitisation as an approach of governance which makes use of the available social capital as a channel for empowering the people at the grass root level. Here the community is empowered to oversee the daily management and functioning of public institutions like; education, health, water, sanitation and electricity, while the government takes the supervisory role. The community is granted the power and resources to manage the public institutions, which are decentralized, thereby, in a sense, making the community the owner. In this paper we shall see the case of the state of Nagaland in India where the concept of communitisation had seen great success. This study propounds that the new possibilities and scope that this concept brings can have a wider application in effective governance, in terms of management and dissemination of benefits to the people, not only in rural communities but also in urban areas.

Keywords: Communitisation, Nagaland, Governance, Social Empowerment, Social Capital.

ISCA-ISC-2017-20SH-30-Oral

Myths and Folktales: A study among the Meiteis of Manipur in India

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Abstract: The Meiteis are the major ethnic groups of Manipur, a state in the North Eastern part of India. The community has rich cultural heritage. Myths and folktales are very significant part of it. Myths are the sacred narratives of supernatural beings and explain the various phenomena of nature. On the other hand, folktales are the stories that came out of the ways of living and imagination of the people. Both myths and folktales are orally transmitted over generations. The Meiteis use the term "*Phunnga Wari*" for folktales. It was through these tales that they imparted family education and shaped the behaviour of the individuals in the early times. This paper aims at studying the myths and folktales of the Meiteis and the role played by them in the society. Data are collected using interviews as the main technique. Secondary data are collected from books and articles.

Keywords: Meiteis, *Phungga Wari*, Myths, Folktales, Sacred.

ISCA-ISC-2017-20SH-31-Oral

Religion and women

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Abstract: No doubt, Woman is one of the wonderful creations of God, but at the same time one of the most exploited sex on the earth since ages. Women are just remained as oppressed, exploited and the most violated generation at every corner of the world. There is no era, no phase and no institution that give recognition or equality to the women, so right from the beginning women have always been struggling for her dignity and status in social, political and cultural areas respectively. The patriarchal societies have always been showing malpractices to women exploitation and oppression. Religion is one of the main reasons for the oppression of women. Religion not only kills the freedom and equality of women but also totally destroy the individuality of women. According to the famous Columnist and Novelist Taslima Nasreen, "Religion is against woman's rights and woman's freedom. In all societies women are oppressed by all religions". All most all religious practices made women as weak, sensitive and dependent and some considered women as defective, sinful, needy and to be controlled even by using violence.
Keywords: Patriarchal Societies, Exploitation, Individuality, Recognition.

ISCA-ISC-2017-20SH-32-Oral

A study of health happiness during monsoon season: case of Mumbai, MS, India

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Abstract: Happiness Index helps in understanding the point of content of people from various spheres around them. The present paper tries to measure the same at a micro level and present it spatially. The sphere of focus here, is health. Mumbai, being a part of a monsoon region, the health of the people is drastically affected during the rains due to several diseases out of which vector borne diseases like Malaria and Dengue are at a rise in the recent years. The study has concluded that Mumbai is prone to fatal vector borne diseases like Dengue and Malaria. The deterioration of environment leading to climate change has led to the increased proneness of the city. With increasing number of cases, the monsoon season has turned into a period of worry, stress and ill health.However, most of the wards fall in the 'happy' category. Thus, it can be said that the health happiness index of Mumbai is highirrespective of the diseases spread in the city. Quick, reliable and accessible medical treatments is the key to the same.The study therefore shows that Health Happiness is an important aspect as it is the basis of a man's existence.
Keywords: Health, Happiness index, Mumbai, Monsoon, Wards, Vector borne diseases, Reliable treatments.

ISCA-ISC-2017-20SH-33-Oral

Role of human rights in Indian democracy

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Abstract: Human rights are basic Fundamental rights of human. The fundamental rights that humans have by the fact of being human, and that are neither shaped nor can be abrogated by any government. Supported by more than a few international conventions and treaties these include cultural rights, economic right, and political right, right to life, liberty right, education right and equality before law right, and right of association, belief right, free speech right, information right, religion right, movement right, and nationality right. The main objectives of this study is to study the concept of human rights, to study the concept of democracy, to know the classification of human rights, to study the role of human rights in Indian democracy.
Keywords: Human Rights, Fundamental Rights, Democracy, Nationality.

ISCA-ISC-2017-20SH-34-Oral

The hunger, poverty and silence: the entitlement and empowerment

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Abstract: More than one billion people in the world are reeling under the social venom of hunger and against each of 3.4 second; we are loosing one hungry child forever. While describing food security, it is the contribution of polymorphic factors like access to food, quality of food, cost of food and then food free of social and gender discrimination. The paper examines

the trifoliate disposition of the threat that refrain a hungry bowl from getting food. The combination of three social decadants viz. hunger, poverty and silence has been inextricably tuned. It is found that when people go silent or kept silent, poverty goes up and then hunger has become the worst and coercive consequence to poverty. Silence in this study has been conceived as a situation of getting 'uninformed', 'unvoiced' and 'non-verbal'. The neo-information divide as a resultant of explicit globalization has vitiated the situation further. This section of the population is remaining un-tuned to the sources of information and impact of being selectively uninformed. So, this would suggest a lot of interventions to be made including scale neutrality of technology informed entitlement to resources and change in policy.

Keywords: Uninformed section, Unvoiced, Non-verbal, Explicit globalization, Scale neutrality of technology, Selectively uninformed, Food security.

ISCA-ISC-2017-20SH-35-Oral

Place names of the rural settlements of Beed district, Maharashtra, India: A geographical analysis

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Abstract: Names, especially place names have developed through ages. Human beings developed these place names by correlating them with different aspects. These place names are of great importance because these names bear identifiable association with physical as well as cultural characteristics of the regions. India is a divine land of physical and cultural diversity. This diversity reflects in the place names throughout India and its states. Maharashtra is one of the beautiful and attractive states of them. District Beed of Maharashtra observed that the place names of rural settlements, mostly associated with either physical or cultural elements. This etymology of place names gives valuable information to elaborate the various aspects of cultural as well as geographical conditions of the region. In this paper, authors have tried their level best to analyze this geographically.

Keywords: Etymology, Place names, Identifiable association, Diversity, Physical and cultural characteristics.

ISCA-ISC-2017-20SH-36-Oral

PC Games: an implication on academic performance of students in CST, Bhutan

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Abstract: There are numerous claims that playing electronic device games may be beneficial for education purpose or just the reverse, but there has been little formal investigation into whether or not exposure to playing such games actually affects academic performance of the students in Bhutan. This paper explores the relationships between gaming frequency, measured as the amount of time spend playing games by the college students and their academic performance as measured by their semester examination marks. Using a sample of 180 students in CST (College of Science and Technology), comparative analysis between gaming frequency and academic performance for students were carried out. The results show that examination marks are negatively reflected with frequent gamers than those who never play games. Frequent gamers achieve lower marks compared to students who play games less frequently. This paper intents to addressthe student of CST for proper management of time during their stay in college in future if they are PC gamers.

Keywords: PC games, Academic workload, Academic performance, Semester result.

ISCA-ISC-2017-20SH-37-Oral

Factors affecting the academic performance of undergraduates at CST, Bhutan

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Abstract: Most of the students spends their time on social networking sites as well as on non-collegiate activities. The core purpose of the survey is to do the research on the impacts of these activities on the academic performance of the students at College of Science and Technology (CST), Bhutan.The questionnaire was distributed using simple random sampling technique for 300 students which shows various factors that determines the academic performance of the students. The statistical study from these samples revealed the comparative academic achievements of male and female undergraduates.By descriptive statistic data analysis, it was found that there is also positive relationship between the social media and academic performance.

Keywords: Social networking, Academic, Samples, Survey, Data.

ISCA-ISC-2017-20SH-38-Oral

Learn from circumstances

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Abstract: Every minute, every moment, and at every step, we come across circumstances. Circumstances which are unavoidable and unfavorable. What should we do? Shall we negate or we fight? Or else, we go neutral leaving the result on to the destiny? We need to be truly different as we will fight and face. We will consider it as an opportunity because we know the fact that these unfavorable circumstances are temporary and these are here to teach us a lesson for a better life. We will have to fight as our life is not just ours, it belongs to our progenitors and those who love and care us like anything. Hence, we need to give a positive display and projection of ourselves so that we set an example for others to follow. We can't leave it on destiny, we need to act as Almighty says, "He helps them those who help themselves" and we must and definitely help ourselves. We have got no option, it's our life. So, we need to fight against it to taste success and to absorb the rays of happiness to prove as a winner. Don't negate Face and Act to the circumstances that come across. Display the winning attitude and be a hero.
Keywords: Circumstances, Positive Display, Help, Taste, Success and Happiness.

ISCA-ISC-2017-20SH-39-Oral

Health status of tea garden worker of upper Assam: a case study in Bhamun T.E. and Cinamora T.E. of Dibrugarh and Jorhat Dist. of Assam, India

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Abstract: Assam, one of the prominent states of North Eastern Region, has its name and fame for extensive tea production, processing and export activities. The tea garden workers which are integral part of this process and the whole Assamese society are still underprivileged section of the society. The health status of the labours is yet to be in a satisfactory level. Report of frequent outbreak of epidemics and loss of lives are very common in tea garden of Assam. A large number of deaths are due to numerous Water borne dieses like Gastro-enteritis, Diarrhoea, Jaundice, Dysentery and Typhoid. Therefore, there is every need to study the health related aspects and living condition of this section of population. Therefore this paper tries to analyze the status of Water supply, Sanitation, Housing facilities and Hygiene practices among the tea garden population of Assam and also trying to highlight the real factors associated with this matter. Diseases like hypertension, stroke were emerging in the community and were associated with modifiable risk factors like alcohol and tobacco use. There is scarcity of reliable information on health and nutritional status, therefore it is assessed through Observation and Interviewing the Respondents and the Management. Health status of the laborers can be ameliorated through better hygienic practices, environmental sanitation, creating health awareness, nutritional intervention and overall improvement of socio-economic conditions of the population.
Keywords: Water supply, Sanitation, Hygiene practice, Dieses, Tea garden population, Assam.

ISCA-ISC-2017-20SH-40-Oral

The morphological study of sand bar at Kajali river mouth area at Bhatye Beach Ratnagiri, Maharashtra, India

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Abstract: The study of sedimentation in the estuary or creek has growing importance day by day. The siltation in the river mouth area are reflected in the decreasing fish catch, increase in salinity, shallowing of the estuary, formation of sand bars in tidal section of the river. This paper tries to study the morphological characteristics of the sand bar formed at the entrance of the Kajali river at Bhatye, Ratnagiri. Kajali River is west flowing river enters in Arabian sea at Bhatye, Ratnagiri. The formation of the bar headed towards northwest and extending day by day. This is an area of recent disposition, where the bar is very low lying, rising to the water level at low tide and remains completely submerge at high tide. With the help of toposheet, Google image and field work, we tried to understand the formation of this bar as well as sediment characteristics of the sediment in the creek and bar also. Analysis of water and sediment samples collected in pre-monsoon and post monsoon season helped to understand the chemical and textural characteristics of the sediment. Changes are studied with the help of toposheet no.47H/5 surveyed in 1978-79 and Google images of the area.
Keywords: Creek, Sand bar, Sedimentation.

ISCA-ISC-2017-20SH-41-Oral

Understanding the deceased from those Left behind: Ethnographic perspective to causalities in farming households of rural Bundelkhand in Uttar Pradesh, India

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Abstract: The paper examines regional agronomic crisis and subsequent causalities in farming households of rural Bundelkhand of Uttar Pradesh in India. It shifts focus from popular farmers' suicide narrative; considering suicide as anxious act of immediate life termination to establish suicide as socio factorial process, elaborated through analytical understanding of extensively carried out fieldwork. In this paper, phenomenon of farmers' suicides has been analysed on methodological as well as at thematic level. It firstly discusses suicides in farming households as event of 'moral panic'. Then evaluates suicide perspective and socio-cultural proceedings in construction of suicidal behaviour, typological categories of farming suicides, locally prevalent means adopted to commit suicides and characteristics of deceased individuals. It mentionsmethodological and thematic findings in a wider theoretical context and reinstate slack of individual aspects in statistical calculations of suicide rates. The paper shares ethnographic documentation of locally prevalent behavioural anomalies along with analysis of related causal factors; ecological challenges in lieu of historic regional drought affiliation and politico-economic disadvantageous status of the region. It lastly discusses contextually pertinent issues such as suicides underreporting including female suicide rate fluctuation and suicide triggers as changing social system while proposing sustainable arrangements to deal with issue.

Keywords: Bundelkhand, Drought, Agronomy, Moral Panic, Farmers' Suicides, Suicide Typology, Suicide Behaviour, Suicide Reporting, Sustainable Livelihood Management (SLM).

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An empirical study on the socio-economic conditions of the plantation workers in the tea industry of Darjeeling, West Bengal, India

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Abstract: Tea cultivation occupies a place of pride in the Darjeeling hills. The development of the district has been driven by the growth of the tea industry. Nevertheless, this industry is presently in the grip of a mounting crisis. The Darjeeling tea industry has been passing through a period of stagnation. The existing tea estates experience frequent labour conflicts, and some have been locked out for considerable periods. As the tea workers are dependent solely on their wage earnings, the sufferings of workers have increased driving some of them even to suicide. This gives us a clear picture about the grim situation that confronts workers in the Darjeeling tea estates. The dimension of the structural readjustment that is needed within the tea industry to cope with them needs to be analysed immediately in protecting the rights of plantation workers and in equipping them for work and struggle through new livelihood strategies. Hence, the empirical study on the socio-economic conditions of the workers on the tea plantations would help us to understand their problems, while protecting their interests and provide an immediate help to seek better lookout for the condition of tea plantation workers in the hills before their inefficiency may turn into stagnation of the Tea Industry in Darjeeling.

Keywords: Socio-economic, Plantation Workers, Tea Estate.

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Air pollution in Patna, the capital of Bihar, India

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Abstract: The level of air pollution is increasing rapidly day by day with rapid industrialization, urbanization and scientific development. Patna, the capital of Bihar in India, is growing very fast in every sphere of the development. This city has a number of small scale industries. Due to rapid population growth, economic development, urbanization and traffic increase, air pollution is now arising in Patna. The major threat to clean air is posed by traffic exhausts and small scale industrial emission containing wide variety of air pollutants which is degrading the air quality of the city. Patna is, in fact, the sixth most polluted city in the country in terms of Air Quality Index (AQI) level. The present study evaluates the extent of air pollution at different high and mixed traffic volume areas of Patna city and the cause of variation in air pollutants viz. SPM, SO_2, NO_2, TVM, BSF, Dust Fall Rate etc. considering the meteorological parameters like effect of wind, relative humidity,

temperature and rainfall. The maximum concentration of above mentioned common pollutants was found in high traffic volume areas of the city.

Keywords: Environment, Air pollution, Urbanisation, Transport, Vehicular emission, Patna.

ISCA-ISC-2017-20SH-44-Oral

Compositional study of the rocks of Yinkiong group exposed along Siang-Yamne River section, East Siang District, Arunachal Pradesh, India

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Abstract: In the proposed study emphasis has been given on the rocks of Yinkiong Group, exposed along Siang-Yamne river section, East Siang District, Arunachal Pradesh, which is a part of the eastern Himalaya. Although many geological investigations have already been carried out in this area, thorough sedimentological study of this group of rocks has not yet been carried out. Therefore, in the present work, attempt has been made to analyse the compositional characteristics of the Yinkiong Group of rocks to understand their depositional history. For this purpose, field investigation has been carried out in the area and lithotypes have been reported as sandstone,shale, marl and limestone.It has been observed that the rocks under study are predominantly intercalated with the Aborvolcanics. Three verities of shale have been observed viz. purple, pale green and grey shale. The petrographic study of the Yinkiong Group of rocks of the study area has indicated that the limestones are composed mainly of micrite, sparry calcite and quartz grains. Fractures are commonin the studied rocks and filled withsparry calcite, which indicates chemical compaction process of diagenesis.Moreover, fossil foraminifera have been found to occur in the studied limestones. In the studied sandstones, quartz is the dominant constituent, followed by mica and feldspar embedded mainly in argillaceous cement and matrix. Ferruginous cement has also been observed in these sandstones.

Keywords: Siang-Yamne River, Yinkiong Group, Petrography, Limestone, Sandstone.

ISCA-ISC-2017-20SH-45-Oral

Mapping vulnerability of flood victims of Kashmir, India

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Abstract: After three years of Kashmir (India) Floods, one question that is still very relevant is; are people still vulnerable to floods? It is a prosaic question which is very complex to answer. At one level, the answer is straightforward, coming from the narratives of the people, dependent on resources and their present condition; at another level, it is about the interplay between the government policy and people's perception about the disaster. The present condition of uncertainty which prevails in many households leaves them susceptible to a greater magnitude of the disaster. Kashmir has become a landscape of vulnerability. Vulnerability gives a break from a geophysical understanding of the floods. In this article, I try to focus on the vulnerability of the people of Kashmir. With the use of secondary data and maps, I elaborate on how floods are interwoven into the socio-economic profile of people. They are constructed by both material and social embeddedness of the people. I look at how risk, coping up strategies and preparedness is channelized through political, social and economic practices. The article focuses on vulnerability and its impact on preparedness and coping up strategies. With the help of maps, the fundamental issues of types of vulnerability and disaster management practices are taken into consideration.

Keywords: Vulnerability, Floods, Kashmir, Narratives, Disaster Management.

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Toponyms as mnemonics of sacred landscape: an ethnographic study of ghat-names of Banaras, Uttar Prades, India

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Abstract: Banaras, India is the city of ghats (riverfronts). It is the center of Hindu pilgrimage.The site series of 83 ghats forms a unique cartography for the city. Each ghat is distinctly named. The ghat-names engender and strengthen the sacred geography of Banaras. The paper looks at how the perceptions of the ghat are depicted through the names. The paper is a result of ethnographic fieldwork in Banaras. The names not only baptize the ghats but also organize them into places of distinct identity. The paper is an attempt to understand the values within which ghat-names lie. The sense of place is deeply

attached to the sacred and many of these names of the ghat become condensed meanings of the elaborate mythological associations of the place. These names not only point the exact physical location but also establish a conviction that such events of sacred importance had occurred in the past. With such names that contain the sacred significance of the geographical location, the paper presents how the images of cosmic order are projected which make the event all the more emotionally convincing, supporting the sanctity and cosmological being of the ghats.

Keywords: Banaras, Sacred Landscape, Mnemonics, Toponyms, Riverfront.

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Women Empowerment through Political Participation in India

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Abstract: Women Empowerment is a global issue. The idea of Women Empowerment came forward when the Third International Women's Conference at Nairobi in 1985 introduced and defined "Women empowerment as a re-distribution of social power and control of resources in favour of women". Political empowerment of women is a part of the overall empowerment process. Political participation is a major path to women's empowerment as well as participation in the decision-making process will lead to empowerment in the true sense. At the grassroots Level 50 per cent reservation given to women in local self-government institutions has improved political participation of women in India yet political participation of women in Legislative Assemblies and Parliament is still quite low in India. Women have adorned position of President, Prime Minister, Speaker, and Leader of opposition in politics of India and have proved their worth. Thus the percentage of women in decision-making positions always remained low. Women do not share the power of decision-making and are not involved in policy making in Indian democracy in proportion to their numerical strength. The balanced participation of women and men in the decision-making process is an essential requirement of democracy and a positive step for society, as decisions then take into account the needs and are interests of the population as a whole. The liberated atmosphere created for them by providing special constitutional provisions is basically to create more consciousness in them. This concept has been explained by the late Prime Minister, Indira Gandhi in the following words: *"To be liberated, women should feel free to be herself not rivalry to man but in the context of her own capacity, women should be more interested, more alive and more active in the affairs of society not because they are women but because they constitute half the human race"*(*Jain:1991).*

Keywords: Women, Empowerment, Political Participation.

ISCA-ISC-2017-20SH-48-Oral

खैरवार जनजातीय महिलाओं में आधुनिक परिवर्तनः कुसमी तहसील जिला सीधी, म.प्र. के संदर्भ में

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शोधसारः जनजातीय एक निश्चित भू–भाग में निवास करती है जिनका एक सामान्य नाम सामान्य भाषा होती है दुर्गम एवं जंगली क्षेत्रों में निवास करती है यह अर्न्तविवाही होती है। पूरे भारत वर्ष में लगभग 500 से अधिक जन जातीय पाई जाती है जिनमें सर्वाधिक जन जातीय वाला राज्य मध्यप्रदेश है। खैरवार जन जातीय मध्यप्रदेश के सतना, सीधी, सिंगरौली, मण्डला, छतरपुर आदि जिलों में पाई जाती है यह मध्यप्रदेश की पिछड़ी जनजातियों में से एक है ये मुख्य रूप से खैर वृक्ष से कत्था निकालने का कार्य करते हैं इसके अतिरिक्त वनोंपज संचयन, मजदूरी का कार्य भी करते हैं। खैरवार जन जातियों में शिक्षा का स्तर अत्यंत निम्न है यही कारण है कि यह पिछड़ी जनजातीय में गिनी जाती है। खैरवार जनजाती की महिलाओं में शिक्षा का स्तर अत्यंत निम्न रहा है किन्तु विगत कुछ वर्षों से शासन द्वारा शिक्षा को बढ़ावा देने की नीति के चलते आदिवासी महिलाओं में भी शिक्षा के स्तर में सुधार हो रहे हैं। खैरवार जनजातीय की महिलाओं में भी इस दिशा में सकारात्मक परिणाम देखने को मिल रहे हैं। शिक्षा के विकास और सभ्य समाज के सम्पर्क में फलस्वरूप तथा आधुनिक संचार माध्यमों के प्रचार–प्रसार के कारण खैरवार जनजातीय की महिलाओं में भी आधुनिक परिवर्तन हो रहा है इन परिवर्तनों में उनके जीवन शैली को प्रभावित किया। यह महिलाएँ अब पारम्परिक मजदूरी को छोड़कर बाजार दर पर अपने श्रम का मूल्य लेने लगी हैं स्कूली एवं उच्च शिक्षा की ओर अग्रसर हुई हैं। इस प्रकार इन पर आर्थिक, सामाजिक और राजनैतिक आत्मनिर्भता ने उनके जीवन को प्रभावित और परिवर्तित किया है तथा विकास की आधुनिक परिवर्तन एवं विकास की दिशा में शसक्त बनाया है। प्रस्तुत शोध पत्र पर खैरवार जनजातीय की महिलाओं का आनुधिक संस्थानों तक पहुंच, आधुनिकीकरण के प्रति उनकी प्रतिक्रिया का अनुभाविक विश्लेषण का प्रयास किया गया है।

कुंजीशब्दः जनजातीय, महिला, खैरवार।

ISCA-ISC-2017-20SH-01-Poster

Water resources management in Chauhtan (a geographical study) Rajasthan, India

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Abstract: CHAUHTAN; A town targeted by its amazing geographical location in the western 'sand-plain' (thar marusthal) of India. Its position on the globe is fixed from 25^0 28' 59" N (Latitude) to 71^0 04' 18" E (longitude) respectively. This town is surrounded by hills to the west and north and by dessert to the east and south. Water in this area is found in modular amounts. Both the winter and the summer remain high but it is of the dry nature. On the ground level of the past, the rock is now formed from the large water flow sediments. Even today, by looking at the large boulders while lying on one another, it appears like this have drift coming away from other place. It determines its monsoon conditions. Due to which the strong winds run in may to June, which is called 'sand-storm'. In the winter, there is see the natural scene of the 'advection fog'. Continuous deflation (wind erosion) in the area occurs in large quantities. The Town is located approximately 48 Km from district 'Head quarter' Barmer. Its location near the border with Pakistan makes it of strategic Importance. Chauhtan is a short type satellite town.
Keywords: Water, resources, Management, Chauhtan, Geographical study.

ISCA-ISC-2017-20SH-02-Poster

Obesity and cardiovascular disease

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Abstract: Due to rising epidemic of obesity and its association to various health outcomes including cardiovascular disease (CVD), obesity has at times been a puzzling condition for clinicians as it is quite heterogeneous. Such heterogeneity appears to be explained, to a very significant extent, by individual differences in regional body fat distribution, particularly in visceral adipose tissue. Obesity increases the risk of CVD and premature death. A variety of alterations in cardiac structure and function occur in the individual as adipose tissue accumulates in excess amounts, even in the absence of comorbidities. Adipose tissue releases a large number of bioactive mediators that influence not only body weight homeostasis but also insulin resistance - the core feature of type 2 diabetes - as well as alterations in lipids, blood pressure, coagulation, fibrinolysis and inflammation, leading to endothelial dysfunction and atherosclerosis. Overall, overweight and obesity predispose to numerous cardiac complications such as coronary heart disease, heart failure, and sudden death because of their impact on the cardiovascular system.
Keywords: Obesity, Cardiovascular diseases, Epidemiology, Adipose tissue.

ISCA-ISC-2017-20SH-03-Poster

Indigenous knowledge related to natural resource among the tribes of south Chhattisgarh, India

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Abstract: An effort has been made to explore, gather, examine and validate the information regarding natural resources. Scientists now recognize that indigenous people have managed the environment in which they have lived in for generations, often without significantly damaging local ecologies. The tribes are fully aware of the self regulating process of the biosphere. All the ecological wealth was made freely available by the self regulating process of the biosphere in a totally sustainable manner. As far as Indigenous people of our study area South Chhattisgarh is concerned, this region is a vast store of consistent indigenous knowledge (IK) system regarding architecture, natural resources and meteorology like -village settlement pattern, construction of house to protect from natural disasters, indigenous agricultural practices, storage devices of agricultural products, art and crafts, natural resource management, ethno medicine practices and weather prediction etc. The ecological crises are negligible in the remote and primitive tribal areas just because mother earth reveals her bounty when used prudently. Now effort of government to bring these tribes to the main stream and to adopt various scientific practices, so there is possibility of disappearance of indigenous knowledge, so we decided to document indigenous knowledge before it is lost entirely. The study was carried in 4 districts of South Chhattisgarh. From 4 districts 7 blocks were selected based on forest ecology and open ecology of the area. After extensive literature survey on various methodologies for collection of data, it has been decided to select minimum 400 tribal households who are really custodians of indigenous

knowledge system from different villages of proposed study area to support the qualitative data. Apart from conventional methods, data collected through Participatory observation, Questioner, Interview, Schedule, Survey, Case Study and Focus Group Discussion (FGD), Participatory Rural Appraisal (PRA), Rapid Rural Appraisal (RRA) and Participatory Appraisal Natural Resources (PANR). Analysis revealed that the ecological diversities in which indigenous knowledge are categorized and associated with customary rules and culture play a significant role, conservation and management of the natural resources. The findings in this study revealed indigenous ecological knowledge as valuable for biodiversity conservation and promotes sustainable practices. Forest knowledge is found to be helpful in identifying and locating resources and that sustainable practices ensured continuity of these resources.

Keywords: I K, Tribe, South Chhattisgarh, Natural Resources, Customs, Culture.

ISCA-ISC-2017-20SH-04-Poster

Effect of urbanization on river basin ecosystem: A framework of Jojari River system, Rajasthan, India

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Abstract: Sub-tropical river basins are one of the complex ecosystems and are said to be self-sustaining if left undisturbed. But due to rapid urbanization, unplanned infrastructure developments and over exploitation of the natural resources, these river basins are under extreme pressure especially in terms of water resources. Altered hydrology is a characteristic of urbanized river basins. The inadequate knowledge about the factors influencing the ecosystem is the major problem to manage the sustainability of river basin. The models are able to establish the relations among some factors but they are not functionally viable. For effective river basin ecosystem management, a model is required to understand the hidden relation among the factors affecting the urban river basin ecosystem. This paper describes a framework model to understand the effects of urbanization on river basin ecosystem by using geospatial technologies. To perform the study at regional scale, an attempt has been made to integrate the geospatial data with hydrological, meteorological and environmental data. The results will help to understand the effect of spatial-temporal change in land use and its effect on the dynamics of the ecosystem due to rapid and unplanned urbanization.

Keywords: Rivers, Ecosystems, Biological system modeling, Water resources, Analytical models, Market research, Data models.

ISCA-ISC-2017-20SH-05-Poster

Screening of metabolic syndrome in adolescents: a crucial step towards healthy nation

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Abstract: Metabolic syndrome is a constellation of risk factors which are responsible for rise in adverse conditions such as cardiovascular diseases, diabetes, atherosclerosis and other lifestyle disorders. The components of metabolic syndrome are present in children and adolescents, however, the diagnostic techniques for detection are not profound currently.Increasing burden of undernutrition as well as obesity among the younger age groups with the adoption of improper diet, sedentary lifestyle and reliance on machines for daily work, has made India a vulnerable country with respect to health of its population. The age trends of occurrence of heart disorders in India is 10 to 15 years earlier than those in the western countries, therefore, it becomes necessary to screen and assess the visible risk factors from childhood and early phases of adolescence. Very few studies have been done on these age groups for determining the prevalence of cardiometabolic syndrome. Hence, this brief review aims on highlighting prevalence studies and the necessity of screening of cardiometabolic risk factors among the adolescents (aged 9-19 years) in India. This review may be helpful in formulating future recommendations for large scale epidemiological studies.

Keywords: Adolescents, metabolic syndrome, obesity, undernutrition, India.

ISCA-ISC-2017-20SH-06-Poster

Association of *PNPLA3* gene and Hepatocellular carcinoma

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Abstract: Hepatocellular carcinoma (HCC) also called malignant hepatoma, is a very common type of liver cancer. It ranks among the five most common cancers and third most common cause of cancer-related mortality worldwide. The risk of HCC

is varying from person to person, but cirrhosis is the major risk factor for HCC. Prevalence of chronic hepatitis B (HBV) and C (HCV) is the major environmental virus infections directly linked to the incidence of HCC. Several clinical variable including age, sex, obesity have been found associated with HCC in many studies. Patatin-like phospholipase domain containing 3 gene is the major genetic determinant of hepatic fat content and liver enzymes in the general population. The candidate and genome wide association studies suggested that single nucleotide polymorphisms, most commonly *PNPLA3* gene (initially associated with steatosis and Non-alcoholic Fatty Liver Disease) has been found significantly associated with HCC. This review tries to highlight upon the current information available regarding the studies on association of *PNPLA3* gene with HCC.

Keywords: Hepatocellular carcinoma, Cirrhosis, Genetic Association, *PNPLA3*, Obesity.

ISCA-ISC-2017-20SH-07-Poster

Watershed management of Ramganga basin (India) using remote sensing and GIS

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Abstract: The management of water resources, such as assessing, managing and planning has become a critical need for sustainable use. The water resources planning and development at river basin level requires a host of inter-related information to be generated and studied in relation to each other. An attempt has been made to study Ramganga basin which is continually being degraded, threatening the supply of water in the country, thus has recognized the need for effective monitoring and management to avert the declining condition. This study explores the applications of remote sensing and Geographical Information Systems (GIS), in the collection of information and analysis of data, in order to support the development of effective critical watershed management strategies. Remote sensing was used for the supervised digital classification of the land use land cover type in the study area and to see the change from the year 1999 to 2009. The systematic analyses of various collateral data on soil, slope and geology have been studied for water management in Ramganga River basin in India. This study will be useful to different watershed environmental planners and natural resources managers for better decisions making.

Keywords: Basin, Watershed, Water Management, Remote Sensing, GIS.

ISCA-ISC-2017-20SH-08-Poster

Climate change in Jodhpur city, India (a geographical study)

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Abstract: Jodhpur, Blue city is loacketed aside of Thar desert on 26.2389˚ North latitude and 73.0243˚ East longitude on glob. Population of largest Thar desert city is 1.5 million. Average height from sea level is 237 meter. The season is division of the year marked by winter (mid Nov.-Feb). Summer (March-Jun) and monsoon (Jun-Oct) due to global warming climate is being observed so many changes. Highest temperature is being increased from 44.6˚C upto 49˚C in the month of May. Yearly average rain is 345 mm witch isrised by 450 mm, in 9 Aug 2016,192 mm. rain is recorded in just 3 hrs, when is 67 mm more then average of Augest rains. Arabian sea branch of monsoon is more active in 2017 mean while 80% of monsoon rains record by bay of Bangal Branch. Heavy rain is increasing in last few year due to low strato cumulus clouds witch indigates climate changes of Jodhpur city. The lowest temperature is down from 6˚ upto 4˚C in winter. Visibility redused by 150 meter due to dense fog that is caused by north-east winds in Dec.-Jan. Western disterbance is also shifted in mid March from mid January. Natural disaster may occure in up coming here due to climate changes.

Keywords: Climate change, Geographical study, Desert, Temperature.

21. Supplementary abstract of all sections

ISCA-ISC-2017-1AFH-46-Poster

Influence of planting dates and integrated nutrient management practices on growth and yield of potato (*Solanumtuberosum* L.)

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Abstract: A field experiment was conducted for two consecutive years during *rabi* seasons of 2014-15 and 2015-16 at instructional farm of Uttar Banga Krishi Viswavidyalaya, Pundibari, CoochBehar, West Bengal to identify suitable time of planting and nutrient management for optimal plant growth and yield of potato under *terai* region of West Bengal. The experiments were laid out in split-plot design and replicated thrice with three planting dates as main plot: 15th November (D_1), 30th November (D_2) and 15th December (D_3) and seven different levels of nutrient management treatments as sub-plots: 100 % of the recommended dose of fertilizer (RDF) N_2, P_2O_5, K_2O @120:100:100 kg ha^{-1} through chemical fertilizer (CF) (N_1),75% of the RDF through CF + vermicompost @ 5t ha^{-1} (N_2), 75% of the RDF through CF + FYM @10 t ha^{-1} (N_3), Vermicompost@ 15 t ha^{-1}+ *Azotobacter*(N_4), FYM @ 20 t ha^{-1}+ *Azotobacter*(N_5), FYM @ 10 t ha^{-1} + vermicompost @ 10 t ha^{-1}+ *Azotobacter*(N_6), Control (N_7). Among different dates of planting and nutrient management treatments, planting on 15th November with nutrient combination of 75% of the RDF through CF + vermicompost @ 5t ha^{-1} showed better field emergence, growth and tuber yield. It can be concluded from the study that for achieving higher tuber yields in potato under *terai* region of West Bengal, the crop should be planted on 15th November with 75% of the RDF through CF + vermicompost @ 5t ha^{-1} . However, considering the reality of North Bengal condition as the land remain occupied by earlier *kharif* rice in early weeks of November also. It is advised to plant potato in 30th November with INM centered around 75% of the RDF through CF + vermicompost @ 5t ha^{-1}or 75% of the RDF through CF + FYM @10 t ha^{-1} to achieve significantly higher tuber yield.

Keywords: Potato, Planting dates, INM, Growth and yield.

ISCA-ISC-2017-1AFH-47-Poster

Influence of different levels of phosphorous on nodulation process and yield attributes of groundnut cultivars (*Arachis hypogae* L.)

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Abstract: The experiment was conducted in a split- plot assigned in a randomized complete block design with three replications at Instructional farm, Uttar Banga Krishi Viswavidyalaya, Pundibari, Cooch Behar, during summer seasons of 2016 and 2017. Two factors, including three cultivars *viz*; JL 24 (V1), Gangapuri (V2) and TAG 24 (V3) as main plot and phosphorus at 0, 40, 60 and 80kg P ha^{-1} from single super phosphate were used as sub plot factors. Results from the study showed that application of phosphatic fertilizer had significant ($P< 0.05$) effect on number of nodules, pod harvest index (HI %), shelling percent, 100- kernel weight and kernel yields. Application of phosphorus significantly increased pod yields from 22.6 to 27.8% over control. Highest pod yield (2,130kg) was observed with 60kg ha^{-1} dose of phosphorus. The variety "Gangapuri" significantly produced highest yield (2,030kg ha^{-1}) among the three varieties.

Keywords: Phosphorous, Cultivars, Nodules and yield.

ISCA-ISC-2017-13PCS-08-Oral

Evaluation of self medication practice among 1st & 2nd year undergraduate students in a dental health-care institute

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Abstract: Self medication is defined as "use of medicine by individuals on their own, without professional advice to treat self diagnosed conditions". Self medication is on an alarming rise and is harmful, if not practiced properly, as initially it is being overlooked as a cheaper alternative. But on the long run can cause serious problems. Most studies on self medication was carried out on healthcare students involving Medical, Pharmacy and Nursing courses. There are few studies on dental students. A cross sectional study will be conducted among 1st & 2nd year undergraduate dental students. The study protocol will be reviewed by institutional ethical committee. A pre validated questionnaire will be used and questions will be related to the knowledge of drugs, attitude of students towards drugs and their self medication practices. The questionnaire will be

assessed for their completeness & only completed questionnaire will be considered for final analysis. The results of the study will be submitted at the time of presentation.

Keywords: Self medication, Dental Students, Questionnaire, Non prescription drugs

ISCA-ISC-2017-20SH-49-Oral

Movement of art in Manipur and its impact

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Abstract: 2nd International Art Camp, 2017 organised by North East Brothers Entertainment in association with Tourism Department of Manipur, as a part of Sangai Festival held every year from November 21st to 30th in the capital city Imphal, made a major breakthrough in the realm of art. Artists from Manipur, India, Turkey, Russia, Haiti and South Korea participated in the camp. Manipur, a tiny state from the North-East region of India is known for its rich cultural heritage of dance and music and its legacy in the arena of sports. However, Manipur is little known to the mainstream Indian art scenario. And as a step, to bring a positive impact in the contemporary art of Manipur, various workshops, seminars, symposiums and exhibitions are organised by Art Society, Manipur – the only pioneering art organization of Manipur. With its rich background in art and culture, the talent of Manipur artists could be seen intertwining with foreign artists. Interaction among the artists provided a platform to share their creative ideas and learn each other's culture and tradition. The visual representation of individual artist left imprinted in the minds of the Indian nationals.

Keywords: Art, Visual representation, Impact.

ISCA-ISC-2017-1AFH-39-Oral

Use of insecticide mixture formulations and rotation of insecticides for overcoming insecticide resistance

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Abstract: The rate of resistance development in insects is an overwhelmingly important problem in agriculture. The efficacy of chemical pest control may no longer be sustainable if we do not take appropriate strategies for the prevention or management of resistance. In Indian scenario use of combiproduct is not rare among the farmers. The target pest population should be susceptible or should have low level of resistance to the each pesticide used in mixture. Moreover, it has been found that in some cases insecticide mixture can actual hasten the resistance development instead of delaying it. So, mixture formulations should not be used in routine spraying schedule otherwise there may be a chance of development of multiple resistant individuals. The use of rotation of insecticides deserves attention as a tactic that prevents or delays the development of resistance. The rotation of effective insecticides with a different mode of action is needed to prevent the rapid development of resistance.

Keywords: Combiproduct, resistance, insecticides.

ISCA-ISC-2017-1AFH-40-Oral

Many kernelled rice (*Oryzasativa* L.) cultivar from West Bengal- a unique distinctive character for IPR

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Abstract: Rice is generally single seeded fruit and it bears one kernel per spikelet. Old literature on developmental anatomy concludes that rice spikelets are primitively three-grained, of which the two lateral have become vestigial (hence 'sterile lemma'). However, many traditional rice cultivars were identified that were multi kernelled. *Jugal*a traditional rice cultivar collected from Cooch Behar have multiple (2-3) kernels per spikelet. Occurrence of single, double and triple kernels per spikelet in *Jugal* was 27.54,58.82 and 13.59%, respectively at maturity. The number spikelet bearing two kernels per spikelet was more during early flowering stage (74.82%) and gradually it decreases with advancement of maturity of grains. It would be interesting to know if the multi-grained spikelets are a reversion to primitive type, or a new splitting of the central grain. Other salient features of this cultivar are-highly photoperiod-sensitive (it can be grown only during *Kharif* season), tall, highly lodging tolerant, bold grain (single seeded), brown coloured kernel and having moderate grain yield ability. Double kernelled is an exceptional character which is not present in the *Table of Characteristics* in the "Guidelines for Conduct of Test for Distinctiveness, Uniformity and Stability on Rice (*Oryzasativa* L.)" published by PPV and FR Authority,

Government of India for Rice (PPV&FRA, 2007). This may be included as distinct character for varietal identification and registration under PPV & FR Act (2001).

Keywords: Kernelled, Rice, Cultivar

ISCA-ISC-2017-1AFH-48-Poster

Degradation kinetics of herbicide in paddy genotypes

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Abstract: Herbicides metabolism in higher plants involves many biochemical and chemical reactions. Differences in metabolism of these herbicides have been shown to be a basis of selectivity between tolerant and susceptible plants. In addition to the interest in understanding this type of selectivity, knowledge of the metabolic pathways are indispensable for understanding their fate in plants. Often this sequence of events starts with the uptake process and embraces transport even though emphasis is centered on the active degradation of the herbicide molecule. There are numerous mechanism associated with herbicide tolerance including oxidation, reduction, hydrolysis and conjugation, or by modification in protein at target site. With this the present study focuses on the understanding the biochemical mechanism of degradation of herbicide molecule in plant system. In the present study eight contrasting paddy genotypes for herbicidal tolerance were selected. This includes Kari Mundaga and Kyasari as tolerant types and Abhilasha and Elantgya Gidda as susceptible types for pyrozosulfuron-ethyl (10 WP). Similarly, Elantgya Gidda and Kuduve Kolangi as tolerant types and Selam Sanna and Anthrasali as susceptible types for pretilachlor (50 EC). The selected genotypes grown in a pot and applied with different concentration (X (recommended Dose), 2X, 3X, X doses both herbicides separately at the time of sowing as pre emergent herbicide. The residue content was analyzed at 8th, 14th and 21st days after sowing in susceptible and tolerant genotypes in all treatments. The result shows that there is a pattern in degradation kinetics of herbicide in tolerant and susceptible genotypes indicating the mode of tolerance either through degradation or resistance to herbicide molecule at protein level.

Keywords: Paddy, Herbicide, Degradation, Pyrozosulfuron-ethyl (10 WP), Pretilachlor (50 EC).

ISCA-ISC-2017-1AFH-49-Poster

Conservation priority for the endangered citrus biodiversity in NEH Region of India

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Abstract: The north-eastern region of India is reported to be the centre of origin and rich in diversity of *Citrus* diversity (17 species) with wild and endangered species. Citrus fruit belong to three closely genera viz. citrus, Fortunella and Poncirus and subfamily Aurantioideae, family Rutaceae and spread in entire North Easternregion of India and having *52* varieties/types of citrus. Citrus indica and *C. macroptera* are considered as the wild endangered species of *Citrus* in northeastern India, whereas in Jantia hills of Meghalaya, natural populations of these two species are highly threatened.Indigenous traditional knowledge gathered on the use and socio-economic importance indicated commercial potential for these species in the region.The present situation of citrus genetic diversity is alarming as enormous destruction in the natural habitat is taking place to fulfil various requirements of mankind. However, lack of cultivation of these species and clearing of forest cover at an alarming rate has led to an urgent need to adopt complementary conservation strategies to safeguard these species and to ensure their availability for future utilization. The local tribal people have been using these species as medicines for different ailments since long time and these ethnobotanical uses are required for documentation before it is lost forever. Considering the importance of the valuable citrus wealth of this region and for the future use as raw material for scientific and industrial purposes, the emphasis has been laid on the collection and maintenance of the citrus species. Moreover, location specific propagation techniques are needed to be developed for conservation of citrus diversity with the help of in-situ and ex-situ model. The present paper also discusses in details of its importance, propagation methods, threats and its conservation strategies in depth.

Keyword: Citrus, Conservation, NEH Region.

ISCA-ISC-2017-1AFH-50-Poster

A review on rice quality indices

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Abstract: Globally, Rice (Oryza sativa L.) is the second most important cereal crop and the staple food for nearly half of the worlds' population, contributing over 20 percent of the total calories taken by man. In Asia, the home continent of rice, 95 percent is produced and consumed. Consumers base their concept of quality on the grain appearance, size and shape of the grain, behaviour upon cooking, taste, tenderness and flavour of cooked rice. The cooking quality preferences vary within the country, within ethnic groups and from one country to another within different geographical regions. Grain quality is mainly judged by 4 major components viz.-Milling Quality, Market Quality, Eating & Cooking Quality and Nutritive Quality .Systemic rice grain quality improvement in the country started with the introduction of high yielding Taichung Native and IR-8 in the mid sixties. Developing micronutrient enriched staple plant food, either through traditional plant breeding methods or via molecular techniques is a powerful intervention tool that targets the most vulnerable people. Pureline breeding was adopted by breeders and in some cases by farmers to improve the locally adapted land races and to purify and maintain their specific features. Mutation breeding has been successfully used for bringing about desirable changes in traits usually controlled by single genes and polygenes with distinct effects. Molecular biology and biotechnology have opened new opportunities for genetic manipulation of crop plants. Many quality traits have been mapped and genes / QTLs have been reported for amylase on chromosome 6, aroma on chromosome 8, kernel length after cooking on chromosome 8, gel consistency on chromosome 6. As most of the plant breeding efforts till now have not focussed on the nutritional qualities of new releases, to tackle the "hidden hunger" efforts have begun to develop crop varieties with higher concentrations of Iron and Zinc. It was in these contexts that recent reviews focussed in detail, great need of improvement programs of these rice quality indices/parameters.
Keywords: Rice, quality.

ISCA-ISC-2017-1AFH-51-Poster

Doubling the income of farmers by 2022: A review in West Bengal State

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Abstract: Government of India started the new vision on doubling the farmers' income within 2022. It was a very good initiative. More 10 billion of the farmers may be benefited by this programme. The economic condition of the farmers in India was not homogeneous. West Bengal play major role in GDP of the country. But west Bengal farmers' average annual income level was very low. So a study was needed to know the farming situation of west Bengal and identify the reason of lowest income of farmers. The study was conducted during April, 2017. Majority of the data was collected from secondary sources. It was found from the study that west Bengal has high marginal farmer, low cold storage capacity, less number of food processing industry, lack of marketing facility and High potential to increase cropping intensity, Multiple cropping, poultry and animal husbandry, fishery, Value added product development; Capacity building of rural youth. So proper policy may be taken by the policy maker, scientist, Government and Non-Government organisation for successfully completion of the programme.
Keywords: Doubling, Farmers, Income, Marketing, Policy, Homogeneous, Marginal.

ISCA-ISC-2017-8EVS-26-Oral

Toxic effects of copper on survival and swimming behavior in adult and nymph of *Anisopssardeus* (Heteroptera: Notonectidae)

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Abstract: The toxiceffectsof copper was studied in 96 h static-with-renewal acute toxicity tests using adult female and male, and final instar nymph of the aquatic insect*Anisopssardeus* (Heteroptera: Notonectidae). The median lethal concentrations (LC_{50}) values foradults and nymphswere calculated by log probit analysis, and ranged from 0.4- 316.4, 2.4 – 573.1 and 0.68-419.3mg L^{-1} Cu in instar V nymph, Adult female and male respectively. There was a steep decline in LC_{50} values from 24 to

96 h. The instar V nymph were most sensitive to Cu, followed by adult male, while highest tolerance was observed in adult female. In addition, sublethal effects of Cu in terms of significant changesin 'velocity magnitude' (swimming speed) and 'rotation angle' (turning angle) were noticed in Cu-exposed adults and nymphs at concentrations as low as 0.03 mg L^{-1}. Besides swimming speed and turning angle, the movement pattern in control was smoother as compared to that in Cd exposed *A. sardeus*.

Keywords: *Anisopssardeus*, Copper, Acute toxicity, Sublethal effects, Swimming behavior.

ISCA-ISC-2017-19LLC-09-Oral

सिक्ख धर्मः वैचारिक स्वतन्त्रता के लिए शहादत

कृष्णकुमार जोशी
आध्यात्मिक चेतना अभियान, गौशाला मार्केट, मंदसौर, म.प्र., भारत

शोधसारः धर्म एवं मानवीय मूल्यों एवं सिद्धान्तों के लिए शहादत देने वालों में सिक्ख गुरूओं का स्थान अद्वितीय है। गुरूनानक और सूफ़ी संत शेख फरीद के बीच अच्छी मित्रता थी, एकेश्वरवाद में दोनों विश्वास करते थे। लेकिन कालान्तर में गुरूनानक के उत्तराधिकारियों और मुगलों के बीच सम्बन्ध अच्छे नहीं रहे। सिक्ख गुरूओं पर अत्याचार हुए, कठोर से कठोर यातनाएँ दी गई। नानक हिन्दु–मुस्लिम एकता चाहते थे सिक्ख मुगल सत्ता के स्थान पर गुरूओं को मानते थे। ये मुगलों से मनमुटाव का एक बड़ा कारण था। मुगल शिक्षा, सूफी के विरोधी थे बाद में इनके साथ सिक्ख धर्म भी जुड़ गया क्योंकि गुरू अर्जुनदेव जी ने अमृतसर के हरमिंदर साहब का शिलान्यास सूफी सन्त साईं मियाँ मीर से करवाया था। खसरो जो जहाँगीर का बेटा था उसे शरण देने पर अर्जुनदेव जी कठोर यातना से गुजरे और शहादत प्राप्त की। गुरू तेग बहादुर ने बलिदान दिया। गुरू गोविन्द सिंह की हत्या हुई। सिक्ख गुरूओं ने कठोर यातनाएँ सही पर देश, जाति व वंश को गौरवान्वित किया।

कुँजीशब्दः सिक्ख, धर्म, बलिदान, गुरू, यातनाएँ, सूफी, मुगल।

ISCA-ISC-2017-17CLM-Guest Speaker-01

Supply chain management: to be faster and smarter (slow and steady wins the race. Really!)

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Abstract: In the childhood, we heard a story about the tortoise and the rabbit, the speedy and overconfident rabbit fell asleep in the race, while the turtle won the race being "slow and steady". That may have been true in stories, but in real lifeslow and steady won't get you out of the entrance because everyone getting faster and smarter in today's challengingbusiness environment. That's why, the best organizations all over the world are inventing powerful new source of competitive advantage. It's called supply chain management (SCM) and it involves all of those integrated activities that make available product to market and create satisfied customers. To remain competitive, organizations must hunt for new solutions to important Supply Chain Management issues such as modal analysis, load planning, route planning, distribution network design and forward and reverse logistics. Within the organization, the supply chain management refers to a wide range of functional areas such asmanufacturing, purchasing, inbound and outbound transportation, physical distribution,warehousing, and inventory control into a unified package. Production planning and scheduling, forecasting, order processing, and customer service all are part of the process as well. Importantly, it also embodies the information systems so necessary to monitor all of these activities.The current talk discusses the nature and role of Supply Chain Managementwithin the organizations and out of the organization as well. It brings to light the reasons why SCM is necessary for every organization and explains why it is required and what are the application and issues dealt with the same.

Keywords: Supply, Chain, Management, Faster, Smarter.

ISCA-ISC-2017-1AFH-41-Oral

Enhancement of phosphorus uptake by overexpression of gene encoding citrate synthase in pigeonpea (*Cajanuscajan* (L.) Mill sp.) under phosphorus deficient conditions

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Abstract: Phosphorus deficiency is a major limitation for crop productivity under acidic soils. Plants have adopted several efficient strategies to absorb and utilize phosphorus (P) from the soil under P deficient conditions. Exudation of organic acids like citrate is one such strategy where in the released citrate solubilizes the bound form of soil P particularly with iron and aluminum and makes morefree P available to starving plant. Hence an attempt was made to develop transgenic pigeon pea plants overexpressing citrate synthase (CS) gene to enhance citrate production. Putative Pigeon pea transgenic lines overexpressing citrate synthase gene were developed using *in planta* method of transformation. Kanamycin screening, PCR analysis and protein expression techniques were used to confirm the successful integration and expression of CS gene. The putative transgenic pigeon pea plants showing increased tissue citrate synthase content compare to wild type in T1 and T2 generation were selected. In T3 generation, physiological and biochemical studies were conducted to screen the putative transgenic lines for enhanced P uptake. Increased citrate synthase content in root and leaf was observed in selected transgenic lines leading to increased phosphorus accumulation in the leaf. Under P deficient conditions root length, root surface area and root to shoot ratio, root citrate synthase content and root citrate content were recorded higher in transgenic plants compared to P sufficient conditions. The shoot growth of transgenic pigeon pea plants was also more compared to wild type under phosphorus deficient conditions. The photosynthetic parameters like photosynthetic and transpiration rate of transgenic plants was also noticed higher compare to wild type under P deficient conditions. The increased root citrate synthase content of transgenic plants was correlated to increased citrate content and tissue phosphorus accumulation. Molecular analysis of putative transgenic pigeon pea plants confirmed the successful integration and expression of citrate synthase gene.
Keywords: Citrate synthase, *Inplanta* transformation, Molecular analysis, Physiological screening & Phosphorus Deficiency.

ISCA-ISC-2017-1AFH-52-Poster

Integrated approach for the management of fruit flies (*Bactrocera diversus*, Tephritidae: Diptera) on guava fruit

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Abstract: Different hosts and their ripening period highly influenced the fruit fly populations and reported by several authors (Kapoor, 1993; Susilkumar *et al.*1998 Shekharappa *et al,* 1998; Chaudhry and Iamal, 2000 and Jalaluddin *et al.,* 2001; Madhura, 2001; Suresh Babu and Viraktamath, 2003; Ravikumar and Viraktamath, 2006 and Sanjeev rai *et al*., 2008) among the hosts guava is most important fruit. It is attacked by fruit fly *Bactrocera diversus* (Tephritidae: Diptera) Guava trees produce sweet-smelling fruits with an edible rind and creamy white, yellow or pink flesh. Guavas thrive in tropical areas, but their adaptability allows them to survive a few degrees of frost in Mediterranean climates. When ripe, guavas emit a pungent, musky odor that attracts fruit flies. Fruit flies lay their eggs beneath the fruit's skin, and the maggots feed on the flesh. The damage causes guavas to rot. Fruit fly infestations often spread quickly, but prompt treatment can get populations under control. Integrated approach for the management of fruit files on guava fruit, by adopting control measures viz. use of sex pheromone. Methyl eugenol was selected as it showed maximum fruit fly catches from population monitoring studies.
Keywords: Integrated approach, sex pheromone, Methyl eugenol etc.

ISCA-ISC-2017-1AFH-53-Poster

Effect of edible coating on shelf life of fruits

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Abstract: One of the major aspects in the food industry is fresh and minimally processed fruits. There is great demand in the food industry to increase the storability and shelf life of fruits as they are reservoir of vitamins, essential minerals, and

antioxidants, bio-flavonoids which fall easily susceptible to abiotic and biotic adversities .Thus the technology of the edible coatings has been considered as one of the potential approaches for meeting this demand. Edible coatings have long been known to protect perishable food products from deterioration by retarding dehydration, suppressing respiration, improving textural quality, helping retain volatile flavor compounds and reducing microbial growth. Edible coatings prevent oxidative browning and decrease growth of microorganism in fruits. Coating fruits with an edible film is an effective storage method at room temperature. Edible films have been proven to be an effective preservation technique that can not only keep fruit plumpness, fresh appearance and hardness but also improve the luster of fruits' surface thereby increasing the commercial value of fruits. Fruit coating delayed ripening: as indicated by better retention of fresh mass, green peel color, titratable acidity and flesh firmness, and the reduced respiration and ethylene production. Coatings showed a positive effect in maintain higher concentration of total phenolics and anthocyanin in strawberries. Edible coatings have good barrier properties to water, moisture, O2, CO2, and ethylene and increase the shelf life of the fruits.

Keywords: Edible coating, Fruits, Shelf life.

ISCA-ISC-2017-1AFH-54-Poster

Enhancing shelf life of leafy vegetables using polythenes

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Abstract: India being the second largest producer of vegetables in the world but has failed to maintain the shelf life of vegetables. Green leafy vegetables having a unique place among vegetables because of their colour, flavour and health benefits, but are highly perishable with shelf-life of only few days owing to higher amount of moisture, due to which around thirty per cent of the produce gets rotten and spoilt, becomes inedible, rendering wastage of a huge amount of nutritious products leading to huge loss during storage. Polythenes are widely accepted for packaging of food products as well as owing to their inert character, compatibility and safety. Packaging of commodity with polyethylene bags is found to have beneficial effects of extending the storage life. Polythene films are perforated to control water vapour transmission due to its low water vapour transmission rate. Fenugreek leaves packed in polyethylene bags without vents were found to be the best packaging material for extending the shelf life up to ten days. Amaranthus is widely cultivated and consumed as a green leafy vegetable in many tropical countries but shelf life is a major drawback, so by use of polythenes shelf life can be enhanced. Green leafy vegetables like curry leaf and coriander leaves can be wrapped in newspaper and packaged in vented polythene pouches and can be stored for eight days. Polyethylene film-packaging, combined with low temperature storage could be recommended as an appropriate method for extending the postharvest quality of leafy vegetables.

Key words: Polythene, Vented, Leafy vegetables, Perishable, Shelf life.

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ASSOCHAM INDIA

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UNIVERSITY OF THE YEAR

NORTH 2017

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Pharmacy Rank Band : 51-75

Engineering Rank Band : 151-200

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8th International Science Congress (ISC-2018), 8th and 9th December 2018, Maharishi Markandeshwar University, Mullana, Ambala, Haryana, India

5th International Virtual Congress (IVC-2018) and Workshop on Personality Development, 5th-10th August, 2018

4th International Young Scientist Congress (IYSC-2018) & Workshop on Vedic Science, 8th and 9th May, 2018, Rashtriya Sanskrit Vidyapeetha, Tirupati Andhra Pradesh, India

International Awards www.isca.in

International Life Time Achievement Dr. N.C. Jain Award – For Research

International Life Time Achievement Dr. Anjani Phadnis Award- For Teaching

International Best Researcher Award

International Best Research Supervisor Award

International Best Teacher Award

International Best Research Scholar Award

International Highest Publication Award

International Highest Cited Paper Award

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