HYBRID MODE

4TH INTERNATIONAL CONFERENCE ON ENVIRONMENT AND SOCIETY (ICES 2022)

Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability

23rd & 24th December 2022

Jiwaji University, Gwalior (M.P.), India

Organized and hosted by

Jiwaji University
Gwalior (M.P.)

Glocal Environment &
Social Association (GESA), New Delhi

Govt. P.G. (Autonomous) College
Datia (M.P.)

Nepal Aquaculture Society
Kathmandu, Nepal

In Association with

National Institute of Disaster Management (NIDM)
Ministry of Home Affairs, Govt. of India

Govt. KRG PG (Autonomous) College
Gwalior (M.P.)

Mahakaushal University
Jabalpur (M.P.)

Asian Biological Research Foundation (ABRF)
Prayagraj, India

Abstract and Souvenir

The Indian sarus crane, *Grus antigone antigone* (State Bird of Uttar Pradesh): An eternal symbol of unconditional love, devotion and good fortune with high degree of marital fidelity.

HYBRID MODE

4TH INTERNATIONAL CONFERENCE ON ENVIRONMENT AND SOCIETY (ICES 2022)

Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability

23rd & 24th December 2022

Jiwaji University, Gwalior (M.P.), India

Organized and hosted by

Jiwaji University
Gwalior (M.P.)

Glocal Environment &
Social Association (GESA), New Delhi

Govt. P.G. (Autonomous) College
Datia (M.P.)

Nepal Aquaculture Society
Kathmandu, Nepal

In Association with

National Institute of Disaster Management (NIDM)
Ministry of Home Affairs, Govt. of India

Govt. KRG PG (Autonomous) College
Gwalior (M.P.)

Mahakaushal University
Jabalpur (M.P.)

Asian Biological Research Foundation (ABRF)
Prayagraj, India

Abstract and Souvenir

"Any error in this Abstract Booklet is silent testimony of the fact that it was a human effort".

Dr. A. K. Verma
Conference Director, ICES 2022

जीवाजी विश्वविद्यालय, ग्वालियर (म.प्र.)
JIWAJI UNIVERSITY, GWALIOR (M.P.)

प्रो. अविनाश तिवारी
कुलपति
Prof. Avinash Tiwari
Vice Chancellor

Phone (O) : 0091-751-2442701
2341348
Fax : 0091-751-2341450
e-mail : vcjiwaji@gmail.com
website : www.jiwaji.edu

Date: 18.12.2022

Message

I am extremely delighted to know that 4th International Conference on Environment and Society (4th ICES 2022) on "Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability " is going to be organised and hosted by Jiwaji University Gwalior in association with National Institute of Disaster Management (NIDM),Govt. of India, Glocal Environment & Social Association (GESA), New Delhi, Govt. KRG Post Graduate (Autonomous) College, Gwalior (M.P.), Govt. P.G. (Autonomous) College, Datia (M.P.), Mahakaushal University, Jabalpur (M.P.), Nepal Aquaculture Society, Kathmandu, Nepal, Asian Biological Research Foundation (ABRF), Prayagraj, India, during December 23 and 24, 2022 at Gwalior.

The theme of the International conference is very relevant in present scenario, as our country faces major challenges of increasing food production, arresting environmental degradation, conserving soil and water resources, managing the disasters as well as ensuring the sustainable development. Moreover, the agriculture sector, has to come up with certain action plan on the status of the natural resources to compensate the loss due various disasters.

I am confident that the academicians, scientists, researchers and students from different part of the country and abroad participating in the conference will have fruitful deliberations and will certainly address these issues.

I compliment the Organizing committee for designing a very effective International Conference which has attracted large participation and bringing out this Abstract Volume.

I wish the International Conference a grand Success.

(Prof. Avinash Tiwari)

राजमाता विजयाराजे सिंधिया कृषि विश्वविद्यालय
राजा पंचम सिंह मार्ग, ग्वालियर (म.प्र.) – 474002
Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya,
Raja Pancham Singh Marg, Gwalior (M.P.) – 474 002
(An ISO Certified 9001:2008)
Tel: 0751 – 2970502, Fax: 0751 – 2970504, E-mail: vcrvsaugwa@mp.gov.in/vcrvskvvgwl@gmail.com

अरविन्द कुमार शुक्ला
कुलपति
Arvind Kumar Shukla
Vice-Chancellor

No./VC/2022/1719
Date: 09.12.2022

शुभकामना संदेश

अत्यंत हर्ष का विषय है कि ग्लोबल एनवायरमेंट एंड सोशल एसोसिएशन (जीसा) प्रयागराज, जीवाजी विश्वविद्यालय ग्वालियर, शासकीय कमलाराजा कन्या स्नातकोत्तर स्वशासी महाविद्यालय ग्वालियर, शासकीय स्नातकोत्तर महाविद्यालय दतिया, शासकीय महाकौशल महाविद्यालय जबलपुर, एबीआरएफ एवं आईबीआरएफ के संयुक्त तत्वाधान में **"रिसेंट एडवांसमेंट इन डिजास्टर मैनेजमेंट एग्रीकल्चर एण्ड एनवायरमेंटल सस्टेनेबिलिटी"** विषय पर एक अंतर्राष्ट्रीय सम्मेलन का आयोजन जीवाजी विश्वविद्यालय, ग्वालियर में किया जा रहा है एवं इस अवसर पर एक शोध संक्षेपिका का प्रकाशन भी अत्यंत सरहानीय प्रयास है।

जैसा कि हम सभी को विदित है, कि वर्तमान में ग्लोबल वार्मिंग तथा बढ़ती हुई जनसंख्या दोनों ही पर्यावरण के लिए खतरा बनते जा रहे है। पर्यावरण प्रकृति का सबसे महत्वपूर्ण उपहार है, जिसकी सुरक्षा करने का दायित्व सर्वोपरि है। संतुलित पारिस्थितिकी तंत्र को बनाये रखने के लिए सजीव एवं निर्जीव जीव एक दूसरे पर निर्भर करते है। पर्यावरण का संरक्षण एवं आपदा प्रबंधन हेतु वैज्ञानिकों, विषय विशेषज्ञों एवं बुद्धिजीवियों आदि का अथक एवं निरन्तर प्रयास करना आज समय की मांग है।

मुझे आशा ही नहीं अपितु पूर्ण विश्वास है कि उक्त अंतराष्ट्रीय सम्मेलन निश्चित रुप से वातावरण संरक्षण एवं आपदा प्रबंधन में एक अहम भूमिका निभायेगा एवं इस अवसर पर प्रकाशित होने वाली शोध संक्षेपिका पर्यावरण जगत के विद्वानों और भविष्य में आने वाली पीढ़ीयों के लिए सहायक सिद्ध होगी।

इस सम्मेलन के सफल आयोजन एवं शोध संक्षेपिका के प्रकाशन हेतु आयोजकों को मेरी ओर से हार्दिक शुभकामनाऐं।

(अरविन्द कुमार शुक्ला)

Dr. R.C.Mishra
Vice Chancellor
M. +91 9935048850
E-mail: vc@mku.ac.in

Mahakaushal University
Aithakheda, Chargawan Mukunwara Road, PO. Tilwara,
Jabalpur, Madhya Pradesh, India
Pin Code- 482003
Contact No.:-+91-9981350102
+91-9981360102
E-mail:-info@mku.ac.in
website:-www.mku.ac.in

Date: 16.12.2022

Message

I feel happy and privileged that the 4th International Conference on Environment and Society (4th ICES 2022) is being organized and hosted by Jiwaji University, Gwalior (M.P.) on 23rd & 24th of December 2022. Its a proud pleasure that our Mahakaushal University is also a partner of this ICES. The theme of the conference "Recent Advancement in Disaster Management Agriculture and Environmental Sustainability" is very relevant in current context. This International conference foresees several delegates including keynote speaker, oral presentations and poster presentations by scientists, scholars and teachers.

The topics of the conference truly reflect the current trends, recent advances and new approaches in the field of Disaster management & Environmental Science. The conference offers unique opportunity for young scientists starting their research activity in the field of Disaster Management and Agriculture and Environmental Sustainability. Field Across the globe to present and recognize their achievements. It will be also a plat form for gathering the eminent Scientists which are cordially welcomed to participate in this prestigious event.

I hope that we can count our sponsorship in future. If there is any way we can increase the value for you for our sponsorship. Thank you for all of your generous support, we could not have done it without your support.

I am sure this conference will provide a significant forum for exchange of ideas and experience in the areas of and other research areas.

I wish the conference a grand success.

Rcm

Prof. R.C. Mishra
Vice Chancellor

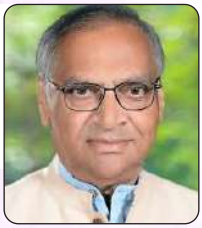
विवेक नारायण शेजवलकर
संसद सदस्य (लोकसभा)

सत्यमेव जयते

"कृष्ण कृपा", विवेकानन्द मार्ग
ग्वालियर-474001 (म.प्र.)
दूरभाष : 0751-2627300, 2627301
मो. 9013997205, 9425116300
ई-मेल : vivekshejwalkar@gmail.com

पत्र सं.- एमपी/ग्वालियर/2022/938

दिनांक- 08/12/2022



डॉ. एम.आर. कौशल जी,

मुझे यह जानकर प्रसन्नता हो रही है, कि ग्लोबल एनवायरमेंट एण्ड सोशल एसोसिएशन (जीसा) प्रयागराज, जीवाजी यूनिवर्सिटी ग्वालियर शासकीय कमलाराजा कन्या स्नातकोत्तर स्वशासी महाविद्यालय ग्वालियर, शासकीय स्नातकोत्तर महाविद्यालय दतिया, शासकीय महाकौशल महाविद्यालय जबलपुर, एबीआरएफ के बैनर तले एक इंटरनेशनल कॉन्फ्रेंस ऑन एनवायरनमेंट सोसाइटी (4TH ICES 2022) के तहत रिसेंट एडवांसमेंट इन डिजास्टर मैनेजमेंट एग्रीकल्चर एंड एनवायरमेंटल सस्टेनेबिलिटी विषय पर 23-24 दिसंबर 2022 को अंतर्राष्ट्रीय सम्मेलन का आयोजन जीवाजी विश्वविद्यालय ग्वालियर में किया जा रहा है।

मैं इस अवसर प्रकाशित हो रही शोध संक्षेपिका (एब्स्ट्रेक्ट बुक) के प्रकाशन पर हार्दिक शुभकामनायें प्रदान करता हूं।

V. N. Shejwalkar

(विवेक नारायण शेजवलकर)

डॉ. एम.आर. कौशल जी,
प्राचार्य
शा. कमलाराजा कन्या स्नातकोत्तर
महाविद्यालय ग्वालियर

All communication should be addressed to the Registrar and not to any officer by name.
The number and date of previous correspondence on the subject if any, should invariably be given, otherwise action is likely to be delayed.

Gram : University
Phone : 0751-2442801
Fax : 0751-2341768
E-Mail : registrar@jiwaji.edu
Website : www.jiwaji.edu

JIWAJI UNIVERSITY, GWALIOR

Registrar
Jiwaji University
Gwalior (M.P.)

Date: 17.12.2022

Message

Jiwaji University, Gwalior, in association with National Institute of Disaster Management (NIDM),Govt. of India, Glocal Environment & Social Association (GESA), New Delhi, Govt. KRG Post Graduate (Autonomous) College, Gwalior (M.P.), Govt. P.G. (Autonomous) College, Datia (M.P.), Mahakaushal University, Jabalpur (M.P.), Nepal Aquaculture Society, Kathmandu, Nepal, Asian Biological Research Foundation (ABRF), Prayagraj, India, is organising an important International conference on "theme Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability" during December 23 -24, 2022, at Gwalior

Depletion of natural resources like land, forest, water, air has made the environment a grave cause of concern now a days. It gives me pleasure to know that all these issues shall be addressed in the 4th ICES 2022, hosted by Jiwaji University, Gwalior.

On this grand occasion, I hereby extend my good wishes for the grand success of the Conference.

(Dr.Rajendra Kumar Baghel)

nidm
Resilient India - Disaster Free India

डॉ. संतोष कुमार
प्रोफेसर एवं विभागाध्यक्ष
Dr. Santosh Kumar
Professor & Head GIDRR Division
Director IUINDRR- NIDM

राष्ट्रीय आपदा प्रबंधन संस्थान
National Institute of Disaster Management
(गृह मंत्रालय, भारत सरकार)
Ministry of Home Affairs, Govt. of India
Plot No. 15, Block B, Pocket 3, Sector 29, Rohini, Delhi-42

Date: 20.12.2022

MESSAGE

Change is the only thing that never stops. Since 1990, the world has changed a lot. Connectivity, speed, communication, technology, lifestyle, and the environment are all different from what they were in the past. On the other hand, the recent COVID 19 pandemic has also pushed us to our limits. People from all over the world came together to make vaccines to keep people safe. Disasters like earthquakes, floods, cyclones, droughts, heat waves, cold waves, and so on are drastically changing its pattern. Disaster management is a subject that involves many different fields of study and is full of unknowns. It takes partnerships to tackle the huge problem of reducing the risk of disasters before they happen and making communities more resilient. Under the 10 PM plan of the Honourable Prime Minister Shri Narendra Modi, NIDM has set up a network of Indian universities and institutions to manage knowledge, do research, and come up with new ideas for all kinds of disasters.

We are glad to be working with GESA on the 4th International program ICES 2022. The conference is being put on by GESA, NIDM, and Giwaji University, Gwalior. We are glad to see that disaster management has been given the attention it deserves and added as one of the key themes.

I think that all the partners for disaster risk reduction, climate change, and the environment will work together in a bigger way in the future. I am sure this would help people become stronger. It will be a great help to all people.

I hope you all do well.

(Santosh Kumar)

E-mail: santosh.nidm@nic.in; profsantosh@gmail.com • वेब साईट/Website: www.nidm.gov.in

Department of Higher Education
Government of Madhya Pradesh

Professor Kumar Ratnam, D.litt
Additional Director
Gwalior-Chambal Division,
Gwalior (M.P.)

Date:- 14-12-2022

Message

I am happy to know that 4th International Conference on Environment and Society (4th ICES) on 23-24 December 2022 in association with Jiwaji University Gwalior (M.P.), National Institute of Disaster Management (NIDM) Ministry Of Home Affairs, Govt. of India, Glocal Environment & Social Association (GESA), New Delhi, Govt. K.R.G.P.G. Autonomous college Gwalior (M.P.), Govt. P.G. Autonomous college Datia (M.P.), Mahakaushal University Jabalpur (M.P.), Nepal Aquaculture Society Kathmandu, Nepal and Asian Biological Research Foundation (ABRF) Prayagraj, India at Jiwaji University Gwalior (M.P.).

We are looking forward for new development and technologies every day. I am Confident that this International Conference will be platform to exchange and shareof ideas and Innovations among Faculty members, Scientists, Researchers and Students etc. from different parts of country and abroad.

I congratulate to organizers of this International Conference. I convey my good wishes to the conference on the topic “Recent Advances in Disaster Management, Agriculture and Environmental Sustainability” on 23-24 December 2022.I hope the recommendations of this International Conference will be useful at International level.

(Professor Kumar Ratnam,)

Date: 14.12.2022

Message

It is a great pleasure to welcome all Delegates, Participants, Distinguished Speaker and Organizers of 4th International Conference on Environment and Society (4th ICES) on 23-24 December 2022 in association with Jiwaji University Gwalior (M.P.), National Institute of Disaster Management (NIDM) Ministry Of Home Affairs, Govt. of India, Glocal Environment & Social Association (GESA), New Delhi, Govt. K.R.G.P.G. Autonomous college Gwalior (M.P.), Govt. P.G. Autonomous college Datia (M.P.), Mahakaushal University Jabalpur (M.P.), Nepal Aquaculture Society Kathmandu, Nepal and Asian Biological Research Foundation (ABRF) Prayagraj, India at Jiwaji University Gwalior (M.P.).

We are looking forward for new development and technologies every day. I am Confident that this International Conference will be platform to exchange and share of ideas and Innovations among Faculty members, Scientists, Researchers and Students etc. from different parts of country and abroad.

I wish for a great success of the International Conference on the topic "Recent Advances in Disaster Management, Agriculture and Environmental Sustainability" on 23-24 December 2022. I hope the recommendations of this International Conference will be useful at International level.

(Dr M.R. Kausal)
Principal
शा. कमलाराजा कन्या स्नातकोत्तर
महाविद्यालय ग्वालियर

कार्यालय प्राचार्य, अग्रणी शासकीय स्वशासी स्नातकोत्तर महाविद्यालय दतिया (म.प्र.)
नैक द्वारा प्रत्यायित ग्रेड बी
Email- hegpgcdat@mp.gov.in, pgcdatia@rediffmail.com
फोन नं0 07522-292250

क्रमांक ...../22 दिनांक 14.12.2022

//संदेश//

यह जानकर अत्यन्त प्रसन्नता हो रही है कि जीवाजी विश्वविद्यालय,ग्वालियर राष्ट्रीय अपदा प्रबंधन संस्थान भारत सरकार,नई दिल्ली ग्लोकल इनवायरमेंट एण्ड सोशल ऐसोसियेशन नई दिल्ली,शासकीय के.आर.जी.कॉलेज,ग्वालियर,शासकीय पी.जी.ऑटोनोमस कॉलेज दतिया, महाकौशल विश्वविद्यालय जबलपुर के साथ नेपाल एक्वाकल्चर सोसायटी काठमाँडू नेपाल तथा एशियन वायोलॉजीकल रिसर्च फाउन्डेशन प्रयागराज के संयुक्त तत्वाधान में 23 एवं 24 दिसम्बर 2022 को दो दिवसीय अन्तर्राष्ट्रीय शोध संगोष्ठी पर्यावरण एवं समाज को लेकर जीवाजी विश्वविद्यालय ग्वालियर, में आयोजित की जा रही है। यह आयोजन निश्चित ही अकादमिक उन्नयन की दिशा में एक मील का पत्थर सावित होगा। निश्चित ही यह सराहनीय कदम है, हर्ष का विषय है।

इस अवसर पर अन्तर्राष्ट्रीय सेमीनार में प्रस्तुत करने वाले शोध पत्रों पर आधारित एक शोध संक्षेपिका संकलन भी प्रकाशित होने जा रहा है। शोध पत्रों पर आधारित प्रकाशित होने वाले इस संकलन के प्रकाशन के लिए मेरी ओर से हार्दिक शुभकामनाऐं।

सुधी पाठक जन इस शोध संकलन को अवश्य ही सराहेगें एवं लाभान्वित भी होगें।

सादर!

(डॉ.डी.आर.राहुल)
प्राचार्य
शासकीय स्वशासी स्नातकोत्तर
म्हाविद्यालय दतिया (म.प्र.)

नेपाल एक्वाकल्चर सोसाइटी
NEPAL AQUACULTURE SOCIETY (NAS)
298/28 Vinayak Marg, Sinamangal-9
Kathmandu-44600, Nepal

+977-9841238706
neaquas@gmail.com
Date: 15.12.2022

PROF. (DR.) SHYAM NARAYAN LABH (*Gold Medalist*)
Fulbright Research Scholar, ARI-University of Idaho, USA-2019
M. Sc., Ph.D. (Delhi Univ.), D.Sc., FAZ, FZSI, FNAS, FBPS, FLS (London) & APCBEES (UK)
NAST-INSA Fellow (2015): ICAR-Fisheries Univ. (CIFE), Versova, Andheri (W), Mumbai
Chief Editor: Advances in Multidisciplinary and Current Research; Weser Books: Germany
Former Head: Campus Research Committee, ASCOL, Tribhuvan University, Kathmandu
Founder & President : Nepal Aquaculture Society
Patron: Asian Biological Research Foundation (ABRF)
ORCID: https://orcid.org/0000-0001-7254-7281

Message from the President

Nepal (Federal Democratic Republican Country), with the Himalayas to the north and the plains to the south, is a landlocked country in South Asia, ranked 27th in the world and 10th in Asia. Over 22,000 species are listed between them, with over 12957 insects, 53 amphibians, 137 reptiles, 255 fishes, 871 birds, and 210 mammals identified. There are 6653 angiosperm species, 28 gymnosperm species, 1001 algae, 2025 fungi, 771 lichens, 1150 bryophytes, and 534 pteridophytes in this shining paradise on Earth. Nepal has a diverse range of species that occur along the height gradient. It's like being in heaven.

Keeping these views in mind, Nepal Aquaculture Society (NAS) has registered under the Associations Registration Act, 2034 (1977) (Act No. 10 of 1977) as a nonprofit organization (Registration No. 955/2011/Govt. of Nepal). The society's primary goal is to provide research themes, ideas, concepts, and know-how to conduct research and projects with the interaction of scholars through the organization of conferences, workshops, training, seminars, and capacity-building programs in collaboration with international or national organizations and by using a professional team of intellectuals to deliver consultancy in science, society, and development to support foreign students, faculty, research, and development.

Jiwaji University, Gwalior, is the host institution for the 4th International Conference on Environment and Society (ICES-2022) (M.P.) in association with Glocal Environment & Social Association (GESA), New Delhi, Govt. KRG PG (Autonomous) College Gwalior (M.P.), Govt. P.G. (Autonomous) College Datia (M.P.), Mahakaushal University Jabalpur (M.P.), Asian Biological Research Foundation (ABRF) Prayagraj, India, Nepal Aquaculture Society Kathmandu, Nepal and the Technical Partner National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Government of India, Delhi with the conference theme "*Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability*" held on 23 & 24 December 2022.

I wish the organizer with his associated team members for the grand success of the conference.

Best regards,

Prof. Dr. Shyam Narayan Labh
Founder & President
Date: Nov 29, 2022

शासकीय कमलाराजा कन्या स्नातकोत्तर स्वशासी महाविद्यालय, ग्वालियर
GOVT. KAMLA RAJA GIRLS P.G. AUTO. COLLEGE, GWALIOR (M.P.) INDIA
(Affiliated to Jiwaji University, Gwalior under 2(f) & 12(b) NAAC – 'A' Grade Accredited Institute)
www.krgcgwalior.org krgc@rediffmail.com Phone : 0751- 2625495, 0751-2438173

ग्वालियर, दिनांक 15 दिसंबर, 2022

Message

मेरे लिये अत्यन्त प्रसन्नता का विषय है कि ग्लोबल एनवायरमेंट एंड सोशल एसोसिएशन (जीसा) प्रयागराज, जीवाजी यूनिवर्सिटी ग्वालियर, शासकीय कमलाराजा कन्या स्नातकोत्तर स्वशासी महाविद्यालय ग्वालियर, शासकीय स्नातकोत्तर महाविद्यालय दतिया, शासकीय महाकौशल महाविद्यालय जबलपुर, एबीआरएफ, राष्ट्रीय आपदा प्रबंधन संस्थान (एनआईडीएम) तथा आईबीआरएफ के बैनर तले एक **इंटरनेशनल कॉन्फ्रेंस ऑन एनवायरनमेंट सोसाइटी (4TH ICES 2022)** के तहत् **रिसेंट एडवांसमेंट इन डिजास्टर मैनेजमेंट एग्रीकल्चर एंड एनवायरमेंटल सस्टेनेबिलिटी** विषय पर 23–24 दिसंबर 2022 को एक अंतरराष्ट्रीय सम्मेलन का आयोजन जीवाजी विश्वविद्यालय ग्वालियर में करने जा रहा है। मैं इस सम्मेलन में पधार रहे सभी प्रतिनिधियों, प्रतिभागियों, विशिष्ट वक्ता और आयोजकों का गर्मजोशी से स्वागत करता हूं तथा आशा करता हूं कि इस सम्मलन में संलग्न सभी संस्थायें भविष्य में इस तरह के शोध कार्यों, विचारों तथा नवाचारों के आदान–प्रदान के इस प्रयास को राष्ट्रीय–अंतर्राष्ट्रीय स्तर पर पहुंचाने का कार्य परस्पर सहभागिता के साथ करेंगी।

मैं इस अंतर्राष्ट्रीय सम्मेलन को अपने उद्देश्यों की पूर्ति के लिये, समाज के प्रत्येक वर्ग तक अपनी आवाज को पहुंचाने के लिये तथा सफलतम आगाज के लिये हार्दिक शुभकामनायें प्रेषित करता हूं।

(प्रो. संजय स्वर्णकार)
अकादमिक सचिव
शा. कमला राजा कन्या स्नातकोत्तर स्वशासी महाविद्यालय,
ग्वालियर (म.प्र.)

Date : 15/12/2022

Message

It is a matter of immense pleasure that Global Environment and Social Association (GESA) is going to organize it's event -4th International Conference on Environment and Society (4th ICES) on 23-24 December 2022 at Jiwaji University, Gwalior (M.P.). It is indeed a recent requirement to have such type of Conferences. Success of an event depends upon the fact that how much it is connected and relevant to the common man. Hope this Conference serves the purpose and creates awareness about importance of environment amongst the society.

I convey my heartiest wishes for the success of the event.

Prof. (Dr.) Kishor Arora
Academic Secretary,
Government Postgraduate College,
Datia (M.P.)

भूविज्ञान अध्ययनशाला

जीवाजी विश्वविद्यालय, ग्वालियर - 474011 (म.प्र.),भारत

SCHOOL OF STUDIES IN EARTH SCIENCE

JIWAJI UNIVERSITY, GWALIOR - 474011 (M.P.), INDIA

Mob.:+919893361185; E-mail: suraj64@yahoo.com

Dr. S.N. Mohapatra

M.Sc., M.Sc. Tech., M.Phil., Ph.D.

Professor & Head

Ref.

Date.....

Message

We are greatly honoured to invite all the delegates for the 4th ICES 2022 to be held on 23rd and 24th December 2022 at Jiwaji University, Gwalior.

It is my pleasure to pen down my thoughts on the occasion of 4th ICES 2022. We are in an era when natural disasters are a common occurrence feature in the globe due to several reasons. India has been historically vulnerable to natural disasters on account of its unique geo-climatic conditions. Floods, droughts, cyclones, earthquakes and landslides are recurrent phenomena. Supervision of disaster risks and disaster events is heavily dependent on scientific knowledge and evidence - based techniques. Coping with hazards, whether natural or attributable to human activity, is one of the greatest challenges of the applications of science and technology. One of the most important sectors of the Indian economy is the agricultural sector. Every year Indian agriculture is being challenged by natural disasters. Frequency and severity of natural disasters are continuously increasing and agriculture is easily affected to a large extent by these disasters as it depends directly on the climate, weather, water and land. Natural disasters bring about poverty, which in turn increases the prevalence of food insecurity and malnutrition. Hence, there is a need to be in a position to mitigate and manage disasters

The theme of the 4th International Conference on Environment and Society (4th ICES 2022) on "Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability ", aims to provide a common platform for academicians and researchers to share their knowledge to address these burning issues. The international conference is an apt platform for interaction among experts from national and international institutions. The fruitful deliberations and recommendations during the conference will certainly provide future roadmaps for collaborative research.

We wish to thank all the participants, sponsors, invited speakers, advisory board, volunteers and all those who have contributed in successfully organising the Event.

Date : 13.12.22

(Dr. S.N.Mohapatra)
Convener
4th ICES 2022

4th International Conference on Environment and Society

On 23-24 December 2022 in Gwalior (M.P.) India

Welcome message from, Convener 4th International Conference on Environment and Society

On behalf of the organizing committee, I am honored and delighted to welcome all of you in the 4th International Conference on Environment and Society (4th ICES) on 23-24 December 2022 in Gwalior (M.P.) India.

This conference is going to organize with the Theme:"Recent Advances in Disaster Management, Agriculture and Environmental Sustainability" It is a great pleasure to welcome all Delegates, Participants, Distinguished Speaker and Organizers of 4th International Conference on Environment and Society (4th ICES) on 23-24 December 2022 in association with Jiwaji University Gwalior (M.P.), National Institute of Disaster Management (NIDM) Ministry Of Home Affairs, Govt. of India, Glocal Environment & Social Association (GESA), New Delhi, Govt. K.R.G.P.G. Autonomous College Gwalior (M.P.), Govt. P.G. Autonomous College Datia (M.P.), Mahakaushal University Jabalpur (M.P.), Nepal Aquaculture Society Kathmandu, Nepal and Asian Biological Research Foundation (ABRF) Prayagraj, India at Jiwaji University Gwalior (M.P.).

I am Confident that this International Conference, there will be so many presenters from all over the world with Keynote talks and invited speakers, scientific sessions, poster presentations and young researchers. I will be waiting for you to be part of this International Conference and hope we all will make it successful.

Prof. Madhu Laxmi Sharma
Professor and Head,Deptt.of Botany,
Convener, Environmental Studies,
Govt. K.R.G. P.G. Autonomous college, Gwalior (M.P.)

Date: 16.12.2022

GLOCAL ENVIRONMENT &
SOCIAL ASSOCIATION (GESA)
H.O.: 62, Jasola, New Delhi-110025
http://www.gesa.org.in

Date: 17.12.2022

WELCOME TO ICES 2022
(INTERNATIONAL CONFERENCE)

It is my extreme pleasure to serve as Secretary, Membership affairs of Glocal Environmental and Social Association (GESA). The GESA is organizing its 4th International Conference on 'Environment and Society' (ICES, 2022) with basic theme as Recent advancement in disaster management, agriculture and environmental sustainability. The 1st ICES was organized in 2019 at HBTU Kanpur, India. I would like to congratulate Jiwaji University, NIDM, Govt. of India, Government PG (autonomous) College, Datia, Nepal Aquaculture Society, Kathmandu, Government KRG PG (autonomous College, Gwalior, Mahakaushal University, Jabalpur, ABRF Prayagraj for their great efforts in organizing the present conference. The GESA has always been at fore front of creating awareness amongst people from different walks of life on the grave issues involved. The reality of climate cannot be ignored: As polar ice and glaciers are melting and sea level is rising, as the climate becomes more unpredictable and unstable, one of the primary challenges for humans to develop new crops and cropping patterns to combat climate uncertainties. It is not only agriculture that is affected, several species are also being lost as anthropogenic activities and spontaneous fire take toll of the surviving tropical forest of world. Unfortunately, many of these organisms like many insects are at verge of extinction, small creatures that we do not even notice ones that do a great job is regenerating our forests, clearing forest litter and creating fertile soil by reworking their own habitats.

The present is the time for introspection, understanding and prediction of the way in which the earth will change in short term. The need of hour is awareness, an effort which the current is making. I wish them all success!

Sunita Arya

Prof. Sunita Arya
Secretary, Membership Affairs, GESA

R.O.: 14E/4A, J.L.N. Road, Prayagraj 211002
E-mail id: officegesa1@gmail.com • Contact: +91 8299707006

Dr. Harendra K. Sharma
Associate Professor and Head

School of Studies in Environmental Science
Jiwaji University, Gwalior-474011, INDIA
Ph: 0751-2442614 Mob: +919826230662
Email: drhksharmagwl@gmail.com

Ref.: **Date: 13/12/2022**

Message

On behalf of the organizing Committee, I do welcome all of you in the occasion of 4th International Conference on Environment and Society (4th ICES 2022) on "Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability "on 23rd and 24th December 2022. I am honored and privileged to organize the 4th ICES-2022 in my own esteemed Jiwaji University, Gwalior.

Today, the greatest concern that occupies in mind is environment. We are in a period of history that calls for ambitious collective measures. To meet the Sustainable Development goals is a call to action for speeding sustainable solutions to all of the world's most irresistible problems, including environmental pollution, climate change and disaster management. The conference is meant for many brain storming sessions for discussing the major issues associated with environment, agricultural sector and disaster management.

I extend my warm welcome to all our National and International participants and hope to be benefited from this conference. I am sure the deliberations during the conference will certainly address these issues.

I wish the success of 4th ICES-2022 conference and hope that new perspectives are gained by all the participants of the conference.

(Dr. Harendra K. Sharma)
Organising Secretary
4th ICES 2022

OFFICE PRINCIPAL
GOVT. POST GRADUATE (AUTONOMOUS) COLLEGE, DATIA (M.P)
Office No 07522-292250

Date- 16.12.2022

Message

I am happy to learn that Glocal Environment and Social Association, National Institute of Disaster Management, Ministry of Home affairs Govt. of India, Jiwaji University Gwalior, Govt. P.G.College Datia, Govt. K.R.G. College Gwalior, Mahakaushal University Jabalpur, Nepal Aquaculture Society and Asian Biological Research Foundation Prayagraj India is jointly organizing a two day International Conference on 23 and 24 December 2022 on "Environment and Society". The theme chosen for the Conference is of much importance & relevance today as environment shapes society and it inturn shapce individuals behavior, as a result of which we consider ourselves as living in risk societies. Because human relations with the environment have become increasingly complex due to spread of industrialization. There is a need to focus our attention for the sustainable development of environment.

I do hope that deliberations of conference would be able to maintain the equilibrium between environment and society.

My sincere and best wishes for success of the Conference.

Orgnising Secretory
Dr. Seema Margret Singh

ASIAN BIOLOGICAL RESEARCH FOUNDATION

www.abrf.org.in
secretary.abrf@gmail.com
8299707543
abrf prayagraj
JLN Road 'The Little House'
Tagore Town Prayagraj 211002 (India)

Date: 16.12.2022

Message

It is indeed a matter of great pride for me in organizing 4th International Conference on "Environment and Society" on 23rd & 24th December, 2022 at Jiwaji University, Gwalior (M.P.) under the patronage of Glocal Environment & Social Association (GESA), New Delhi in collaboration with National Institute of Disaster Management (NIDM), Govt. of India, KRG PG College, Gwalior, Govt. P.G. College, Datia, Mahakaushal University, Jabalpur, Nepal Aquaculture Society, Kathnandu and Asian Biological Research Foundation (ABRF), Prayagraj, India. In the context of conference theme "Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability", emphasis is on impact of disaster and changes in climatic condition on the agriculture, biodiversity and sustainable environment.

I hope that this conference will serve to bring together experts, scientists and pioneer academicians, research scholars from different disciplines and young enthusiastic minds bubbling with academic queries and passions on a common platform. It will also help to create general awareness to conserve and protect the biodiversity, environment and humanity (Key objective of ABRF).

On behalf of ABRF and organizing committee, I welcome all the Guests, Delegates and young scientists and hope that, such noble efforts will continue by GESA in future also.

(**Dr. Sadguru Prakash**)
Asian Biological Research Foundation (ABRF),
Prayagraj, U.P.

4th International Conference on ENVIRONMENT AND SOCIETY (ICES 2022)

Theme: Recent Advancement in Disaster Management, Agriculture & Environmental Sustainability

Date: 20.12.2022

Message

It is a matter of great pleasure that 4th International conference on **Environment and Society** (**ICES 2022**) is being organized and hosted by Jiwaji University, Gwalior (M.P.) in association with Glocal Environment & Social Association (GESA), New Delhi, Govt. KRG PG (Auto.) College, Gwalior, Govt. P.G. (Auto.) College, Datia, Mahakaushal University, Jabalpur, Nepal Aquaculture Society, Kathmandu, Asian Biological Research Foundation (ABRF) Prayagraj, India and National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India on 23rd & 24th December 2022 with the basic theme as "Recent Advancement in Disaster Management, Agriculture & Environmental Sustainability".

The theme of this ICES is quite pertinent in contemporary scenario of the world in general and India in particular. The climate change, global warming, biodiversity conservation and sustainable development, all are big challenges of this century having global effects. Each and every one has to play a significant role in conserving not only the biodiversity but also the water and nature to save the human and humanity.

I congratulate the entire organizing team for taking up this challenging but momentous initiative. I hope that this conference will provide a platform for the researchers of relevant fields to contemplate and present their research papers along with the opportunity to interact with fellow researchers and veterans of their areas of research. I am confident that outcomes of this international conference on various issues on the subject will generate a new concept in order to conserve and protect the water, nature, biodiversity and humanity.

I on behalf of entire core team, impart ecofriendly best wishes to the organisers for organising the ICES 2022 and welcome all the participants across the nation and abroad as well.

(Dr. A.K.Verma)

Overall Coordinator & Conf. Director, ICES 2022

ABOUT THE ORGANIZERS

Jiwaji University, Gwalior (M.P.)

Jiwaji University, Gwalior came into existence on May 23, 1964 through M.P. Govt. Ordinance no. 15 of 1963. It was named after the Alijah Bahadur Sir Jiwaji Rao Scindia, the former ruler of the Gwalior state. Late Dr. Sarvapalli Radhakrishnan, the then President of India, laid the foundation stone on 11th December 1964 at a sprawling campus of over 225 acres of land at Naulakha Parade ground. This is a generous contribution of Scindia family, in particular Kailashwasi Maharaja Shrimant Jiwaji Rao Scindia and late Rajmata Shrimati Vijayaraje Scindia. The institution is christened after the name of Kailashwasi Shrimant Jiwaji Rao Scindia as a standing memorial to his persona. The motto of the university is embedded in its logo Vidyaya Prapyate Tejah.

The territorial jurisdiction of the University is spread over the districts of Gwalior, Bhind, Morena, Sheopur Kalan, Datia, Shivpuri, Guna and Ashok Nagar. In the beginning, the university had 25 affiliated colleges but today more than 410 Government, Government aided and Private colleges are imparting education to the students under its jurisdiction. These colleges are of Engineering, Life Science, Physical Science, Physical Education, Social Science, Commerce, Management, Arts, Library & Information Science, Law, Pharmaceutical Science, Technology etc.

National Institute of Disaster Management (NIDM)
Ministry of Home Affairs, Govt. of India

The National Institute of Disaster Management (NIDM) was constituted under an Act of Parliament with a vision to play the role of a premier institute for capacity development in India and the region. The efforts in this direction that began with the formation of the National Centre for Disaster Management (NCDM) in 1995 gained impetus with its redesignation as the National Institute of Disaster Management (NIDM) for training and capacity development. Under the Disaster Management Act 2005, NIDM has been assigned nodal responsibilities for human resource development, capacity building, training, research, documentation and policy advocacy in the field of disaster management.Both as a national Centre and then as the national Institute, NIDM has performed a crucial role in bringing disaster risk reduction to the forefront of the national agenda. The Institute believes that disaster risk reduction is possible only through promotion of a "Culture of Prevention" involving all stakeholders. The Institute works through strategic partnerships with various ministries and departments of the central, state and local governments, academic, research and technical organizations in India and abroad and other bi-lateral and multi-lateral

international agencies.NIDM is proud to have a multi-disciplinary core team of professionals working in various aspects of disaster management. In its endeavour to facilitate training and capacity development, the Institute has state-of-the-art facilities like class rooms, seminar hall and video-conferencing facilities etc. The Institute has a well-stocked library exclusively on the theme of disaster management and mitigation. The Institute provides training in face-to-face, on-line and self-learning mode as well as satellite based training. In-house and off-campus face-to-face training to the officials of the state governments is provided free of charge including modest boarding and lodging facilities.NIDM provides Capacity Building support to various National and State level agencies in the field of Disaster Management & Disaster Risk Reduction. The Institute's vision is to create a Disaster Resilient India by building the capacity at all levels for disaster prevention and preparedness.

Glocal Environment & Social Association (GESA), New Delhi

In order to serve the Nature and Society for better future, the Glocal Environment & Social Association (GESA) is constituted. Its headquarter is located in New Delhi. Its main aim is to develop and promote '***global thought and local action***' ideology to save the nature. It organizes the seminars; workshops etc. to aware and educate the people on blazing environmental and social issues. The GESA felicitates the persons and organizations for their outstanding services rendered in various fields of agriculture, arts, biodiversity conservation, commerce, culture, education, environment, healthcare, humanities, literature, mass communication, music, patriotism, peace and harmony, science, sports, technological innovations and other social services. The GESA will confer following categories of awards and honours through search and nominations to its members:

1. Lifetime Achievement Award (Above 55 years of age)
2. Hon. Fellowship/ Fellowship (FGESA)
3. Dr. APJ Abdul Kalam Green Environment Promotion Award
4. Dr. Sarvepalli Radhakrishnan Education Promotion Award
5. Chaudhary Charan Singh Award for Agricultural Innovations
6. Sardar Patel Glocal Award for Social Awareness
7. Lal Bahadur Shastri Glocal Award for Biodiversity
8. Senior Scientist Award (Above 40 years of age)
9. Best Faculty Award for Teaching/Research Innovations
10. Distinguished Service Award / Distinguished Teacher Award (Crop, Plant Protection, Horticulture, Fisheries, Home Science, Social Science, Animal Science, Life Science etc.)
11. Innovative Educationist Award/ Agriculture Extensionist Award
12. Teacher of the Year / Extension Professional of the Year / Doctor of the Year Award
13. Technological Innovations Award
14. Paryavaran Ratna Puraskar
15. Vigyan Bhushan Puraskar
16. Sahitya Shri Samman
17. Young Scientist/Young Researcher Award (Below 35 years of age)

Note: Life Membership of GESA is mandatory for above awards. Each awardee receives a multicoloured award certificate, a potted plant, an angvastram and a high quality memento. GESA Award selection is mainly based on biodata. For detailed guidelines, please log on to website: http://www.gesa.org.in [Email id: ***president.gesa@gmail.com***]

Govt. KRG Post Graduate (Autonomous) College, Gwalior (M.P.)

To provide value education for academic enhancement of girls for sustainable society, Kamla Raja Girls College was established in 1937. It was elevated to PG level in 1970 and autonomous status was conferred on it in 1995. Standing with majestic grace in the heart of the city, the college is housed in one of the palaces of the erstwhile Scindia dynasty. It has an impressive historic main building alternated by lush green lawns, tall trees and blocks of various faculties constructed lately. It is a unique college of old and new architecture as well as picturesque natural beauty.

The college is NAAC 'A' grade accredited and one of the biggest colleges in MP with nearly 12,000 girls. It offers a great diversity in program options. The UG and PG classes run in 26 and 23 subjects respectively in Arts, Science, Commerce and Home Science faculties. The college makes a continuous internal assessment of its students through written tests, seminars and symposia under the Autonomous Examination Scheme, followed by the final examination. The College has a rich library with 1.10 lacks books in the Central and Departmental libraries.

तमसो मा ज्योतिर्गमय

Govt. P.G. (Autonomous) College, Datia (M.P.)

Govt. P. G. College Datia is a pioneer institution in Gwalior Chambal Division. It was established in 1956 and conferred with autonomous status in1995. The institution is situated in the holy city of Datia and is housed in one of the palace of Bundela dynasty. This college has a unique combination of old and new architecture. It spreads over a vast campus of 13.22 acres. Govt. P.G. College is an autonomous institution affiliated by Jiwaji University Gwalior. College has Arts, Science and Commerce faculties with more than 9000 students at U.G. and PG level.

The college has 14 PG departments with 5 Research centers recognized by the affiliating University. College is accredited with 'B' grade by NAAC. It is the second largest college in Gwalior Chambal Division.

Mahakaushal University, Jabalpur (M.P.)

Mahakaushal University, Jabalpur has been established by the MP Govt. Ordinance Number 11 dated 13th January 2021. Ordinance has been passed by MP state legislative assembly dated 25th February 2021. University has been included in the list of Universities established as per section 2(f) of UGC Act 1956.

Mahakaushal University offers an advanced Education system to the students in the fields of Engineering Technology, Agriculture, Humanities, Yoga, Paramedical, fire safety Science, Nursing, Education, skill-based program and Future demanding courses. students will be made ready for multitasking activities to bring Nation at fore- front globally. Our education system is ready to fulfill requirements from Public and private sectors for future needs.

Nepal Aquaculture Society, Kathmandu, Nepal

Nepal Aquaculture Society (NAS) well known as a nonprofit, non-Govt. and autonomous organization registered under the Act of Sanstha Darta of 2034, Govt. of Nepal having its regd. office at Shri Vinayak Marg, Sinamangal-9, Nepal. The NAS is committed to serve and provide expertise towards the Global development in life sciences disciplines.

www.abrf.org.in

Asian Biological Research Foundation (ABRF), Prayagraj, India

The ABRF Prayagraj, India is a self-supporting, academic and research associated body. It is basically non-profit and Non-Government Organization: (1) to provide a common platform for scientists associated with biological sciences to interact with one another for mutual benefit and to enhance the innovative knowledge on the subjects (2) to encourage, facilitate and perform the activities related to conservation of water, nature and biodiversity (3) to promote the new scientific knowledge that has emerged from recent advances and to felicitate the persons and organizations internationally for their outstanding services rendered in basic, applied and modern biological sciences including all branches of Botany, Zoology, Agriculture, Veterinary Science, Environmental Science, Molecular Biology, Biotechnology, Biochemistry, Bioinformatics, Microbiology, and so on, (4) to collaborate

with National and International Institutions, Government and Non-Government Organizations, Schools, Colleges, Institutions, Universities, Private and Public sector Industries to achieve the objectives of the ABRF. The ABRF confers following categories of awards and honours through search and nominations:

1. ABRF Lifetime Achievement Award (above 57 years of age)
2. Hon. Fellowship/Fellowship (FABRF)
3. ABRF Excellence Award for Environmental/Agricultural/Botanical/ Zoological Research
4. ABRF Global Recognition Award
5. Outstanding Extension Professional/Agriculture Scientist/ Social Services Award
6. Best Teacher Award for Agricultural/Botanical/Environmental/Zoological Innovations
7. Eminent Ichthyologist/ Environmentalist/ Ecologist/ Entomologist/ Geneticist/ Parasitologist/ Cytologist/ Taxonomist/ Plant Pathologist/ Physiologist/Biotechnologist/ Anthropologist Award
8. Senior Botanist/ Zoologist/ Biochemist/ Scientist/ Environmentalist Award (above 45 years of age)
9. Innovative Botanist/Zoologist/Scientist/Environmentalist/Agriculture Scientist/Biotechnologist/ Extension Professional Award
10. Innovative Biologist Award for Wild Life/ Biodiversity Conservation
11. Vigyan Ratna Puraskar (No age bar)
12. Paryavaran Shri Samman (No age bar)
13. Young Botanist/Zoologist/Scientist Award (below 30 years of age; mainly for research scholar)

Note: Only ABRF Life Members are eligible for applying these awards. Each award will consist of a potted plant, an angvastram, a multicoloured award certificate and a high quality memento. ABRF Award selection is strictly based on API and biodata both. For detailed guidelines, please log on to website: **http://www.abrf.org.in [email id: secretary.abrf@gmail.com**]

ORGANIZING COMMITTEE

Chief Patron

Prof. Avinash Tiwari
Hon'ble Vice Chancellor, Jiwaji University, Gwalior (M.P.), India

Patrons

Prof. R.C. Mishra
Hon'ble Vice Chancellor, Mahakaushal University, Jabalpur (M.P.), India
Prof. Santosh Kumar
NIDM, Ministry of Home Affairs, Govt. of India
Prof. M.R. Kaushal
Principal, Govt. KRG PG (Autonomous) College, Gwalior (M.P.).
Prof. S.N. Labh
Tribhuvan University, Kathmandu (Nepal); Patron ABRF, Prayagraj & Founder, NAS
Dr. D.R. Rahul
Principal, Govt. P.G. (Autonomous) College, Datia (M.P.).

Co-Patrons

Prof Ashis K. Panigrahi
Pro Vice Chancellor, The University of Burdwan (W.B.)
Prof. O.P. Mishra
Dean, Physical Science, Jiwaji University, Gwalior (M.P.)
Prof. I.K. Patro
Dean, Life Science, Jiwaji University, Gwalior (M.P.)
Prof. Rajendra Singh
DDU University, Gorakhpur (U.P.)
Dr. B.K. Chakraborty
Former Director, Department of Fisheries, Dhaka, Bangladesh; Co-Patron, GESA, New Delhi
Prof. Kamal Jaiswal
BBA Central University, Lucknow
Dr. V.C. Srivastava
President, ABRF, Prayagraj (U.P.)
Dr. H.P. Pandey
Vice President , GESA New Delhi

Conference Galaxy

Dr. R. K. Baghel
Registrar, Jiwaji University, Gwalior (M.P.)
Prof. S.K. Dwivedi
DSW, Jiwaji University, Gwalior (M.P.)
Prof. A. K. Singh
Jiwaji University, Gwalior (M.P.)
Prof. J. N Gautam
Jiwaji University, Gwalior (M.P.)
Prof. D.N. Goswami
Jiwaji University, Gwalior (M.P.)
Prof. Yogesh Upadhyay
Jiwaji University, Gwalior (M.P.)
Dr. Keshav Singh Gurjar (DCDC)
Jiwaji University, Gwalior (M.P.)

Prof. Mohd. Serajuddin
Head, Department of Zoology, Lucknow University, Lucknow
Prof. K.P. Singh
Department of Zoology, University of Allahabad, Prayagraj
Prof. Abhay K. Pandey
Department of Biochemistry, University of Allahabad, Prayagraj
Prof. D.K. Chauhan
Department of Botany, University of Allahabad, Prayagraj
Prof. Girijesh Kumar
Head, Department of Botany, University of Allahabad, Prayagraj
Prof. S.M. Prasad
Department of Botany, University of Allahabad, Prayagraj
Dr. Niloy Khare
Scientific Adviser to the Government of India at MoES, New Delhi
Dr. A. Arunachalam
Director, CAFRI Jhansi, U.P.
Dr. Ramesh Singh
Sardar Vallabhbhai Patel University of Agriculture and Technology, Meerut (U.P.)
Dr. Sheo Kumar
Scientist 'G', Botanical Survey of India, MoFE&CC, Govt. of India.
Prof. Javed Ahmad
President, NESA and Former Dean, Faculty of Science, JH, New Delhi

Chairpersons

Prof. Y.K. Jaiswal
Jiwaji University, Gwalior (M.P.)
Prof. G.B.K.S. Prasad
Jiwaji University, Gwalior (M.P.)
Prof. Nalini Shrivastava
Jiwaji University, Gwalior (M.P.)
Prof. S. K. Shrivastava
Jiwaji University, Gwalior (M.P.)
Prof. D.C. Gupta,
Jiwaji University, Gwalior (M.P.)
Prof. M. K. Gupta
Jiwaji University, Gwalior (M.P.)
Prof. Sanjay Swarnkar
Academic Secretary, Govt. KRG PG (Autonomous) College, Gwalior (M.P.)
Prof. Kishor Arora
Academic Secretary, Govt. Post Graduate (Autonomous) College, Datia (M.P.)
Dr. A.K. Pandey
Principal Scientist, ICAR-NBFGR Lucknow (U.P.)
Prof. Vineeta Shukla
Head, Department of Zoology, Mahrishi Dayanand University, Rohtak (Haryana)
Prof. Bechan Sharma
Head, Department of Biochemistry, University of Allahabad, Prayagraj

Co-Chairpersons

Prof. Vandana Rai, Dean Science, VBS Poorvanchal University, Jaunpur (U.P.)
Prof. Anupam Pandey, Head, Department of Geography, University of Allahabad, Prayagraj
Prof. Sangeeta Avasthi, Head, Dept. of Zoology, A.N.D. N.N. Mahila Mahvidyalaya, Kanpur
Prof. Shri Prakash, Head, Dept. of Zoology, KA PG College, Prayagraj (U.P.)

Coordinator / Conference Director

Dr. A.K. Verma

Conveners

Prof. S.N. Mohapatra
Head, School of Studies in Earth Science, Jiwaji University, Gwalior (M.P.)
Prof. Madhu Laxmi Sharma
Head, Department of Botany, Govt. KRG PG (Autonomous) College, Gwalior
Prof. Sunita Arya
Secretary, Membership Affairs, GESA New Delhi P

Co-Conveners

Dr. Nimisha Jadon (Env. Chem., JU, Gwalior)
Dr. Raj Kumar Sharma (LNIPE, Gwalior)
Dr. Bhaskar Jyoti (Mahakaushal, Jabalpur)
Dr. A.N. Shukla (GESA, New Delhi)
Dr. Menka Verma (GESA, New Delhi)

Organizing Secretaries

Dr. Harendra K. Sharma
Head, School of Studies in Environmental Science
Jiwaji University, Gwalior
Dr. Seema Margret Singh
Head, Department of Botany, Govt. PG (Autonomous) College, Datia (M.P.)
Dr. Sadguru Prakash
Treasurer, Asian Biological Research Foundation (ABRF), Prayagraj

Joint-Organizing Secretaries

Prof. Sadhna Pandey (Gwalior)
Prof. Rajendra K. Dubey (Gwalior)
Prof. Parth Sarthi Pandey (Prayagraj)
Dr. Manoj Sharma (Gwalior)
Dr. Riaz Ahmad (Aligarh)
Dr. Wahied K. Balwan (Doda)

Co-Organizing Secretaries

Dr. Sameer Bhagyavant (Gwalior)
Dr. S.C. Kaushik (Datia)
Dr. Nitin G. Shinde (Ahmednagar)
Dr. Arvind K. Chavhan (Nanded)
Dr. Nazia Rasool Latifi (Jammu)

Asst. Organizing Secretaries

Dr. R.P. Singh (Morena)
Dr. Dev Brat Mishra (Jaunpur)
Dr. Arjun Shukla (Jabalpur)
Dr. Devendra Swaroop (Mainpuri)
Mr. Prabhakar Singh (Prayagraj)

Advisory Board

Prof. Recie B. Bonaos (Philippines), Prof. Mark Benecke (Germany), Prof. D.K. Jha (Nepal), Dr O.P. Singh (Nepal), Dr Prabha Chitrakar (Nepal), Dr Archana Prasad (Nepal), Dr Anil Verma (USA), Mr A.K. Douglass (Swedon), Dr. Shailendra Singh (West Africa), Dr Vivek Tiwari (UAE), Mr. Jon Urdiroz (Spain), Dr. B.C. Mohapatra (Bhubaneswar), Prof. Bibha Chetia Borah (Assam), Prof. Ajit K. Saxena (Patna), Prof. G.S. Singh and Prof. Radha Chaube (Varanasi), Prof. D.M. Kumawat (Ujjain), Prof. R.K. Shrivastava (Jabalpur), Prof Shailendra K. Verma and Dr Vinod K. Chaudhary (Ayodhya), Dr Pratibha Gupta (Howarh), Dr. Anu P. Vankara (YSR, A.P.), Prof. Pradeep Jabde and Prof. Shaikh Yasmeen (Aurangabad, MS), Prof Abhijit Joshi (Pune), Prof. S.K. Chaturvedi and Prof. R.C. Tripathi (Chitrakoot), Prof. Ajit T. Kalse (Jalgaon), Dr. R.T. Pawar (Beed), Dr N.D. Yadav and Dr Meera Srivastava (Bikaner), Dr Ajay K. Singh, Dr. A.K. Sharma, Dr. Aparna Parrek (Jaipur), Dr. Zareena Viji and Dr Seema Menon (Kerala), Dr Rajesh Kumar (Puduchery), Mr Sanjeev Kumar (Hazaribagh), Dr Nageshwar Rao (Hyderabad), Dr G.N. Jha, Dr Ajaz A. Wani and Dr Amit Singh Charak (Doda), Dr Alok Sagar Gautam (Dehradun), Dr Deeksha Dave (New Delhi), Dr Vijay K. Umrao (Meerut), Dr Dinesh Kumar (Champa, CG), Dr Vivek Sahu (Port Blair), Dr Prasenjit Hazra (Aurangabad, Bihar), Prof. M.A. Khalid, Dr. Rachana Gangwar, Dr. Kalpana Singh, Dr Deepak K. Srivastav and Dr Ravi S. Verma (Lucknow), Dr Pradeep Kumar (Kushinagar), Dr Avanish K. Singh (Chandauli), Dr Hemlata Saini (Anand, Gujrat), Dr Sunil Singh (Chandigarh), Dr Ashok Kumar and Dr Rajiv Ranjan (Balrampur), Dr M.P. Singh (Firozabad), Dr Bharat Singh (Gurugram), Prof. Lalima Singh, Dr Swati Chaurasia, Dr Rahul Patel, Dr Durgesh Singh and Dr Niharika Tiwari (Prayagraj), Prof. Indrani Dubey, Prof. Anjali Srivastava, Dr Ajay K. Gupta, Dr Rachana Singh and Dr Eshita Pandey (Kanpur), Dr A.K. Srivastav, Dr. R.S. Tomar, Dr Sandeep Arya and Dr Amit Pal (Jhansi), Prof. M.D. Gupta (Bhadohi), Dr S.P. Mishra (Sultanpur), Dr Neelam Bajpai (Kaushambi), Dr. Prerna Mitra (Mandsaur), Dr. Sushma Tiwari (Gwalior), Dr. Raaj K. Maheshwari (Nagaur, Rajasthan).

Local Advisory Board

Prof. Umesh Holani	**Prof. Vivek Bapat**	**Prof. S.K. Dvivedi**
Prof. Radha Tomar	**Prof. S. K. Gupta**	**Prof. K.S. Thakur**
Prof. S.K. Singh	**Prof. Hemant Sharma**	**Prof. Yogesh Upadhyay**
Prof. D.C. Gupta	**Prof. Sanjay Kulsrestha**	**Prof. Mukul Telang**
Prof. Suman Jain	**Prof. Sanjay Gupta**	**Prof. S.S. Tomar**
Prof. R.K. Mahore	**Prof. Smita Sahastrabudhhe**	**Prof. Harish K. Agrawal**
Prof. N. K. Nagaich	**Prof. Sadhna Shrivastava**	**Prof. Sarita Shrivastava**
Prof. D.P. Singh	**Prof. R.C. Upadhyay**	**Dr. Krishna Singh**
Dr. Poorti Pandey	**Dr. Bhanu Shrivastava**	**Mr. Santosh K.Yadav**
Dr. Madhup Shrivastava	**Mrs. Jagrati Maitraya**	**Mrs. Pooja Sahu**
Dr. Ganesh Dubey	**Dr. Navneet Garud**	**Dr. Sameer Bhagyavant**
Dr. Rajendra Khateek	**Dr. Santidev Sisodia**	**Dr. Swarna Parmar**
Dr. Janardan Tiwari	**Dr. G.K. Sharma**	**Dr. Ram Shankar**
Dr. P.K. Jain	**Dr. Satendra Singh**	**Dr. Brajesh K. Jatav**
Mr. S.K. Pandey	**Dr. Abhay Rahul**	**Dr. Shiv Singh**
Dr. K.S. Dadoriya	**Dr. D.K. Sharma**	**Dr. Anish Pandey**
Mr. C.S. Yadav	**Dr. Charu Singh**	**Dr. Rakesh Pathak**
Dr. Renu Tomar	**Dr. Shreya Tiwari**	**Dr. M.K. Tripathi**

Abstracts

Azadi Ka Amrit Mahotsav

G20 भारत 2023 INDIA

वसुधैव कुटुम्बकम्
ONE EARTH • ONE FAMILY • ONE FUTURE

Organized and hosted by

Jiwaji University, Gwalior (M.P.)
http://www.jiwaji.edu/

Glocal Environment &
Social Association (GESA), New Delhi

तमसो मा ज्योतिर्गमय

Govt. P.G. (Autonomous) College
Datia (M.P.)

Nepal Aquaculture Society
Kathmandu, Nepal

In Association with

nidm
Towards a disaster free India.....

National Institute of Disaster Management (NIDM)
Ministry of Home Affairs, Govt. of India

Govt. KRG PG (Autonomous) College
Gwalior (M.P.)

Mahakaushal University
Jabalpur (M.P.)

www.abrf.org.in

Asian Biological Research Foundation (ABRF)
Prayagraj, India

Welcome

Contents


G20
भारत 2023 INDIA
वसुधैव कुटुम्बकम्
ONE EARTH • ONE FAMILY • ONE FUTURE

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 1

Flood risk management through small scale fisheries and advanced self sustainability in villages

S.N. Labh

Visiting Consultant, Zoology
The University of Texas, Austin

ABSTRACT

Flood impact is one of the most significant disasters in the world and more than half of global flood damages occur in Asia. India is the worst flood-affected country in the world after Bangladesh and accounts for one-fifth of the global death count due to floods. About 40 million hectares or nearly 1/8th of India's geographical area is flood-prone. An estimated 8 million hectares of land are affected annually. The cropped area affected annually ranges from 3.5 million ha during nor mal floods to 10 million ha during worst flood. Flood control measures consist mainly of construction of new embankments, drainage channels and afforestation to save 546 towns and 4700 villages. Based on satellite data acquired during pre-flood, flood and post-flood along with ground information, flood damage assessment is being carried out by integrating the topographical, hydrological and flood plain land use/land cover information in a GIS environment. In addition, space borne multispectral data have been used for studying the post-flood river configuration, and existing flood control structures, and identification of bank erosion-prone areas and drainage congestion, and identification of flood risk zones. Flood forecasts are issued currently by Central Water Commission using conventional rainfall runoff models with an accuracy of around 65% to 70% with a warning time of six to twelve hours. The poor performance is attributed to the high spatial variability of rainfall not captured by ground measurements and lack of spatial information on the catchment characteristics of the basin such as current hydrological land use / land cover, spatial variability of soils, etc. Thus, floods are the single most frequent disaster faced by the country. Loss of life and damage to property is the sense of insecurity and fear in the minds of people living in the floodplains. The after-effects of flood, such as the suffering of survivors, spread of disease, non-availability of essential commodities and medicines and loss of dwellings, make floods the most feared of the natural disasters faced by humankind. Thus, the principal objective of this study is the utilization of flood through ground water management for advanced self-sustainability in villages to establish “INDIA'S SWAKSHA VILLAGE” with an example of Iconic cultural habitat.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

Abstract No. 2

The imperatives of Intelligence analysis in Disaster and Emergency Management: Lessons for Nigeria

Ngboawaji Daniel Nte

Provost, College of Management and Social Sciences,
Novena University, Ogume, Delta State, Nigeria

ABSTRACT

The nature and dynamics of Disaster, Crises and Emergency management has consistently mutated as the world constantly face myriads of global safety threats from natural and human causes. Today, no country is insulated from these threats as both rich and poor nations of the world share a common fate. In the face of this social reality the traditional all-hazard paradigm in disaster and emergency management has to be expanded and rejigged to incorporate intelligence principles and practices. This is to consolidate the contemporary trend of comprehensibly group disaster and emergency management, and law enforcement as part of homeland security. This work is therefore to showcase the application of intelligence principles and practice in disaster management via a kaleidoscopic mixture of intelligence and disaster and emergency management methodologies. The study uses a comprehensive content analytical approach to present a veritable model of intelligence-led disaster and emergency management based on global best practices and recommends it to the Nigerian stake holders as the best policy option to optimize resilience in disaster and emergency management in the country.

Abstract No. 3

Blue Crab Fishery Profile and Some Aspects of Reproductive Biology to Promote Management in Asid Gulf

Recie B. Bonaos

College of Agriculture and Fisheries
Catanduanes State University, Philippines

ABSTRACT

The Asid Gulf's Blue Swimming Crab (BSC) Fishery considerably impacts the local fishermen's income, way of life, and food security. The current status of the BSC fishing in the gulf was investigated from January to December 2018 through a thorough investigation. A standardized survey questionnaire was used to interview 336 registered crab fishermen. The survey considered the types of fishing gear used, estimated production, catch composition, and anthropogenic activities. Bottom-set gill nets had the most estimated productivity among the main gears, including crab pots and crab lift nets. Some aspects of reproductive biology were studied using more than thirty ($n > 30$) samples collected. The size of mature females (96.54mm) with an average fecundity (280,928 eggs) decreased due to overharvesting. Ovigerous females were present year-round, the highest occurring in March, April, and May, and the peak of GSI was observed in March and October. The estimated Spawning Potential Ratio for BSC was 12%, less than the 20 % biological limit reference point, below which recruitment and reproduction potential are reduced. On this basis, it is reasonable to assume that the BSC fishery in the Asid Gulf is being overfished, demanding the recommendation of interventions that will help with the sustainable management and preservation of BSC in the Asid Gulf.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 4

Climate change driven disasters on Fisheries and Aquaculture in Nepal

Dilip Kumar Jha

Department of Aquaculture
Faculty of Animal Science, Veterinary Science and Fisheries
Agriculture and Forestry University, Rampur, Chitwan, Nepal

ABSTRACT

Fishes are regarded as the source of good quality protein to household food and nutrition security and play an important role in feeding a growing global population which is expected to reach 9.7 billion by 2050. The rapid expansion of aquaculture over the years has resulted in species diversification with consumption. The aquatic systems with different altitudinal variations from 60m-8848m represents a total of 252 fish species. Among them 236 species are indigenous while 16 species are exotic. These species belong to 15 orders, 40 families and 120 genera. Carps of the order Cypriniformes are the major fishes cultivated in Nepal. These includes Indian Major Carps; Rohu (*Labeo rohita*), Mrigal (*Cirrhinus mrigala*), and Chinese Major carps; Grass carp (*Ctenopharyngodon idella*), Silver carp (*Hypophthalmichthys molitrix*) and Bighead carp (*Hypophthalmichthys nobilis*). Two varieties of Common carp; Scale carp (*Cyprinus carpio* var. *communis*) and Mirror carp (*Cyprinus carpio* var. *specularis*) are cultivated also. Among the exotic catfishes Pangas (*Pangasianodon hypophthalmus*) and African catfish (*Clarias gariepinus*) are cultivated. The exotic Nile Tilapia (*Oreochromis niloticus*) and Rainbow trout (*Oncorhynchus mykiss*) are cultivating to some extent. Inland capture and culture fisheries are supported by the diverse agro ecological zones providing suitable habitat for different fish species which contributed 4.22% and 1.59% of the agriculture GDP and National GDP respectively. Annual fish production of Nepal is 104623 metric tons with the contribution of 83623 metric tons from aquaculture and 21000 metric tons from the inland capture fisheries, indicating per capita fish production 3.43 kg only. Nepal's capture fisheries are stable while aquaculture is currently moving toward a sustainable development pattern with small input and major output. The government of Nepal promoted the farming of Pangas and Nile Tilapia for optimum utilization of available resources for production on 2020 August28. The support from the government certainly helped the expansion of fish farming to fulfill its potential to meet the national demand for nutritional support of the people. Nepalese fisheries and aquaculture are particularly vulnerable to climate change because of their abrupt ecological and climatic transitions. Inland aquaculture faces the risk of increasing disasters in the form of floods and droughts which cause drastic fluctuations in fish production.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

Abstract No. 5

Role of Fisheries in Food safety and Security in Bangladesh

Binay Kumar Chakraborty

Fisheries Scientist and Consultant
Department of Fisheries, Bangladesh
Bangladesh Agricultural University

ABSTRACT

Bangladesh has an inland water area of about 45,000 km2 and about 710 km long coastal belt. The fisheries sector contributes 3.52% to the national GDP, 26.37% to the agricultural GDP and more than 1.35% to the total export earnings. The total production was 4.552 m.mt fish in 2019-2020. Fisheries sector contributes significantly about 60% (62.58 g/day/capita) of animal protein in daily dietary requirements. About 12% of the total population is engaged with this sector on a full and part-time basis for their livelihoods. Data and infor mation sources were used a mixed-method including online questionnaire surveys, face-to-face and telephonic interviews and focus group discussions (FGD) during June 2020 to May 2021 and secondary data collected publication of the Department of Fisheries (DoF) and online grey literature. Fish is a good source of protein, micro-nutrients, and essential fatty acids. Fish plays a vital role to overcome nutrition, food, poverty and economics. So, the aquaculture sector has the continuous potential to create a developmental goal for the country's economy by earning valuable foreign exchange, increasing the food production, and later in diversifying the economy and resulting in job creation in the country. Presently the fish, fisheries and aquaculture sector has been facing challenges by natural and anthropogenic causes such as climate change, environmental pollution, industrialization, overexploitation, using destructive fishing gear, pesticide and agrochemical. So, environmental-socio-economic friendly technology and important national programs are needed for sustainable fish, fisheries and aquaculture development.

Abstract No. 6

Evaluation of aquatic environmental conditions in different pond systems from start-up to harvest of the crop

K. Gharti and L. Liping

College of Fisheries and Life Science
Shanghai Ocean University, Shanghai, China

ABSTRACT

The In-pond raceway aquaculture (IPRA) offers options to decrease the amount of water and land, while enhancing waste management, nutrient recycling and fish production; and is more controllable and efficient than traditional pond culture (TPC). However, the higher productivity rings up the concern of the deterioration in aquatic environment, thus this study evaluated the key water quality factors through principal component analysis (PCA) in samples from IPRA and TPC. The IPRA covers an area of 2 hectre with 10 raceways, each of 25m× 5m×2.5m and grass carp was stocked @32 tail-m3 while stocking density of 675/hectre was practiced in TPC. Monitoring of water quality parameters for both IPRA and TPC for 108 days of culture period were performed using standard methods. In both culture systems, the different water quality metrics showed an increasing tendency reflecting the deterioration of water quality as the culture duration ages up. Total Nitrogen, Total Phosphorus and Phosphate were the key water quality parameters that displayed significant alteration in the aquatic environments. Therefore, we can conclude from this study that compromised pond water quality is obvious as the culture duration increases in both IPRA and TPC, and appropriate management and strategic interventions are of importance to overcome this problem and maintaining the ecological regulation in different culture system.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 7

Fish diversity and water quality parameters of Dudhkoshi River, Nepal

Om Hari Shrestha and Daya Ram Bhusal

Central Department of Zoology
Tribhuvan University, Kirtipur, Nepal

ABSTRACT

The present study was carried out to explore fish species of the Dudhkoshi River of eastern Nepal. The study covered two seasons namely post-monsoon of 2020 and pre-monsoon of 2021. Ten permanent sampling sites were fixed to collect fishes and to measure water quality parameters. Fishes were collected from those sampling sites using cast net and gill net with the help of local fishermen. Water quality parameters were measured with the help of water-quality test kits and titration methods. A total of 21 fish species belonging to 3 orders, 6 families and 12 genera were recorded. Among them, Least Concern (LC) was represented by 17 species, DD (2), VU (1) and NT (1). Higher fish diversity was associated with pre-monsoon than post-monsoon, and Cypriniformes was the most dominant order with 16 species representing 76.19% of the total fishes collected. The dominant family, Cyprinidae accounted for 11 species (52.38%) of the total, followed by Botiidae and Sisoridae, each with three species (14.28%) and Psilorhynchidae with two species (9.52%). Each of Ailidae and Channidae accounted for a single species (4.76%). Dissolved oxygen (DO) was found to be in optimum level ranging from 8.4 mg/l to 12.2 mg/l. Based on Bray-Curtis similarity index, three clusters of fish assemblages were observed for the collected species in two seasons. The Redundancy Analysis (RDA) was used to investigate the association between species and water quality parameters. The two axes of RDA explained 66% variation such that RDA_1 was accounting for 51% and RDA_2 was accounting for 15%. Strong association was observed between DO and species such as *Schizothorax. richardsonii* and *S. progastus.* Similarly, *Labeo dyocheilus*, *Barilius bendelisis*, *Psilorhynchus pseudecheneis* and *Botia lohachata* showed high kinship towards Conductivity, Temperature and Salinity.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 8

Spatial patterns of soil nematode communities in tomato (*Lycopersicon esculentum* Mill.) growing agro farms in Kathmandu Valley, Nepal

Dipak Gupta[1] and Daya Ram Bhusal[2]

[1]Department of Zoology, Amrit Campus, Tribhuvan University, Kathmandu, Nepal
[2]Central Department of Zoology,Tribhuvan University, Kirtipur, Kathmandu, Nepal

ABSTRACT

Soil nematodes play a vital role in the ecological processes and soil food web. Nematodes are valuable bio-indicators of soil disturbance in agricultural practices. Therefore, they can be used for understanding the biological mechanisms of the soil. The aim of the study was to observe the abundance and diversity of soil nematode communities in different tomato (*Lycopersicon esculentum* Mill.) growing agrofarm sites in Kathmandu Valley. Nematodes were extracted by Cobbs sieving and decanting method from the collected soil samples. Altogether 39 genera belonging under 19 families of five trophic groups were recorded from the Kathmandu valley, with which 16 genera of each bacterivorous and plant feeder, 3 genera of omnivorous and 2 genera of each predator and fungivorous feeding group. Out of 19 families, the highest genera of nematodes were recorded from families Tylenchidae and Cephalobidae. The abundance of nematode genera is well discriminated in our analysis. One-way ANOVA was used to compare the richness of nematode genera (per plot) among these agrofarm sites and the generic richness of nematodes in Kathmandu, Bhaktapur and Lalitpur were significantly different (df = 2, MS= 13.36, F= 5.78, P=0.005).We highlighted the need for fur ther exploration of the diversity and community dynamics of soil nematodes under different pest management practices in T omato growing agro farms for sustainable soil ecosystem service in Nepal.

Abstract No. 9

Detection of Protzoa in drinking water of Kathmandu Valley, Nepal

Siyaram Prasad Sah and Archana Prasad

Central Department of Zoology
Tribhuvan University, Kathmandu, Nepal

ABSTRACT

Drinking water safety is sensitive issue and its quality has to be monitored from time to time . Microbial study has been done but protozoan detection is rare in Nepal. The present study was taken to compare the water quality of tap, tube-well and dug-well in Kathmandu valley, which was easily assessable to the consumers. Field survey showed that people were using both tube-well, dug –well and tap water which are supplied by Kathmandu Upatyaka Khane Pani Limited (KUKL). Supplied water was taken as treated by (KUKL), however tube well and dug well were untreated. There were two season for sample collection i.e. Summer and Winter and in each season 180 samples were taken from different houses of Baneshwor, Chhetrapati, Bansbari and Tripureshwor Kathmandu Valley. The sample transported by standard methods. Random sampling was adopted for study during summer (June- September) and winter (December-March) 2021. Protozoan analysis of water sample was conducted in laboratory of Nepal Environmental and Scientific Service Pvt. Ltd and Kathmandu Upatyaka Khane Pane Limitd (KUKL) Kathmandu. Centrifugation method was done for identification of protozoa. For collection of sample, 1000 ml capacity of bottles was used and capped tightly. The samples were examined routine by Parasitology using light microscope. Total 7.5% sample protozoa was detected with 5.83% *Amoeba proteus*, 2% *Giardia lamblia*, 3.88% *Paramecium caudatum*, 1.94% *Entamoeba histolytica* and 0.27% *Balantidium coli*.

AGRICULTURE

Abstract No. 1

Accumulation and risk assessment of heavy metals in vegetable and cereal crops of Northern India

P.K. Singh and R.K. Sharma

Department of Botany
Banaras Hindu University, Varanasi (U.P.), India

ABSTRACT

Recent agricultural activities such long-term wastewater irrigation, chemical pesticides and fertilizers as well as application sewage sludge has elevated the concentration of heavy metals in soil and consequently in grown vegetables and cereal crops in the norther areas. In the present study, samples of irrigation water, soil, vegetables (i.e., palak; *Beta vulgaris* L. var All green H1, radish; *Raphanus sativus* L., garlic; *Allium sativum* L., cabbage; *Brassica oleracea* L. var. *capitata*, brinjal; *Solanum melongena* L.) and crops (i.e., paddy; *Oryza sativa* L. and wheat; *Triticum aestivum* L.) were collected during 2018-2019 from the marginal agricultural areas receiving untreated wastewater from a carpet industrial and residential areas of Bhadohi, Uttar Pradesh since a decade. The contents of Cd, Cr, Cu, Ni, and Zn in the filtrates of water, soil, and crops were determined using an Atomic Absorption Spectrophotometer. The results showed that the degree of heavy metal contamination in soil was moderate (8.1-16.0) and was found highest in pre-monsoon followed by post-monsoon and least in the monsoon seasons (Contamination factor:14.24, 12.78, and 12.48, respectively). Percent accumulation of these heavy metals was found higher in non-edible parts as compared to the edible parts of the tested crops except leafy vegetables e.g. palak and cabbage. The mean concentrations of Cd and Zn in edible parts of *B. vulgaris* (5.35 ug g^{-1} dw and 58.41 ug g^{-1} dw, respectively) and Cr, Cu, and Ni in *T. aestivum* (16.02 ug g^{-1} dw, 27.97 ug g^{-1} dw and 40.74 ug g^{-1} dw, respectively) were found highest and exceeded the Indian safety limit. Daily intake, hazardous quotient and heavy metal pollution index were computed to assess the health risk associated with consumption of heavy metal contaminated crops. Daily intake of Cu, Ni, and Cr via consumption of tested cereal crops was found higher than the vegetables. The health quotient revealed that health of local residents is more linked to vegetables than cereal crops. The present findings may be helpful to the policymakers and regulatory authorities to modify the existing policy of wastewater uses in agriculture and disposal to the natural water bodies. The regular monitoring of heavy metals in the wastewater is suggested before their safe disposal to the natural water bodies/agriculture in order to reduce the risk associated with the degree of heavy metal contamination in farmland soils.

Abstract No. 2

Study on sustainability of *in vitro* propagated sugarcane cultivar Co-89003

Shweta and Sridevi Tallapragada

Department of Botany and Plant Physiology
CCS Haryana Agricultural University, Hisar (Haryana), India

ABSTRACT

Sugarcane (*Saccharum officinarum* l.) is a semi-perennial crop. The plants are typically 2–6 m tall and have thick, fibrous and jointed stalks that are rich in sugar. It is the most significant industrial crop in the world, including developing countries with high export value. It belongs to a large grass family Poaceae (Graminae); tribe Andropogonae and originated in New Guinea. Conventional sugarcane propagation suffers from poor propagation rates, high labour costs, a lengthy process, and the possible transfer of diseases via seed cane from generation to generation. This prolonged propagation period is a serious obstacle in commercial propagation and breeding programmes. As a result, the increasing demand for newly released varieties cannot be satisfied via traditional propagation techniques alone. Plant culture has been the most practical technique to producing high-quality and environmental safety plant material with quicker rate and in a short amount of time via. micropropagation of sugarcane. Hence, for the development of more disease-free, resistant and true-to-type plant material at a commercial scale, it is necessary to investigate the influence of medium ingredients (gelling agents and carbon sources) on *in vitro* propagation of sugarcane cultivar for improvement of existing protocols. The research was carried out to study the effect of different gelling agents on *in vitro* multiplication of sugarcane cultivar. It was reported that agar-agar was the best gelling agent amongst (agar-agar, agarose, gelrite, guargum and isabgol) that were used in the experiment.

Abstract No. 3

Biochar: Integrated Rice Straw Management for Sustainable Agriculture: A Review

Meenakshi Nandal

Maharshi Dayanand University, Rohtak (Haryana), India

ABSTRACT

Rice farming produces a large amount of straw and husks. Only around 20% of rice straw is used in biofuels, paper, fertilizers, and animal feed, with the rest being burned, integrated into the soil, or used as mulch for the next crop. However, the straw that is absorbed into the soil degrades slowly and may host rice illnesses, whereas burning produces significant air pollution, including greenhouse gas emissions, smoke, and a significant loss of nitrogen and sulfur nutrients. It is a typical and plentiful agricultural by-product with great promise as a charcoal feedstock. Rice straw, whether natural or modified, is commonly utilized in sorption systems because it is high in cellulose, hemicellulose, lignin, and other macromolecular components. Biochar, a sorbent made from the thermal decomposition of biomass under low or no oxygen conditions, is gaining popularity as a cost-effective way to detoxify metal-contaminated soil. Consequently, biochar is a significant way to make possible the resourceful utilization of agriculture residues and the mitigation of environmental pollution. It can be used to boost soil carbon sequestration and also help to improve the utilization level of straw, all over it can improve soil properties. To completely understand the advantage and disadvantages of biochar as a soil amendment more research is essential on the long-term field application of it. The purpose of this review paper is to draw the attention of agriculturists and scientists to generate environmentally friendly alternatives instead of open field burning of rice straw.

Abstract No. 4

Ensete superbum (Roxb.) Cheesman: Bio-geographical Distribution and Conservation Priority in Central-West India

K. L. Meena

Department of Botany
M. L. V. Government College, Bhilwara (Rajasthan), India

ABSTRACT

The study area includes Rajasthan and Madhya Pradesh state of the India. Geologically, the study area lies between 21°10N to 25°16N Latitude and 73°45 E to 79°233E Longitude and occupies a plateau in western Madhya Pradesh and hilly tracts of Rajasthan, which covers an area of 81787 km^2. Topographically, the study area varied geo-structural divisions, towards the northern side of the Aravalli ranges in Rajasthan and Guru Shikhar is the highest peak of this range also covers, the Vindhya rocks, Granite Gneiss and Deccan Trap. *Ensetesuperbum* (Roxb.) Cheesman, belongs to the family Musaceae is rare to the Western Ghats, the Aravalli range and North-Eastern hills of India. They are monocarpic and non-stoloniferous tall herb. The preferred habitats are rocky slopes and crevices. It is popularly known as Jangali Kela. Seeds are traditionally used in the treatment of diabetes, kidney stone and leucorrhoea. Petiole, Fruits, flowers and pseudostem are used as wild edibles in almost all reported localities of the study area. Four indigenous communities involved in 12 locations spread across two states in India. Unlike other members of Musaceae, this species does not produce suckers. Regeneration by seeds is the only means for natural multiplication. The white powdery endosperm of seeds contains starch grains, calcium oxalate and parenchyma cells. Unregulated harvest of seeds for indigenous medicinal use and removal of seedlings for ornamental trade are the major threats that led to a dramatic decline in the population of *E. superbum* during the last decade. The native population of *E. superbum* is declining at alarming rate. Currently this species is listed as rare, relict, endangered, threatened and conservation concern species in various parts of India. Hence, creating awareness among the natives residing in forest and scientific communities is the need of the hour. Further initiatives from Government of India to, empower agricultural and collection practices, enlist in prioritized species list of conservation, include it in Red data book of Indian Plants, include the species in Schedule VII, study the present population status of the species by IUCN's guidelines and recommendations.

Abstract No. 5

Effect of bispyribac sodium on soil microbial community and physico-chemical properties of soil in paddy soil

Deepika, Duhan, A., Monika and Priyanka

Department of Chemistry
CCS Haryana Agricultural University, Hisar (HR), India

ABSTRACT

Bispyribac sodium is a pyrimidinyl oxybenzoic acid-based post-emergence herbicide. It is a systemic herbicide that moves throughout plant tissue and inhibits the activity of acetolactate synthase (ALS), a plant enzyme required for plant growth. Bispyribac sodium has been successfully used in rice crop fields to control weeds and has active chemical substance that is used to kill or prevent unwanted plants and vegetations from growing. It not only affects the target weeds but also alter the metabolic activities of soil microorganisms in paddy soil. It also has an impact on the qualitative and quantitative changes in soil physico-chemical and enzyme (dehydrogenase, alkaline phosphatase and urease) activity. Physicochemical properties includes electrical conductivity, water holding capacity, soil pH, moisture content, bulk density, organic matter content as well as available phosphorus and potassium content, and total nitrogen. Along with this, effect of bispyribac sodium on microflora population (bacteria, fungi & actinomycetes) was also analyzed.

Abstract No. 6

Determination of Polycyclic aromatic hydrocarbons (PAHs) in Ganga River near industrial, agricultural and tourism areas

Poonam and Sandhya

Department of Zoology
Babasaheb Bhimrao Ambedkar University, Lucknow (U.P.), India

ABSTRACT

USEPA 2008 listed sixteen polycyclic aromatic hydrocarbons (PAHs) as carcinogenic and mutagenic organic compounds which were analysed in Ganga River water in Jajmau (Kanpur), Katari Bhalepur (Fatehpur) and Kursinda Kachar (Kaushambi). Eight PAHs (Acy, Ace, Flu, Phe, Ant, Fln, B (a) A, Chy) were detected in Jajmau (Kanpur) while eleven (Acy, Ace, Flu, Phe, Fln, BaA, Chy, BbF, BkF, BaP, BahA) in Katari Bhalepur (Fatehpur) and fourteen (Acy, Ace, Flu, Phe, Ant, Fln, BaA, Chy, BbF, BkF, BaP, BahA, BghiP and IP in Kursinda Kachar (Kaushambi). It was found that two to three rings PAHs were detected in Jajmau (Kanpur) while three to six rings PAHs were measured in both sites Katari Bhalepur (Fatehpur) and Kurshinda Kachar (Kaushambi). It was noticed that Acy and Fln at Jajmau (Kanpur), BaA, BbF and BahA in Katari Bhalepur (Fatehpur) and BaA, BbF, BkF, BaP, BahA, BghiP and IP at Kursinda Kachar (Kaushambi) in river water samples were comparatively higher than their levels recommended by RIVM report 607711007/2012 in inland surface water.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 7

Effect of seed treatment chemicals on pod damage in groundnut

C. Vijayaraghavan, T. Parthipan, TKS. Latha and M. Pandiyan

Regional Research Station, Vridhachalam
Tamil Nadu Agricultural University, Coimbatore (TN), India

ABSTRACT

Groundnut is an important oilseed crop grown in India during kharif, rabi and summer seasons. Gujarat, Andhra Pradesh, Tamil Nadu, Rajasthan, Karnataka and Maharashtra are the major groundnut growing states of India and together account for about 90% of the national area under groundnut. Soil dwelling insects, white grubs, termites, wireworms, and earwigs are responsible for pod damage. This experiment has been formulated to manage the soil dwelling insects by seed treatments and soil drenching and conducted at at Regional Research Station, Vridhachalam during *kharif* 2020. The following treatments were imposed T1-Seed treatment with imidacloprid18.5%+hexaconazole 1.5% @ 2 g/kg seeds,T2- Seed treatment with imidacloprid 600 FS @ 2 ml/kg,T3- Seed treatment with clothianidin 50 WDG @ 2 g/kg,T4- Seed treatment with imidacloprid 600 FS @ 2 ml/kg + Soil drenching with imidacloprid 17.8 SL @ 3 ml/10 L of water after 60 DAS,T5- Seed treatment with imidacloprid 600 FS @ 2 ml/kg + Soil drenching with chlorpyriphos 20 EC @ 8 ml/10 L of water of water after 60 DAS,T6- Seed treatment with imidacloprid 600 FS @ 2 ml/kg + imidacloprid 40%+fipronil 40% (80 WG) 5g/10 L of water after 60DAS,T7- Untreated control. Germination percent, percent pod damage at peg formation (50DAS), maturity stage (prior to harvest) and yield were recorded and incremental cost benefit ratio calculated. Among the different treatments, T_3- Seed treatment with clothianidin 50 WDG @ 2 g/kg recorded minimum pod damage (9.95%) on 50th DAS followed by T_1-ST with imidacloprid18.5%+hexaconazole 1.5% @ 8 g/kg of seed (12.53%). T_4 -Seed treatment with imidacloprid 600 FS @ 2 ml/kg + Soil drenching with imidacloprid 17.8 SL @ 3 ml/10 L of water after 60 DAS recorded 13.69% pod damage while in the control it was recorded 19.22% damage. During pod maturity stage, T_4 -Seed treatment with imidacloprid 600 FS @ 2 ml/kg + Soil drenching with imidacloprid 17.8 SL @ 3 ml/10 L of water after 60 DAS recorded minimum pod damage (17.37%) followed by T_5-Seed treatment with imidacloprid 600 FS @ 2 ml/kg + Soil drenching with chlorpyriphos 20 EC @ 8 ml/10 L of water after 60 DAS recorded 17.93% pod damage. The untreated control recorded 23.15% pod damage. Maximum of pod yield 1450 kg/ha was recorded in T_4 similar trend has also been observed for haulm yield also (2917kg/ha). Maximum of ICBR 1:16.18 was registered in T_4 followed by T_5 which recorded 1:12.38.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

Abstract No. 8

Macrofungal Wealth of Ayodhya District, Uttar Pradesh, India

Balwant Singh and Vinay Kumar Singh

Mycology and Plant Pathology Laboratory, Department of Botany
K.S. Saket P.G. College, Ayodhya (U.P.) India

ABSTRACT

Fungi are the most diverse group of organism and key component of natural ecosystems as well as widely distributed in different ecosystems. Macrofungi maintain soil fertility by decomposing organic matter. Moreover, the harvest, use, and trade of wild fungi are essential economic and cultural activities, suppor ting livelihoods and providing food and medicinal ingredients. District Ayodhya is the Holy place and famous for the Birth place of Godes Rama. Macrofungal wealth of study area determine by the diversity assessment of Mycoflora (Macrofungi). A regular sur vey conducted and samples collected from different sites of study area. Macroscopic and Microscopic identification were done into the laboratory. In present study, a total number of 216 Mycofloral samples were collected which belong to 32 Species of 13 family. The largest number of macrofungi identified of the family Agaricaceae followed by Polyporaceae. Whereas only single macrofungi are belongs to family Hypoxylaceae, Ganodermataceae, Amanitaceae, Psathyrellaceae, Schizoporaceae, Tricholomataceae and Auriculariaceae followed by Fomitopsidaceae and Schizophyllaceae family with 2 macrofungi. Results shown high level of diversity based on different Indices reports and diversity represent a rich macrofungal wealth.

Abstract No. 9

Role of Biotechnology in Crop Improvement

Shilpy Shakya

Department of Zoology,
Government P.G. College, Fatehabad, Agra (U.P.), India

ABSTRACT

In order to secure future food supplies, crop production needs to increase in an eco-friendly manner. To overcome the malnutrition problems facing a huge mass of the people of the world, transgenic technology helps in mitigating this problem in an effective manner. Recombinant technology is also helpful in solving the problems arising due to biotic and abiotic stresses and producing plants with desirable features adding a new dimension to the utility of plants. By the use of gene technological techniques, crops can be genetically modified for synthesis of bioactive secondary metabolites or for production of stress resistant variants. Enhanced characterization of plant genomes and genetic diversity is essential. In combination with improved and automated phenotyping assays and functional genomic studies, genomics is providing new foundations for crop-breeding systems. Current research, involving large-scale DNA sequencing, microarrays, and robotics, heading towards gene revolution and nano-biotechnology provide possibilities for the sustainable and cost-effective ways of crop improvement.

Abstract No. 10

Utilisation of modified Rice-Husk Biochar to Regulate Metal Availability

Anita Singh

Department of Botany, Institute of Science
Banaras Hindu University, Varanasi (U.P.), India

ABSTRACT

Rice crop is one of the most common staple foods but its production is also accompanied by the release of a large quantity of agricultural wastes in the forms of husk and straw. There is a need to develop some strategies to utilize these kinds of wastes for regulating the availability of heavy metals from the contaminated system. The present study is based on the same objective here, therice husk biochar is obtained by low-temperature pyrolysis and chemically modified with $KMnO_4$, HNO_3, and NaOH(1M, 2M, 5M). The FTIR, SEM, and XRD characterization showed that as compared to the unmodified one, the modified biochar developed more cavities and large pores due to the chemical activation. The FTIR analysis indicated that with modification several functional groups like hydroxyl, alkene, alkoxy, and aromatic compounds were exposed at the surface that help in the adsorption of cadmium (Cd) from the synthetic contaminated water. Among all the concentrations, the 5 M of each chemical, ($KMnO_4$, HNO_3, and NaOH), respectively exhibited more metal removal (93%-90%, 88%-73% and 88%-77%), compared to the unmodified one. Therefore, with modification, the beneficial properties of biochar can be increased and can be easily applied as a resource in any kind of metal-contaminated systems like water or soil to reduce the availability of toxic metals in the food system.

Abstract No. 11

Investigation of Root-knot nematode pathogenicity in roses

Sunita Arya and Riya Sachan

Department of Zoology
D.G. P.G. College Kanpur (U.P.), India

ABSTRACT

Rose flower is the best-known ornamental plant for Indoor gardening, cut flowers, food product, and pharmaceutical industries. In India cultivation of H.T. Roses create more income than the cultivation of vegetables or other crops. The quality of flower production is affected by the infestation of insect pests and nematodes. Nematodes are becoming a threat to almost all crops and they have been considered limiting factors in crop production. There is not much information available on the nematode communities infecting rose plants and their pathogenicity at present in India. The present study was carried out on nematode infecting roses and the pathogenicity of the most important nematode species on rose cultivars at D.G. College Kanpur. Experiments were laid out in CRD with three replications. 300 soil samples were randomly collected from the rhizosphere of roses grown in different localities of Kanpur. Effects of nematodes were observed on *Rosa indica, Rosa chinensis,* and *Rosa hybrida.* Plant growth responses were noted on shoot and root length, weight, and the number of leaves on three varieties of roses. The population of nematodes was found maximum in *Rosa indica*. All the growth parameters were found affected by *Meloidogyne incognita* infection.25.75 percent reduction was noted in the shoot and root length of *Rosa indica.* It was followed by a 22.15 and 19.13 percent reduction in *Rosa chinensis* respectively. Similarly, the fresh weight of flowers gets a 40.48percent reduction in *Rosa indica*, 36.28percent in \ *Rosa chinensis,* and 26.96percent in *Rosa hybrida*. A minimum percent reduction in the number of leaves was observed at 18.44percent in *Rosa chinensis.* The maximum percent of the number of leaves reduction was found in *Rosa indica.* Host suitability of rose cultivars to the infection of *Meloidogyne incognita* was studied and the number of galls, root gall index (RGI), and egg mass index (EMI) were observed.

Abstract No. 12

Effect of seasonal variation and photoperiodism on flowering phenology in Datura innoxia Mill.

Vijay Laxmi Hada and Alpna Johri

J.D.B. Govt. Girls College Kota (Rajasthan), India

ABSTRACT

Plant reproductive biology plays a significant role in conservation of biodiversity, because both in-situ and ex-situ conservation strategies are dependent on a thorough understanding of plant reproductive biology. Traditionally, flowering phenology has been seen as essential to a plant species' reproductive ecology . The field observation of flowering phenology largely highlighted the adaptive significance of flowering at a specific period in comparison to other individuals in the population or other species. Flowering phenology is significant because in this area of plant reproductive biology, we investigate the timing of recurrent biological events in flowers, the factors that influence these events timing with respect to biotic and abiotic forces, and the relationship between these phases in the same or different plant species. To assess the pattern of plant growth and development, phonological observation can be employed. Growth analysis has also been used to explain disparities in growth caused by inherited traits or environmental changes. The pattern of phonological occurrences can be used as a sign of changing climate because it affects how much food we can grow. This makes studying flowering phenology crucial. Temperature, precipitation, humidity and day length all have a direct impact on the phonological pattern of plants and flowers, and they fluctuate over the course of year when there are distinct seasons. In order to improve prediction of species responses to future climate change, phonological thinking can help in formulate generalization with practical application.

Abstract No. 13

Earthworms: A best soil fauna for heavy metals accumulation

Nishat Fatima and Keshav Singh

Vermibiotechnology Laboratory, Department of Zoology
D.D.U. Gorakhpur University, Gorakhpur (U.P.), India

ABSTRACT

Heavy metals are release in environment by volcanic activity, erosion of rocks, forest fire, human activity, paper mills and wastes products of various industries. Abundant use of chemical fertilizers and pesticides in agricultural field also increase the heavy metals in environment. These heavy metals caused ill effects on different flora and fauna as well as on human health. In a food chain of active ecosystem there is continuous accumulation of in successive trophic levels. This phenomenon is called biological magnification or biological amplification. Generally different heavy metals like cobalt (Co), nickel (Ni), cadmium (Cd), chromium (Cr), lead (Pb), and mercury (Hg) may be accumulated in human body of various routes and cause of different hazards. Complete removal of these heavy metals in the contaminated environment is difficult task. The earthworm *Lampito mauritii* play very important role in reducing the heavy metals accumulation in foodstuffs. The worms have ability to accumulate the various heavy metals viz Pb, Ni, Cd and Cr in their body. They can accumulate the metals and by transferring the heavy metals from the soil in their body so that it will be reduced the movement of hazardous metals in crops and vegetables. This remediation of soil will produced good quality consumable agricultural products.

Abstract No. 14

Vermiwash with biopesticides: A sustainable technology for agriculture

Gorakh Nath, Deepak Kumar Bhartiya and Keshav Singh

Vermibiotechnology Laboratory, Department of Zoology
D.D.U. Gorakhpur University, Gorakhpur (U.P.), India.

ABSTRACT

Indiscriminate use of chemical fertilizers and synthetic pesticide disturbs the soil texture and physicochemical properties of soil as well as affects the human health. These chemicals has posed a serious threat to the environment and caused destruction of useful microorganisms, insects and worms in soil. The biological wastes caused environmental hazards and various ill effects on human life and their domesticate animals, if their proper management and disposal practices are not available. Sugar mill distillery and animal dung cause serious problems for society. Vermicomposting is an easy and effective way to recycling of these biological wastes in to nutritious compost by earthworm activity. *Eisenia fetida* is commonly known as red worm because of their red color of body and distributed throughout the country because of their migratory habits. The worms are hardy can tolerate wide variation of ecological factor like temperature, humidity and also survive on wide variety of degradable wastes. During vermicomposting process important plant nutrient such as nitrogen, phosphorus potassium, calcium etc. present in feed materials converted in to more absorbable form, for plant. The vermicompost increases the porosity aeration, drainage water holding capacity, which reduced the irrigation water requirement for crops. It improves nutrients availability and could act as complex fertilizer granules and evolves great reduction in the population of harmful pathogenic microorganism. Vermiwash is the coelomic fluid extraction; it contains several enzymes, plants hor mones like auxines, cytokinin, gibberellins and vitamins, especially B12 along with micro and nutrients. This liquid used as foliar spray, which stimulate the growth and yield of crops. Its use will be ecologically safe and culturally more acceptable among farmers, eco-friendly, no hazards for human and animal health. The present study will be beneficial for seasonal crops due to combined effect of vermiwash and biopesticides as a growth promoter and insect repellent.

Abstract No. 15

Effect of herbicide on the population of earthworm *Lampito mauritii*

Zaveesha Saman and Keshav Singh

Vermibiotechnology Laboratory, Department of Zoology
D.D.U. Gorakhpur University, Gorakhpur (U.P.), India.

ABSTRACT

The abundant uses of herbicides have affect not only selected weeds but they are destroy non-target ones in the agriculture fields. Earthworms can contribute extensively to soil formation through consumption of dead plant and animal matter, mixing of the particles during digesting, depositing their casts throughout the soil column and improving aeration and drainage of the soil burrowing. Soil environments are often subject to chemical pollutions that threatening the survival of flora and fauna. The development of invertebrate models for screening the toxicity as bioaccumulation is of great interest for the importance of such organisms in most terrestrial ecosystems. 2,4 dichlorophenoxy acetic acid (2,4-D) is a widely used herbicide in India. That 2,4 D is a selective herbicide with toxic effects in mammals as neurological dysfunction, pulmonary oedema, hepatic and renal dysfunctions or symptoms of tetany. Generally 2,4 D is used in cereals for the control of broad-leaf weeds and also used to prevent early fruit drop, as a plant growth regulator etc. The toxicity of herbicide 2,4-D (2'-4' dicholoro phynoxy acetic acid) studied on earthworm in different combination of biological wastes feed materials and different type of soils as feed materials under the laboratory conditions. *Lampito mauritii* were exposed to different concentration of 2,4-D (200, 300, 400, 450 mg/kg) in feed material (i.e. buffalo dung, wheat straw and gram bran) and different concentration of 2,4-D in different type of soil i.e. loamy soil, clay soil and sandy soil. Observations were recorded up to 24h to 240h. It was observed that the toxic effect of herbicide 2,4-D on the earthworm *Lampito mauritii* was both time and dose dependent.

Abstract No. 16

FTIR Spectral Analysis of Cellulose Produced by *Bacillus licheniformis*

Anju Joseph and S. Umamaheswari

Department of Zoology
Thanthai Periyar Government Arts and Science College, Tiruchirappalli (TN), India

ABSTRACT

Bacterial cellulose is an extracellular product produced by some bacteria. Major difference between bacterial cellulose and plant cellulose its high purity. It is completely free from lignin and hemi-cellulose. BC is used in different industries instead of plant cellulose because of its unique properties as high crystallinity index, high purity, and high degree of polymerization, high tensile strength and high water holding capacity. Because of these qualities, bacterial cellulose has wide applications as membranes for filtration, paper reinforcement, acoustic membranes, medicinal pads, hydraulic fracturing fluids for recover y of hydrocarbons, absorption composites such as nappies and sanitary products, reinforcement of polymer matrices, preparation of optically transparent films, tissue scaffolds, artificial skin bone cement, flexible displays screens, etc. The bottleneck in the production of bacterial cellulose is its high cost production. Bacteria belonging to the genera *Acetobacter, Agro- bacterium, Alcaligenes, Pseudomonas, Rhizobium, Aerobacter, Achromobacter, Azotobacter, Salmonella* or *Sarcina* produce cellulose. In this study, bacteria isolated from rotten orange was screened for cellulose production in HS medium for 21 days. Bacterial cellulose produced under different carbon sources were characterized by FTIR studies. The signature peaks of FTIR spectra of bacterial cellulose was observed. Thus, *Bacillus licheniformis* could be used to produce cellulose.

Abstract No. 17

Impact of Parthenium on Natural Biodiversity and its Management in the context of Sustainable Agriculture

Ramesh Chandra Tripathi

Department of Biological Sciences
Mahatma Gandhi Chitrakoot Gramodaya Vishwavidyalaya Chitrakoot, Distt.- Satna (M.P.)

ABSTRACT

Parthenium hysterophorus L. was reported to be one of the most dangerous weed of the world. It forms predominant exotic vegetation by replacing native Flora. Parthenium weed degrade natural ecosystem due to very high invasive capacity and allelopathic properties. It is a major biotic constraint in agricultural production systems worldwide. Besides reducing crop yield and quality, these unwanted plants adversely affect biodiversity, animal health and environmental security. Weeds interfere with normal plant growth by competing for available nutrients, light and water . Uncontrolled weeds reduce the grain yield by 96% in direct-seeded rice and 61% in wet –seeded rice. The weed has high reproductive capacity 15000 light weight seeds/plant, which disseminate fastly by wind, rain and traffic activity. Many natural enemies are being used in the control of Parthenium in which the major insects like Leaf Eating Beetle, *Zygogramma bicolorata*, Butterfly, Clitoria ternatea, Stem Boring Weevil, *Listronotus setosipennis* and Stem Galling Moth, *Epiblema strenuana* are very effective. In the present work efficiency of *Zygogramma bicolorata* was studied in detail. According to our findings, there is no doubt that the feeding activities of the Mexican beetle were more predominant during monsoon periods viz., July to September. Four different life stages are occurred i.e. egg, larva, pupa and adult. The food consumption of *Parthenium* was maximum by third and fourth instars larvae followed by second instars and minimum food consumed by adult stage of *Zygogramma*. For testing food preference of *Z. bicolorata* (adults and grubs) leaves of 25 plant varieties belonging to ten families were offered. But in the observations feeding behaviour was only found on *P. hysterophorus* leaves by *Z. bicolorata* (adults and instars) and no other host plants leaves were damaged by the beetle. *Z. bicolorata* is a host specific biocontrol agent which can actively disperse in the field, self perpetuating and able to sustainable control of *Parthenium hysterophorus*.

Abstract No. 18

Biodiversity of soil mesofauna and population dynamics of soil oribatid mites in Conservation agricultural practice, West Bengal, India

Shamik Dey

School of Agricultural Sciences
JIS University, Kolkata (W.B.), India

ABSTRACT

Soil is the habitat of highly diversified group of organisms where mesofauna are the dominant groups comprising majority of oribatid mites and collembolan insects those play a crucial role in organic matter decomposition and release the essential nutrients in soil ecosystem for growth, development and plant health. The impact of different tillage practices on the population dynamics of soil inhabiting mesofauna (Oribatid mites, Protura and Collembolan insects) was studied in the field under conservation agriculture considering two cropping sequences Mustard (rabi crop)-Black gram (pre-kharif crop)-Rice (kharif crop) and Maize (Rabi crop)-Cowpea (Pre-kharif crop)-Rice (Kharif crop) during 2018-2019 and 2019-2020. Based on tillage intensity entire field was divided into three tillage systems viz. conventional tillage (CT), reduced tillage (RT) and zero tillage (ZT) and each tillage system again subdivided into five different nutrient residue combinations. Soil sample (100g) was collected from rhizosphere zone at different dates after sowing. Soil mesofauna was extracted from each plot by using Berlese Funnel and their mean population per 100g of soil was estimated. Maximum mean population of mesofauna was encountered in zero tillage fields which were ideal for their growth, development and sustenance followed by the reduced and conventional tillage fields. Considering the nutrient residue combinations, the combination 100% residue + 75% N.P.Kwas the best among the three tillage systems in respect to harbouring maximum mesofauna population in two cropping sequences.

Abstract No. 19

Biotechnological approaches for Crop improvement

Vittam Prabha

Dayanand Girls P G College, Kanpur (U.P.), India

ABSTRACT

Biotechnology is utilization of information available in bacteria and fungi and cells and tissues of plants and animals. Therefore, the genes of interest are either being obtained from microorganisms or from plants. Biotechnology provide farmers with tools that can make production cheaper and more manageable. For example, some biotechnology crops can be engineered to tolerate specific herbicides which make weed control simpler and more efficient. Other crops have been engineered to be resistant to specific plant diseases and insect pests, which can make pest control more reliable and effective. Certain benefits of biotechnology in crop improvement are: crop performance, environmental resistant crops, nutritional supplements, pest resistant crops, improvement size, reduced dependence on pesticides, higher crop yields. Some examples of genetic engineering and tissue culture in plant breeding are Bt cotton, Herbicides resistance, golden rice, Doubled haploids production in wheat.

Abstract No. 20

Climate change and Indian Agriculture

Rajiv Ranjan

Department of Botany, M.L.K.P.G. College, Balrampur (U.P.), India

ABSTRACT

Two thirds of the agricultural GDP worldwide is generated by Indian agriculture. Not only is agriculture vulnerable to climate change, but it is also one of the main contributors to it. The obstacles facing the expansion of the agricultural industry as a whole include comprehending how the weather varies over time and changing management strategies to produce better harvests. Climate change is quite dangerous to agriculture. The model forecasts that carbon fertilization will have minor overall effects at 1.5°C warming but will cause damages of roughly US$84 billion at 3°C warming. Higher temperatures eventually cause lower agricultural yields of desired crops while promoting the growth of weeds and pests. The probability of short-term crop failures and long-term production decreases rises with changes in precipitation patterns. Climate change, deforestation, biodiversity loss, dead zones, genetic engineering, irrigation concerns, pollution, soil degradation, and waste are only a few of the broader environmental problems agriculture contributes to. With less forest cover, precipitation spreads across the ground, eroding top soil and causing floods and droughts. Normally, the forest cover intercepts rainwater and allows it to be absorbed by the soil. Ironically, the absence of trees speeds up soil evaporation, which worsens drought in dry years.

Abstract No. 21

Cellulose from Agricultural waste: Extraction, Characterization and Applications

P.N. Baraskar[1], R.A. Samant[1] and V. L. Gurav[2]

[1]K.C. College, Chaurchgate, Mumbai, (Maharashtra), India
[2]Ratnagiri Sub-Campus, University of Mumbai (Maharashtra), India

ABSTRACT

Cellulose was extracted from rice husk by using the traditional delignification and bleaching process and its characterizations as well as adsorption per formance of heavy metal ions were studied. The resulting cellulose was characterized using FTIR, XRD, SEM-EDS, TEM and BET. Fourier Transform Infrared (FTIR)and X-ray diffraction (XRD) confirmed functional groups and structures. Scanning electron microscopy-energy dispersive X-ray (SEM-EDX) and Tunneling electron microscopy (TEM) furtherensured the morphology and SAID pattern of cellulose. N_2 adsorption-desorptiontechniques suggested the Brunauer-Emmett-Teller (BET) specific surface area was 26.777 m^2/g, indicating the potential in removal process. Batch adsorption experiments showed higher affinity towards Pb^{2+}, and the maximal adsorption capacity was 88.547 mg/g at the optimum conditions (pH5, 8g/L adsorbent, 50 min contacting time, and 50 mg/L initial Pb^{2+} ions). The adsorption process showedbest fit with the pseudo-second-order and Langmuir isotherm model, suggesting a chemisorption procedure and monolayer type removal. The cellulose could remove Pb^{2+} ions selectively, and hold the potential application for industrial effluent purification treatment.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 22

Evaluation of the efficacy of newer insecticides for the management of spotted pod borer, *Maruca vitrata* Geyer in redgram

Zadda Kavitha and M. Shanthi

Department of Agricultural Entomology, Agricultural College and Research Institute
Tamil Nadu Agricultural University, Madurai (Tamil Nadu), India

ABSTRACT

A field trial was conducted with four treatments (novaluron 10 EC - 2 ml/lt, flubendiamide 480 SC - 2 ml/lt, indoxacarb 15.8 EC 0.7 ml/lt and untreated control) in the farmer's field at T. Kunnathur village of T. Kallupatti block, Madurai district. Five replications were maintained for each treatment. First spray was done after the appearance of *Maruca* webs. Second spray was done after 15 days of the first spray. Before the first spray, pre-treatment count was taken on total number of webs/25 rachis. Af ter 7 and 14 days of first and second sprays, observations were recorded on number of *Maruca* webs/25 rachis in each treatment. At harvest, per cent pod damage and yield (kg/ha) was recorded in all the treatments. BC ratio was calculated for each treatment separately. Before spraying, number of *Maruca* webs/25 rachis ranged from 45.0 to 47.0. After 14 days of first spraying, novaluron 10 EC (2 ml/lt) was found to be effective in reducing the number of live webs of this borer under field conditions. This treatment recorded 18.0 webs/25 rachis as against 43.0 in untreated control. Next to this treatment, flubendiamide 480 SC (0.2 ml/lt) (20.0/25 rachis) and indoxacarb 15.8 EC (0.7 ml/lt) (21.0/25 rachis) were found to be equally effective. At 14 days after spraying, number of *Maruca* webs per 25 rachis was less (6.0/25 rachis) in the treatment novaluron 10 EC (2 ml/lt). Flubendiamide 480 SC (2 ml/lt) and indoxacarb 15.8 EC (0.7 ml/lt) were the next best treatments with 10.0 and 11.0 webs per 25 rachis respectively and both were on par with each other. In untreated control, 34.0 webs/25 rachis were observed. Observations on *Maruca* pod damage in harvested pods revealed that, in novaluron 10 EC (2 ml/lt) comparatively less pod damage i.e., 6.0% was recorded. Next to this, flubendiamide 480 SC (2 ml/lt) and indoxacarb 15.8 EC (0.7 ml/lt) treatments recorded less pod damage of 8.0 and 9.0 per cent respectively. In plots in which no chemical was sprayed, 18.0 per cent pods were damaged by this borer. Among the treatments, from novaluron 10 EC (2 ml/lt) sprayed plots comparatively more yield (780 kg/ha) was obtained, while in untreated control it was 525 kg/ha. Flubendiamide 480 SC (2 ml/lt) and indoxacarb 15.8 EC (0.7 ml/lt) treatments were on par with 720 and 710 kg/ha. However, indoxacarb 15.8 EC (0.7 ml/lt) recorded high BC ratio than the flubendiamide 480 SC (2 ml/lt) (1:1.29) due to it's low cost. Novaluron 10 EC (2 ml/lt) recorded high BC ratio of 1: 1.4 and in untreated control it was 1:1.01.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

Abstract No. 23

Indian mustard yield (*Brassica juncea* L.) in response to salicylic acid and Herbal hydrogel (gond katira) under rainfed conditions

Rani Neelam and Kumar Neeraj

Department of Botany and Plant Physiology
CCS HAU Hisar (Haryana), India

ABSTRACT

India is the world's 4th largest grower and producer of oilseeds just after the USA, China, and Brazil, accounting for about 19% of the global area and 2.7% of global. In order to evaluate the impact of salicylic acid and herbal hydrogel (gond katira) on yield and yield component of Indian mustard under rainfed condition, a field experiments was laid out in randomized complete block design with split-split plot arrangements having three replications were conducted at the research farm of Oilseeds Section, CCS Haryana Agricultural University, Hisar, India, during two successive Rabi seasons of 2019-20 and 2020-21 which is situated at a latitude of 29° 10'N and longitude 75° 46' E and altitude 215.2 m above main water level and falls within the semitropical region of Western zone of India. A field experiment was conducted to judge the effective dose of Herbel hydrogel (Gond Katira), and salicylic acid for increasing the productivity, quality, and water-use efficiency of Indian mustard in restricted irrigation conditions. The experiment consisted of 16 treatment combinations. Among these treatments, application of herbal hydrogel @ 20 kg/ha + SA(200ppm/ha) at flowering and siliqua formation stage significantly increased plant height, dry matter/plant, primary branches/plant, secondary branches/plant siliqua/plant, seeds/ siliqua, 1000-seed weight, and soil moisture retention over the remainder of treatments. Whereas a significantly higher B: C ratio was recorded in irrigation treatment over all the opposite treatments. Significantly highest improvement in growth, yield attributes and economics was recorded under T_{16} applied at pre-flowering and siliqua formation stage over T_1 and alone application of herbal hydrogel (Gond katira) and SA. Thus, the result showed that application of herbal hydrogel either 15 or 20 kg/ha with two sprays of SA @ 200 ppm at flowering and siliqua formation was found beneficial for obtaining high seed yield, WUE yet as net returns.

Abstract No. 24

Effects of arsenic concentrations in rice (*Oryza sativa*) genotypes

Indira Chaturvedi

Department of Zoology
C.M. Dubey. P. G., College, Bilaspur (C.G.), India

ABSTRACT

By using two *Oryza sativa* genotypes (Jeeraphool and HMT) a green house experiment was carried out during crop cycle (2021-2022), at Agricultural Farm, Bilaspur, Chhattisgarh, India. The present study was aimed at investigating the effects on growth of plants, examine arsenic accumulation characterized by its distribution pattern in rice genotypes, and assess the phyto extraction potential of the plant. The physico-chemical properties of the soil were measured by the standard methods of soil chemical analysis. Arsenic was applied as Na_2HASO_4. Results were expressed as a mean of three replicates and statistically analyzed using SAS software. Jeeraphool showed greater sensitivity to As toxicity than HMT and this higher sensitivity were associated with corresponding decreases in stem and root growth of plants. Our result showed that it affects root growth more severely than shoot growth. Arsenic concentration in rice plants was found to be directly proportional to soil arsenic concentration. Arsenic concentration in the stem varied from .87 to 14.2 mg kg^{-1} (with a mean of 8.12 mg kg^{-1}), while that in the root varied from 2.1 to 37.2 mg kg^{-1} (with a mean of 18.75 mg kg^{-1}). Arsenic was accumulated in the roots in much higher amounts as compared to aboveground biomass (stem), especially in the case of HMT indicating that there is limited transport of As from the root system to the above ground plant parts in HMT. Genotype HMT had significantly less uptake than genotype Jeeraphool. It might be because of varietal differences in some physiological or morphological attributes of the root systems. The results revealed that rice genotypes differ greatly in their ability to take up, transport and accumulate within the plants. Therefore, the selection of plant genotypes with high ability to repress root uptake and shoot transport is a reasonable approach to alleviate adverse effects as toxicity in crop plants.

Abstract No. 25

Role of induced breeding of carps in aquaculture

Kumari Priyanka

University Department of Zoology, Faculty of Science
B.R.A. Bihar University, Muzaffarpur (Bihar), India

ABSTRACT

Indian major carps under fishes which do not ordinarily spawn in confined water or stagnant water bodies such as ponds lakes etc. but spawn usually in inundated terrains of rivers and streams during rainy season. Bulk of the inland aquaculture production comes from farming of the three Indian major carps-Rohu Catla and marginal also known as gangatic carps that inhabit the major river system in the country. Induce breeding techniques have allowed farmers to profitably breed and culture carp fishes that do not naturally reproduce under captive conditions. Hormone administration is the most common method of induced breeding in fishes which the pituitary extract injected into the matured male and female fishes in the hor mone induce them to spawn. Successful induced spawning in depends upon the dosage of hormone injection, potency of the potency of the pituitary glands. Gonadal maturity of the recipient fish and the prevailing environmental conditions. Such as temperature, water current and rain. The important environmental factors responsible for induced breeding Indian major carps are temperature,ph, dissolved oxygen and hardness, proper care of brood stock is very important for assuring good production of eggs, hatchlings, fry and fingerlings in induced breeding of car fishes. Several commercially available synthetic ovulating agents in a ready-made form which contained GnRHa and dopamine antagonist such as ovaprim, ovatide are becoming very popular nowadays and found to be efficient and successful spawning agents in different carp fishes. Hormone-induced spawning technique in carp fish has two main strategies, first strategy is the manipulation of culture environment to mimic important characteristics of natural spawning environment of that particular carp fish and the second strategy is the administration of one or more naturally occurring reproductive hormone or their synthetic analogues in brood carp fish through injection or dietary methods. The present paper makes a concise review report on induced breeding of Indian major carps through pituitary extract and synthetic hormone analogues.

Abstract No. 26

CRISPR/Cas9 mediated fortification of rice by the overexpression of ferritin gene and downregulation of IPK1 gene for improved iron

S. Subburayalu

Department of Biochemistry,
K.R. College of Arts and Science, Kovilpatti,
Thoothukudi (Tamil Nadu), India

ABSTRACT

Anemia is a serious issue in India affecting about 2 million people. This is mainly due to the inadequate amount of iron in the food consumed. As rice is a staple food majorly consumed in India, contributing to 70% of the daily calories of the population, fortification of rice with iron can play a sustainable role in combating iron deficiency, thereby finding a solution for anemia where people consume mainly rice and are limited to diversified food. Ferritin gene encodes for the iron in rice and overexpression of the ferritin gene results in the increased iron content in rice. Eventhough iron content is increased in rice, phytic acid present in rice chelates with iron and reduces the bioavailability of iron. Downregulation of phytic acid coding IPK1 can significantly increase the bioavailability of iron. In this work, we demonstrated the CRISPR/Cas9 mediated overexpression of the gene ferritin and the downregulation of IPK1 gene for improved iron in rice. On analysis, we found the iron content in rice has been improved.

Abstract No. 27

Effect of Pesticide on Agriculture Land

Bhanu Shrivastava, Madhulaxmi Sharma and Archana Shrivastava

Department of Botany
Govt. KRG (Auto.) College, Gwalior (M.P.), India

ABSTRACT

Techniques of agricultural production are generally accompanied by a rapid increase in the use of chemical fertilizer and pesticides. Pesticides as any substance or mixture of substance intended for preventing, destroying, repelling or mitigating any pest. Agriculture lands are directly or indirectly impacts by pesticides. Various pesticides such as herbicides, insecticides and fungicide etc. exert bad effects almost every system of environment. Pesticides residues reach in to the aquatic environment by surface run off causing risk hazards for aquatic flora and fauna, fishes being most affected organism. Long term exposure of pesticides induces behavioral, physiological, reproductive abnormalities and diversity of the nature. Fishes serve as bio-indicators for aquatic contamination to access the changes caused by human activities and predict hazardous effects of pollutants. Since fish are rich sources of proteins and lipids, their health is very important for human being. Therefore, the conservation of aquatic ecosystem and protection of water quality should be necessary with the rationalized application of pesticides.

Abstract No. 28

Prospects and potentials of wetlands fisheries in Uttar Pradesh

Sadguru Prakash

Department of Zoology
M.L.K.P.G. College, Balrampur (U.P.), India

ABSTRACT

Wetlands are the transition zones between terrestrial and aquatic areas of the world. Globally wetlands are considered as the biologically diverse ecotone and biodiversity. Wetlands provide a wide range of ecological, environmental and economic services. Wetlands also play significant role in regulating global climate change by carbon sequestration and release as well as stabilize the microclimate of the area but the response of wetlands to climate change shall not be uniform and depends upon location, type, biotic and abiotic components and several other processes. India has about 5,55,557 small wetlands covering about 8.0 lakh ha area. Out of this Uttar Pradesh has about 1.33 lakh ha and it is one of the amongst the most impor tant from fisheries point of view. They are also the habitat for a larger number of small indigenous fish species which support subsistence fisheries and provide livelihood to fisher communities, besides meeting nutritional requirements of the local population. Fish and fisheries products play an important role in food and nutritional security around the world. The overall increase in wetland fish production would in turn improve the livelihoods of fisheries and fish vendors, and provide nutritional security to the surrounding rural population. However, unsustainable use of wetlands and no recognition of their worthy services without proper planning for their management and conservation have greatly threatened their existence. Understanding the socio-economic problems of the fish farmers, promotion and adoption of a robust and modern aquaculture system and technology, upgraded infrastructure facilities and improved management policies are required for sustainable development of wetland fisheries in the state.

Abstract No. 29

Novel mechanistic insights of GABA-induced physio-biochemical, microscopic and histochemical modulations in tomato (*Solanum lycopersicum*) plant under salt stress

Saif Ahmad and Qazi Fariduddin

Department of Botany, Faculty of Life Sciences,
Aligarh Muslim University, Aligarh (U.P.), India

ABSTRACT

GABA serves as the major metabolite and signaling molecule for plant growth and development and is used to combat several environmental stresses. In present study, effect of different concentration of GABA as foliar spray or seed soaking treatment on K-21 and S-22 varieties of *Solanum lycopersicum* L. (tomato) under normal and NaCl stress was studied. GABA concentrations 0 (control), 0.25, 0.5 or 0.75 mM were applied through seed soaking or foliar applicationon two different tomato varieties under normal and 150 mM NaCl which was applied 20 days after transplantation (DAT). The results indicate that GABA treatment mitigated salt stress by improving growth, chlorophyll content, photosynthetic traits along with gaseous exchange parameters which further increased activities of nitrate reductase and carbonic anhydrase. The activity of several enzymes associated with several cellular metabolic pathways (rubisco, hexokinase, fumarase and succinate dehydrogenase) was also increased after GABA application under normal and salt stress. GABA application promoted activity of antioxidant enzymes such as catalase, peroxidase and superoxide dismutase which further reduced reactive oxygen species (O_2^-, H_2O_2) and lipid peroxidation. Thus, out of the various concentrations tested, 0.5 of GABA proved best and K-21 was more tolerant than S-22.

Abstract No. 30

Variations in the growth and siderophore production of tomato crop field soil bacteria on exposure to phorate

S. Umamaheswari, R. Shanmugavalli and Jayasharma

Department of Zoology
Thanthai Periyar Government Arts and Science College,
Tiruchirappalli (Tamil Nadu), India

ABSTRACT

Extensive usage of agrochemicals to protect the plant crop against pests leads to groundwater contamination and emergence of pesticide resistant pests. Phorate is an organophosphorus insecticide used to control grass grub, argentine stem weevil and Porina moth in pasture, brassica and maize, respectively.This incessant exposure of soil microbes persistent in soil to phorate may lead to evolution of metabolic adaptability of these microbes to phorate. Resultantly, these microbes acquire new traits. Several bacteria like *Rhizobacter*, *Pseudomonas* are known to produce siderophore under iron limiting conditions. Moreover, iron is an important micronutrient essential for metabolism in bacteria. *Pseudomonas* that produce siderophore play a vital role in stimulating plant growth and in controlling many plant diseases. In this study, the chemical characteristics of tomato crop field soil were profiled. Further, the bacteria persistent in phorate applied soil was isolated and assessed for its potential to grow in varied concentration of phorate (100 ppm, 200 ppm and 300 ppm) in nutrient broth and Minimal Salt Media. Dose dependent decrease in the *Pseudomonas* population on exposure to phorate was evinced. On the other hand, as the concentration of phorate increased, the siderophore production also increased, which could be ascribed to mobilisation of iron by bacteria iron under pesticide stress.

Abstract No. 31

Differential feeding efficiency of *Zygogramma bicolorata* on *Parthenium hysterophorus* at Chitrakoot U.P.

Preeti Tripathi and Ramesh Chandra Tripathi

Department of Biological Sciences
Mahatma Gandhi Chitrakoot Gramodaya Vishwavidyalaya Chitrakoot, Satna (M.P.), India

ABSTRACT

Parthenium hysterophorus is a dominant, aggressive and exotic weed which is commonly called 'Gajar ghas', 'Carrot grass. Now it has become the common habitual weed on different types of land and invasive weed that has made wide distribution, globally affecting the growth of native species. *P. hysterophorus* is poisonous to animals and causing different types of har mful effect i.e. allergies, der matitis diseases, asthma in humans and livestock and also the cause of bitter milk in cow, goats and buffaloes. Zygogramma bicolorata is a leaf feeder and belongs to family Chrysomelidae from Mexico and reported as a biocontrol agent for *Parthenium* to India. Leaves of *Parthenium* weed are feed by the *Zygogramma* beetles defoliate the host plants. P. *hysterophorus* plant may be completely defoliated at times. The adults and grubs of Zygogramma were noticed feeding on *Parthenium* leaves and during observation containing different stages of *Z. bicolorata* fed voraciously on *Parthenium* but maximum food was consumed by 3rd instars, which was followed by 4th instars and then feeding behaviour was shown by 2nd instars while the adults consumed the least food (*Parthenium leaves*).The Mexican beetle is the most promising bioagent. In India Zygogramma covered many areas within few years af ter introduction in Parthenium density in local areas. Defoliation affects to growth and reproduction of Parthenium which is the result of feeding by *Z. bicolorata*. In the present study at Chitrakoot, Zygogramma has established and contributing to control several hectares of land which was fully infested with Parthenium weed. At many local areas of Chitrakoot Mexican beetle used to control Parthenium in the different types of fields such as cultivated fields, road side, river side, residential areas and fallow lands. *Z. bicolorata* can easily be collected from the established sites during July to October and collection can be made in ordinary plastic containers or polythene and released in the infested areas to control this invasive weed. Therefore, this beetle can be multiplied and released easily anywhere to control the *Parthenium*. Generally *Z. bicolorata* remained most active from during July to September. In the Chitrakoot, all the stages of Zygogramma may be recorded from the field in extreme July to October and February to March when the high moisture regime.

Abstract No. 32

Assessment of Cytogenotoxic Potential of *Ferula asafoetida* (heeng) on Somatic Chromosomes of *Pisum sativum*

Sangeeta Dayal

Department of Botany & Biotechnology,
KVSCOS Swami Vivekanand Subharti University, Meerut (U.P.), India

ABSTRACT

Ferula asafoetida is one of the economically impor tant known gum resin tree species native to India. Wide distribution of heeng plants in Indian states and other parts of the world reflects it's adaptation to a range of agro-climatic conditions. In addition to well-known nutritional and traditional medicinal benefits, the resin of *Ferula* tree has considerable processing and industrial values. In order to better utilize and improve the existing genetic resource, there is a need scrutinizing the studies related to genetic diversity, characterization, evaluation and conservation, taxonomy, phenology, floral biology and pollination. Heeng is frequently used as homeopathic drug. The given dose of this drug is very small because of its mutagenic effect in higher dose. In the present investigation we want to access toxic effects of *Ferula asafoetidaon* somatic chromosomes of Pisum sativum. In order to deter mined the toxicity and mutagenic effects of on *Pisum sativum*, five conc. 10%, 20%, 30%, 40%, 50% were used for the treatment of the root tips of test plant. It had been noticed there were number of abnormalities/aber rations observed like stickiness of chromosomes, improper organization of chromosomes, fragmentation during separation of chromatids, multiple chromatin bridge formation etc. These types of abnormalities were increased with increased conc. and duration of treatment of this fragrance. These abnormalities may convert into induced mutation.

Abstract No. 33

Monitoring of Pesticide Residues in some Vegetable Samples of Uttarakhand Region

Nimisha Singh

Baba Farid College of Engineering & Technology, Bathinda (Punjab), India

ABSTRACT

Uttarakhand is known for the vegetable and fruit belts in Northern India. Vegetables like Cabbage, Brinjal, Tomato, Okra, Bean etc are grown in the state throughout the year. Pesticide sprays are common in this region as the crops suffer heavily due to pest and disease infestation, which needs the repeated use of pesticides sprays for their protection. The vegetable crops of cauliflower, cabbage, brinjal, okra and tomato are attacked by a number of insect pests during different stages of growth, causing considerable losses in terms of quality and quantity. Control of pests is, therefore, indispensable to safeguard vegetable production. Repeated application of insecticides is often made to protect the crop from severe pest attack. This may lead to undesirable residue problems. The practice of indiscriminate use of pesticides often leaves undesirable pesticidal residues in vegetable crops which are above maximum residue limits (MRL) prescribed by World Health Organization (WHO) and Environment Protection Agency (EPA). Farmgate vegetables harvested without observing enough waiting period are laced with objectionable levels of pesticide residues. In winters (Dec. to Feb.), the waiting period after spray of Carbendazim (Bean, Cauliflower and Tomato) and Endosulfan (Cabbage) need to be longer (2 weeks or more) before har vest otherwise the objectionable levels of these pesticides may reach to consumers. Residue level of Endosulfan and Carbendazim was higher in bean and cabbage samples (0.61ppm &0.88ppm) in US Nagar sample; the residue level of Carbendazim was higher in samples of tomato and cauliflower in Nainital District.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 34

Screening of Yield Associated Morphological and Biochemical Traits using Correlation and Path Coefficient Analysis in Wheat (*Triticum aestivum* L.)

Bharat Garg[1], Shikha Yashveer[1], Vikram Singh[2] and Anil K. Poonia[1]

[1]Department of Molecular Biology, Biotechnology & Bioinformatics, College of Biotechnology, CCS Haryana Agricultural University, Hisar (Haryana), India
[2]Wheat & Barley Section, Department of Genetics & Plant Breeding, College of Agriculture, CCS Haryana Agricultural University, Hisar (Haryana), India

ABSTRACT

Wheat is the most widely grown crop worldwide; still 60% increase in yield is needed by 2050. In the present study, contributions of morpho-biochemical parameters on the grain yield of wheat are estimated. Fifty eight genotypes showed varied mean and range signifying presence of ample amount of variability. Genetic variability of genotypes was assessed by estimating phenotypic co-efficient of variances (CV)(PCV), genotypic CV (GCV), heritability (h^2) and genetic advance over mean (GAM). GCV was highest for grain yield per meter (GYPM; 11.87) followed by number of spikelets per spike (NSPS; 10.45) and number of grains per spike (NGPS; 10.13). NSPS (16.65) showed high PCV indicating high environmental effect. Glycine betaine (GB) had high GCV (83.05) and PCV (86.80) among biochemical traits. Biological yield per meter (BYPM) had highest h^2 (80.92) out of all morphological characters, followed by NGPS (77.05) and thousand grain weight (77.04). H^2 was low in grain weight per spike (GWPS; 32.28). Phenylalanine ammonia lyase (PAL) also had high h^2 (97.26%). High h^2 coupled with high genetic advance was found in BYPM, NGPS, GB, total flavonoids content (TFC), and tyrosine ammonia lyase. GYPM showed highly significant correlation with BYPM (0.864), harvest index (0.616), number of tillers per meter (0.503), NGPS (0.332), GWPS (0.218) and spike length (0.217). Total phenolic content and TFC showed positive significant correlation with proline content and PAL. BYPM (0.771), harvest index (0.594), PAL (0.39) and proline content (0.16) showed maximum direct positive effect on grain yield. Direct selection of these characteristics can improve grain outputs in wheat.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

Abstract No. 35

Biotechnological approaches in crop improvement

Vijai Shanker Giri and Pathak Indivar Ratn

Department of Zoology
Post Graduate College, Ghazipur (U.P.), India

ABSTRACT

Biotechnology is the product of interaction between the science of biology and technology. Ethanol was first chemical produced with the aid of biotechnology. Cloning of DNA was most important event in the history of biotechnology. In recent years revolution in biology has occurred due to the potential of biotechnology. In this way biotechnology has great impact in the fields of health, food/ agriculture and environmental protection. Cryopreservation of genetic stock i.e. germ palms is a novel approaches and to achieve this goal a plant cell bank or cell cryobank organ plasma bank has been suggested. Modern agriculture is dependent upon chemical fertilizers (for increasing crop yield) and pesticides (for protecting them) many fertilizers are are biological origin thus are called bio fertilizers. The main sources of bio fertilizers are the bacteria, cyanobacteria and mycorrhizal fungi. Many formers have also used agrochemicals (pesticides and fertilizers) to increase crop yield. Although the green revolution tripled the food supply worldwide it was still not enough for the growing population. Genetically modified organism may also include many dicot and monocot plant like Bt cotton, Bt brinjal and Bt tomato and golden rice. Pest resistant plants are also produced by biotechnology. In modern time many types of requirement to crop and its improvement.

Abstract No. 36

Eco-friendly management of Fly ash and its antagonistic effect against Root-knot Nematode (*Meloidogyne incognita*) on Okra

Adil Ameen Bhat and Abrar Ahmad Khan

Section of Environmental Botany and Plant Pathology
Department of Botany, Aligarh Muslim University, Aligarh (U.P.), India

ABSTRACT

Fly ash a coal combustion residue of thermal power plants, is a problematic waste and has already been accepted as an environmental pollutant. So, its management is a prime concern of ecologists around the world. However, it is double edged waste that is used in low concentration to improve crop productivity and human health. As, fly ash amendment increases the availability of macro and micro nutrients in the soil. Therefore, its potential as a nutritional supplement for agro-ecosystems needs to be explored. Current study aimed to determine soil-modifying, cropyield enhancing and nematicidal properties of fly ash. In this study, Okra seeds were sown in pots comprising field soil amended with differing proportions of fly ash. At 20% fly ash level, growth performance and crop yield of okra increased significantly. Meloidogyne incognita was used to optimize nematicidal properties of fly ash. Plant growth performance, photosynthetic pigments and yield of Okra were greatly reduced owing to M. incognita as compared to control and the negative effects of M. incognita were undone by 20% fly ash levels.

Abstract No. 37

Effect of Butachlor on soil microbial community and toxicity in paddy soil

Rupali Gupta, Duhan, A.Yashaswi and Muskan Gupta

Department of Chemistry
CCS Haryana Agricultural University, Hisar (Haryana), India

ABSTRACT

The herbicide butachlor, also known as N-(butoxymethyl)-2-chloro-N-2 ,6 -dimethyl acetanilide, is primarily used to eradicate grass weeds and a variety of broad-leaved weeds. It is a chloroacetamide herbicide that prevents the microsomes from synthesising very long chain fatty acids (VLCFAs), which prevents early plant development. It can prevent the enzyme from working and prevent the extension of the VLCFAs as a selective and methodical herbicide. It has been widely employed in Asia, South America, and Africa to control several broad-leaved weeds, a variety of annual grasses, and to prevent the production of protein, lipids, and lignin in weeds. It, as well as other crops including rapeseed, cotton, barley, and beets, are produced in agriculture. Because butachlor is both very effective and non-toxic, it is widely utilisedworldwide. However, because of its widespread use, residual butachlor may adversely affect non-target creatures in the environment. Butachlor has been found after comprehensive scientific testing in river sediment, plants, and animals all around the world. It is believed to be a genetic toxin, a neurotoxic, and a carcinogen that can remain in the environment and have harmful effects on living systems. Microorganisms can bioremediate soil more quickly, efficiently, and safely, decreasing the harmful effects of butachlor pesticides on human health and the environment. Along with this, effect of butachlor on microflora population (bacteria, fungi) was also analysed.

Abstract No. 38

Flower colour Polymorphism in *Tridax Procumbens* (L.) L. at Central Regional Centre, BSI, Allahabad, India

Sheo Kumar

Central Regional Centre, Botanical Survey of India, Ministry of Environment, Forest and Climate Change, Government of India, Prayagraj (U.P.), India

ABSTRACT

The Central Regional Centre of Botanical Survey of India, MOEF&CC, Govt. of India, Allahabad was established on 31.07.1962 at 25°28' North lat. and 81°51' East long. and at 98 m above MSL. In its Botanic Garden, altogether 618 species belonging to 111 families of different habitats of 3 different states namely Uttar Pradesh, Madhya Pradesh and Chhatishgarh have been conserved under *ex-situ* conservation. Besides, the garden is also harboring natural weeds and alien species in open field, along the roads and buildings, among, *Tridax procumbens* (L.) L. is one which is also occurring naturally. On routine visits in the garden for scientific studies and maintenance purposes, it has been observed since Nov., 2017 to Feb., 2019 and in Nov. and Dec., 2022 that colour of most flowers on same branch and/or plant has been drastically changed from white or yellow to light to dark pink/red in colour possibly due to alteration in its dominant pigment like carotenoids. So far, no such change has been reported. Hence, causes of the impact was tried to find out and it has been inferred that the possible cause of the same may be due to low atmospheric temperature (in °C) during winter season in contrary with high relative humidity (RH in %) and barometric pressure (BP in mbar). Besides, alteration in pH level, micro and macro nutrient content, impact of coal tar , shading, drought, etc. may hamper the activities of pollination and loss of resultant subsequent productivity.

Abstract No. 39

Sustainable Agriculture: It's Need and Different Forms

Alka Asthana and Namita Rajpal

Pandit Prithi Nath P.G. College, Kanpur (U.P.), India

ABSTRACT

World population hits 8 billion this year (2022). This rapid increasing population put immense pressure on agricultural land and other natural resources as it requires to sustain the increasing need of the population. Currently, environment is facing adverse impact of the agricultural methods being used to meet the growing need of the population in form of land pollution, air pollution, groundwater depletion, water pollution degradation in quality of agricultural products and different health hazards. The natural resources are being used and polluted recklessly, putting a threat to environment and sustainable development. Sustaining population without much harming the nature and environment is the utmost challenge. In this regard, sustainable agriculture and its different methods are showing path and gaining popularity with time. There are some constraintsin its path that it's not cost effective and is not prone to high yield like chemical fertilizers, it is not that efficient that it can sustain the need of population. Sustainable agriculture is gaining importance and popular popularity as an alternate to modern techniques which poses threat to natural resources. This is immensely needed as is socially accepted and ecologically safe. In this series, organic farming has emerged as a sustainable farming system. This system of farming enhances soil and ecosystem health by avoiding harmful chemicals as fertilizers, insecticides, pesticides. There is an inclination towards Organic farming with increasing awareness as it is favourable for both health and environment. This paper discusses about the different forms of sustainable agriculture and its need and prospects.

Abstract No. 40

Development of agriculture and farmers with evolution of digital technology

Abha Shukla

Department of Geography
Pandit Prithi Nath P.G. College, Kanpur (U.P.), India

ABSTRACT

Farming is the center point of the Indian economy. Agriculture sector is full of diversity and is also the largest sector in terms of production and employment. The policy decisions taken by the government to strengthen the agriculture sector, legal reforms and smart farming have strengthened the agriculture sector and the economy. In order to get rid of the problems arising out of natural reactions, emphasis is being laid on connecting the agriculture sector with technology and making it a center of profit and attraction. Along with prosperity in the village, means of livelihood and employment can be developed so that migration from village to city can be stopped. Modern information technology and Digital India campaign can play an important role in this. Modernization of agriculture and rural sector with digitization is the need of the hour. This has become even more important with the COVID-19 pandemic. Due to this pandemic, many major changes came in the lives of farmers, animal husbandry, fishermen and villagers. Now digital transformation and technology is becoming an important part of their lives. Farmers are getting benefit from technology as well as the digital medium. Natural resources are being over-exploited to supply food to the growing population of the country. The result of which we are seeing today in the form of decline in the productivity of land, falling level of ground water, dwindling water resources, shrinking biodiversity, drought, flood and climate change. If we do not give special emphasis on conser vation of natural resources especially soil and water in time, then serious food problems may have to be faced in future. In this regard, precision farming can play an important role in increasing soil fertility and productivity. It is a modern concept of agricultural science based on information technology, which is useful for eco-friendly farmers and has the potential to increase production as well as increase natural resources. So we can say that the Digital India campaign will provide customized solutions based on the farming conditions along with increasing the income of the farmers.

Abstract No. 41

Adsorption Capacity of Heavy metal ions by Bamboo Leaves Activated Carbon

Irfan Rashid Sofi and Harendra K. Sharma

School of Studies in Environmental Science
Jiwaji University, Gwalior (M.P.), India

ABSTRACT

Heavy Metal contamination is a global concern for human health and the environment due to its high toxicity to living organisms and its worldwide distribution. Therefore, feasible and effective methods are needed to remove those contaminants from soil and water. Adsorption is one of the most efficient techniques for removing noxious heavy metals from the solvent phase. Adsorption of heavy metal ions on carbon-based adsorbents has been extensively investigated. The activated carbon was synthesized from bamboo leaves. The prepared bio-adsorbent are characterized by different analytic techniques like SEM, TEM, XRD and FTIR.Various aspects on the validity of adsorption isotherms and kinetic models as well as theoretical aspects of the thermodynamic of adsorption were studied. Thus, biomaterial based adsorbents are promising green alternatives for the recovery of heavy metals. Therefore in this study we will investigate the possibility of using the agricultural based biomass for the removal of heavy metal from aqueous solution.

Abstract No. 42

The correlation between climatic alteration and agricultural productivity

Amita Srivastava and Ratnanjali

Department of Zoology
Dayanand Girls P.G. College, Kanpur (U.P.), India

ABSTRACT

Climate is a prominent aspect of agricultural production; their impact is adequate to gravely intimidate crops by means of rising temperatures, intensifying drought, changing water bodies, and population displacement. Climate change possesses an extensive and visible impact on the agricultural sector which is critical to the world's food production and economy, the yield of crops is adversely affected by the alteration of rainfall and water accessibility. Greenhouse gases, particularly carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O) incorporate a captivating potential of sustaining the temperature of the earth but over the last few decades, climatic change has significantly increased their concentrations which led to extreme temperature conditions. Most of the countries are striving hard to increase the yield of crops to feed their growing population, although climatic changes are posing a significant interruption in this consideration. Atmospheric temperature correlates with seed germination as well as plant development and these fundamentals are directly inhibited by modification in temperature ranges, furthermore, it also enhances the activity of insect infestation. Cereals are one of the major dietary products for mankind but their cultivation requires higher water accessibility, consequently, the declining rainfall negatively impacts their production and productivity. At the same time, flood is another instance of climatic change which is more hazardous to agriculture than drought. An excessive amount of rainfall results in the form of sedimentation, soil erosion, and soil contamination with pollutants, pesticides, and sewage, moreover, it causes the removal of vital nutrients from land. Therefore, if this condition persists, agricultural losses could rise at an unusual rate, lowering production, increasing food prices, and possibly making it more challenging to meet the expanding demands of a growing population. Thus, promoting the use of improved irrigation systems, crop rotation, rainwater harvesting, and optimal crop yields can contribute beneficially in this regard and aid in addressing the issues of agriculture and climate change.

Abstract No. 43

Agricultural Stubble: An Initiative towards Environmental Protection and Economic Growth

Renu Jain[1] and Isha Chourasia[2]

[1]Department of Home Science,
Institute For Excellence in Higher Education, SN Govt. Girl's Post Bhopal (M.P), India
[2]Graduate College, Bhopal (M.P), India

ABSTRACT

India, the second largest Agro-based economy, year-round crop cultivation generates a large amount of Agro waste, including crop residue. Inadequate sustainable management practises due to technological advancement and use of machinery for crop harvesting leaves behind a large quantity of crop residue, which is burnt by farmers as cheap and easier method with misconception that, burning of crop residue enhances soil fertility and helps in control of weeds, insects and pests. From various studies conducted it is proven that burning of crop residue results in heavy loss of organic carbon as well as soil nutrients, it emits a large amount of sub- micropaticles ,add salt and trace gases like CO2 ,SO2, CO and smog. The stock the subtle burning of crop residue is a crime under section 188 of the Indian penal code and air pollution control act of 1981. Government along with the other organisation are promoting alternative ways with which residues like cattle-feed compost and manure can be made with these Agro waste. Still the alarming rise of air-pollution levels caused by crop residue burning in the city's of Delhi and other northern areas of India, especially after 2015 suggested that the issue is not yet under control. Since, Activated charcoal was found to be a good adsorbent, it was used as a hoarding, black strip as road edge, Water purification of H2O, as a indoor use to adsorb the pollutents of Agarbatti, doop, Hawan, in coal mines. Hence this research is a small contribution to SDG 8: Decent Work & Economic Growth

Abstract No. 44

Population Dynamics of Phytoplankton in Chitaura Jheel, A Wetland of Bahraich District in Relation to Fish Production

Dilip Kumar Yadav and Arvind Kumar Sharma

Department of Zoology
K.S. Saket (P.G.) College, Ayodhya (U.P.), India

ABSTRACT

Wetlands are the transition zones between ter restrial and aquatic areas of the world. Globally wetlands are considered as the biologically diverse ecotone and biodiversity. Wetlands provide a wide range of ecological, environmental and economic services. They support subsistence and livelihood to the people through fishing, collecting edible plants, agriculture, irrigation, fisheries besides rich biodiversity. Most of the aquatic organism including fishes thrive on plankton and other natural food for growth and nourishment hence productivity of any wetlands are decisive factors for survival of spawn and fingerling of fishes. Production and growth of phytoplankton directly depend on limnological condition of waterbody. In this context, plankton diversity and abundance of Chitaura Jheel is studied. A total 25 species of phytoplankton were recorded comprising 4 groups of algae viz., green algae (Chlorophyceae), diatoms (Bacillariophyceae), euglena (Euglenophyceae) and blue green algae (Myxophyceae). Highest species richness was recorded as Chlorophyceae followed by Bacillariophyceae, Myxophyceae and Euglenophyceaewhere as highest abundance was recorded for Bacillariophyceae followed by Chlorophyceae, Myxophyceae and Euglenophyceae in Chitaua Jheel.

Abstract No. 45

Population Dynamics of Crustacean Parasites of Fresh Water Fishes at Balrampur, U.P.

Alpana Parmar

Department of Zoology
M.L.K.P.G. College, Balrampur (U.P.), India

ABSTRACT

With increasing interests in aquaculture, fish parasites and their infections are matter of concern since they affect productivity especially inland culture fishery by decreasing their reproductive potential, market and nutritive value The parasitic crustaceans affecting commercially important fishes are belongs to only sub class Copepod, Branchiura and Isopoda. Due to small and microscopic size copepods are most common parasitic crustaceans. An investigation was made on the population dynamics of crustacean ectoparasites of some freshwater carps and catfishes during October, 2021 to September, 2022. Out of 255 examined fishes 56 fishes were found infected with total 131 crustacean ectoparasites. The incidence, intensity and abundance of crustacean parasites were high in carps than the catfishes. The result revealed that exotic carps were more susceptible to crustacean parasites than indigenous carps. During study period, three copepods (*Ergasilus* sp, *Lernea* sp, and *Lamproglena* sp.) and one Branchiura (*Argulus* sp.) were collected from gills, skin and fin bases of infected fishes,

Abstract No. 46

Protozoan Parasites of Catfishes collected from Fresh Waterbodies, Siddharthnagar District (U.P.)

Dharmendra Singh

Department of Zoology
Shiv Pati P.G. College, Shohratgarh (U.P.), India

ABSTRACT

In India inland fisheries sector has grown from 29% in 1950-51 to 55% at present providing livelihood to 25million people. Although fish production has increased manifold in India but freshwater productivity especially inland culture fishery decreases due to various parasites which affect the metabolic activities, normal health conditions and even death of culturable fishes. So, the present study was conducted to find out the prevalence, intensity and density of protozoan parasites of freshwater catfishes collected from lentic water bodies of Siddharthnagar district of U.P. Total four species of protozoan parasites were collected from 252 fishes. Out of four, three were ectoparasites and remaining one was endoparasite. Among the ectoparasites, *Ichthyoptherius* is the most prevalent ectoparasites followed by *Trichodina* and *Myxobolus.* Among the infected fishes, *Mystus vittatus* (27.20%), harboured maximum number of ectoparasites followed by *Wallago attu* (26.80%), *Clariu sbatrachus* (24.78%) and *Heteropneustes fossilis* (21.22%).In the present investigation it was observed that non of *Wallago attu* and *Mystus vittatus* were infected with *Trypanosoma*, an endoparasitic protozoa.

Abstract No. 47

Effect of Physico-chemical properties of Soil in determining Cyanobacerial proliferation in Agroecosystem

Shalini Singh

Department of Botany
Kamla Nehru Institute of Physical and Social Sciences, Sultanpur (U.P.), India

ABSTRACT

Interpretation of the physico-chemical properties of soil as detrimental factor for the growth of certain cyanobacterial strains, forms the basis for mitigating the risks of cyanobactererial growth. This type of growth is very dangerous for any agricultural practice. At the same time, the knowledge also provides a platform for understanding the role of cyanobacteria in enhancing the soil fertility. The current study emphasizes the collaborative role of these factors and cyanobacterial proliferation in water logged areas in the rice field ecosystem. Soil texture and pH are the most significant determinants of cyanobacterial diversity in agroecosystem as compared to other soil parameters. pH and soil texture of various soil samples were chosen as parameters to analyze the sites under study. Cyanobacterial strains present were also listed and their diversity was found to depend on the parameters under study. Analysis of soil texture of chosen collection sites showed higher percentage of silt in comparison to sand and clay. pH of was found to range from moderately low to optimal values. Dissolved Oxygen provides a suitable medium to flourish aerobic organisms. It was seen that proliferation of cyanobacterial flora was further enhanced by the increased dissolved oxygen content. Significantly higher level of carbonate alkalinity was the characteristic feature of collection sites. Adequate level of soil moisture content and water holding capacity was recorded in study area, which helped to maintain the water status sustainably during rice cultivation cycle.

Abstract No. 48

Machine Learning Based Estimation of Soil Moisture Using Polarimetric Synthetic Aperture Radar Data

Dev Dinesh, Shashi Kumar and Sameer Saran

Indian Institute of Remote Sensing,
Indian Space Research Organization (ISRO),
Department of Space, Government of India

ABSTRACT

The moisture in the soil is vital to agricultural management, the cycling of surface water, and the exchange of energy on the earth's surface. Therefore, it is essential to have reliable information on soil moisture content throughout broad agricultural regions to estimate crop yields and manage production. Using handheld equipment to test soil moisture at the local level is convenient, but doing so on a global or large scale is expensive and time-consuming. Therefore, this study uses Polarimetric Radar Data to estimate soil moisture at the surface level. Radar data is sensitive to the soil dielectric constant and provides a better result in estimating soil moisture at the global and local levels. Here, Polarimetric decomposition methods were tested on L-Band radar imagery. In addition, soil moisture derived from the Random Forest algorithm was evaluated. The soil moisture estimation results provided a root mean square (R^2) of 0.87 for the wheat field, 0.84 for the soybean field and 0.68 for the corn field, which is considered as a positiveresults, research findings will provide an essential recommendation for future missions such as ROSE-L and NASA-ISRO SAR missions (NISAR).

Abstract No. 49

Pulses: Wastes, by-products and utilization

Devinder Kaur[1], Pinki Saini[1] and Pravin Kmar Singh[2]

[1]Centre of Food Technology, University of Allahabad, Prayagraj (U.P.), India
[2]Department of Chemistry, CMP Degree College, Prayagraj (U.P.), India

ABSTRACT

There has been a growing interest for the valorization of food waste and by-products from different processingsteps, not only to ensure the environmental sustainability but also to improve the economicperformance of the processes. One way of utilization of these byproducts could be extraction ofvaluable compounds, which can be used as ingredients in food and pharmaceutical industries duetotheir technological function, nutritional proper ties, or their beneficial effects on human or animal health. In particular, pulses residues are produced yearly in very large amounts and mayrepresent an interesting source of plant proteins that contribute to satisfying the steadily increasingglobal protein demand.Pulses are widely grown in the world. During the primary processing of the pulses about 25% of whole is obtained as waste by-product. These by-products include husk or hull, aleurone rich husk, plumule and germ fractions. These by-products are promising sources of primary and secondary plantmetabolites which may be used because of their favorable technological or nutritional properties. Various studies showed that using these by-products in various food products like biscuits, meat analogues, spor ts drinks, ice cream, noodles, instant breakfasts, wine, etc.found extensively profitable and healthy. This chapter provides a discussion onthe utilization of pulses wastes and by-products towards ensuring the food and environmental sustainability with additional health benefits.

Abstract No. 50

Status of downy mildew in pearl millet in Northern Madhya Pradesh

Anil Kumar Sharma and Rajani Singh Sasode

Department of Plant Pathology,
College of Agriculture, RVSKVV, Gwalior (M.P.), India

ABSTRACT

Morena, Bhind and Gwalior are the major pearl millet growing districts of Madhya Pradesh as these three districts jointly contribute > 70% of production of pearl millet out of the total state production. Several diseases of pearl millet caused by fungi, bacteria, viruses and nematodes have been reported by different workers, out of them downy mildew incited by *Sclerospora graminicola* (Sacc.) Schroet is the most widespread and destructive disease of pearl millet in India. The pathogen survive in soil for long duration and various downy mildew resistant hybrids released in past become susceptible, due to this fact the disease has become a major limiting factor in the exploitation of high yield potential of hybrids in the country. A total of 24 villages / localities of Morena, Bhind and Gwalior were surveyed to access the incidence of pearl millet downy mildew in Kharif. The mean incidence of downy mildew in Morena, Bhind and Gwalior was 1.31, 0.79 and 0.5 per cent respectively.

Abstract No. 51

Role of Information and Communication Technologies in Risk Reduction and Smart Digital Farming

Smita Verma[1] and Mamta Prajapati[2]

[1]Dr Shyama Prasad Mukherjee Science and Commerce College, Bhopal (M.P.), India
[2]Pt. S. N. Shukla University, Shahdol (M.P.), India

ABSTRACT

The agriculture sector is one of the major sectors in the Indian economy. According to the Economic Survey 2020-21, GDP contribution by the agriculture sector is likely to be 19.9% in 2020-21, increasing from 17.8% recorded in 2019-20. The recent evolution of digital technology in farming will further accelerate growth by ensuring higher crop yields and enhance sustainability by reducing water consumption and the use of agrochemicals. Technological interventions based on remote sensing, soil sensors, unmanned aerial surveying and market insights etc., permit farmers to gather, visualize and assess crop and soil health conditions at different stages of production, in a convenient and cost-effective approach. Implementing technological solutions enable reliable management and monitoring of far ms. As farmers get a complete digital analysis of farms in real-time, they don't have to apply excess pesticides, fertilizers and reduce overall water consumption. Adopting a holistic ecosystem approach to address challenges faced by the Indian agriculture sector is of national interest, to achieve objectives, like doubling farmer incomes and sustainable development.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 52

Mulching as a Sustainable Water and Soil Saving Practice in Agriculture

Naresh Gupta[1], R.K.S. Tomar[2] and Madhup Shrivastava[3]

[1]Krishi Vigyan Kendra, Datia (M.P.), India
[2]Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior (M.P.), India
[3]Govt. K.R.G. P.G. (Auto.) College, Gwalior (M.P.), India

ABSTRACT

In water deficit area (rainfed area), judicious use of water is essential for increasing area under crop production with limited water supply. Therefore, uses of moisture conser vation measures are essential under such situation. Mulching has been advocated as an effective means for conserving soil moisture. It works as an insulating barrier which checks evaporation from soil surface. Mulching is an agricultural and horticultural technique in which the use of organic materials (plant residues-straw, hay, groundnut hulls, leaf and compost, peat, wood products-saw dust and animal manures), and synthetic materials (paper, polyethylene, wax coated papers, aluminium, steel foils and asphalt spray emulsions etc.) with or without shallow tillage, for the purpose of increasing soil productivity is involved. This technique is very useful in protecting the roots of the plants from heat, cold or drought or to keep fruit clean. It checks evaporation and modifies the soil and air microclimate in which a plant is growing. Mulch is used to cover soil surface around the plants to create congenial condition for the growth. This may include temperature moderation, salinity and weed control. It exerts decisive effects on earliness, yield and quality of the crop. Mulching is also applicable to most field crops. However, it is preferred in fruit orchard, flower and vegetable production, nurseries and forest where frequent cultivation is not required for raising the crops. Most commonly used agricultural mulch is black plastic. Clear plastic mulch is used in some areas due to its increased soil warming characteristics. Weed control beneath the mulch is a deter rent to its use. White or aluminum reflective mulch is used where soil cooling is desired, such as establishing fall crops during the heat of summer. Research has shown that white or aluminum reflective mulch also repels aphids which spread some virus diseases in vine crops such as squash.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

Abstract No. 53

Impact of agricultural and household pesticide residues on human health

Harendra Nath Sharma

Department of Zoology
Shri Varshney College, Aligarh (U.P), India

ABSTRACT

Over 1000 pesticides are used worldwide to prevent pests from damaging or destroying food. Each pesticide has different properties and toxic effects. Many of the older, cheaper (unpatented) pesticides such as dichlorodiphenyltrichloroethane (DDT) and lindane can persist in soil and water for years. These chemicals are banned by countries that have signed the 2001 Stockholm Convention, an international agreement aimed at eliminating or limiting the production and use of persistent organic pollutants. The toxicity of pesticides depends on their function and other factors. For example, insecticides tend to be more toxic to humans than herbicides. The same chemical can have different effects at different doses, that is, the amount of chemical to which a person is exposed. Toxicity can also depend on the route by which the exposure occurs, such as by swallowing, inhaling or direct contact with the skin. Gas chromatography is the most widely adopted technique in pesticide residue analysis. Pesticides that are amenable to direct analysis by means of GC should preferably be determined by means of this method because it separates well, is fast, and has available many selective and sensitive detectors. As a rule of thumb, washing with water reduces the dirt, bacteria, and pesticide residues that remain on the surface of fresh fruits and vegetables. It is better to wash and rub under running water than to soak the product. Hence it is advised to make policies to prevent future generations from patricidal residual problem.

Abstract No. 54

Observations about the infestation and abundance of *Thrips tabaci* (Thysanoptera: Thripidae) on the crop of Tomato (*Solanum lycopersicum*) in Aligarh Region (U.P.)

Virendra Kumar and Pooja

Department of Zoology
D.S. College, Aligarh (U.P.), India

ABSTRACT

A Survey was carried out for monitoring the *Thrips tabaci* population in district Aligarh region Uttar Pradesh in favorable growing season of tomato to observed information on infestation and abundance of *Thrips tabaci* population. *Thrips tabaci* is generally known as 'Onion Thrips' because its main host plant is Onion (*Allium cepa*). In this study three villages Jalali, Pikhaloni and Harduaganj were included in our biological survey. On the basis of infestation and abundance of *Thrips tabaci*, data collected from these localities. According to the result infestation and damaged occurred by *Thrips tabaci* on tomato fields starting at last week of September and highest population recorded in first week of November.

Abstract No. 55

Rise in temperature affects flies population

Neelam Bajpai

Department of Zoology
Mahamaya Government Degree College, Kaushambi (U.P.), India

ABSTRACT

Climate change affects the distribution of flies or insects that destroy crops (affecting plants) and spread diseases (affecting animals and human beings). Among flies some are considered as forensically important such as blow flies and flesh flies as they eat corpse and lay eggs on it. In doing so, these flies become an impor tant source of investigating P ost Mortem Interval (PMI). Forensic entomologists can easily predict the PMI by studying life cycle of these flesh eating flies. But now, as the temperature is rising these flies are moving to some other cooler regions to find more comfortable place and therefore forensic related inquiries could not be performed very easily.

Abstract No. 56

Role of information & communication technologies in Smart digital farming

Bhavna Sikarwar

School of Studies in Environmental Science
Jiwaji University, Gwalior (M.P.), India

ABSTRACT

The agriculture sector plays a very important role in enriching India's economy. Agriculture accounted for almost 17.8% of India's Gross Value Added (GVA) in 2019–20. According to the World Bank's collection of development indicators, employment rate in the Indian agriculture sector stood at 41.5% in 2020. Smart digital farming (SDF) is an initiative of companies active in innovative precision farming and livestock breeding. Precision farming needs smartness on top in order to cope with today's technological challenges. The essence of digital farming lies in creating value from data. Digital Farming means to go beyond the mere presence and availability of data and create actionable intelligence and meaningful added value from such data. The main objectives of the SDF are to deploy economic potential and enhance the competitiveness of enterprises active in collaboration initiatives in the agri-food sectors and evolve into a digital innovation Hub in Smart-Agri-Hubs.

Abstract No. 57

Screening of Indian mustard (*Brassica juncea* L.) genotype (s) against fungal diseases based on disease indexing and molecular markers

Aditi Shrivastava and Manoj Kumar Tripathi

Department of Genetics & Plant Breeding
Rajmata Vijayaraje Scindia Krishi Vidyalaya, Gwalior (M.P.), India

ABSTRACT

Indian mustard (*Brassica juncea* L. Czern. & Coss) is the dominant species of the Brassica group of oilseed crops, which is a naturally occurring amphidiploid (2n = 36, AABB genome). In India, fungi-related problems with Indian mustard are becoming a big issue. In terms of production, India ranks third in the world for mustard farming. Due to the low productivity of Indian Brassica genotypes, India is the world's largest impor ter of edible oil; therefore, the urgent need for high yielding better cultivars. During present research, a field experiment was carried out at Research Farm and laboratory work at Plant Molecular Biology Laboratory, Biotechnology Center, RVSKVV, Gwalior (M.P.). Experimental material consists of 75 genotypes with diverse reactions against different fungal diseases. On each genotype, the start of blooming coincided with the emergence of white rust pustules. *Albugo candida*, which causes white rust, and *Erysiphe cruciferarum*, which causes powdery mildew, were both studied in the field and rated on a scale of 0 to 9. Furthermore, using 77 SSR and SCAR genetic markers, molecular characterization of Indian mustard genotypes against several fungal infections was carried out. The results of 21 molecular markers were polymorphic. Also analyzed were biochemical parameters such protein, reducing and non-reducing sugar, chlorophyll, total sugar, amino acids, phenol, proline, and malondialdehyde (MDA) test. The biochemical parameters were estimated in two stages, from healthy as well as mustard plants infested with different fungal diseases. The fungal diseases resistant/tolerant genotype (s) can be employed for fur ther crop improvement programme that can withstand fungal infestation and harsh climatic conditions.

Abstract No. 58

Effect of long term tillage and manurial practices on soil micronutrient status of coconut in red sandy loam soils of Humid tropics

V. Selvamani, Ravi Bhat, P. Subramanian, Surekha and Sandip Shil

ICAR-Central Plantation Crop Research Institute, Kasaragod (Kerala), India

ABSTRACT

A perennial crop like coconut continuously removes nutrients through uptake from the limited soil volume over a long term. It is necessary to monitor the nutrient status for sustaining the soil fertility and productivity over time. It is especially important for the micronutrients since they are not regularly supplemented through fertilizers like macronutrients. These necessitate assessing the long term effect of different tillage and manurial practices on soil micronutrient status. Therefore, the changes occurred in the micronutrient status of the soil after long term cultivation of coconut was studied. Six treatments were imposed in this experiment viz., T1 (Cultivation + Organics + Inorganic fertilizers), T2 (Cultivation + Inorganic fertilizers), T3 (Inorganic fertilizers +forking basin), T4 (Cultivation alone) T5 (weed control using herbicide only) and T6 (No cultivation and no manuring). Total Fe content ranged from 11753 to 23707ppm at 0-30cm soil depth and 15810 to 24908ppm at 30-60cm depth. Total Mn content ranged from 1961 to 4673ppm at 0-30 cm and 2595 to 5191ppm at 30-60cm soil depth. Total Zn content at 0-30 cm was ranging from 93.6 to 141.48ppm. At 30-60cm soil depth, total Zn content was ranging from 91.04 to 140.92ppm. Total Cu content was ranging from 21.8 to 35.96 at 0-30cm and it was from 26.16 to 39.36ppm at the soil depth of 30-60cm. Tillage treatments showed significantly higher total Fe content and no Tillage treatments showed low total Fe content at 0-30cm soil depth. INM and No tillage with chemical fertilizer showed low total Cu content at 0-30cm and high content in 30-60cm depth. Tillage and nutrient management practices influences the micronutrient status of the soil in a long term.

Abstract No. 59

Screening of *Solanum melongena* varieties for Root Knot Nematode (*Meloidogyne incognita*) Pathogenesis

Anil K. Poonia[1], Bhupendra Koul[1], Subhash Kajla[2] and J.A. Patil[3]

[1]Department of Botany, School of Bioengineering and Biosciences, Lovely Professional University, Phagwara (Punjab), India
[2]Department of Molecular Biology, Biotechnology, COB, CCSHAU, Hisar (HR), India
[3]Department of Nematology, COA, CCSHAU, Hisar (HR), India

ABSTRACT

Thirty different varieties collected from Northern India were subjected to treatment with prevalent root knot nematode *Meloidogyne incognita* (1J/gm of soil). Seedling infestation data against the root knot nematode were recorded and interpreted according to AICRP Root Knot Index. The average Root Knot Indexes of thirty varieties varied between 2-4 and average egg masses were 4.3 to 69.0. Based on AICRP Root Knot Index two varieties (Janak and Bharta 436) were found resistant, four varieties (Punjab Sadabahar, Punjab Barsati, Punjab Rounak and Pusa Shymala) moderately resistant and remaining 24 varieties were susceptible against root knot nematode *Meloidogyne incognita*. Hence, out of total 30 varieties screened in the present investigation, only two were found resistant and none of them were highly resistant/highly susceptible to root knot nematode *Meloidogyne incognita*.

Abstract No. 60

Pilot scale production of oyster mushroom by the using of different agricultural wastes-An ecofriendly approach

Madhu Gupta and M.K. Gupta

School of Studies in Botany
Jiwaji University, Gwalior (M.P.), India

ABSTRACT

The several white rot fungi are edible mushrooms and are saprophytic basidiomycetes, which have been successfully, cultivated at commercial level worldwide using various agricultural lignocelluloses wastes as a substrate for their cultivation. *Pleurotus florida* (Oyster mushroom) is a wood digestive fungus which was first cultivated on logs. Mushrooms can convert lignocelluloses waste materials into a wide diversity of products, which have multi-beneficial effects to human beings, i.e., as food, health tonic and medicine as feed, as fertilizers and for protecting and minimizing the environmental pollution. The cultivation of edible fungi is a controlled bio conservation of agro industrial lingo-cellulosic waste and residues. Mushroom cultivation fits in very well with sustainable farming and has several advantages. It uses agricultural waste products.

Abstract No. 61

PGPR: Agriculture and sustainable development

Vandana Tyagi[1] and J.P. Tyagi [2]

[1]MB Govt. PG College, Haldwani, Nainital (UK), India
[2]Department of Political Science, Ramnagar, Nainital (UK), India

ABSTRACT

Globally, food demand is increasing rapidly and so more in developing nations where agriculture lands and resources hardly contribute to an efficient crop production needed to meet such an urgent need for food. So, there is compulsory to intensify agriculture production in a sustainable manner through use of efficient agro-biosystems which consider the entire agroecosystem bio-chemical diversity and their potential to mitigate the adverse impacts of low soil fertility, abiotic stress, pathogens, and pest. Today, microbial-based biofertiliers are considered to be among key agricultural components that are low cost effective, improve crop productivity and contribute to sustainable agro-ecosystems. Plant growth-promoting rhizobacteria (PGPR) consist of the rhizospere bacteria that can enhance plant growth and stress resistance by a wide variety of mechanisms. Rhizodeposits, root exudates, and root border cells are vital components of the rhiosphere microbes, as well as secretion of bioactive compounds. PGPR can enhance plant mineral nutrition via associated nitrogen fixation, mobilization of phosphate in the soil, sideropore production, and stimulation of mycorrhizal symbiosis development and modulation of root architecture. PGPR can also activate plant pathogen resistance, supress pathogen growth and alleviate the inhibitory effects of abiotic stressors like drought, salinity and heavy metal pollution. Because of growing public concern about damaging effects of chemical, fertilizers and pesticides, there is an increasing interest in improving our understanding of molecular mechanisms of interaction between plants and their rhizospere microbial community.

Abstract No. 62

Growth responses of *Brassica campestris* L. at different grades of sodium chloride toxicity

Anand Kumar Pandey and Manish Kumar Singh

Department of Botany
K.S. Saket P.G. College, Ayodhya (U.P.), India

ABSTRACT

Salinity can cause hyper-ionic and hyper osmotic effect on plant, leading to membrane disorganization and metabolic toxicity. The occurrence of salt affected soil is worldwide problem particularly in arid and semi-arid region including tarai region of Uttar Pradesh. The *Brassica campestris* commonly known as rapeseed mustard is important group of edible oils and vegetables crops belonging to *Brassicaceae* family. It is the second most important oil crops in world next to soybean. The present investigation was the trail of salt affects on the vegetative growth of Brassica species. Grown Seedlings were transplanted in earthen pots at the depth of 2 cm (each pots were 10cm diameter and 10cm in height) containing 6kg loamy soil. In order to prevent salt accumulation 1cm diameter hole was made at the bottom of pots. After germination seedling were thinned and homogenized per pots. Plants grew in pots and obser ved it on daily basis at 9 am in the wire house of Botany Department K.S. Saket P.G. College Ayodhya (U.P.). After two week of plants germination; different grades of salinity treatment were started. Plants were subjected to five levels of sodium chloride solution i.e.0 (Control), 0.25, 0.50, 0.75 and 1 M. Data were subjected to statistical analyzed with one way analysis of variance using SPSS (version 20).The mean values were recorded at 0.05% probability level. It was concluded that the salinity was the problem for the growth and development of all the type of vegetation except halophytes.

Abstract No. 63

Heavy metal pollution-A review

Indrani Dubey and Sushmita Srivastava

Department of Zoology, D.B.S.P.G. College, Kanpur (U.P.), India

ABSTRACT

Heavy metal is a collective term applied to the group of metals and metalloids, that have relatively high density and are toxic even at low levels. Lead, Arsenic, Mercury, Cadmium, Zinc, Copper, Iron, Chromium, and Nickel, are examples of heavy metals. Many of them have bio-toxiceffects due to which they become very harmful. Environmental pollution of heavy metals is increasingly becoming a problem day by day and has been a matter of great concern due to the adverse effects it is causing around the world. These inorganic pollutants are being discarded in our waters, soils, and into the atmosphere due to the rapidly growing agriculture and metal industries, improper waste disposal, fertilizers, and pesticides. They leach into underground water, move along the water pathway, or are washed away by runoff into surface water, resulting in water and soil pollution. Heavy metals in riverine environments represent an abiding threat to human health. These toxic substances when present in a very high amounts lead to chronic and undesirable effects which are beyond appropriate limits. These kinds of exposures may result in developmental retardation, various cancers, kidney damage, and even death when exposed to very high concentrations. This review article presents the findings of the work carried out by various researchers in the past on heavy metal pollution in riverine environments and shows how pollutants enter the environment together with their fate. Some metals affect biological functions and growth, while other metals accumulate in one or more different organs causing many serious diseases such as cancer. This shows the physiological and biochemical effects of each heavy metal bioaccumulation in aquatic fauna and the level of gravity and disquieting factor of the disease. Since they are nondegradable and tend to bioaccumulate, suitable methods need to be established for their efficient removal from the environment.

Abstract No. 64

Burrowing Nematode Pests of Crop and Role of Nematode in Banana Plot, Anjangaon Surji Dist. Amaravati, Maharastra

M.R. Yeotkar

Department of Zoology
Smt. Radhabai Sarda Arts, Commerce & Science College, Anjangaon Surji
Dist. Amravati (M.S.), India

ABSTRACT

Survey of soil nematodes associated with Banana plant in Amaravati district of Anjangaon n revealed the presence of species of soil nematodes of in five plot on field. The Nematoda is one of the most successful and non-segmented invertebrate phyla. Nematodes occur in both aquatic and terrestrial ecosystems, some adopting a parasitic habit in vertebrates, invertebrates and plants.

DISASTER RISK RESILIENCE AND REDUCTION (DISASTER MANAGEMENT)

Abstract No. 1

Genome-wide identification of the fibrillin gene family in chickpea (*Cicer arietinum* L.) and its responses to drought stress

Anuradha Pandey and Dipak Gayen

Department of Biochemistry, School of Life Sciences
Central University of Rajasthan, India

ABSTRACT

Fibrillin family members play multiple roles in growth, development, and protection against dehydration stress. However, genome-wide identification of fibrillin (FBN) genes and their roles in dehydration stress has not yet been characterized in chickpea (*Cicer arietinum)* . In this study, we identified FBNs proteins from genome-wide in-silico analysis. W e were able to retrieve 12 FBN proteins and revealed their characteristics feature, such as chromosome location, gene structure, domain and motif analysis, phylogenetic relationship, also their expression profile. The FBN proteins were found on all chromosomes except 2, 3, and 6th chromosomes, which were hydrophilic in nature and generally resided in the chloroplast. Additionally, motif 1 & 2 was common in all, depicting their conserved character and function. Although the FBN proteins were expressed in all the tissues, their highest concentration was found in aerial parts, especially in stems and leaves. Two fibrillin genes FBN-1, FBN-2 and FBN-6 were highly expressed during dehydration stress, and the relative expression levels of the FBN were detected by the RT-PCR. We also performed various physiological and biochemical analyses to check the changes in the plant at the physiological and cellular levels while undergoing stress conditions. In addition, our study provides a comprehensive over view of the FBN proteins, their characterization, and their triggering role during the dehydration stress condition in *Cicer arietinum.*

Abstract No. 2

Diversity and Systematic Account of Genus *Anabaena* (Bory) in River Ganga at Kanpur, India

Vinod Rishi[1], Ravindra Singh[1], Sadhana Chaurasia[2] and A. K. Awasthi[3]

[1]Department of Biological Sciences, M.G.C.G. University, Chitrakoot, Satna (M.P.), India
[2]Department of Energy and Environment, M.G.C.G. University, Chitrakoot, Satna (M.P.), India
[3]Department of Botany, Brahmanand P.G. College, Kanpur (U.P.), India

ABSTRACT

The present study based on the diversity and systematic account of genus *Anabaena* (Bory) found in five sampling stations of river Ganga at Kanpur, between Bithoorghat to Jajmaughat, during the period from February 2018 to January 2019. During the present study 09 species of *Anabaena* (Bory) have been identified from different sampling stations of river Ganga at Kanpur. The identified species were *Anabaena ambigua* (Rao, C. B.), *Anabaena circinalis* Rabenhorst ex Born et Flah., *Anabaena fertilissima* (Rao, C. B.), *Anabaena flos-aquae* (Lyngb.) Brebission ex Bornet et Flahault. *Anabaena iyengarii* (Bharadwaja), *Anabaena iyengarii var. tenuis* (Rao, C.B.), *Anabaena oscillariodes* Bory ex Bornet et Flahault., *Anabaena sphaerica* Bornet et Flahault. and *Anabaena variabilis* (Kuetzing) ex Bornet et Flahault.

Abstract No. 3

To study the distribution of different forms of sulphur and to determine the correlation between different forms of sulphur in surface soil

Rahul Morya, Anjali Bhargava and Radha Morya

Department of Soil Science and Agricultural Chemistry
Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior (M.P.), India

ABSTRACT

Sulphur is one of the essential elements for plant growth. It is an important constituent of many enzymes and amino acids. Photosynthesis and nitrogen fixation are attributed to the type of sulphur linkage present. Sulphur has been found to help the synthesis of amino acid and hence increase protein content of plants, boosts the oil content. Today, the S research has extended to various soils, crops and cropping systems and different sources of sulphur. Several soil factors influence the availability of sulphur and hence the status of different forms of sulphur in soil varies widely with soil types. Keeping in view, One hundred twenty five GPS based surface soil samples (0-15 cm) were collected from five blocks (Mungaoli, Chanderi, Ishagarh, Ashoknagar and Sadora) of Ashoknagar district during April to May 2016 Soils were studied for their physical and chemical characteristics and status of different forms of sulphur and their relationship with different soil properties. The different forms of sulphur, i.e. water soluble, available, organic and total-S were observed in the range of 1.23 – 7.67, 4.36 – 40.25, 89.08 – 194.53 and 167.45 – 422.20 mg kg-1 under different villages of investigated area with the average value of 4.09, 14.68, 124.21 and 309.17 mg kg-1, respectively. Out of 125 surface samples, 36 samples (28.8%) were found under deficient, 72 (57.6%) under medium and 17 (13.6%) samples was found in sufficient category. Availability of sulphur increased with an increase in organic carbon and clay content in soil. The correlation study revealed that organic carbon had greater impact on different forms of sulphur followed by soil texture. It suggested that organic matter was main contributing factor affecting the sulphur availability in soil. Total S maintained a significant positive association with all the forms of sulphur. Such relationship suggests that sulphur exists in a state of dynamic equilibrium in these soils.

Abstract No. 4

Remediation of Ni contaminated soil using rice husk biomass ash (*Oryza sativa* L.) under tropical ecosystem

Umesh Kumar and Rajesh Kumar Sharma

Department of Botany
Banaras Hindu University, Varanasi (U.P.), India

ABSTRACT

Application of biomass ashes in agriculture field to improve the soil fertility is one of the traditional agricultural practices in Northern India. Therefore, the present study aimed to investigate the effect of rice husk ash amended soil on Ni cellular distribution and consequent responses of rice *(Oryza sativa* L. var. HUR3022 and HUR105) plants grown on Ni (100 μg/g dw) contaminated soil. The morphological responses in term of leaf numbers, leaf area, total height, biomass, etc., and biochemical response in terms of non-enzymatic (MDA, proline, phenolics and flavonoids) and enzymatic antioxidant (superoxide dismutase, glutathione reductase, ascorbate peroxidase catalase, and peroxidase) activitiesin leaf tissues of the tested plants were evaluated at 45 and 90 days of after the seed germination. Ni accumulation in cell wall, cytoplasm and organelles were also quantified. The cellular distribution of Ni in both root and shoot tissues of tested plants was influenced by the application of bioashes with maximum accumulation of Ni in cytoplasm followed by cell wall and least in the organelles. The results further showed significant reduction in growth parameters due to Ni contamination were increased with increasing application rate of bioashes @ 1%, 2% and 4%in Ni-contaminated soil. As compared to control plants, both enzymatic and non-enzymatic antioxidant activities were significantly elevated in leaf tissues of tested plants. Thus the present findings suggest that the application of rice husk bioashes can improve the growth of tested plants in Ni-contaminated areas.

Abstract No. 5

Analysis of Disaster Mitigation

Hema Digambarrao Makne

Department of Zoology
B. Raghunath ACS College, Parbhani (M.S.), India

ABSTRACT

Natural disasters are example of people living in dispute with the environment. Disasters cause human, social and environmental losses. Disasters do occur; but preventing them is everyone's responsibility and fighting them is everyone's duty. Disaster management is a multidimensional and multistage process. It broadly includes preparedness, rescue, relief rehabilitation and mitigation. Disaster mitigation is an integral part of disaster management. In fact, it is an act of pre disaster stage. The definition of mitigation includes a wide variety of measures taken before an event occurs that will prevent illness, injury and death and limit the loss of property. Disaster mitigation requires proper vulnerability mapping and funds to carry out disaster specific mitigative activities. The National Disaster Management Authority set up by the Government of India has already initiated several steps in this direction. We need to strengthen the first responder agencies along with training the disaster-prone communities in Community based Disaster Risk Management. This can be successful only with the active support and cooperation of civil society organizations, voluntary organizations and community based organizations This paper deals with detail analysis of Disaster Mitigation measures which help common man to understand how to reduce disaster losses and suffering so that there is less demand for money and resources in the aftermath.

Abstract No. 6

Natural Resources, Human and Society

Rajani Kant Yadav

Department of Political Science
D.D.U. Gorakhpur University, Gorakhpur (U.P.), India.

ABSTRACT

The natural resources on Earth have given rise to a wide variety of living forms and helped establish an environmental system that has supported and is compatible with this diversity of life forms, making Earth a unique planet. Among the major forces for the development of social and economic systems are natural resources. Resources are those components of natural resources that are well-known, easily available, and likely to be utilized shortly given current technological and economic conditions. The sorts of reserves, resources, and raw materials that are readily available depend on the social structure, level of development, and organization of the society. Both a physical foundation and a certain social environment are required for something to be a natural resource. Human society's expansion has a close relationship with diverse resource-use activities. Every significant stage in the development of human societies has seen the discovery and utilization of new resources as well as the adoption of techniques that make it easier to obtain natural resources. In contrast to other animal species, man has been uniquely endowed with a talent for creatively utilizing the resources of nature. Due to this, human civilizations and environmental resources now interact in ways that require a delicate balance and have a tendency to produce undesirable consequences if one side goes too far.

Abstract No. 7

Effects of Natural Disasters on Agriculture

Preeti Singh

Department of Botany
S. S. Khanna Girls' P.G. College, Prayagraj (U.P.), India

ABSTRACT

Natural disasters are frequently the most destructive, causing loss of human life, economic damage and psychological impact to affected people regardless of national boundary. It includes natural phenomena such as earthquakes, volcanic eruptions, tsunamis, floods, droughts, typhoons or hurricanes, wild fires, tornados, snowstorms etc. Natural disasters do not occur randomly. Instead, they occur after hazards and vulnerability converges at a specific area. Similarly, the occurrence of natural disasters creates an ecological imbalance in addition to environmental degradation. In other words, natural disasters directly or indirectly influence plant ecology. Every year natural disasters, such as floods, fires, hurricanes, earthquakes and tornadoes etc. challenge the agricultural production. Because agriculture relies on the weather, climate and water availability to thrive, it is easily impacted by natural events and disasters. Agricultural impacts from natural events and disasters most commonly include: loss of harvest or livestock, contamination of water bodies, destruction of irrigation systems and other agricultural infrastructure and increased susceptibility to disease. These impacts can have long lasting effects on agricultural production including crops, forest growth and arable lands, which require time to mature. It may not be possible to prevent the occurrence of these natural disasters, but the resulting devastating effects can be significantly reduced through proper planning and effective preparation. The vulnerability associated with the hazards of natural disasters can be controlled to some extent by accurate and timely prediction and by taking counter-measures to mitigate their impacts on agriculture.

Abstract No. 8

Sanitary Landfill-A Disposing Method of Solid Waste Treatment

Rajni Singh and Madhuri Yadav

Department of Zoology
M.M.H College, Ghaziabad (U.P.), India

ABSTRACT

Sanitary landfills have been the most popular methods of municipal solid waste disposal, all over the world. Sanitary landfill is designed on the principal of waste control and characterized by the presence of a liner and leachate collection system to prevent ground water contamination. The sanitary land fill is a method of disposing waste on land without disturbing the environment and public health. The waste decomposition in sanitary land fill is a complex process achieved through sequential and sometimes simultaneous occurrence of a variety of chemical and biochemical reactions, resulting in degradation of waste materials. In sanitar y land fill waste is deposited in thin layers and promptly compacted by heavy machinery. Several layers are placed and compacted on top of each other to form a refuse cell. The bottom of the landfills is also lined with a network of plumbing that functions as a collection system for any liquid. Leachates are the term used to describe liquid that leach or leak from the landfills, and this system collects the leachates. These components of sanitary land fill help prevent materials and liquid from the spreading to the surrounding ground and water ways. At the end of each day the compacted refuse cell is covered with a layer of compacted soil to prevent odors and wind blow debris. All land fill sites are carefully selected and prepared to prevent pollution of ground water and other environmental problem. When the land fill is completed, it is capped with a layer of clay. A final top soil cover is placed, compacted and graded, and various forms of vegetation may be planted in order to reclaim.

Abstract No. 9

Herbal Approaches in Malaria Vector Management strategies

Reena Kumari Chaudhary and Kalpana Singh

Laboratory of Bio-musicology & Applied Zoology Research
Department of Zoology, University of Lucknow, Lucknow (U.P.), India

ABSTRACT

Malaria diseases is caused by *Plasmodium* parasite, transferred through the bite of the *Anopheles* mosquito to humans.There are four type malaria causing parasites viz. *P. malariae, P. ovale Plasmodium vivax* and *P. falciparum*. Many techniques are being used to control the malaria problem: Biotechnology play important role to control malaria diseases and destroy the mosquitoes' breeding habitats, chemically treated bed nets, indoor residual spraying and chemotherapy for infected person but plants and phytochemicals are very helpful is prevention of mosquito and no adverse effects has been seen yet after application. Botanical compounds comprise huge range of active constituents that can interfere in biological processes of *Anopheles* vectors which disturb life cycle. The mosquitocidal effects of herbal plant extracts depend upon the factors viz. mosquito species, plant species, plant parts used, geographical varieties, methodology of extraction adopted and the solvent polarity in the experiment. Various parts of plant such as: stem, leaves, roots, fruits, seeds, fruit peel, rhizome, bark, flowers etc. had been tested to be used as a source of herbal pesticides with effective potential for purpose of malaria mosquito management. In the past two decades, tremendous progress has been made in the development of herbal larvicide against malaria vector.

Abstract No. 10

Dengue: Prevention and Management Strategies

Shilpa Nandan Singh and Kalpana Singh

Laboratory of Bio-musicology & Applied Zoology Research
Department of Zoology, University of Lucknow, Lucknow (U.P.), India

ABSTRACT

Dengue is one of the fastest spreading viral diseases at present time, which has become the major cause for severe mortality throughout the world. Globally, dengue has become a dangerous and economic challenge for human health, though so many techniques have been used to curb the spread of this disease. The aim is to develop techniques that are cost effective, environment friendly as well as efficient. To control dengue, vaccines and immunotherapy have been developed which is more effective than others. The present study is focused on dengue control strategy. To control dengue biotechnological techniques have been used like paratransgenesis, sterile insect techniques, production of genetically modified vectors. Few new vaccines have been made to control dengue which claims to be effective. Till now dengue tetravalent (CYD - TDV) vaccine is most effective in curing dengue infection. Further researches are being conducted to develop improved vaccine of dengue virus because it is mandatory to stop spread of dengue virus to create a healthier future.

Abstract No. 11

Waste management and Socio-economic impacts

Shyam Narayan Shukla

Department of B.Ed.
Brahmanand P.G. College, Rath-Hamirpur (U.P.), India

ABSTRACT

Waste management in emerging nations is a challenge because of growing populations, expanding economies, industrialization, and urbanisation. On the other hand, their waste management techniques are not as effective as they may be. The majority of developing countries do not fully adhere to rich countries' best practices for achieving socio-economic objectives when it comes to waste management. As a result, waste management has become increasingly significant in emerging nations in recent years. The current study analyses the existing literature, regulations, data, and records on waste management in developing countries in order to emphasize the socio-economic aspects of waste management techniques. The results show that important socioeconomic factors, like money, population density, per capita income, level of education, policies, and technology, have a big impact on waste management, which includes garbage generation, collection, composition, and disposal/treatment. The management of trash does, however, provide a variety of economic advantages, such as monetary stability, job generation, and community cohesiveness. This study will stimulate additional investigation into the necessity for developing countries to think about the socioeconomic advantages of proper waste management and to create a strategy to achieve these advantages.

Abstract No. 12

Biofuels: A New and Renewable Energy source for Sustainable Development

Dushyant Kumar Sharma[1], Alka Varshney[2] and Abha Varshney[3]

[1]Department of Zoology, Govt. Model Science College, Gwalior (M.P.), India
[2]Department of Zoology, Govt. PG College Morena Gwalior (M.P.), India
[2]Department of Geography, Govt. KRG (Auto.) College, Gwalior Gwalior (M.P.), India

ABSTRACT

Coal, Petroleum, Natural Gas and Atomic fuels generates 90% of total energy production of the world; they all are exhaust able so they will be perished if they are used continuously. Only 10% of energy is obtained from renewable sources like Solar, Wind, Tidal, Wave, Geothermal energy, Biofuels etc. So, it is high time when we should turn to nonconventional sources of energy like Biofuels. These are the liquid fuels which have been derived from other materials such as waste plant and animal matter. Biofuels are divided into three categories as: first generation biofuels, second generation biofuels and third generation biofuels. First generation biofuels are made from the sugars and vegetable oils found in crops and include Bioalcohols, Biodiesel, Green diesel, Biofuel gasoline, Vegetable oil, Bioethers, Biogas, Syngas and Solid biofuels. Second generation biofuels, also known as advanced biofuels, are fuels that can be manufactured from various types of biomass and include Cellulosic ethanol, Biohydrogen, Biomethanol, BioDME, Biohydrogen diesel, Mixed alcohols and Wood diesel. Third generation biofuels are also known as algae fuels. They have many advantages including having a low input and a high yield level. Biofuels are important for a number of reasons. These fuels are pollution free, environmentally clean and socially relevant and can be a solution to prevent detrimental effects of climate change. Research is being carried out to develop biofuel crops that require less land and use fewer resources, such as water, than current biofuel crops do.

Abstract No. 13

Waste management and Socio- economic impacts

Pushpa Choudhary

A. N. D. Degree College, Kanpur (U.P.), India

ABSTRACT

It has been made observations of that group increase in most of the undergoing growth countries of the earth has certainly put forward different signs of danger to man and the general living conditions as a complete work. The processes of making all things present in all nations, process of building up industry and process of building up land have added to increase in the living-stage of greatly sized amounts of the town solid waste business managers of municipal solid waste has become a material or substance of great about for the government bodies, the had a part in controlling offices and the pollution control division of an organization. The same surprising event has put forward questions for solid waste business managers. There are society-business forces of meeting blow of solid waste business managers. There is a close relation between solid waste business managers and sociocultural causes producing an effect like sociocultural relations in nearby society, men-women relation, education and beliefs, and so on. Day-to-day operations in different work organizations make come into existence solid waste. Waste from different starting points is to be self-control, made use of again and used again in the most good at producing an effect of way. If the waste useable materials are used, gave attention to and have a tendency to rightly, able to keep going and balanced development is possible. This in turn will join to more producing, right distribution of goods and also good at producing an effect of distribution and right marketing power. Quality solid waste business managers will help the nation to support a good quality example of living. It clearly gives knowledge of that quality waste business managers will do teaching to right values to the persons in general. It will take about field of knowledge and cleanliness within a nation. Conditions to do with public health and hygiene will be placed on a right of coming first. Diseases will get changed to other form, and persons in general will be healthy. Quality waste business managers will support the use of new technologies in managing waste in the best at producing an effect of way. good at producing an effect of use of solid waste will help in the work of art of a network society wherein different experts and interested organizations from different fields will join together to for m an able to keep going nation.

Abstract No. 14

Disaster Management, Issues and Challenges

Alka Srivastava and Ruchita Yadav

Department of Botany
D.G.P.G. College, Kanpur (U.P.), India

ABSTRACT

The destructive power of natural disasters has been seen by civilizations all over the world since the time of their origin. Global catastrophes and calamities present significant difficulties for Government. The biggest challenge is ensuring the safety of people, their property, and the vital infrastructure is needed to maintain human life in the phase of disasters. The slackness or delay in disaster relief could increase the level of suffering for the victims. Social and natural habitats, including housing and shelter, water, food, health, sanitation, waste management, as well as information and communication networks, the availability of power and energy, and transportation infrastructure, are severely damaged in natural disasters. Infrastructure development for disaster warning, providing food and clean water, health and sanitation, information and communication, power and energy supply, waste collection and disposalare the major challenges faced in all disasters. Management of disaster proof shelters, operations for rescue and relief, transportation etc. become difficult during the disaster. Most of the natural disasters such as earthquakes, drought or flood cannot be prevented but preparation in advance can lessen the severity of their effects. When disaster-related crisis arise, advanced disaster management technology may play support system for disaster management authorities. Planning and preparation for disasters should be a priority for both communities and individuals. Mass awareness and community education are required. National Disaster Plan should encompass social responsibilities of the various communities in order to minimise the impact of disaster, if any.

Abstract No. 15

Role of Educational Institutions in Disaster Management

Charu Katare and Charu Chitra

Govt. K.R.G. P.G. Autonomous College, Gwalior (M.P.), India

ABSTRACT

Natural as well as manmade disasters and emergency situations are on the rise all over the world. The impacts of disaster are in the area of physical, educational, economic as well as psychological. The entire world has suddenly come to terms with the threats to our ecosystem. Thus, it has become important to make masses aware regarding emergencies and disasters management. In this respect, the planning and design of comprehensive educational programs is necessary to enable people to cope with disasters. Education in disaster risk reduction consists of training students to understand the causes, nature and effects of hazards thus encouraging a range of skills and abilities to enable them to make proactive contributions to prevention and disaster alleviation. Institutions of higher learning contribute significantly to the social fabric and to the country's essential infrastructure and are an important factor in a community's ability to bounce back, with the duty to give residents and individuals the skills they need for social advancement and societal challenges. The organization and management of resources and responsibilities and duties are described as disaster management which deals with all humanitarian facets of emergencies, in particular, awareness and attentiveness, response and rescue in order to lessen the impact of disasters. Introducing disaster management in the curriculum should be prioritized. Educators and media are likely to play an important role in effectual disaster management system which is vital for a safe and suitable future of life on earth. The educational institution mostly schools and colleges and teacher education institutions are the best effective source to instill the awareness by educating the students about disaster management systems and techniques. Introducing Disaster Management in the curriculum of schools, colleges and universities will make the educated youth address these crises with their knowledge, self-confidence, and survival skills in lesser times. Awareness among the student community will help build a better, stronger and resilient nation.

Abstract No. 16

Recent Advancement used in Disaster Management in Developing India

Shivdatt Tiwari, Rajiv Ranjan and Ajay Kumar

Postgraduate Department of Botany
M.L.K. (P. G.) College, Balrampur (U.P.), India

ABSTRACT

Disasters are serious disr uptions to the functioning of a community that exceed its capacity to cope using its own resources. Disasters can be caused by natural, man-made and technological hazards, as well as various factors that influence the exposure and vulnerability of a community. In recent times, technology has been employed to fast track disaster relief efforts e.g. drones and robots have been used to locate survivors and transmit information to emergency teams. Some recent measures related to disaster management include: 1) India presented a practical approach and road map with the launch of a global Coalition for Disaster Resilient Infrastructure (CDRI) to make the infrastructure resilient in the face of disasters,2) The systems are very much in line, for example, Indian Coast Guard with the assistance of ICG Remote Operating Centers (ROC) and Stations (ROS), NAVTEX warning (Navigational Text Message) and ISN (International Safety Net) activated one week in advance by Maritime R escue Co-ordination Centers (MR CCs) prevented the loss of fishermen lives and reduced impact from Cyclone, 3) IMD is to launch a dynamic, impact-based cyclone warning system aiming at minimizing economic losses. NDMA took up a project named National Cyclone Risk Mitigation Project (NCRMP) in which a Web-based Dynamic Composite Risk Atlas (Web-DCRA) would be developed, 4)To improve existing emergency preparedness and strengthen regional response mechanism, the field training exercises are conducted, 5) Building dedicated institutions like the National Fire Service College (NFSC) and the National Disaster Response Force (NDRF) Academy is about how to control a situation rather than just respond to it and 6) NDRF is said to have achieved all benchmarks under Sendai Framework for Disaster Risk Reduction.

ENVIRONMENT AND CLIMATE SUSTAINABILITY

Abstract No. 1

Anthropogenic Activities and Biodiversity Threats

Ashok Kumar Verma

Department of Zoology
Govt. PG College Saidabad, Prayagraj (U.P.), India

ABSTRACT

Biodiversity threats are one of the major concerns of today's intellectuals. These threats arise due to environmental problems that appear both due to natural processes as well as anthropogenic activities. Human activities that affect biodiversity are in fact severe and critical environmental issues. These not only adversely affect humans but also other forms of life. Biodiversity is not an optional bonus in human affairs, but it is the foundation of human life and necessary for the existence and survival of humans and their sustainable development. So biodiversity conservation is not only a necessity to save the species but also helps in the conservation of habitats and such action is also likely to mitigate climate change. It is almost evident that habitat destruction and fragmentation, overexploitation, invasive species and climate change have the potential to create havoc in biodiversity loss. A major role in this regard is imparted by humans and their unsustainable and indiscriminate activities including overpopulation, rapid industrialization, urbanization, shifting of land use and so on. There is a clear cut need to convince the general public about legal aspect, protection, conservation and maintenance of natural habitat so that overall biodiversity can be maintained. Author will describe a correlation between anthropogenic activities and biodiversity threats i.e. the various types of anthropogenic activities that are responsible for biodiversity threats and loss. Author will also focus on challenges and possible solutions for the reduction in such type of threats and role of media in creating the short term as well as long term awareness.

Abstract No. 2

Remediation of water contaminants by existing macrophytes with special reference to aquatic bodies of Bundelkhand region

Priyanka Singh and Amit Pal

Institute of Environment & Development Studies
Bundelkhand University, Jhansi (U.P.), India

ABSTRACT

Water is one of the most precious gifts of nature, and a major source of life on earth. An enormous number of living organisms depend on fresh water for their survival, and human beings are also dependent on lakes and rivers for various activities such as drinking, fisheries agriculture, irrigation, small industrial activities and recreations. Now-a-days the world is facing a major water-related crisis: water pollution. In developing countries like India, this problem is increasing at an alarming rate, causing major concern for all. The issues related to water quality depletion are mainly due to human activities such as discharge of industrial and sewage waste directly into the water bodies, disposal of corpses and agricultural runoff that leads to the destruction of our ecosystems and poses severe health hazards for all living beings. Present work suggests that, phytoremediation has become an effective and affordable technological solution used to extract or remove pollutants from contaminated water bodies. This technology is environmental friendly and potentially cost-effective. Hence, native species of macrophytes like *Eichhornia crassipes, Pistia stratiotes, Vallisneria spiralis*, *Lemna* spp., *Chara* spp., *Cyperus spp., Marsilea* spp*., Ipomoea aquatica, Najas* spp. and *Hydrilla verticillata* etc. have been found efficient and may be recommended as phytoremediator species.

Abstract No. 3

Seasonal distribution of Green Algae in Gurha Dam, Hindoli Tehsil, Bundi (Rajasthan)

Afsheen and Dilip Kumar Rathore

Department of Botany
Government College, Bundi (Rajasthan), India

ABSTRACT

Hindoli is a tehsil in Bundi district of Rajasthan state in North West India at 25.57N latitudes and 75.49 E longitudes. Gurha dam is the main source of water supply for Hindoli. Algae play an important role in biological environment of water bodies. Biodiversity of algae is greatly affected by climatic factors as well as physico-chemical properties of water. In present work, algal samples were collected from in and around the Gurha dam and identified by standard monographs with the help of high quality microscope in laborator y. A total 21 species of green algae were identified and recorded. Most of the dominant species were *Chlorococcum, Chlorella, Scendesmus, Tetrastrum, Kirchneriella, Tetraedron, Ankistrodesmus, Schroederia, Pediastrum, Closterium* etc. In summer season, *Scendesmus*, *Pediastrum* in winter, *Chlorococcum* and in autumn *Scendesmus, Ankistrodesmus* were observed. The distribution and diversity of these species was shown to be strongly dependent on season, local environmental factors as well as water quality parameters. The highest diversity of green algae was observed in autumn season and relatively low in winter.

Abstract No. 4

Study of blue-green algae in Naval Sagar Lake, Bundi (Rajasthan)

Diksha and Dilip Kumar Rathore

Department of Botany
Government College, Bundi (Rajasthan), India

ABSTRACT

Bundi district is the part of 'Haroti region in South Eastern Rajasthan and lies between 24º49'11"N to 25º53'11"N latitudes and 75º30'00" to 76º21'30" East longitudes covering an area of 5763 sq km. Bundi also has a number of water tanks, ponds and lakes such as Jait Sagar, Phool Sagar, Naval Sagar etc. Naval Sagar is 400 years old artificial lake. The speciality of this lake is the reflection of the city and palace in it. Earlier, the lake served as the main source of water for the different stepwells in Bundi. Different algal species grow abundantly in the studied lake. But in the present study, only blue-green algal species were studied. Blue-green algae also known as cyanobacteria are primitive, photosynthetic, gram negative and oxygen evolving alga. In nutrient-rich (high in phosphorus and nitrogen) conditions and warm surface of water bodies, cyanobacteria grow rapidly and can cause odour problems as well. In present study, a total of 16 species were observed and recorded in all the seasons like summer, winter and autumn. The dominant species found were *Merismopedia elegans, Arthrospira plantensis, Arthrospira massartii, Anaebenopsis raciborskii, Chlorococcus minutus.*

Abstract No. 5

River Pollution in Yamuna: A Case Study in Faridabad District of Haryana

Sandeep Arya and Raj Luxmi

Institute of Environment and Development Studies
Bundelkhand University, Jhansi (U.P.), India

ABSTRACT

The Yamuna River's surface water fulfills the diverse needs and is the primary water resource for various domestic, irrigation and other purposes for the survival of the inhabitants of the Faridabad city. But today over increasing demography, rapid developmental activities, industrialization and urbanization are the major key factors largely contributed to worsening and deterioration of the Yamuna River's water quality. In this context, the present work was intended on seasonal basis from May 2016 to April 2017 to examine the Yamuna River's water quality at different stretches in Faridabad city of Haryana State, India. In order to determine the excellence of river water, eleven different sampling sites of river Yamuna from upstream (Entry point in Faridabad) to downstream (exit point of Faridabad) of Faridabad district were taken to assess the various selected physico-chemical (Temperature, pH, EC, SS, TDS, TS, TH, CaH, MgH, Ca, Mg, Chloride and DO) parameters. Methods prescribed by APHA (American Public Health Association), were used during the research work. From the observations and results of the study, it was revealed that the Yamuna River's water quality has been heavily deteriorated at drain sites. Therefore, this river needs the qualitative aspects of supervision for predicting the flowing water quality conditions.

Abstract No. 6

Dynamics of Rotifer population in Shallow Lake of Sultanpur National Park, Gurugram (Haryana)

Seema Kumari[1] and Umesh Kumar[2]

[1]Department of Zoology, Dronacharya Govt. College, Gurugram (Haryana), India
[2]Department of Zoology, DPG Degree College, Gurugram (Haryana), India

ABSTRACT

The present study was conducted in Sultanpur National Park (SNP), Gurugram. A total of 32 species of rotifers belonging to 11 genera, 7 families and 3 orders were observed. The most diversified genera was *Brachionus,* represented by 8 species, viz., *B. bidentata; B. quadridentatus; B. caudatus ; B. diversicornis ; B. forficula; B. patulus; B. plicatilis* and *B. calyciflorus* and the least dominanted genera represented by single species included *Anuraeopsis sp.; Gastropus sp.; Lepadella ovalis; Mytlina ventralis; Philodina maglotropica* and *Trichocera brachyura.* The seasonal dynamics revealed higher population density during monsoon season while minimum density was encountered during winter season.

Abstract No. 7

Removal of toxic heavy metals and metal compounds through the process of phytoremediation

Mohammad Akmal

Advance Plant Physiology Laboratory, Department of Botany
M.L.K. P.G. College, Balrampur (U.P.), India

ABSTRACT

The plants accumulate heavy metals to remove transfer them from the environment in the process of phytoremediation. Phytoremediation is a natural process in which plants remove, transfer, stabilized and/or destroy environmental toxicants such as heavy metals and/or stored for immobilization i.e., prohibiting their further releases into the environment. The plants remediate contaminants up to a certain concentration. The process of phytoremediation uses wild or genetically modified plants to extract wide range of heavy metals and pollutants from soil. The phytoextraction and phytodegradation is the most attractive process for the scientist that grow the plants in contaminated soil and harvest to remove the plants with pollutants. These plants are also used to recover some valuable metals from their tissues in a process termed as phytominingthat includes nickel, gold, and rare earth metals. The plants that accumulate metals are the hyperaccumulators that grows on metals rich soil. The toxic metals however, is very difficult to remove because most of biodegradable and cannot be removed biologically but they can transform from one form to another. The wild and transgenic plants are used for phytoremediation process that have increased activity to accumulates variety of metal compounds. Transgenic plants were developed that were showed increase tolerance to the heavy metal. Almost all metal tolerant transgenic plants were developed. The author will describe the phytoremediation process, transgenic plant development and effect of heavy metal on human health.

Abstract No. 8

Environmental Sustainablity

Seema Srivastava

Department of Education
M.L.K.P.G. College, Balrampur (U.P), India

ABSTRACT

Sustainable is an adjective for something that is "bearable" and "capable of being continued at a certain level". Sustainability is divided into three categories by ecologists: environmental, economic, and social. Sustainable development used to be more or less understood as social and economic development that should be environmentally sustainable. Since the "three pillars" concept was introduced, it has gradually been acknowledged that economic and social sustainability do indeed have their own merits, as well as specific and concrete meaning as a part of human, social, political or economic development. Nonetheless, nowadays, because of the environmental and social problems societies around the world are facing, sustainability has been increasingly used in a specific way. Environmental sustainability is the responsibility to conserve natural resources and protect global ecosystems to support health and wellbeing, now and in the future. Because so many decisions that impact the environment are not felt immediately , a key element of environmental sustainability is its forward-looking nature. In fact, the U.S. Environmental Protection Agency defines it as "meeting today's needs without compromising the ability of future generations to meet their needs." The topic of environmental sustainability has long been brought to our attention by environmentalists as a result of increasing environmental degradation and climate change. According to Goodland, environmental sustainability "seeks to improve human welfare by protecting the sources of raw materials used for human needs and ensuring that the sinks for human wastes are not exceeded, in order to prevent harm to humans".

Abstract No. 9

Fungi and their roles in Environment Sustainability

Balwant Singh and Vinay Kumar Singh

Mycology and Plant Pathology Laboratory, Department of Botany
K.S. Saket P.G. College Ayodhya (U.P.), India

ABSTRACT

Fungi are the most diverse group of organism and key component of natural ecosystems as well as widely distributed in different ecosystems (e.g., through parasitic symbiosis), maintain soil fertility by decomposing organic matter, and facilitate uptake of water and nutrients through mycorrhizal association with plant roots, enhancing carbon sequestration. Moreover, the harvest, use, and trade of wild fungi are essential economic and cultural activities, supporting livelihoods and providing food and medicinal ingredients. The basic function in ecosystem services of Fungi is to breakdown and transformation of organic matter. The impacts of decomposition are highly valuable in production of precious metabolites, enrichment of organic matter and pull other groups of organisms to drive the energy flow initiated from detritus ecosystem. Like plants and animals, understanding the fungal resource and functions are crucial to link or broadcast their diversity with ecosystem services as well as essential in forest ecological functioning. Fungi also improve the tolerance of host plants to heavy metals, promote the survival and growth of afforestation and seedlings, and improve the diversity and stability of plants in the forest ecosystem. Fungal products are essential building block for change towards a more sustainable future for our planet. We need to be able to convert plant materials to provide renewable substitutes for the products we now get from fossil resources. Fungi can be a driver of species divergence between animal and plant and thereby significantly alter ecological stability through species formation processes. Evaluation of fungal resources or their roles could be achieved by different approaches such as ecosystem-based or niche-based (e.g., forests, aquatic habitats, soils, islands, and coasts), host-based (e.g., trees, crops, weeds, and animal species) and substrate-based (e.g., leaf litter, woody litter, dung, soil, humus, compost, and insect). Environment Sustainability is the responsibility to conserve natural resources and protect global ecosystem to support health and wellbeing. Fungi is responsible for economic growth with environmental sustainability.

Abstract No. 10

Microplastic and environmental pollutants

Garima and Vineeta Shukla

Department of Zoology
M.D. University, Rohtak (Haryana), India

ABSTRACT

Plastics (synthetic organic polymers) output has increased dramatically in recent decades, from 1.7 million tonnes in 1950 to 299 million tonnes in 2013. While the amount of plastic produced in Europe has remained relatively stable over the previous ten years, global plastic output has increased. There are two types of microplastics. Small plastic particles discharged directly into the environment, such as home and industrial effluents, spills, and sewage discharge, or indirectly, are known as primary MPs. Fibres and pellets are examples of basic MP particle types. The pharmaceutical and cosmetics sectors are typically connected with spheres. Next one is secondary MPs and they are created as bigger plastic particles that are already existing in the environment gradually degrade/fragment owing to factors such as UV radiation (photo-oxidation), mechanical change (e.g. waves abrasion), and biological destruction by microbes. Microplastics in the environment can be further degraded/ broken to create nanoplastics (1–100 nm), which have mainly unknown destiny and toxicological qualities when compared to other kinds of plastic trash. After a decade of research, it was determined that oceans are microplastic particle sinks. MPs have become commonplace in the waters and have the potential to harm marine life. Where do these plastic contaminants come from, though? It is believed that 80 percent of microplastic contamination in the water comes from land. Plastic trash enters the soil via four primary routes: (1) agricultural inputs; (2) the use of sewage sludge for soil fertilisation; (3) improper plastic disposal; and (4) water and wind erosion.Once in the environment, plastic litter can degrade and disintegrate as a result of physical and chemical weathering, resulting in the formation of MPs.

Abstract No. 11

Removal of Organic Dyes Pollutants from Aqueous Medium by Nanophotocatalysts

Harendra K. Sharma

School of Studies in Environmental Science
Jiwaji University, Gwalior (M.P.), India

ABSTRACT

The occurrence of organic pollutants in water bodies has elevated in recent years causing serious damage to human health and aquatic ecosystems. Organic dyes are the largest group of pollutants discharged into water streams from many textile leather, paper, printing cosmetic and pharmaceutical industries. Therefore, the treatment of wastewater, using sustainable technologies, is absolutely compulsory for reusability of water. Photocatalysis is considered one of the most innovative cost effective sustainable advanced techniques used for pollutant removal from aquatic medium. Present work focuses on synthesis of nanomaterials and/or derivatives including their photodegradation efficiency to removal of organic pollutants. Dyes degradation potential of synthesized nanomaterials were analyzed in uv-visible light under various optimized conditions such as effect of contact time, effect of dose, effect of concentration and effect of pH. The prepared nanocatalyst were characterized by some techniques like x-ray diffraction, fourier transform infrared spectroscopy, particle size analyzer, scanning electron microscopy and transmission electron microscopy etc.

Abstract No. 12

Ethnobotany and Medicinal Plant Biotechnology: From Tradition to Modern aspects of Drug Development

Aparna Pareek

Department of Botany
University of Rajasthan, Jaipur (Raj.), India

ABSTRACT

Secondary metabolites from plants are potent for the development of new dr ug for medical field and show variety of biological activities in experimental pharmacology. The exploration of ethno-medicinal plants and discovery of novel compounds based on ethno-therapeutics is a matter of discussion and concern in the present scenario. Due to overexploitation of these plants they are facing the danger of extinction. Therefore alternative ways for production like Plant cell and tissue cultures, heterologous biosynthesis, and synthetic biotechnology are applied. The present study deals with the futuristic view on the said subject restricted to the important endangered ethno-medicinal plants around the rural areas of south east region of Rajasthan.

Abstract No. 13

Ethnomedicinal uses of revival herb (*Selaginella bryopteris*)

Rachna Pandey

Department of Botany
Govt. M.H. College of Home Science and Science, Jabalpur (M.P.), India

ABSTRACT

Selaginella bryopteris is a Mythical herb, known as Sanjeevani, a lithophyte With remarkable resurrection capabilities and medical properties. This plant is nature's wonder with a unique water stress tolerant capacity. This study is a Mini review of revival or resurrecting plant Selaginella bryopteris, a pteridophyte with lithophyte habitat, its distribution, characteristics, constituents and its ethnomedicinal uses. Most of the characters except few find this species close to the mythological 'Sanjeevani booti'. Further, its scope in the field of genetic engineering, pharmacology and medicines are also analyzed. More research is required to identify various other similar plants species with a potentiality to prepare drug formulations to fight chronic diseases and to develop engineered plant with drought tolerance capacity.

Abstract No. 14

Diversity of Microalgae and Monitoring of Water Quality of Leram Lake of Acharya Jagadish Chandra Bose Indian Botanic Garden, Howrah

Pratibha Gupta

Central Botanical Laboratory, BSI
Ministry of Environment, Forest and Climate Change
Government of India Botanic Garden, Howrah (W.B.), India

ABSTRACT

There are many lakes in Acharya Jagadish Chandra Bose Indian Botanic Garden (AJCBIBG), Howrah and all the lakes are interconnected to each other. It was observed that the sewage is entering in Leram Lake from outside sources. The main purpose of the study of the Leram Lake is to minimise the source of pollution in the Garden Lakes by treating the lake water. To achieve this, newly evolved Grander Technology has been adopted on trial basis. Physico-chemical and biological parameters were studied to see the effect of Grander Units and alteration in micro-algal diversity of the lake and its abundance, qualitatively and quantitatively. During study altogether 128 species of different classes of (Cyanophyceae/Cyanobacteria/Cyanoprokaryota, Chlorophyceae, Conjugatophyceae, Bacillariophyceae, Mediophyceae, Euglenophyceae) of micro-algae were identified. Some of the species initially identified which were pollution tolerant species however, gradually decreasing quantitatively and replaced by some another species. *Chlorella vulgaris* (Beyerinck) Beijerinck which is observed in the sample, now-a-days used for treatment of municipal wastewater and biodiesel production and also suitable pioneer organism for soil restoration. Two species of microalgae have been reported as new to the science of India. This is a first study report of diversity of microalgae and monitoring of the water quality assessment of Leram Lake of AJCBIBG, Howrah.

Abstract No. 15

Analysis of climate change impact for Navsari district of south Gujarat

Neeraj Kumar, T.U. Patel and D. D. Patel

Department of Agronomy, College of Agriculture,
Navsari Agricultural University, Bharuch Campu (Gujarat), India

ABSTRACT

Navsari district of rainfall was shows highest increasing rainfall trend obtained September and negative January, July, October, November and December. The regression slope of the yearly time series is about 12.35 mm/36 years. Maximum temperature shows the highest increasing trend in month October, followed by December and August. The month highest decreasing trend was noticed that January, followed by February and July. The regression slope of the yearly time series is about 0.025°C/36 years. Minimum temperature highest values of the slope (0.109°C/36 year) with high value of regression Slope of determination (0.111°C), the annual Kendall's tau statistic (0.492°C/36 year), the Kendall Score (310). All the month January to December shows increasing trend. The highest increasing trend found that November, followed by March and July, respectively. This finding shows that all the month shows increasing trend with the range between 0.308°C to 0.390°C. In case of RH-I the highest increasing trend shows September, followed by April and June. Similarly decreasing trend was found that January, followed by February and October, respectively. Relative humidity-II increasing trend was found only at the September month 0.084%, the increasing trend was detected in January to August and October to December, respectively. The strongest trend in the Bright sunshine hours decline of all months average daily sunshine hours was for the Navsari district. No significant trends were detected in all months and seasons for all weather elements. A similar trend was found in Sen's slope and regression slope all the months for all the weather elements.

Abstract No. 16

Soil pollutants and earthworms diversity in eastern Uttar Pradesh

Pankaj Kumar Singh and Keshav Singh

Vermibiotechnology Laboratory, Department of Zoology
D.D.U. Gorakhpur University, Gorakhpur (U.P.), India.

ABSTRACT

Indiscriminate use of chemical fertilizers and pesticides disturbs the soil texture and physico-chemical properties of agricultural fields. The use of agrochemical viz. pesticides, herbicides, fungicides, nematicides, bactericide, weedicides and fertilizers had posed a serious threat to the environment which ultimately destroys the beneficial microorganisms, insects and worms in soil. Various heavy metals were also added in the agriculture field with these agrochemicals. Earthworms are the major macrofauna in the soil community. Earthworm can be used as bio-indicators for the monitoring of ecosystem state and changes. Due to the resent agricultural practices and soil contamination as well as disturbed soil physico-chemical texture, the earthworm population decreased. Earthworms play an important role in stabilization of inorganic plant nutrients to organic form and increased the soil fertility. The worms added their cast with compost and increased the inorganic nutrients many times along with some plant growth hormones and vitamins. The earthworms occur in large numbers and have wide distribution pattern with less mobile habit. The earthworms require carbon and nitrogen for their growth and reproduction. Food quality influences not only the size of the earthworm populations but also their growth and reproduction rates and hence determines their distribution trends in an ecosystem. Similarly, distribution of earthworms also depends on physical conditions including water content and availability of organic matter in the soils. Soil moisture, pH, organic carbon and organic nitrogen also play important role in the distribution of earthworms. The aim of present study is to investigate the impact of the pollutants on earthworms' diversity and physico-chemical properties of a soil in eastern Uttar Pradesh.

Abstract No. 17

Role of Benzoic Acid and its derivatives in Environment Sustainability

Kalpana Barasker and Neelu Jain

Sri Satya Sai University of Technology and Medical Sciences, Sehore (M.P.), India

ABSTRACT

Benzoic acid is an aromatic monocarboxylic acid which is often used industrially both as a preservative and flavouring agent and it is also known as inhibitor of bacteria, yeasts and molds. In the coordination chemistry, Benzoic acid can be used to obtain various supramolecular systems and the complexes obtained with benzoic acid tends to form mononuclear, dinuclear complexes especially syn mode of coordination of the carboxylate groups. It is naturally present in plants and animals. Gas-phase infrared spectroscopy in combination with ion mobility-mass spectrometry and density functional theory calculations to unambiguously determine the preferred protonation sites of *p*-, *m*-, and o-isomers of aminobenzoic acids as well as their ethyl esters. The site of protonation does not only depend on the intrinsic molecular properties such as resonance effects, but also critically on the environment of the molecules. Benzoic acid and its derivatives are widely distributed in nature. Gum benzoin contains from 12 – 18 % benzoic acid in free and esterified forms. Other natural products containing benzoic acid are the bark, foliage, fruits, and seeds of various plants, including cherries and prunes.

Abstract No. 18

Environmental Restoration and Global warming approach

Gyanaranjan Sahoo[1], Pravat Kumar Roul[2], Prasannajit Mishra[2], Debasis Mishra[1] and Asim Chandra Dash[3]

[1]Krishi Vigyan Kendra, Angul (Odisha), India
[2]Odisha University of Agriculture & Technology, Bhubaneswar (Odisha), India
[3]Regional Research and Technology Transfer Station, Gambharipalli, Bargarh (Odisha), India

ABSTRACT

There is growing agreement that global climate change is happening and that any prospective alterations would likely have significant regional ramifications for biota and ecosystems. Climate change is advancing quickly, and its wide-ranging effects on people and nature are already being seen. Carbon dioxide (CO2) and other greenhouse gases (GHGs), which contribute to global warming, are recognized to be biologically extremely steady and persistent stationary in the atmosphere for 50–300 years after being unconstrained. Global warming is therefore viewed as a fateful issue that must be advanced over a significant amount of time, even if the entire planet is GHG-free. Additionally, even though the IPCC-led international convention system is working to reduce the existing GHG emission rate by humanity as much as possible, the enormous rise in emissions from developing countries is expected to cause the absolute amount to continue rising for a precise proportion of time. The rapid anthropogenic climate change that is being observed in the early twenty-first century is intimately related to the condition and functioning of the ecosystem. Changes in average parameters, rising temperatures, and other associated processes like rapid marine ecosystems and increased atmospheric carbon dioxide levels all have an impact on ecosystems. Human well-being, sustainable development, and the eradication of poverty all depend on biodiversity. It responds differently to deforestation, ecological fragmentation, and other stresses. The ability of the environment to adapt to climate change will depend on our ability to comprehend the biological dynamics of these climatic consequences, identify hotspots of sensitivity and resilience, and develop management techniques that could do just that. Ecosystems can also help with climate change adaptation and mitigation at the same time. It is necessary to investigate and quantify the mechanisms, possibilities, and constraints of such natural climate change remedies. This topic sightsees a theme dealing with the relationship between the ecological restoration and climate change. It investigates fresh viewpoints on how ecosystems react to climate change, how ecosystems could aid in addressing the issue of climate change and how resilience might be increased.

Abstract No. 19

Toxicity effect of pesticide on fresh water fish

Manoj Kumar

Fish Biology Lab, Department of Zoology
Tilak Dhari P.G. College Jaunpur (U.P.), India

ABSTRACT

Modernization and technique of agricultural production is generally accompanied by a rapid increase in the use of chemical fertilizer and pesticides. Pesticides as any substance or mixture of substance intended for preventing, destroying, repelling or mitigating any pest. Fish are directly or indirectly impacts by pesticides. Various pesticides such as herbicides, insecticides, and fungicide etc. have chemical effect almost every system of environment. Pesticides residues reach in to the aquatic environment by surface run off causing risk hazards for aquatic flora and fauna, fishes being most affected organism. Long term exposure of pesticides induces behavioral, physiological, reproductive abnormalities and diversity of the nature. Fishes serve as bio-indicators for aquatic contamination to access the changes caused by human activities and predict hazardous effects of pollutants. Since fish are rich sources of proteins and lipids, their health is very important for human being. Therefore, the protection of aquatic ecosystem and water quality can be done with appropriate application of pesticides.

Abstract No. 20

Climate action and Sustainable Development are inseparable

Sukriti Ghosh

Department of Physics
Govt. Kamla Raje Girls Autonomous Post Graduate College, Gwalior (M.P.), India

ABSTRACT

Global warming produces negative impacts on human systems as well as on natural resources, which impedes the progress towards some sustainable development goals. The most significant challenge in achieving sustainable development is climate change, and it threatens to drag millions of populations into grinding poverty. Collective efforts, reflecting different circumstances and capabilities at all levels, are needed to limit the global warming to 1.5C, taking into account equity and effectiveness, so that we can strengthen the global response to climate change, and achieve sustainable development and poverty eradication. The aforementioned challenges are tried to solve in this paper.

Abstract No. 21

Study of benthic diatom flora in a central Indian river, Belan

Shweta Tiwari and Asheesh Shivam Mishra

Department of Zoology
Nehru Gram Bharati (Deemed to be University), Prayagarj (U.P.), India

ABSTRACT

A study was designed to determine abundance of diatom flora inthe river Belan.central India. Diatom samples were collected seasonally during January -December 2021 at 3different zones (upper- S1 & S2, middle -S3 and lower -S4 & S5) from head water to mouth in different. Standard procedure and techniques were adopted for sampling, slide preparation and identification. Total 26 genera were identified belonging to Araneidae, Rhopalodiaceae, Bacillariaceae, Stauroneidaceae, Aulacoseiraceae, Pleurosigmataceae, Melosiraceae, Gomphonemataceae, Araneidae, Achnanthaceae, Catenulaceae, *Naviculaceae,* Cocconeidaceae, Amphipleuraceae, Eunotiaceae families. Out of these, six taxa (genera) i.e. *Encyonema, Cymbella*, *Nitzschia*, *Synendra*, *Gyrosigma*, *Fragilaria,* were abundant to upper zone only, while 4 taxa (*Melosira, Cyclotella, Aulcoseria* and *Stauroneis*) were abundant to middle zone. Similarly, 7 taxa (*Bacillaria, Rhopalodia, Diadesmis, Gomphonema, Hantzschia*, *Denticula*, *Epithemia)* were abundant to lower zone and 9 taxa were common to all stations (*Achnanthes*, *Achnanthidium*, *Amphora*, *Navicula, Cocconeis, Frustulia, Eunotia, Neidium, Diatoma,* The variation in diatom taxa was attributed to land use patterns like forest, forest -village and forest - city/town - agriculture in upper, middle and lower zone, respectively.

Abstract No. 22

Role of Allelopathy in sustainable weed management

Awanish Kumar Singh

Department of Botany
Govt. Girls Degree College, Saiyadraja, Chandauli (U.P.), India

ABSTRACT

Allelopathy is biochemical interaction among plants, stimulatory as well as inhibitory. Allelochemicals released by crop plants are the subset of secondary metabolites not required for metabolism (growth and development) of the allelopathic organism. These enter the environment from plants in a number of ways, such as plant degradation, volatilization, leaching from plant leaves, and from root exudation. Allelopathy in the crop lands bears a great significance. The allelopathic effects of the crops can be summarized as follows: (a) It affects the growth, productivity and yield of other crops, (b) It may affect the same crop growing in monocultures or grown in succession, (c) Crop allelopathy can be exploited selectively to suppress the weeds through various manipulations.

Abstract No. 23

Butterflies: Wild indicators of the ecosystem

Preeti Khare and Shraddha Khapre

Department of Zoology
Govt. Science College, Jabalpur (M.P.), India

ABSTRACT

Butterflies are the potential umbrella group for biodiversity conservation. They are good subjects for dispersal studies and have enormous ecological importance. India harbours butterflies of Ethiopian and Oriental sub regions of the world. Butterflies are suitable subjects for the study of community response to disturbance, and they may also be used as environmental bio-indicators. They serve as food for predators at various levels. The larvae, which feed on foliage, are primary herbivores in the ecosystem and are important in the transfer of energy fixed by plants, making them available to the other organisms in the ecosystem. After bees, butterflies are the second category of insects which are very specific to their food plants. Some plants are shared by a number of butterflies as food. Butterflies play vital role in the ecosystem, there is co-evolutionary relationship between butter flies and plants, their lives are interlinked. Butter flies are also called flying flower, displaying its beauty. These insects enhance the aesthetic value of the environments by their exquisite wing colors. Butterflies are the wild indicators of the ecosystem; these insects tell us everything about the healthier ecosystem. These are effective pollinators, butterflies visit the flower to eat nectar and this is mutually beneficial relationship. Some species of butter flies migrate over long distance; carry pollen to be shared across plants which are far apart from one another. This migration of pollens induces genetic variation in plants species and give a better chance at survival against different disease. These insects also provide food for other organisms, for example; birds, reptiles amphibians and also acts as biological pest control. But the population of these insects decline rapidly due to human activities, habitat destruction, uses of pesticides and unawareness of people about the importance of flying flowers

Abstract No. 24

Relevance of Seedling Morphology in Taxonomic Studies and Conservation of Economic Trees

Avinash Mundhra

Department of Botany
Rishi Bankim Chandra College, Naihati (W.B.), India

ABSTRACT

Seedling is the most vulnerable stage in the life cycle of higher plants. Successful establishment and propagation of adult plants are dependent on their survival through seedling stages. Knowledge of seedlings is essential as it provides information useful for taxonomic research and for developing effective management and conservation plans. Angiosperms, especially seedlings of trees, often have many morphological characteristics that differ from those of the adult stage but the seedlings of same species, as a rule, are very uniform. The systematic usefulness of tree seedlings has been known for a long time, but is still poorly used because the stages of seedlings are not well represented as specimens in herbarium. An attempt was, therefore, made to study the seedling morphology of eight economically important tree species representing six genera from five families. An artificial key to the investigated tree species has been constructed to identify them at the juvenile stages well before the stages of flowering and fruiting. Early identification will aid in the conservation of these economic trees vis-à-vis biodiversity management before they disappear due to biotic interference.

Abstract No. 25

Evaluation on the Potential of Hot Springs of Unkeshwar, its Conservation and Management

Anil Khole

Department of Zoology
B. Raghunath College, Parbhani (M.S.), India

ABSTRACT

Natural resources are resources that are drawn out from nature and used by living beings with few modifications. These natural resources have valued characteristics such as social value, aesthetic value, scientific interest and cultural value. On Earth, it includes natural sources like sunlight, atmosphere, land, minerals, vegetation, wildlife and water. Fresh water natural sources on Ear th include surface water, under river flow, groundwater (springs) and frozen water etc. Natural spring is a point of exit at which groundwater from an aquifer flows out on top of Earth's crust and becomes surface water. Springs are important for humans as a source of freshwater, especially in arid regions and having healing powers due to mineral content inside. In the present study was carried out on Unkeshwar hot springs which are located alongside the Nanded District of Maharashtra, India was investigated and sampled in a comprehensive field study of 12 months. Conventional physicochemical properties were measured. The parameters such as temperature, pH, dissolved solids, SO4, dissolved oxygen, dissolved carbon dioxide were analysed. Unkeshwar hot springs are described by means of broad hydro-chemical and physicochemical data and several figures are presented. Although discharge and hot spring water temperature are reported to be constant over the investigation period. Natural springs are an integral part of the ecological cycle and are ecosystems themselves. Conservation of natural springs in order to use it as a source of safe drinking water and healing powers.

Abstract No. 26

Climate change and possibilities of hydrocarbon through palaeontological perspective: A case study of Cretaceous ammonoids of Cauvery Basin.

Jai Prakash Gautam and S.N. Mohapatra

S.O.S Earth Science, Jiwaji University, Gwalior (M.P.), India

ABSTRACT

Every time there was a massive extinction, life came back. Ammonites provide numerous examples of potential drivers for evolution and extinction due to their high rate of evolution and extinction. Fossil fuels include coal, petroleum, and natural gas. It is non - renewable energy sources. The Cauvery Basin has been under hydrocarbon exploration since late nineteen fifties. The Cretaceous source rock is one of the most important stratigraphic intervals for oil and natural gas. The Cretaceous System is the youngest position within the three divisions of the Mesozoic Erathem. The marine Cretaceous sediments of the Cauvery Basin are famous as "Cretaceous of Trichinopoly". The general lithostratigraphic framework of the marine Cretaceous sedimentary succession exposed in the Ariyalur Sub-basin. This classification includes Uttatur, Trichinopoly and Ariyalur groups in ascending order. The Uttatur Group of the present concern is unconformably resting over the crystalline basement and unconformably underlies Trichinopoly Group. This group has been successively further classified in to Terani, Dalmiapuram and Karai formations. The present work includes the study of collected ammonites from Karai Formation. This formation is divisible in to Odiyam and Kunnam members. The ammonites bearing sediments belonging to Karai Formation are exposed in Kunnam sections of the Ariyalur Sub-basin. The ammonites are used as a tool for the age determination of the sedimentary successions. The Albian-Cenomanian stage of the Cretaceous System is well recognised in the studied succession of the Karai Formation. The Upper Cretaceous Cenomanian/Turonian Stage Boundary (CTB) is marked by a global extinction event in which 26% of genera and 33-53% of marine species went extinct. Finally the end Cretaceous witnessed a major mass extinction (K/T), which is accountable for the loss of about 70% to 80% at species level and almost 50% reduction at generic level of the marine biodiversity. The rapid warming event that occurred 93.5 million years ago caused major extinction, of many ammonites. The geographic distributions of ammonoids change over time. Lower oxygen levels and changes in nutrient influxes into the ocean basins, in addition to temperature, were important drivers of diversity change as they responded to this global environmental upheaval 93.5 million years ago.

Abstract No. 27

Environment and Sustainable development of Natural Resources

Rajeev Kumar

School of Studies in Law
Vikram University, Ujjain (M.P.), India

ABSTRACT

Human beings and other living creatures each affect their surrounding environment. Today's environmental degradation problems are becoming larger in scale. Rapid industrial development, thus have directed and indirected bearings upon economic, heath, labour and environmental measures and more humanitarian aspects of industrial and hence of nation as a whole. In fact the rapid rate of industrialization resulted into rate of exploitation of natural resources. All the economic process of the world in whatever forms have adverse impact on social resources and environment. The Industrialization and globalization have accelerated the problem. Pollution prevention and control is needed to preserve precious environment resources and to improve the environmental quality so that the preserved resources can utilized for the benefit of mankind and improvement of health and well being of the people with the advancement Science and Technology the corporate sector and other fast pace establishing factories and industries and other productive technological process means the direct consumption of natural resources for satisfaction of needs of products and services, so environment degradation and natural resources diminishing for this reason it is necessar y the actual consideration of the needs for the future generation. Sustainable development promotes the conservation and preservation of natural resources and environment and also help in the management of energy, waste and transportation. The Stockholm Declaration of 1972 or the declaration of the United Nations Conference on the human environment is the first United Nations declaration on the global environment. The Environment (Protection) Act 1986 and several rules under this Act been made to prevent, control and mitigate all forms of pollution.

Abstract No. 28

Toxicity in lands at Various Locations in Gwalior Chambal

Archana Shrivastava[1] and Bhanu Shrivastava[2]

[1]Department of Chemistry, Govt. Science College, Gwalior (M.P.), India
[2]Departmet of Botany Govt. KRG College, Gwalior (M.P.), India

ABSTRACT

The levels and distribution patter ns of certain organochlorine pesticides (OCP s) in lands samples obtained from three locations in the Chambal region.India, are repor ted in this study. POCPs in fish muscles varied from 2.58 to 22.56 ng g–1 (mean value: 9.66 5.60 ng g–1). There were no regional or chronological patterns in the distribution of the OCPs. Aldrin was the most abundant OCP, whereas HCB and methoxychlor were undetectable. The most often found OCPs were a-HCH and b-HCH among HCH isomers and ppDDE among DDT metabolites. According to the findings, the various lands are polluted with a variety of OCPs.

Abstract No. 29

Water quality monitoring at Gokul Barrage in Mathura (U.P), India

Abhishek Singh and Rajvir Singh Ojha

Department of Zoology
Raja Balwant Singh College, Agra (U.P.), India

ABSTRACT

India is rich in water resources, being endowed with a network of rivers and blessed with snow cover in the Himalayan range that can meet a variety of water requirements of the country. However, with the rapid increase in the population of the country and the need to meet the increasing demands of irrigation, human and industrial consumption, the available water resources in many parts of the country are getting depleted and the water quality has deteriorated. Indian rivers are polluted due to the discharge of untreated sewage and industrial effluents. The Central Pollution Control Board (CPCB) has established a network of monitoring stations on rivers across the country. The monitoring is done on monthly or quarterly basis . The monitoring network covers Rivers. Biomonitoring is also carried out on specific locations. In view of limited resources, limited numbers of organic pollution related parameters are chosen for frequent monitoring i.e. monthly or quarterly. It is necessary to know details about different physico-chemical parameters such as color, temperature, acidity, hardness, pH, sulphate, chloride, DO, BOD, COD, alkalinity used for testing of water quality. Guidelines of different physico-chemical parameters also have been given for comparing the value of real water sample.

Abstract No. 30

Impact Assessment of Climate Change on Agriculture in Upper Betwa River Basin of Madhya Pradesh, Using Geospatial Technology

Mohit Singh and S.N. Mohapatra

School of Studies in Earth Science
Jiwaji University, Gwalior (M.P.), India

ABSTRACT

Agriculture relies on several variables, including climate, soil type, and availability of water . The purpose of this study was to determine whether climate change would affect the yield of crops grown in the Upper Betwa River Basin of Madhya Pradesh. A SWAT model has been used to predict water flows and capable to relate crop yields. To assess the impact of future climate change, global climate models (GCM) with a representative concentration (RCP) of 8.5 were used, which are considered as the worst case due to high emissions in the SWAT model. As per the RCP 8.5 scenario, the region will experience a warmer climate in spring and drier summer seasons. This is due to an increase in temperature throughout the year. Irrigation would definitely improve crop yields under all scenarios, but prolonged rainfall will cause nutrient runoff, which has a negative impact on crop yields. The SWAT model in GIS environment with aid of remote sensing satellite data has proved to be an immense help that can provide guidelines for water resource managers when planning for water scarcity and managing crops based on changing climatic conditions.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 31

Occupancy modelling to understand the effect of environmental and anthropogenic co-variates on the distribution of Golden Jackal *Canis aureusin* Bhopal Forest Circle, Central India

Manpreet Singh and Advait Edgaonkar

Indian Institute of Forest Management, Nehru Nagar, Bhopal (M.P.), India

ABSTRACT

The multifarious anthropogenic pressures and environmental stressors have inflicted catastrophic damage on biodiversity. Although research on wildlife in protected areas has gained considerable attention, biodiversity outside protected areas remains poorly understood and has attracted scant attention from researchers. Many wildlife species, such as the Golden Jackal *Canis aureus*, forage in the agricultural fields near human settlements. However, due to land use change and habitat shrinkage, these species face a myriad of threats from anthropogenic disturbances and suffer from an accentuated risk of threats emanating from human-jackal conflict. In order to understand the role of different environmental and anthropogenic factors in affecting the spatial distribution of the Golden Jackal, this study has been carried out in the Bhopal Forest Circle, Central India. To record the presence-absence data of golden jackals, 46 grid cells of 4 sq. km. size, randomly selected as per proportionate stratified random sampling by assuming each land use category as a different stratum, were walked on foot through 16 equidistant points that were 500 m apart. Aside from presence-absence data, data on various anthropogenic covariates, such as signs of illegal logging and livestock presence, that may influence species occupancy were also collected. For other environmental and anthropogenic covariates, such as distance to the nearest water body and distance to the nearest human settlements, we used ArcGIS to quantify these parameters. We used a single-season, single-species occupancy modelling framework to select the best candidate models for both detection probability p and site occupancy . We considered the sampling time since sunset as a sampling effort variable that may influence the detection probability of the Golden Jackal. Our results show that co-variates such as distance to human settlements and distance to the nearest water body have a strong influence on determining the occupancy of jackals. Our study will help in understanding the role of different environmental and anthropogenic variables in understanding the occupancy patterns of the Golden Jackal in Bhopal Forest Circle, thus contributing to deciphering the impact of different land use categories on the spatial distribution of an often-ignored species that thrives outside of protected areas and is slowly acclimating itself to human-led land use changes but at the elevated risk of potential conflict that may arise from human-jackal interactions.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

Abstract No. 32

Organic Farming: Impact on Environmental and Human Health

Swati Chaurasia

Department of Botany
DDU Govt. P.G. College, Saidabad, Prayagraj (U.P.), India

ABSTRACT

Organic farming is the method of growing crops that relies up on crop rotations, animal manures, crop residues, off-farm organic waste, mineral grade rock additives and biological system of nutrient mobilization and plant protection. It completely excludes the use of synthetic chemical fertilizers and pesticides. Organic farming gives us tasty and poison free food and enhances soil fertility as well as environmental sustainability. Recycling of organic wastes, no use of genetically modified crops, animal welfare, maintenance of biodiversity, preservation of natural resources and no use of irradiation to preserve food or to get rid of pests and diseases are some of the principles of organic farming. Thus organic farming enhances agro-ecosystem health. Studies show that organic food has beneficial nutrients, antioxidants, no preservatives, lesser pesticides and better taste as compared to conventional agricultural produce. Farm animals from organic herds also show less metabolic diseases. However the common concern with organic food is its higher cost and lower yield as compared to conventionally produced crops. The present paper reviews the advantages and disadvantages of organic food and its impact on human and environmental health.

Abstract No. 33

Climate Change affect on Avifaunal species in and around Tighra Fresh Water Reservoir Gwalior (M.P.)

R.K. Mahor and Jyoti Lahariya

Department of Zoology
Govt. KRG P.G.(Auto.) College, Gwalior (M.P.), India

ABSTRACT

Avifaunal species plays a momentous role in ecological balance of an ecosystem, there are 10,000 birds species in the world. From poles to equator and from deserts to centre's of oceans and from highest mountain to heart of our cities, Birds provide intangible aesthetic enjoyment and enrich our lives with their presence. They play a vital role to controlling pests, acting as pollinators and maintain ecology . If birds disappeared from the reservoir then reservoir plagued by swarms of insects. Birds are notorious for consuming heaps of insects this number can go up to 400-500 million tons per year. The abundance of the bird shows that the habitat and climate of this reservoir is suitable of the bird. The abundance of avifauna of water, safe habitat status of reservoir owing the availability of water, safe habitat and food sources for both adults and nesting. But due to climate changes in every year our bird's diversity is going to be extinct day by day .The forest department team has camped at tighra reservoir. Team found 29 species of birds of these 10 to 12 species of migratory birds which is dangerous sign to our ecosystem. Some species are more likely to become threatened and to go extinct than others in the same threat category. The present study attempts to made know the status of avifauna of reservoir to keeping in view the conservation value to aquatic birds and overview of diversity and threats to reservoir bird, species is go threatened to extinct due to habitat loss. This study helps to evaluate bird's density and diversity species composition abundance and distribution of aquatic birds of tighra reservoir. We can easily overcome climate changing by reducing emission of greenhouse gases which is one of the major causes of climate warming. Changing our main energy source to clean and renewable energy is the best way to stop using fossil fuels petrol and diesel vehicles planes and ships use fossil fuels .The objective of the research was to present the views on climate change that affects on the species of avifauna in and around this fresh water reservoir.

Abstract No. 34

Geo-Environmental impact of open cast mining on the Groundwater Quality: A case study in Sleemanabad area, District Katni, Madhya Pradesh

Pushpraj Singh Kaurav, Mohit Singh and S.N. Mohapatra

School of Studies in Earth Science
Jiwaji University, Gwalior (M.P.), India

ABSTRACT

One of the most crucial aspects of preserving and protecting the natural eco system is the groundwater quality. An assessment of the groundwater quality was carried out in and around Sleemanabad area, district Katni, Madhya Pradesh, India. Sleemanabad area is well known for marble mining. In recent years, a number of small opencast mining operations have mushroomed in this region. In the vicinity of these mines, geomorphologically there exist a pediplain at the base of linear ridges. Rainwater that fills these opencast mine pits percolates into the ground water and degrades it by increasing its calcium content and total hardness as the underlying rocks are soft and permeable. Twenty-three groundwater samples were collected from the bore wells in and around Sleemanabad area. The groundwater samples were analyzed for physico-chemical parameters, including pH, electrical conductivity, total dissolved solids, carbonate, bicarbonate, chloride, sodium, potassium, calcium, magnesium, nitrate, sulfuric acid, phosphate and fluoride, as well as biological parameters such as dissolved oxygen, biochemical oxygen demand, and chemical oxygen demand. The obtained results are compared with Indian standard (BIS) values. The results revealed that there is significant concentration of calcium and total hardness in water samples. There is a direct correlation between this concentration and the lithology, geomorphology, slope, and drainage pattern of the locality and the effect of opencast mining is noticeable. It is concluded that periodic assessments of water quality parameters and water quality management practices are required to safeguard the sustainable water resources.

Abstract No. 35

Distribution of Fluoride and Nitrate levels in some Groundwater sites of Hingoli, Maharashtra

N.G. Shinde[1], P.P. Joshi[2] and Pushyamitra Joshi[2]

[1]Department of Zoology, K.J. Somaiya College of Arts, Commerce and Science, Kopargaon (M.S.), India
[2]Department of Zoology, Adarsh Education Society's Arts, Commerce and Science College, Hingoli (M.S.), India

ABSTRACT

Water is vital component for living life on earth. As water is life, water parameters and quality of water is one of the challenges in today's scenario. Two types of water resources used for the drinking of humans i.e. surface water and groundwater. The groundwater is one of the widely used resources of water in various parts of India. Especially, in rural region of India, sometimes it's the only available source of water. Quality of groundwater is one of the major challenges across the globe. Fluoride and Nitrate are the naturally occurring constituents. Various Geogenic and Anthropogenic reasons causes rise in levels of Fluoride and Nitrite respectively. Less than 1.5 mg/litre of fluoride in water considered as safe for drinking purpose whereas less than 10 mg/litre of nitrate considered as safe for drinking of humans. Fluoride is naturally occurring mineral which found in water. It often known as double edged weapon, as permissible limit is good for human's body but more than that are harmful for humans. Many health-related problems can be occurred due to high intake of fluoride such as dental fluorosis, skeletal fluorosis, osteoporosis, etc. Nitrate is one of the commonly occurring contaminants in groundwater resources. High levels of nitrate can turn skin to a bluish or grey colour and cause more serious health effects like weakness, excess heart rate, fatigue, and dizziness. The present-day study conducted in District of Hingoli, Maharashtra. The results illustrate that some of water samples possesses excess amount of fluoride and nitrate. Present study reveals amount of fluoride and nitrate from selected villages, possible reasons behind rising levels of fluoride as well as nitrate levels and health risks occur due to intake of excess amount of fluoride from water.

Abstract No. 36

A study of physico-chemical parameters at different ghats of river Yamuna in Mathura

Neha Agrawal and Rajvir Singh Ojha

Department of Zoology,
R.B.S. College, Dr. B. R. Ambedkar University, Agra (U.P.), India

ABSTRACT

The river Yamuna is the major river of Northern India. Today more polluted due to development and increasement of climatic changes. The different ghats in Mathura region (Gau ghat, Swami ghat, Ascunda ghat etc) on the way of Yamuna river became polluted by Saree printing factories, Release of toxic and chemical dyes, Dumping of poly bags filled with many different holy materials, Mass bathing by devotes, Domestic waste water etc, on the other hand used by many devotes for taking a Holy bath, Worship, Sandhya aarti etc. so this study is necessary to chack out the physico-chemical status of the river Yamuna at these ghats in behalf of their correlation (colour, odour, temperature, velocity, B.O.D., C.O.D., DO, etc) with each other. Study will be very useful to chekout the quality status of that water body for the purposes which followes by many people.

Abstract No. 37

Sustenance against stressors in natural environment

Eshita Pandey

Department of Zoology
Dayanand Girls PG College, Kanpur (U.P.), India

ABSTRACT

Ecosystems actively manage the climate, the carbon cycle, the water cycle and biogeochemical cycles too. Conflict within the ecosystems, changes the carrying capacity of the environment. Environmental sustainability and flora and fauna as well as human well-being are totally co-dependent. If the welfare of the environment is threatened due to anthropogenic activities, then in response the living beings also face its repercussions. The interpretation and response to these threatening events is stress. Stress leads to growth suppression, reproductive dysfunction, immuno-suppression, psycho-neuroendocrine and emotional disruption and disturbances in normal behaviour patterns. If an organism can manage to sustain stress, then it can have improved reproductive performance, reduced incidence of disease, reduction in therapeutic costs and this leads to overall welfare of animals and plants. Sustenance of stressors by our flora and fauna results in a healthy biosphere. The future and health of our planet is in our hands, it is our common responsibility.

Abstract No. 38

Water pollution and Waste water treatment technologies

Laxmi Rajput[1] and Sunita Singh[2]

[1]Department of Chemistry, Govt. College Banmore, Morena (M.P.), India
[2]Department of Chemistry, Govt. P.G. College, Morena (M.P.), India

ABSTRACT

Nowadays many water resources are polluted by anthropogenic sources including household and agricultural waste and industrial process. Several conventional wastewater treatment techniques, i.e. chemical coagulation, adsorption, activated sludge, have been applied to remove the pollution, however there are still some limitations especially that of high operation costs. The use of aerobic waste water treatment as a reductive medium is receiving increased interest due to its low operation and maintenance costs. In addition, it is easy-to-obtain, with good effectiveness and ability for degrading contaminants. This paper reviews the use of waste water treatment technologies to remove contaminants from waste water such as halogenated hydrocarbon compounds, heavy metals, dyes, pesticides, and herbicides, which represent the main pollutants in wastewater.

Abstract No. 39

Drinking Water Quality in some School of Datia Town (M.P.)

Shiv Singh

Department of Zoology
Govt. Auto. P.G. College, Datia (M.P.), India

ABSTRACT

The water quality of different sources of water viz. hand pumps, wells, bore wells and tabs were studied of urban areas of Datia (M.P.). The results of Physico-chemical analysis such as pH, Electrical conductivity, T.S., T.D.S., T.S.S, T. H, T.A. NO3, Cl, SO4, Na, and K of four (Govt. H.S. School (No. 01), Govt. H.S. School (No. 02), Holi Cross H. S. School and Govt. M. L. B. (Girls) H. S. School, Datia) water samples collected from above school in urban area of Datia city are presented. The present study calculates the Water Quality Index (WQI) of Datia city and assesses the impact of industries and human activities. Physicochemical parameters were monitored for the calculation of WQI for the some Schools in Datia City.

Abstract No. 40

Role of Environmental Education in Pollution Control

Deepak Pathak

Department of Chemistry
Government K.R.G. Post Graduate (Autonomous) College, Gwalior (M.P.), India.

ABSTRACT

Environmental Pollution is expanding at an alarming rate. Environmental Education plays an important role to protect the environment because pollution, global warming and many other issues are running our environment adversely. We know the importance of healthy and pollution free environment. Environmental Education can stand as a proper solution to solve different sort of pollution problems existing in community and play a prominent role to save the environment and can help to make the people aware of how their actions impact the environment and how it can be minimized with pollution control. Paper is based on data and will be presented in the conference.

Abstract No. 41

Foliicolous Fungi from North Tarai Region of Uttar Pradesh, India

Ajay Kumar and Rajiv Ranjan

Postgraduate Department of Botany
M.L.K. P.G. College, Balrampur (U.P.), India.

ABSTRACT

The leaves provide a very suitable habitat for the growth & development of fungal pathogen by providing ample surface area and nutrient supply. Such leaf inhabiting fungi are known as foliicolous fungi and the invaded area of the leaf appears as leaf spot or leaf lesion. The weed and forest plants serve as reservoir of leaf spot pathogen which on getting opportunity may spread to agriculture & horticulture plants. World constitute twenty mega diversity countries in which warm tropical region between the tropic of cancer and tropic of Capricorn on either side of the equator (between 23½^{0}N and 23½^0 S around the globe) have since long provided the most suitable habitat for living organisms with a rich and diverse plant, animal and microbial life forms constituting twelve mega diversity countries. The twelve mega diversity countries constitute about 65% of the total biodiversity. The Tarai, as a result has high water level and is characterized by moist sub-tropical conditions and a luxuriant turn-over of green vegetation all the year around. The climatologically and topographical conditions favor the luxuriant growth & development of foliar fungi. This North-Tarai region of U.P. is next only to Eastern and Western Ghat as one of the hottest spots for biodiversity in general and the diversity of fungal organism inhabiting plant leaves in particular offers an ideal opportunity for the morphotaxonomic exploration of fungal organism in general and foliicolous fungi in particular. Keeping this in view the authors surveyed the North Central Tarai forests of U.P. which include East & West Sohelwa, Shrawasti, Bahraich forest division, range of Katarniaghat Wildlife Sanctuary and Balrampur forest division. Keeping this in view, the authors surveyed the locality of north tarai region during June 2020- January 2022. The foliar fungi were collected from north tarai region (forest) during June 2020- January 2022. The authors collected twenty fungal genera with thirty species has been found on thirty different flowering plant species which belong to twenty nine genera of eighteen families.

Abstract No. 42

Water and waste water treatment technologies

Hira Yadav and Indivar Ratna Pathak

Department of Zoology
Post Graduate College, Ghazipur (U.P.), India

ABSTRACT

Water is the essential element that makes life on Earth possible. About 71% of the Earth's surface is covered by water. Only a tiny fraction of this water is available to us fresh water about 97% of the total water in found in the oceans and remaining 3% is fresh water. Of this 2.97% is locked in ice caps or glaciers and only 0.003% is easily available to us as soil moister ground water, water vapour and the water in lakes, rivers and wet lands, when toxic substances enter in lakes, river s, oceans and other water bodies. They get water is polluted. Water pollution is defined as "the addition of any substances to water or changing of water's physical and chemical characteristics in any way which interferes with its use for legitimate purpose". Drinking water treatment our water supply comes from two sources that is surface water and ground water. Waste water treatment is a process where in the contaminants are removed from waste water which may include domestic and industrial. In order to produce waste stream or solid waste suitable for safe discharge or reusable these waste are controlled through sewage pipe which is treated in water treatment plants. Sewage treatment plant is designed to remove the contaminant from the water so that they can be recycled and reused; three stages involved in sewage water treatment are discussed below. Primary sewage treatment – in a primary sewage treatment, waste water is relieved from the contaminants like coarse sands pebbles organic and inorganic waste fatty substance etc. Secondary sewage water treatment – this method uses aerobic biological processes to degrade the biological content of the sewage live human waste, food waste, soaps and detergent.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 43

Conservation and management of the micro-wildlife - spiders and insects: a need of the hour

Rajendra Singh

Department of Zoology
DDU Gorakhpur University, Gorakhpur (U.P.), India

ABSTRACT

The most existing species ever to possess earth are arthropods, particularly, the insects and spiders. Their body structure is so designed that they can withstand any environmental conditions. Insects are 6-legged while spiders are 8-legged creatures that came to occupy the earth in the Devonian period, about 380 million years ago, and turned into the predominant animal groups (about 80%) on the earth. About 10 lac species of insects and 50 thousand species of spiders are named and at least 10 times of this figure is expected to occur on earth. Both are vital due to their diverseness, ecological characters, and impact on farming, human wellbeing, and natural resources. Insects are viewed as the dominant animals on earth with their main competitors as humans. Humans have been relying upon the insects for the pollination of crops, honey, silk, lac and many other ecological services that insects provide in different ecosystems. In an ecosystem, there are countless species of insects with their distinguished roles either associated with crops or other organisms in a particular location. The relationship of an insect with a crop or any other organism does not really imply that the species is a pest of that crop or animal. About 15 lac species of arthropods (jointed legs invertebrates) are described but only very few species (0.07%) are classified as pests that feed on plants or plant products, invade our homes, inflict painful bites or stings, and transmit diseases. In fact, most of the insects and other arthropods (e.g. spiders) (99.93%) are beneficial and serve a variety of important functions, such as: decomposers of plant and animal matter (soil fauna), pollinators, natural enemies (predators and parasitoids) of pest insects, producing commercial products (honey, lac, silk) and helping in maintaining the sustainability of the ecosystem by increasing the biological diversity constituting major component in the food web and food chain. They do their ecological services and are presently in danger because of human activities and they urgently need conservation practices. Implementation of conservation and management strategies of insects are need of the hour as the insect populations are falling at very higher proportions. The endangered and critically endangered insect species/groups should be given top priority in terms of conservation.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

Abstract No. 44

Bioinformatics in bioremediation and biodegradation of environmental pollutants

Shubhra Malviya

Department of Zoology
S. S. Khanna Girls' PG College, Prayagraj (U.P.), India

ABSTRACT

Nature is capable of keeping the ecosystem in balance. Chemicals that are harmful to the environment have been released as a result of rapid industrialization. One of the cost-effective strategies for cleaning up a contaminated environment is microbial decomposition. Bioremediation/biodegradation and bioinformatics are the scientific areas in applied microbiology and biotechnology. At this time, a number of databases and prediction tools support the creation and use of bioremediation. The use of the in silico technique helps forecast degradation routes while cutting down on time spent on simple laboratory trials. Here, author will provide a summary of the use of several bioinformatics tools, computational methods, and techniques to analyse chemical and functional properties, forecast toxicity, and identify degradation pathways. Additionally, a thorough analysis of databases and web servers that might be used in the field of bioremediation and biodegradation are also mentioned.

Abstract No. 45

Study of Global Biodiversity and Conservation

Anshu Sharma[1] and Vishal Pathak[2]

[1]Department of Physics, Paliwal (P.G.) College, Shikohabad (U.P.), India
[2]Department of Chemistry, Paliwal (P.G.) College, Shikohabad (U.P.), India

ABSTRACT

The need for biodiversity conservation is being strongly felt because we are experiencing an unprecedented increase in the rate of extinctions being caused by human actions. Extinction is a natural phenomenon, but what is different about current human caused extinction is both its rate and the fact that it leaves a void in the natural system (whereas in natural process one or more species are likely to get replaced than getting extinct.).

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 46

Population Dynamics of Helminth Parasites from Different Fresh Water Fishes of Pune Region, M.S., India

Satinderjeet Kaul[1] and Ajit Kalse[2]

[1]Abasaheb Garware College, Pune (M.S.), India
[2]Nanasaheb Y.N. Chavan A S C College, Chalisgaon, Jalgaon (M.S.), India

ABSTRACT

The present study was undertaken by the author to ascertain the diversity of helminth parasites in various edible fresh water fishes from the various water bodies of Pune region of Maharashtra and mainly to assess the seasonality and population dynamics of the helminth parasites infecting these fresh water fishes. The data was collected over a period of two years from June 2007 to May 2008 and June 2008 to May 2009. The helminth parasites were collected from the fresh water fishes namely *Mastecembellus armatus, Calarias batrachus, Ophiocephalus punctatus and Oreochromis mozambica*. Parasitological examination of these fishes was systematically carried out every month over the two year period by using the standard methodology. Seasonal variations in the prevalence, mean intensity and relative density of the identified cestode and nematode parasites were calculated from the recorded data. The result from the statistical study shows that seasonal variation exists in the incidence, intensity and density of infection in the fish hosts. However, the variance is not very pronounced and the cestode and nematode infection remains fairly similar throughout the two year period. The slight variations may be due to the differences in the different hosts as well as the hosts being from different water bodies of Pune region, their feeding habits, availability of food and water in the dams and the availability of intermediate hosts. For the cestodes and nematodes on an average the infection was most prominent in winter followed by summer and monsoon season. The density of infection for cestode and nematode showed very little variation, it being most profound in summer. In the present study a total of four different genera of cestode worms and five different genera of nematode worms were indentified. The host fishes were obtained from the local markets and also directly from the fishermen at Khadakwasladam, Pashanlake, Pawna river, Katraj lake, Bhima river and Bhigwan backwaters. The seasonal variations in the occurrence of parasites may be attributed to the various fish hosts collected from the different water bodies, the different environmental conditions as well as the biological factors like the age or the size of the hosts, its immunity level and its parasitic lifecycle.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

Abstract No. 47

Potential of Microbially Produced Lignocellulolytic biocatalysts in Bioremediation of Agricultural waste: A Sustainable Technology of Tomorrow

Sunita Ramlu Mukkawar

Department of Microbiology
B. Raghunath Arts, Commerce and Science College, Parbhani (M.S.), India

ABSTRACT

India is an agrarian country and thus generates huge amount of agricultural waste. Large amount of lignocellulosic wastes is produced primarily through the activities of the agricultural, forest and food processing units. The lignocellulosic biomass is a natural renewable resource, largely unused and abundantly available organic raw material. Therefore, these are the most promising feedstocks for production of energy, foods and chemicals and their utilization could allow self-sustainable processes and products. The utilization of cellulosic biomass continued to be a subject of global interest considering fast depletion of our energy reservoirs. Lignocellulosic biomass has arisen as a solution to our energy and environmental challenges. Conversion of lignocellulosicbiomass to simple sugar is a complicated system involved in the process. In fact, a variety of techniques have been utilized in thebioconversion process. Upon propertreatment, lignocellulose can replace conventional carbon sources in media preparations for industrialmicrobial processes. lignocellulolytic biocatalysts i.e. enzymes of microbial origin areof great importance in industry due to their substrate and productspecificity, moderate reaction conditions, minimal by-product formation and high yield. Lignocellulose bioconversion products are found to be important ingredients in production of value-added products. This article gives an overview of thepotentially used lignocellulolytic catalysts used for bioremediation of the agro-waste and can emerge as an environment-friendly and economically feasible solution forsustainability. The technology can alsorestrict land and air pollution associated with burning agricultural waste into the environment.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 48

Role of Women in Social sustainability for Peaceful and Exclusive Societies

Shivani Singh and Shalini Agarwal

Department of Human Development and Family Studies, School of Home Science,
Babasaheb Bhimrao Ambedkar University, Lucknow (U.P.), India

ABSTRACT

The ability to satisfy the requirements of the present generation without compromising the ability of future generations to satisfy their own needs is sustainability. Although the environment is the main factor in sustainability, human welfare should also be taken into account. Social sustainability is a component of the broader ESG framework. There is still a lack of widespread acceptance of social sustainability as a distinct component of sustainable development and as crucial as the economic or environmental components. Quality of life, equality & diversity, social cohesion, democracy & governance are the four pillars of social sustainability. A fair distribution of resources for the present and the future is necessary for sustainable development. Without gender equality, it cannot be accomplished. Achieving sustainable economic growth, social development, and environmental sustainability all depend on empowering women. It is important to acknowledge women's contributions to sustainable development. Women play a significant role in the upbringing and socialisation of their children, including instilling in them a sense of duty and concern for the use and preservation of the environment. To give women a stronger voice in environmental decision-making and to provide them the opportunity to take advantage of opportunities in the "green economy," more needs to be done. Women's needs-specific training and capacity-building initiatives are required. Women must be empowered to overcome sociocultural and religious conventions that limit their engagement in family, community, and society at large in order to serve as a catalyst for sustainable development. Changes in thinking are required, especially among the scene's predominately masculine guys. There is a noticeable improvement in family welfare, national welfare, and global welfare as a result of more women working. So, we can conclude that sustainable development should be a major goal of all national policies, with a focus on enhancing both present and future generations' quality of life on earth. It concerns preserving the ability of the earth to sustain all forms of life. Achieving sustainable social development, which is necessary for sustainable development, depends on empowering women.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

Abstract No. 49

Impact of physico-chemical properties of ground water on human health in slums of urban Area

R.K., Mahore and Amit Barsana

Department of Zoology
Govt. KRG PG (Autonomous) College, Gwalior (M.P.), India

ABSTRACT

The study was carried out to assess the impacts of physico-chemical quality of ground water on human health in slums of Gwalior- Chambal region of Madhya Pradesh. Various physico-chemical parameters of water that influence human health directly as well as indirectly such as pH, electrical conductivity, TDS, total hardness, calcium and magnesium hardness, chloride and sulphate, cadmium, total suspended solids, alkalinity, fluoride, Total Coli forms etc., were analyzed (APHA, 1998) to know the present status of the open as well as groundwater bore well quality. Groundwater samples were collected from 20 wards of open as well as underground bore wells at various station of study area of duration of one year (January to December).Groundwater resources are under intense anthropogenic pressures and constant threat of pollution. Human activities, such as agriculture, urbanization and industry, have caused irreversible degradation of groundwater quality; therefore, prevention is the most appropriate strategy in the fight against groundwater pollution. Vulnerability and pollution risk maps of groundwater constitute important tools for groundwater management and protection. The Bureau of Indian Standard has been considered to assess the suitability of groundwater for drinking purposes and for the calculation of WQI.The special issue "Groundwater Quality and Groundwater Vulnerability Assessment" attempts to cover the main fields of groundwater quality and groundwater vulnerability against external pollution, By observing the result it can be concluded that the parameters which were taken for study the water quality are above the pollution level for ground water. The current study shows that ~30% area is falling under the non suitable for drinking water category and rest is falling under good, moderate, poor, very poor as per the WQI classification. The present study is helpful in proper planning and management of available water resource for drinking purpose in slums.

Abstract No. 50

Environmental educational programs in Madhya Pradesh: An Initiative of school participation for sustainability

Kalpana Maski[1] and Mita Chourasia[2]

[1]Regional Institute of Education, NCERT, Bhopal (M.P.), India
[2]Kendriya Vidhyalaya-1, Bhopal (M.P.), India

ABSTRACT

One of the major policy issues that countries must address is the environment. Attitude formation begins at a young age, and is largely influenced by education. Initiatives to promote the environmental education in schools are mainly voluntary. Local governments can play an important role to link school and society with the environment. In this paper, we examine the initiatives and role of local governments/municipalities to involve school participation for environmental sustainability. Results shows that public schools are more likely to participate in the program compared with private schools and schools with more teachers reveal a higher probability of being part of the program. Thus, in order to promote successful co-management of environmental policy, local governments should take into account the heterogeneity of the school system.

Abstract No. 51

Analysis of water Quality of Chitrakoot Nagar Panchayt Area

Amita Yadav, H.K.Sharma and Seema Margret Singh

Gov. P.G. College (Autonomous), Datia (M.P.), India

ABSTRACT

The physico-chemical and bacteriological parameters of drinking water samples were collected from different sites i.e PHE, hand pump, Mandakini river and dug well of Chitrakootnagar panchayat area. Physico-chemical and bacteriological parameters like, Temperature, pH, EC, Turbidity, TDS, DO, BOD and *E.coli*, *Salmonella* were determined. The results were compared with standards prescribed by WHO . All the water samples were found below the permissible limit set by WHO. A regular monitoring of water quality is needed to protect if further polluted. Water quality should be controlled in order to minimize acute problem of water related diseases, which are endemic to our health.

Abstract No. 52

Indigenous Sacred Groves of Gwalior challenges for Sustainable Development towards Climate Change Resiliency

Sangeeta Sharma and Avinash Tiwari

School of Studies in Botany
Jiwaji University, Gwalior (M.P.), India

ABSTRACT

Sacred groves are patches or fragments of forest areas that are conserved on the basis of socio-religious and cultural beliefs, also plays a crucial role in ecosystem functioning. Kaner jhir and Siddhkho are two undisturbed traditional sacred groves of Gwalior district associated with the ancient deity that resides over there and are still conserved today due to the strong religious attachment and belief systems. Both these sacred groves due to their protected status provide valuable ecosystem services. Hence, the present study aims to quantify their carbon storage and carbon sequestration potential in standing biomass and soil that can reduce atmospheric CO^2 effectively. The role of such forest patches is undermined in REDD+ and other climate change-related programs. The increase of atmospheric carbon dioxide affects the global carbon cycle altering the atmospheric system and initiates the climatic changes which in turn possess a threat to present and future sustainable development. The present study revealed the carbon pool and carbon dioxide sequestered by Kaner jhir and Siddhkho sacred grove to be 132.56 t/ha; 10.11 $MgCO_2$/ha/yr and 99.36 t/ha; 16.68 $MgCO_2$/ha/yr, respectively. The, estimation of carbon stocks in standing biomass and in soil can provide information on base line terrestrial carbon inventory, for climate change mitigation as well as sacred grove conservation and the study will also be complementary to value recognition of sacred groves, awareness generation, incentives design and participatory planning.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 53

The social construction of woman hood, nature and its role in building a sustainable environment

Sneha Singh

Department of Sociology
Isabella Thoburn College, Lucknow (U.P.), India

ABSTRACT

Along cultural lines, men and women are perceived and socialised differently. Man has never lived in isolation. and since he forms groups, there is social interaction. Social interactions give rise to socialisation. The socialisation of children within various societies that have, in theory, combined the role of men in determining a woman's fate with female attributes similar to those found in nature is where these gender roles are derived from.Women have an innate connection to the natural world as a result of "their physiological functions (birthing, menstrual cycles) or some deep element of their personalities (life-oriented, nourishing, caring values). They "understand" nature in this way, which is something men do not and are unable to do. Women have a deep spiritual bond with the earth. As numerous programmes celebrating women's equality and LGBTQ rights are held on Human Rights Day, we must first protect her in order to protect our environment. She has consistently contributed to managing and conserving nature through small and large actions. Vedic practises, such as feeding the first chappati of the day to an animal and feeding and caring for the entire family, have demonstrated her role as a protector of nature. The worshipping of trees on Amala Ekadasi, Vad Savitri Vrata, and Sitala Puja are religious practices that bind women to nature and promote the same by imparting the same knowledge to their children. Stereotypical gender norms in religious socialisation by parents, peers, and religious organizations have produced and maintained discrimination against women, resulting in their disadvantaged position in religious organizations and households. Climate change is a problem that was made by humans and needs a feminist solution. The feminist response in this situation is for more female voices, more female leaders, and more female participants in the discussion of environmental issues and the solutions to those problems. To understand nature there should be more promotion of female values and protection of traditional value system so that the rich knowledge and practices can be forwarded to our coming generations. Going back to Vedas is one simple step towards to conserve environment in India which has been land of god and goddesses each of them associated with some kind of natural forces. Climate damage can be reversed if only small steps are taken to reverse the damage. Forgotten practices and cultural traditions adhering to religions can best serve the original cause.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

Abstract No. 54

Environmental Aspects, Biodiversity of fishes and their Conservation from Parbhani District

Ishrat Parveen and Mohammed Bari

Department of Zoology
Sharda Mahavidhyalaya, Parbhani (M.S.), India

ABSTRACT

This paper deals with the study of abundance of fishes in their particular habitat. Water is their actual environment and all the activities are going on in it. Like riverine system, reservoir water system has also suffered from intense human activities and fluctuation in hydrobiological aspects which results in habitat loss and degradation, due to which many fish species have become highly endangered.In present study, two study sites never selected, this study was carried out during December 2017 to November 2019. Water samples were collected monthly from two different sites like (Site-A and Site-B), brought to the laboratory and analysed with the help of standard methods. At the same time fish sampling was also carried out from these two study sites from two different reser voirs Masooli and Yieldari during the study course. Therelationship between fish species and selected water parameters (Temperature, Dissolved Oxygen, Free CO2 and pH) showed that they highly influence the distribution of species of fishes in the Masooli and Yiedari reservoirs. It was found that the abundance of cultivable fishes was high in both reservoirs but catfish are found low in number (variable at both the sites), their number is very less in Yieldari reservoir, this may be due to the human activities and their habitat. Although water of these reservoirs is used for irrigation purpose but it may be disruptive to some extent and the other reasons are the fluctuated parameters which can be the cause of degradation of the fishes.

Abstract No. 55

Role of Teacher in Environmental and Sustainability Education

V.S. Ingle[1] and V.R. More[2]
[1]Department of Zoology, Arts, Com &
Science College Kalwan (Manur) Dist. Nashik (M.S.), India
[2]Department of Zoology, Govt. College of Arts & Science, Aurangabad (M.S.), India

ABSTRACT

In spite of conducting more conferences, seminars and world summits towards the protection of environment for the last two decades, the present world is environmentally less sustainable than in the previous days. The progress whatever the rich developed countries have made so far has largely been achieved through the relocation of their dirty manufacturing facilities to poor developing countries. However the relocation of the manufacturing facilities in this way cannot address the growing problem of anthropogenic pollution – it merely changes the jurisdiction of the pollution created from the 'rich' to the 'poor' world. Therefore in order to achieve the acceptable level of global environmental sustainability, the citizens must be empowered with essential knowledge and information especially in developing countries like India. Since educational institutions are the places where the contact of the society is more it is possible to bring remarkable change in the mindset of the public. To protect children living in polluted regions, environmental education represents a relevant means of prevention because this type of education encourages learner's awareness of their environment's ambient conditions, as well as their active participation in solving local problems. It is need for the hour to propose the environmental education with the essential elements of moral philosophy. Conventional educational methods are no longer adequate for the real needs of tomorrow. For our very own survival, we must learn to live together sustainably on this planet. We must change the way we think and act as individuals and societies. So, in turn, education must change to create a peaceful and sustainable world for the survival and prosperity of current and future generations. Education for Sustainable Development (ESD) was born from the need for education to address growing sustainability challenges. ESD employs action-oriented, innovative pedagogy to enable learners to develop knowledge and awareness and take action to transform society into a more sustainable one.ESD for 2030 builds on the Global Action Programme (the GAP) that aimed to reorient and strengthen education and learning to contribute to all activities that promote sustainable development.

Abstract No. 56

Effect of Dehydration Methods on Physico-Chemical aspects of Aonla Fruit Pulp Powder

Shubham Singh Rathour, P.K.S. Gurjar and Shubham Bhadoriya

Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior (M.P.), India

ABSTRACT

Aonla (*Emblica officinalis* Geartn.) possess significant nutraceutical properties and to utilize Aonla for various value additions, its fruit powder is one of the best options for several preparations. As there are different drying methods for preparation of fruit pulp powder, it is needed to find out the most suitable method for drying which can efficiently retain nutritional and organoleptic properties of Aonla Fruit pulp powder. Thus, we conducted an experiment to study the effect of drying methods *viz*., Sun Drying, Oven Drying, Air Drying and Freeze Drying on Physico-Biochemical properties of Aonla fruit pulp powder. The findings shows that moisture percent and bulk density was maximum in Sun drying method followed by Air drying while minimum was with Freeze drying followed by Oven Drying. Protein percent, Total Sugar, Reducing & Non-Reducing Sugar, Titratable Acidity, Ascorbic acid, Total Phenols and DPPH Radical Scavenging Activity was found maximum with Freeze Drying followed by Air drying. Taste, flavour, Aroma and Overall Acceptability was reported best with freeze drying followed by air drying.

Abstract No. 57

5G Radiation: Environmental and Human Health

J.P. Pandey

M.L.K.P.G. College, Balrampur (U.P.), India

ABSTRACT

There has been an increase in public exposure to more wireless spectrum frequencies as a result of the wireless communication technology's rapid development and the pressing need to develop it. The damage that these wireless technologies for the 2G, 3G, and 4G generations have done has increased significantly, culminating with the upcoming 5G technology. Only a new generation of communications, known as 5G, has developed, which includes high speed and broadcasts in short waves and high frequency. This is due to the new lifestyle, which creates an urgent need for fast communications and huge packages of data. We can lessen our energy use and emissions thanks to 5G-connected gadgets, which will help the environment. Multiple devices will connect to one another so they can individually power up or down in accordance with when they are in use. In order to encourage preventive action, 5G-enabled technology has been utilized to quickly identify harmful algae in the water. The effects of these technologies on human health and safety are a major source of worry. Compared to earlier technologies, this approach operates at frequencies that are considerably higher. The damage to the human body in general, the skin and the human eye in particular, as well as their effect on the environment and plants in general, are addressed in this research, which sheds light on some of the anticipated hazards of these technologies and the outcome of applying these techniques. Thus, it can be concluded that 5G technology can measure and monitor the environment much more quickly and easily than humans and existing technology can.

Abstract No. 58

Nanotechnology and Environment

Alok Shukla[1] and Vishalakshi[2]

Department of Physics
[1]M.L.K. P.G. College, Balrampur (U.P.), India
[2]Govt. PG College, Saidabad-Prayagraj (U.P.), India

ABSTRACT

In recent years, the nanotechnology has moved toward a more comprehensive integration of nanosciences and nanotechnologies with other emergent technologies. Nanotechnology has enormous potential for providing innovative solutions to a wide range of environmental issues. These include improved methods for reducing pollution, water treatment, environmental sensing, remediation, and making alternative energy sources more cost-effective. The unique properties of engineered nanomateials enable these novel technologies for meeting the environmental challenges in a sustainable way. This review broadly focuses on the environmental applications of engineered nanomaterials in a sustainable approach and also emphasizes the future opportunities for their application in the natural environmental systems. Nanoinformatics along with materials science modeling has caught the attention of materials scientists because of several reasons: (1) it is aimed at creating comprehensive databases of physical and chemical properties of materials based on which quantitative structure-activity (QSAR) and structure-properties (QSPR) relationships might be advanced; (2) by incorporating optimization methods (Monte Carlo, genetic algorithms, neural networks) and data analytics techniques (data mining, network analysis, k-clustering, machine learning, and deep learning), it helps to optimize quantum mechanical calculations aimed at designing new molecules and materials, and (3) it is permitting to reduce the time of design and translation into applications as well as the cost of new materials.

Abstract No. 59

Impact of Heavy Metals on Aquatic Animals and Human Health-A Review

Akansha Tripathi

Department of Zoology
M.L.K.P.G. Collee, Balrampur (U.P.), India

ABSTRACT

Given the numerous health problems it is linked to, heavy metal toxicity has established itself as a serious threat. These metals barely have any biological functions in the human body; instead, their toxic effects lead to systemic dysfunction. These substances can occasionally behave like fake bodily components and obstruct the body's natural metabolic processes. They build up in the body and cause chronic illnesses. Measures have been taken to manage and avoid metal toxicity that occurs at various levels, such as occupational exposure, accidents, and environmental causes, in order to protect public health. The diversity of aquatic animals especially fishes have declined due to the industrial pollution. Industries release trash into water bodies that contains heavy metals. Fish and other aquatic species die as a result of the accumulation of these heavy metals in various organs. The fish are impacted by this effect, which first manifests in the blood, altering blood components, leaving them feeble, anaemic, and susceptible to illness. Thus, heavy metal pollution is mostly affecting fish, which is a major source of protein. Exposure to heavy metals results in changes in protein and glycogen stores as well as an increase or decrease in haematological markers. Heavy metals alter erythrocytes' osmotic resistance via affecting the reticuloendothelial system and haematopoiesis. The diseased process' various stages are represented by the red and white blood cells.

Abstract No. 60

Impact of Distillery Effluent on The Freshwater Catfish, *Mystus vittatus*

Santosh Kumar Tiwari

Department of Zoology
M.L.K.P.G. College, Balrampur (U.P.), India

ABSTRACT

The industrial waste water without proper treatment cause changes in the physical, chemical and biological characteristic of water such as color, temperature, turbidity BOD, COD etc day by day which affects aquatic life. The discharge of distillery effluent causes water pollution due to the presence of dissolved organic and inorganicmaterials. So the present study has under taken to explore the toxic effect of distillery effluent in aquatic organisms especially fresh water fish, *Mystus vittatus*. The haematological parameters like RBC counts, WBC counts and haemoglobin %, were decreased whereas lymphocytes increased in distillery effluent exposed fish, *Mystus vittatus*. During exposure, level of free amino acids increased in liver, kidney, muscles and gills but there was gradual decrease in protein and glycogen content distillery effluent exposed fish with reference to control levels. The significant alteration in the levels of free amino acids, protein and glycogen contents in different tissues of distillery effluent exposed fish was due to break down of glycogen and protein to fulfill additional energy requirement during stress conditions. The fish species is therefore recommended as a good bio indicator for the risk assessment of aquatic environmental pollution.

Abstract No. 61

Limnology of Bhagda Taal, A Wetland of Balrampur District in Relation to Fisheries

Varsha Singh

Department of Zoology
M.L.K.P.G. College, Balrampur (U.P.), India

ABSTRACT

Wetlands are areas where water is primary factor controlling the environment and the associated plants and animal life. They occur where the water table is at or near the surface of the land, or where the land is covered by water. They are cradles of biological diversity, providing the water and primary productivity upon which countless species. The maintenance of a healthy aquatic environment and production of sufficient fish food organisms are the primary factors for successful fish culture operation. Production and growth of fish food organisms directly depend on physico-chemical condition of water. The physico-chemical condition of water plays a vital role in the wetland ecosystem. The various physico-chemical parameters of water of Bhagda Taal have been studied to find out its impact on fish food production. Various physico-chemical factors viz,; temperature, transparency, pH, dissolved oxygen, free carbondioxide, total alkalinity, total hardness, nitrates and phosphate fluctuate within a range conducive to high biological productivity. Total 25 species of phytoplankton and 20 species of zooplankton were recorded. Bimodal pattern of seasonal variation of plankton was found, with a primary peak in the summer and secondary peak in winter. The physico-chemical and biological conditions were suitable for fish culture.

Abstract No. 62

Effect of Papermill Effluent on Freshwater Fish

Lavi Jaiswal[1] and Arvind Kumar Sharma[2]

[1]Department of Zoology, Baikunthi Devi Kanya Mahavidyalaya, Baluganj, Agra (U.P.), India
[2]Department of Zoology, K.S. Saket (P.G.) College, Ayodhya (U.P.), India

ABSTRACT

The industrial effluent causes a lot of problems and the alteration in the chemical composition of the aquatic environment usually affects behavioral, haematological, biochemical, histological and physiological activities of the inhabitants, particularly the fish population. Fishes are sensitive to a wide variety of toxicants or water pollutants. Fish are important members of aquatic ecosystem and are the source of protein for human food. So, a safe permissible concentration of pollutants in aquatic environment would be more rewarding for fish conservation and fisheriesdevelopment. For the majority of aquatic life, untreated pulp and paper mill effluents are extremely hazardous. Fish can become acutely harmful from untreated paper mill effluent at concentrations as low as 2%. The effluent can therefore be rendered with enough treatment. Even effluents that have undergone adequate treatment may occasionally experience dynamic spikes in toxicity (due in part to spills or dumping of spent pulping chemicals). A number of aquatic creatures' physiological and behavioural processes may be impacted by sublethal exposures to pulp and paper mill wastewater . At concentrations less than 1/10 th of the 96-hr LC50, the more sensitive functions, such as development rate, cough reflex, and temperature tolerance, are impaired. At concentrations close to 1/10th of the 96-hour LC50, several other systems, including respiration and circulation, may be impacted. Resin acids and fatty acids that naturally present in wood pulp are the main toxic components in pulp and paper mill effluents. Toxic chlorinated compounds prevail in effluents from bleaching procedures. Although well-treated effluents have had changes in biological diversity, they have had little impact on fish output compared to untreated effluents, which have significantly harmed the environment.

Abstract No. 63

Bioaccumulation Factor of Heavy Metals in the Tissues of Fresh Water Fish *Mystus vittatus* collected from polluted water bodies of Bahraich, U.P.

Anjani Kumar Shukla

Department of Zoology
Kisan P.G. College, Bahraich (U.P.), India

ABSTRACT

Heavy metals released into the environment from a variety of natural and anthropogenic activities. Over the last few decades, Heavy metal pollution in natural aquatic ecosystem due to industrial, residential, and other anthropogenic activities has become a major concern. Heavy metals pollution in aquatic environment has a significant adverse effect in fishes and also to the human being. The present investigation was designed to assess the concentrations of heavy metals in water and fish, *Mystus vittatus* of polluted water bodies of district Bahraich, U.P. The different water samples were collected from the polluted water bodies, and analyzed for the selected heavy metals by atomic absorption spectrophotometry. The concentration of heavy metals in this waterbody was below the permissible limit of BIS. Heavy metal accumulation and bioaccumulation factor or bioconcentration factor were studied in gill, liver, kidney and muscles of fish, *Mystus vittatus* inhabiting in this waterbody. The order of bioaccumulation of different metal concentrations in fish was: Ni >Pb>Mn> Zn > Cr > Cu>Cd and the order of total observed metal concentration in tissues was Liver> Kidney>Gill> Muscles. The results of BCF showed that fish, *Mystus vittatus* has the ability to accumulate heavy metals in its tissues. As demonstrated in BCFs study, most of the heavy metals moderately bio accumulative except nickel and lead which are highly accumulative. The fish, *Mystus vittatus* in this study was used as biomonitoring indicator.

Abstract No. 64

Effect of Organophosphorus Pesticide (Chlorpyrifos) on the Haematology of *Heteropnetues fossilis* (Bloch)

Sudha Shukla

Department of Zoology
Kisan P.G. College, Bahraich (U.P.), India

ABSTRACT

Pesticides are the biological toxicants, which are being used by the man to kill the pests for increasing the yield of many crops and insect vectors to control the spread of disease. The use of pesticides has caused severe environmental and health hazards to organisms including human beings. The widespread use of pesticides not only brought adverse influence on agro ecosystems and also caused alteration in the ecological balance of many non-target organisms like fishes. The present investigation has been designed to study the effect of sublethal concentrations of Chlorpyrifos, on the haematological parametes of *Heteropnetues fossilis* (Bloch) after exposure to 96 hours. The present study shows the alternation in haematological parameter such as significant decrease in RBC counts, Hb %, thrombocytes, monocytes %, eosinophils % and basophils % where as significant increase in WBC count, Lymphocytes % and Neutrophils % in chlorpyrifos exposed fish. The response of the fish towards toxicity of chlorpyrifos was grossly dependent on concentration and length of exposure. Thus, this paper gives an overview of the manipulation of fish, *Heteropnetues fossilis* as a biomarker of pesticides through alternation in haematological parameters.

Abstract No. 65

Effect of Heavy metal, Cadmium on Oxygen Consumption of Freshwater fish *Catla catla*

Manoj Kumar and A.K. Srivastava

Department of Zoology
D.V. (P.G.), College, Orai (U.P.), India

ABSTRACT

Organic and inorganic environmental pollution of the air, soil, and water is impacted by industrialization. Aquatic organisms' metabolisms are impacted by metal. Both essential (F e, Zn, Cu, Mn) and non-essential (Hg, Pb, Cd) metals found in water can be accumulated by the latter. The most urgent issues at hand now, nevertheless, are these persistent, non-degradable trace metals. Temperature, oxygen content, water hardness, concentration of organic compounds, pH, and salinity are some significant physiochemical parameters that affect the toxicity and uptake of metals by organisms. Investigations have been done into how cadmium chloride affects the oxygen consumption of freshwater fish *Catla catla*. The fish were subjected to cadmium chloride concentrations that were set at LC0 (0.085 and 15.25 ppm) and LC50 (0.132 and 21.849 ppm) for 96h. The heavy metal, cadmium showed increased rate of oxygen consumption when compared to control. The alterated response in the metabolism of respiration may be attributed to inhibition in mitochondrial oxidation and energy metabolism due to the heavy metal stress.

Abstract No. 66

Acute Toxicity of Heavy metals, Cadmium in Indian Major Carp, *Labeo rohita*

Haidar Ali

Department of Zoology
Govt. Degree College, Lengri Gular, Shrawasti (U.P.), India

ABSTRACT

Heavy metals are introduced into the aquatic ecosystem through various routes such as industrial effluents and wastes, agricultural runoff, domestic garbage dumps and mining activities and causes water pollution. Heavy metals cause several ill effects to aquatic ecosystem and organisms including fish. Cadmium, one of the twenty three heavy metal toxicant, may be transported to aquatic ecosystems as a result of both natural (weathering and erosion) and anthropogenic (industrial and agricultural) activities. It is widely used in the manufacture of batteries, metal and mining industry, dentistry etc. because of its non-corrosive nature. It is released in considerable amounts through industrial effluents into soil, surface and ground water system. It is a non-essential heavy metal and considered as one of the highly toxic environmental pollutants. Its exposure leads to various diseases such as cardiovascular, hypertension, chronic kidney disease, lung and prostate cancer. The acute toxicity of cadmium against Indian major carp, *Labeo rohita* for 24, 48, 72, and 96 hr were determined by probit analysis method. The LC 50for 24, 48, 72 and 96 hours for CdCl2 was found as 8.85, 7.58, 6.94 and 4.84 mg/l , respectively. The result also revealed that mortality rate depends upon concentrations of heavy metals and duration of exposure.

Abstract No. 67

Novel and green method of synthesis of heterostructure nanocomposites for photocatalystic degradation of organic pollutants in waste water

Gajanan Pandey

Department of Chemistry
Babasaheb Bhimrao Ambedkar University (acentral university), Lucknow (U.P.), India

ABSTRACT

Due to high toxicity, propensity for mutagenicity and carcinogenicity, contaminated wastewater has grown to be one of the most important environmental problems in the modern era. Among various advanced treatment methods, photocatalytic mineralization of waste water has been proved as one the best processes due to high efficiency, reduced cost, ease of fabrication and sustainability, however development of efficient photocatalyst is a challenging task before researchers. To overcome the rapid charge recombination, heterojunction photocatalyst, especially metal/metal oxides and inorganic organic nanocomposites have attracted significant interest recently. The tunable electronic properties, large surface area, and electronic conjugation present in GO and g-C3N4 have made them an excellent catalyst carrier and promoter. GO acts as an excellent acceptor of photo-produced electrons and successfully decreases the possibility of charge recombination, thereby passing on more charge carriers to the given reactive species [39]. The utilization of GO/g-C3N4 in synthesis improves the photocatalytic degradation capability ofnanocomposite heterostructures by promoting electron-hole separation and transfer wherein theselayered structures serve as framework throughout the synthesis and as catalytic boosters in the photocatalysis reaction.

Hereunder we report novel and green methods of preparation of metal/metal oxides and inorganic-organic nanocomposite photocatalysts for effective degradation of organic pollutants present in waste water.

Abstract No. 68

Bio Fuels for Sustainable Development

Meghna Pathak

SoS of Environmental Science
Jiwaji University, Gwalior (M.P.), India

ABSTRACT

Soaring fuel prices and climate changes are two major problems the world is facing now. As human population depends for their development on non renewable sources, there is urgent need of a greener alternative, which is globally sustainable and available. Apparent benefits of bio fuels are indicated by the fact that alarge number of countries is willing to increase share of bio fuels in their energy requirement. Technologies must be advanced to obtain bio fuels from terrestrial as well as aquatic plants/algae. Policies both, nationally as well as internationally, need to incorporate greater role of bio fuels as a substitute to fossil-based fuels.We bring in attention an approach to bring production and trade of bio fuels under the carbon trade facility called. This will provide an added option to mitigate climate changes also better enhance global sustainability bio fuel production especially in developing countries.

Abstract No. 69

Urbanization Environment and Sustainable Development: A Case Study of Kanpur City

Arti Vishnoi

Department of Geography
PPN PG College, Kanpur (U.P.), India

ABSTRACT

Sustainable development is a safety symbol for the environment and in the planning of urbanization. Now days the term sustainable urbanization emerges as a new trend in which the dynamic approach that includes ecofriendly and socially balanced idea of development. It basically points to affirmative efforts to advance economic and social urban development by increasing the quality of life, controlling environmental damage, and using the renewable resources at a ver y large scale. As we all know changing is the law of nature and changes change the environment with both approach positive as well as negative and for the negative reflection, we cannot deny the modifications because escaping from changes invites disaster. Although stability has a little scope of safety but without risk we cannot move forward. Population and it's living standard are the main changer of environment so inappropriate planning of urbanization alters somehow the false modification in the environment. At this point it becomes necessary to pay the attention on sustainable urbanization.

Abstract No. 70

Fish Waste: The Potential Source of Biodiesel

Anuprasanna Vankara

Department of Zoology, Yogi Vemana University, YSR Kadapa, (Andhra Pradesh), India

ABSTRACT

The continuously increasing energy requirements and incessant depletion of non-renewable fossil fuels urges the research community to look into alternate renewable energy sources such as biofuels. Biofuels including bioethanol, biodiesel, biobutanol, biohydrogen etc., generated from biological sources and their waste is one of the best alternatives for the present scenario. Moreover, utilization of waste as raw materials for the production of fuels is also considered as best waste management practice. It is a well-known fact that fish waste contributing considerable amount among all the food waste which is a serious concern. Specifically, disposal of fish waste causes both environmental and economic impact. Hence, development of protocols for efficient production of biodiesel from fish waste is an ultimate goal. However, insufficient knowledge on conversion of fish waste to biodiesel impedes the achievement of this goal. The mechanism of biodiesel production from fish waste and research on biodiesel production from fish wastes will be discussed.

Abstract No. 71

Effect of Seasonal variation and phytoperiodism on flowering phenology in *Datura innoxia* Mill

Vijay Laxmi Hada and Alpna Johri

J.D.B. Govt. Girls College, Kota (Rajasthan), India.

ABSTRACT

Plant reproductive biology plays a significant role in conservation of biodiversity, because both in-situ and ex-situ conservation strategies are dependent on a thorough understanding of plant reproductive biology. Traditionally, flowering phenology has been seen as essential to a plant species' reproductive ecology . The field observation of flowering phenology largely highlighted the adaptive significance of flowering at a specific period in comparison to other individuals in the population or other species. Flowering phenology is significant because in this area of plant reproductive biology, we investigate the timing of recurrent biological events in flowers, the factors that influence these events timing with respect to biotic and abiotic forces, and the relationship between these phases in the same or different plant species. To assess the pattern of plant growth and development, phonological observation can be employed. Growth analysis has also been used to explain disparities in growth caused by inherited traits or environmental changes. The pattern of phonological occurrences can be used as a sign of changing climate because it affects how much food we can grow. This makes studying flowering phenology crucial. Temperature, precipitation, humidity and day length all have a direct impact on the phonological pattern of plants and flowers, and they fluctuate over the course of year when there are distinct seasons. In order to improve prediction of species responses to future climate change, phonological thinking can help in formulate generalization with practical application.

Abstract No. 72

Environment, Protoxicant, and Toxicant Toxic Reactions

R.K. Singh

Department of Chemistry
M.L.K PG College, Balrampur (U.P.), India

ABSTRACT

An agent that harms living things by having negative effects on their organs, tissues, or biological functions is referred to as a poison or toxicant. Toxicants may take on a variety of physical forms, including vapors, dust, liquids that can be absorbed via the skin, solids eaten orally, and toxins to which subjects are exposed at work or in the environment. The matrix is a substance that the toxicant might be connected with (either as the solvent in which it is dissolved or the solid medium in which it is disseminated). On the toxicant's toxicity, the matrix may have a significant impact.Toxins have the ability to damage tissue in any organ. Different classes of toxicants have various levels and types of effects on various tissues, depending on the nature of the toxicant, the type of receptor it targets, the nature of the toxicant's binding to the receptor, and the pathways, transport, and metabolism of the toxicant in the organism. Since they influence the major tissues and organs of animals, the spectrum of dangerous reactions in many species is obviously too wide. As they are among the systems considered for toxicant exposure, transport, and removal in the human body, the immune system, endocrine system, neurological system, reproductive system, skin, excretory system, and circulatory system are among those that are impacted by toxic responses to protoxicantand toxicants.

Abstract No. 73

Environmental Problems and Their Solution: Legislation, Regulation & Sustainability

Alisha Rani

Department of Physics
Govt. K.R.G Autonomous Post Graduate College, Gwalior (M.P.), India

ABSTRACT

Environment plays a key role for economic growth and development of country. It provides us sustainable habitat for industries, water security, clean air etc. But, in recent decades environmental problems have become globalized in terms of their existence and impacts as well as the socioeconomic forces that generate them. Today environmental sustainability are being threatened due to pollution and degradation. Environment pollution includes air, water, land pollution etc. Environment degradation is degradation of ecosystems such as forest, grass, wetland, mangroves, coral reef etc., and depletion of natural resources. Other problems are climate change, ozone depletion, ocean acidification etc. These problems have impacted us in several ways such as food crisis, water stress, biodiversity loss, adverse health impacts. Therefore we need to conserve our environment for sustainable development. Environment sustainability and conservation require the scientific and holistic approach at India level and global level with strict implementation of various regulations and legislations.

Abstract No. 74

Environmental changes affect the Ethno-medicinal plants

Akhatar Khan and Aparna Pareek

Department of Botany
University of Rajasthan, Jaipur (Raj.), India

ABSTRACT

The climate change predominantly affects the environment which poses a lot many challenges for the human. Almost all the region and societies of world are affected by the climate change. Ethno-medicinal and aromatic plants have played important role for human, against many diseases, as ailments etc. from earth's history. Decreasing of wild ethno-medicinal plants are due to natural and anthropogenic calamities i.e. rapid climate change, urban development, deforestation, industrial boom, over-population pollution, shrinking forest cover, habitat loss, over-harvesting, destructive harvesting, drought and floods. Medicinal and aromatic plants are endemic to a particular region which could put them in danger and can be vulnerable due to anthropogenic activity. The vulnerability of ethno-medicinal plants in agriculture field increases with climate change. The present paper mainly focus on how climate change affect the economy, ecology and ethno-medicinal plants and build awareness for prevention from disaster, and further to maintain diversity.

Abstract No. 75

Ethno-medicinal study of plants traditionally used in Jhunjhunu district

Saroj Kumari and Aparna Pareek

Department of Botany
University of Rajasthan, Jaipur (Raj.), India

ABSTRACT

Plants are universally recognized as a most important part of the world's natural heritage and a crucial resource for the planet. They are the important component for the global sustainability beside the plants that we use for our food; clothes, fibres, fuel, and shelter, a waste number of plants provide important medicines, especially in developing country. Ethno-medicinal plants are wide natural sources of important organic and inorganic eco-friendly components that are used in various diseases. The survey was conducted for documentation of indigenous knowledge of ethno-medicinal plants in Jhunjhunu district. The data was obtained from local people of the area through interview. This paper includes ethno-medicinal study of 18 plants belonging to 14 families used by local people of Jhunjhunu district to treat various diseases like as headache, dysentery, diarrhoea, cold, cough, wound and skin diseases. During ethno-medicinal study we have compiled important information about the medicinal uses of these plants in field notebook. The purpose of the current study is to explore the medicinal values of plants and create awareness about the ethnic value of plants.

Abstract No. 76

Global impact of E-Waste on Environment

Jagrati Maitraya

Department of Botany
Govt. K.R.G. College, Gwalior (M.P.), India

ABSTRACT

E-waste is currently the largest growing waste stream. E-waste, electronic waste, e-scrap and end-of-life electronics are terms often used to describe used electronics that are nearing the end of their useful life, and are discarded, donated or given to a recycler. The metal is, however, in great demand for laptop, smartphone and electric car batteries etc. For example, open-air burning acid baths being used to recover valuable materials from electronic components release toxic materials leaching into the environment. These practices can also expose workers to high levels of contaminants such as lead, mercury, beryllium, thallium, cadmium and arsenic, and also brominated flame retardants (BFRs) and polychlorinated biphenyls, which can lead to irreversible health effects, including cancers, miscarriages, neurological damage and diminished IQs. Such globalization of e-waste has adverse environmental and health implications.

Abstract No. 77

Butterflies: The Sustainable Development Indicator

Sneha Nair and V.K. Sharma

Department of Zoology
Holkar Science College, Indore (M.P.), India

ABSTRACT

India being a developing country is growing at a fast pace but in this run we have completely forgot our ecosystem. In our headlong race to achieve success and technological advancements we have over burdened the natural resources and ecosystem around us to a limit where the future generations would be adversely affected due to lack of healthy environment. If we want to secure the world for the coming generation then sustainable development is the key. The challenge before us today is to begin to think development through the lens of environmental health. In this paper an effort is made to connect the sustainable development with conservation of butterflies for a prosperous future.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 78

Assessment of threats to wetlands and recommendations for management with special reference to Ujani reservoir, Maharashtra, India

D.S. Kumbhar[1] and D.K. Mhaske[2]

[1]DP Mahavidyalaya, Karjat, Ahmednagar (M.S.), India
[2]MJS Mahavidyalaya, Shrigonda, Ahmednagar (M.S.), India

ABSTRACT

Wetland is defined as the transitional zone between terrestrial and aquatic ecosystem where the land is covered by shallow water, seasonally or permanently. The wetland share characteristics of both aquatic and terrestrial environments yet cannot be classified distinctly either aquatic or terrestrial. Wetlands are described as the "Kidneys of Landscape" as they perform vital role in the hydrological and chemical cycles and as "Biological supermarkets", as they accommodate vast biodiversity with innumerable food webs. Ujani reservoir provides microhabitats for most of the wetland birds classified under status; migratory, resident, passage migrant, breeding migrant and winter migrant during all seasons of year in general and winter in particular. Wetlands are constantly under serious threats of loss and destruction owing to anthropogenic activities. In current scenario less than 50% wetlands remaining in India, are vanishing at a rate of 2-3% every year. After constant survey and monitoring for three years from 2015 to 2018, various threats were recorded from fifteen wetland sites under study (S-1 to S-15). Various kinds of threats viz. excessive fishing, grazing and washing of livestock, fuel wood collection, water quality; siltation, weed invasion, agricultural expansion, pollution and sand mining were observed in and around the sampling sites. Saveral recommendations were suggested in order to conserve and restore the wetlands associated to Ujani reservoir.

Abstract No. 79

Biofuels-Potential Supplements of Energy Demand in India

Aman Kumar Yadav

OPJS University, Churu (Raj.), India

ABSTRACT

In this paper a review study is done for estimation of biofuels potential of India. Our country has huge demand of energy which can be supplemented by biofuels in part. Recent trends in biofuel research and outcome with future projection are taken into account. Government policies along with emergent needs are also reviewed with comparison to parallel development in this field of research. Impact of biofuels on environmental concerns, rural and agriculture economy, energy security is also reviewed. Here modern biomass technologies for production of biodiesel, bioethanol, and green hydrogen are studied with specialreference to potential in India. Modern biomass technologies mean use of traditional biomass in energy efficient manner with clean combustion that provides environmentally neutral, competitive fuel by sustained supply of local biomass. Biofuels can be additive of conventional fuels or can be used independently up to some extant or may converted into heat and electricity, modern biomass technologies include like bioethanol and biodiesel production by Fischer-Tropsch synthesis. Bioethanol can be used as blend additive in petrol is derived from alcoholic fermentation of sucrose. Local waste biomass such as wood, straw, household biodegradable garbage can also supplement the supply of biomass for Bioethanol production. Vegetable oil can be used as biomass for biodiesel production which is renewable source to petroleum diesel. Alternate sustainable bioresources used as biomass for biofuels production are part of this study. Brief summaries of thermos-conversion technologies are also presented here.

Abstract No. 80

Role of Tribal Women in Sustainable Development

Madhu Laxmi Sharma

Department of Botany
Govt. KRG PG Auto. College, Gwalior (M.P.), India

ABSTRACT

Sustainable development depends on distribution of resources for today and for the future. It cannot be achieved without gender equality. Women's empowerment is a key factor for achieving sustainable economic growth, social development and environmental sustainability. Women are in direct contact with natural resources especially in rural areas where 70% of Indian population reside and directly dependent upon natural resources. Women are also responsible for using these resources to satisfy the basic needs of their families. Tribal's live close to forests managed and conserved the biodiversity of their localities since long time. These tribal's take shelter from forest and utilize wild edible plants both raw and cooked. All these women are ordinary mothers. Of course this is nothing new; women have always played an integral role in environmental protection. There is increasing prominence of these women on the global stage as fearless advocates, defenders and caretakers. Women are consumers, producers, educators and caretakers too of their families, and are playing an important role for a sustainable development of eco-system in the present and future environment. Women provide sustenance to the family and community by their judicious use and management of natural resources. A policy of conservation of natural resources will be successful only if women will also be integrated into all programs and policy making issues. Plants are conserved in natural habitat and are being worshipped by them as god and goddess. Plants are conserved by them as source of food. Diversity of plants is also conser ved by them in different for ms as wild fr uits, seeds, bulb, roots and tubers for edible, medicinal, ornamental or for worship purpose. Plants are conserved in natural habitat in forest used as by herbal healers. Environmental movements are also initiated by women. Plants are conserved by them in natural habitat and utilized as medicinal purpose. Plants are conserved in sacred groves of tribal's as in - situ conservation of biodiversity. They are generally the best conservationists; they have managed their lands sustainably for many generations. Forcibly removing tribal peoples from their land usually results in ecosystem and environmental damages. Such removals should be opposed by conservationists. The world can no longer afford destruction of nature as it damages human diversity as well as the environment.

Abstract No. 81

Eco-Criticism: An Organized Movement

Madhu Laxmi Sharma, Alka Maourya and Ila Shukla

Govt. K.R.G. P.G. Autonomous College, Gwalior (M.P.), India

ABSTRACT

Environment can be defined as a sum total of all the living and non-living elements and their effects. Environment is a broad introduction to how different languages are shaped by their environment. It makes the argument that the social, cultural, and natural environment of speakers. They influence the structures and development of the languages which they speak. In romantic literature, the self is attracted to nature, piously praises the nature and believes in nature. The nature in the eyes of the poets is sublime and sacred. The poets emphasize self, freedom and love with nature. Romantics integrate themselves into nature and feel good. The environment provides language input for the child to process of development. Its study is in fast progress. Issues of methodology and proper future course remain matters of debate. Eco criticism's future is to move toward tighter consensus about purpose and method , to remain with more networked of initiatives intellectual energies, and the movement has demonstrated during its start-up phase have not only succeeded in placing "the environment" on the table as a pressing priority for literature studies, but also to generated a number of specific critical approaches that offer the promise of a deeper environmental issues both within and beyond the environmental humanities, they learn to appreciate words and their power. They understand about their own culture and others'. They learn to empathies with characters, to feel their joys and pain. In the works of art, nature generally functions as background of place and time, and also theme. As eco-criticism continues to spread worldwide, the need for comparative and coordinated study of different bodies of literature will also increase.

Abstract No. 82

Eco-Criticism in Relation to Literature

Preeti Bala Shrivastava and Madhu Laxmi Sharma

Govt. K.R.G. P.G. Auto. College, Gwalior (M.P.), India

ABSTRACT

'Eco-criticism' is the term for the association among literature and the environment. Eco criticism is the study of literature and ecology & environment from an interdisciplinary point of view, where literature scholars analyze texts that illustrate environmental concerns and examine the various ways literature treats the subject of nature and literature. In representing our environment, literature plays a critical role and is the reflection of current scenario of our society. Basically, it is the analysis of life and the connection among literature as well as the environment. Today the relationship between the natural and social world is analyzes in various disciplines of knowledge. The literary critics pay attention on the analysis of the strong relationship bond between the nature, literature and society. Poets and writers always give their best in protecting environment through their writing literature. Rather, nature in all of the poems and essays are truthfully a living character through which human identity is constructed either through the characters alignment with the natural world or may be their struggle to protect it.

Abstract No. 83

Biofuels for Sustainable Development

Sunita Rawat

Department of Zoology
Government Degree College, Gosaikheda, Unnao (U.P.), India

ABSTRACT

Humans have been exploiting natural resources for the name of development. It has been evident that human activity is the major cause of climate change. Energy is needed in every field viz. transportation, travel, electricity generation, agriculture sector, industries, commercial purposes and residential uses. Excessive use of fossil fuels has resulted into the increase of greenhouse gases in the atmosphere and consequently, climate change. The use of renewable energy sources could replace the need for fossil fuels and prove beneficial for sustainable development. Bioethanol and biodiesel have been proved as vital source of renewable energy. Bioethanol can be derived from corn and sugar cane, whereas biodiesel can be derived from rapeseed, palm oil, soybean, and used cooking oil. The development of electric vehicles can further lower the demand for petroleum fuel. Algal biofuels could be the next generation means of renewable energy source. Thus, every possibility should be explored to produce renewable, carbon-neutral biofuels in order to achieve sustainable development goals.

Abstract No. 84

Adverse effect of Pollution on Environment

Rachana Singh

D.G. P.G. College, Kanpur (U.P.), India

ABSTRACT

Environment pollution can adversely affect the environment. Pollution is caused by different human activities like littering, uses of electronic appliances, uses of polythene, fuel, generator, lake of plantation, different types of industries etc. This is serious problems we are facing globally and it influences the health of human populations. Pollutions are different types like air, water, noise, soil waste pollution. Due to pollution humans as well as animals and birds are suffering from different diseases and problems. It can be reduced by microorganism on plants that have biosynthetic pathways for the degradation or accumulation of environmental pollutants from soil and water. Harmful materials into the environment result of pollution. Pollution may be natural like volcanic ash or it can be created by ourself, like trash or runoff produced by industries and factories. The best conclusion to reduce pollution is better to take public transport to reduce vehicular smoke and emissions. Save energy by turning off the television and switch off the lights when you leave the room. There are lots of things you can do to protect the environment.

Abstract No. 85

Business Related Issues and Environment Factors

W.K. Balwan[1] and R.K. Vishwakarma[2]

[1]Department of Zoology, Govt. Degree College, Kilhotran (J. & K.), India
[2]Department of Applied Economics, University of Lucknow, Lucknow (U.P.), India

ABSTRACT

Once upon a time, the objective of business was to build a company to generate revenues and increase profits. As environmental issues came in issues, their impact on business, and the risks to the future of ecosystem and environment have become more primary across the globe. It is the responsibility of business holder for management and protection of environment. It is time to make modifications where ever it is necessary. The term economic environment refers to all the external economic factors that influence buying habits of consumers and businesses and therefore affect the performance of a company. Commercial waste carelessly has lot of harmful effects on the environment. It pollutes the air, water & land, causing ill effects to the local flora & fauna as it decays. The main environmental issues that are most likely to influence the activities of a business are climate change, pollution, sustainability,solid waste, deforestation, global Warming, depletion of natural resources etc. External environment factors that affect business are technological factors, economic factors, and legal factor, demographic factors social factors, competitive factors and ethical factors. There are a few different ways that businessman can go green and become more socially responsible by educating employees and encouraging them to adopt 'green habits', upgrading to energy-efficient products, set up with a virtual communication system that connects users from any location and device, with minimal setup and investing in 'green IT' solutions.

Abstract No. 86

Environmental Economics

Nisha Mishra, H.K Agarwal and Madhu Laxmi Sharma

Govt. K.R.G. P.G. Auto. College, Gwalior (M.P.), India

ABSTRACT

Environmental economics is discipline of economics that studies the economic effects of environmental policies around the world. It focuses is on environmental and natural resources and environmental policies which deals with environmental damages. Principles of environmental economics are to the study of how environmental and natural resources are developed and managed in the world. Environmental economics promotes policies of sustainable development, economic valuation of natural resources, and strategies for stability of environmental concerns. Its main objective is to balance the sustainability of the environment and economic development for the benefit of natural society. With the growing awareness of environmental issues and concern for sustainability, there is a job opportunity in this field also. Valuation is an important aspect of environmental economics, as it helps to evaluate in managing challenges the use of environmental and natural resources. Resources are of multiple benefits and are of difficult to value – for example, mountains may prevent flooding, provide scenic beauty, direct river flow patterns, and provide fertile soils for agriculture. There are three main types of economic systems: command, market, and mixed. K ey factors are available land at reasonable costs and region, high plantation yields, well-developed plantation practices, a skilled labor, strong research results, the existence of a viable market, with strong support of infrastructure to ensure cost-effective delivery to markets.

Abstract No. 87

Effect of Heavy Metal Chromium on Haematological Parameters of *Clarias batrachus*

Ashok Kumar

Department of Zoology
M.L.K PG College, Balrampur (U.P.), India

ABSTRACT

The toxic effects of chromium in edible fish are a source of worldwide concern. The purpose of this study was to keep track of chromium. The level of chromium toxicity in the exposed *Clarias batrachus* caused toxicity was determined by Haematological examination of blood. For 60 days, a sublethal dosage of chromium trioxide (1/10 concentration of 96 hr10 LC50) was administered. Fish were fed a specific diet at a rate of 2% body weight per day. In whole blood, haemoglobin, haematocrit, erythrocyte, and leucocyte counts were performed in comparison to the control group, there was a 22.77 % decrease after 60 days of exposure. The number of white blood cells (WBCs), red blood cells (RBCs), and haemoglobin (Hb), as well as the time it takes for blood to clot, all decrease. Antibody production and ion-dependent ATPase activity have both been reduced. Glycogen, total lipid, and total protein levels are all dropping in the liver, muscle, and gills. The amount of glycogen in the liver decreases. The vitality of cells is dwindling. The activity of ALA-D (aminolevulinic dehydratase) rises. WBC, RBC, Hb, MCV, PVC, reactive oxygen species ROS, and bacterial susceptibility all increase when the spleen-to-body ratio rises. The blood glucose levels of the treated fish steadily increased after 24, 48, and 72 hours at various concentrations in the current study. There was a significant increase was observed only after 15 days ($p<0.01$) and ($p<0.001$) of exposure durations, a substantial increase was detected.

Abstract No. 88

Loss of Biodiversity

Kamalesh Kumar

Department of Zoology
M.L.K. P.G. College, Balrampur (U.P), India

ABSTRACT

Our natural environment is a wonder of many topographies, materials, colors, and textures, from the lush green Amazonian rainforests to the deep depths and vibrant corals. The smallest insects and the largest creatures may be found living in the land, the air, and the oceans of our planet, which together form a complex web of interrelated and interdependent forces. As a result of four billion years of evolution, the biodiversity present on Earth today consists of many millions of unique biological species. However, the word "Biodiversity" is relatively new, and is thought to have first been coined as a contraction of the term "biological diversity" in 1985 and then popularized by a number of authors Biodiversity is the variety of life on Earth, it includes All organisms, species, and populations; the genetic Variation among these; and their complex assemblages of Communities and ecosystems. It also refers to the interrelatedness of genes, species, and ecosystems and in turn, It also refers to the interrelatedness of genes, species, and ecosystems and in turn, Their interactions with the environment. Three levels of biodiversity are commonly discussed — Ecosystem species and genetic, diversity.

Abstract No. 89

Role of Zinc in Plant, Soil and Human nutrition

Madhup Shrivastava[1], Ankur Shrivastava[2] and Naresh Gupta[3]

[1]Govt. K.R.G. P.G. (Auto.) College, Gwalior (M.P.), India
[2]Social Work, Gwalior (M.P.), India
[3]Krishi Vigyan Kendra, Datia (M.P.), India

ABSTRACT

Zinc is plant micronutrient which is involved in many physiological functions its inadequate supply will reduce crop yields. It is essential for the growth in plants, animals and human beings, it is vital to the crop nutrition as required in various enzymatic reactions, metabolic processes, and oxidation reduction reactions. Zinc deficiency is common in plants humans and animals. More than 30% world's population suffers from Zinc deficiency. Zinc plays a part in the basic roles of cellular functions in all living organisms and is also involved in improving the human immune system. In soils, Zinc deficiency is the most wide spread micronutrient deficiency problem, almost all crops and calcareous, sandy soils, peat soils, and soils with high phosphorus and silicon are expected to be deficient. Zinc deficiencies can affect plant by stunting its growth, decreasing number of tillers, chlorosis and smaller leaves, increasing crop maturity period, spikelet sterility and inferior quality of harvested products. Beside its role in crop production Zn plays a part in the basic roles of cellular functions in all living organisms and is involved in improving the human immune system, due to its insufficient intake, human body will suffer from hair and memory loss, skin problems and weakness in body muscles.

Abstract No. 90

Algal Diversity of Selected Fresh Water Pond in Thallasery region, Kannur District, Kerala, India

Rajesh Kumar

Department of Botany
Mahatma Gandhi Govt. Arts College, Mahe (Puducherry), India

ABSTRACT

The parts Kerala state is associated with Western Ghats, which is biodiversity hotspot of India. The district is characterized by various traditional ponds associated with temples. The algal diversity of the freshwater ecosystem is very significant because they are the primary energy producers in the food web. This study has been undertaken to investigate the diversity of algae in freshwater pond ecosystems associated with the traditional pond in Thallasery region of Kannur district. Sample collection was done in post monsoon and pre monsoon seasons for estimation of algal growth and other physic-chemical parameters. Sampling was done by using specific filter cloth (mesh size 25μm) and 30mL of water was taken and poured in a sterilized container of 5L volume. The collected samples were brought to laboratory and kept in refrigerator for further analysis. The analysis of algae showed a total of 11 species. Of these members were belonged to Chlorophyceae, Bacillariophyceae, Xanthophyceae, Cyanophyceae, Dianophycae and Euglenophyceae. The study concludes with a suggestion of regular monitoring and estimation algal diversity of pond.

Abstract No. 91

Impact of Music, Sound and Vibrations on Behavioral issues

Jyotsna Rana, Namita Tripathi and P.K. Bansal

Govt. K.R.G. P.G. Auto. College, Gwalior (M.P), India

ABSTRACT

Music, as a sounding environment, is pleasant, soothing, and interesting. Environmental sound perception serves an important ecological function by providing listeners with information about objects and events in their immediate environment. Music is a powerful educational resource when used properly, because it helps persons intellectually because it stimulates creative thinking and supplements their learning process. Music can also help to reduce stress and improve behavioral issues as well as frame of mind. P redictable natural rhythms create a sense of security in all living creatures. Rhythm is the pattern of sound, silence, and emphasis in a song. In music, rhythm refers to the recurrence in time. These rhythms are of the sun, the moon, sleeping, waking, our daily activities, our breathing and are of our heart beating. When it comes to understand the effects of music on plant growth, it appears that it isn't so much about the "sounds" of the music, but more to do with the vibrations created by the sound waves. In simple terms, the vibrations produce movement in the plant cells, which stimulates the plant to produce more nutrients. Sound waves with specific frequencies and intensities can have positive effects on various activities in plants like seed germination, root elongation, plant height, callus growth, cell cycling, signaling transduction systems, enzymatic and hormonal activities, gene expression etc.

Abstract No. 92

A role of industries in polluting water

Anupam Dubey

D.B.S College, Kanpur (U.P.), India

ABSTRACT

Survival of human beings is dependent upon three resources are considered to very basic in nature i.e. soil, air and water. These are considered to be valuable gifts for the mankind. Among them water is considered to be very important component since it could form basic medium for the origin of life, which could be of humans, animals, and life forms. Majority water out of the fresh water available in our country is considered to be unfit for consumption, this problem is being faced not only in our country, and rather the same situation is being faced in other countries. This situation has been explained in detail with the use of many references in this study. There are various sources which cause pollution like agricultural runoff, industrial effluents and sewage discharge and this has been mentioned in different studies which have been a part in this study. There are different categories of inland water and they have been discussed in the study. This paper consisted of extent and potential of different components that pollute water. There is shortage of water which has occurred alarmingly and is dependent on water balance at the regional level which is controlled mainly by soil composition, altitude, climate, vegetation cover, percolation and precipitation. Various industries are generating significant wastewater in large quantity that ultimately enters into rivers or streams. Industrial discharge contains hazardous and toxic substances which contribute towards different kinds of pollution in aquatic systems. Industrial development results in production of different chemicals which would result in generation of hazardous and toxic substances that are increasing continuously since many decades.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 93

Sustainable Development: Need of today

Manjul Gupta[1] , V.P. Singh[2] and Prabhakar Singh[3]

[1]Department of B. Ed., KN Govt. PG College Gyanpur, Bhadohi (U.P.), India
[2]Department of English, Govt. P.G. College, Sangipur, Pratapgarh (U.P.), India
[3]Department of Anthropology, University of Allahabad, Prayagraj (U.P.), India

ABSTRACT

The future management of the world's resources depends upon reconciling the needs of socio-economic development with the conservation of the world's environment. The goal goals of economic and social development must be defined in terms of sustainability. Development involves a progressive transformation of economy and society. Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. The satisfaction of human needs and aspirations is the major objective of development. The essential needs of vast numbers of people in developing countries for food, clothing, shelter, jobs - are not being met, and beyond their basic needs these people have legitimate aspirations for an improved quality of life. A world in which poverty and inequity are endemic will always be prone to ecological and other crises. Sustainable development requires meeting the basic needs of all and extending to all the opportunity to satisfy their aspirations for a better life. Living standards that go beyond the basic minimum are sustainable only if consumption standards everywhere have regard for long-term sustainability. Meeting essential needs depends in part on achieving full growth potential, and sustainable development clearly requires economic growth in places where such needs are not being met. But growth by itself is not enough. High levels of productive activity and widespread poverty can coexist, and can endanger the environment. Hence sustainable development requires that societies meet human needs both by increasing productive potential and by ensuring equitable opportunities for all. SD is an approach that will permit continuing improvements in the quality of life with a lower intensity of resource use, thereby leaving behind for future generations an undiminished or even enhanced stock of natural resources and other assets. Sustainable development is (1) development subject to a set of constraints which set resource harvest rates at levels not higher than managed natural regeneration rates and (2) use of the environment as a waste sink on the basis that waste disposal rates should not exceed rates of managed or natural assimilative capacity of the ecosystem. The core idea of sustainability is that cur rent decisions should not impair the prospects for maintaining or improving future living standards. This implies that our economic system should be managed so we can live off the dividends of our resources. SD is about maintenance of essential ecological processes and life support systems, the preservation of genetic diversity and the sustainable utilization of species and ecosystems. Sustainability originally used in, Fisheries “maximum sustainable yield”, Forestry “maximum sustainable cut” and Hydrology “maximum sustainable pumping rate”. Sustainable Development=Economic Development+ Environment Protection+ Social Reform+ People's Empowerment.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

Abstract No. 94

A study of sources and effects of Water pollution

Shalini Shukla

D.G. P.G. College, Kanpur (U.P.), India

ABSTRACT

Water is an important renewable resource which is essential to sustain all different form of food production, life, general well-being and economic development. It is not possible to substitute water by any other liquids since it has many uses. Water cannot be easily de-polluted and it is quite expensive to transport water. Water is said to be a gift to mankind due to its nature. Water has different capabilities like transport, recycling, diversion and storage. India has been gifted with many rivers having several tributaries. Among the rivers in India, some of them are perennial and some might be seasonal in nature. It is quite challenging to manage quality of water in a better way. There are few such challenges like spatial and temporal variation in rainfall, surface water resource if quite unevenly distributed, over usage of ground water as well as contamination, persistent droughts, salinisation and drainage, water quality problem since waste water is treated partially and waste water remains untreated from the urban settlements. In many parts of our country, the waste water which comes from different domestic sources cannot be treated since there is lack of sanitation facilities. Such waste water that contains load of highly organic pollutants, finds its own into ground and surface water near vicinity of the human habitation from where water can be drawn for further for its use.

Abstract No. 95

India's Biofuels Challenges, trends and Opportunities

Mahender Pal

Department of Physics
IKG Punjab Technical University, Jalandhar (Punjab), India

ABSTRACT

For rapidly growing economy of India concerns are needed to be addressed on priority for energy security with minimum loss to diversity and environment with sustainable solutions. Biofuels become the good alternative of fossil fuels and have potential to become a priority choice to be transport fuels. Govt. has also adopted aggressive goals and regulations in recent years regarding biofuels to strengthen the energy supply with sustained sources. Our country also has huge untapped potential for generating and consuming biofuels. Efforts were made from very beginning for the development of first-generation biofuel technologies like ethanol production through fermentation process using sugar from grains. Today more efforts are doing towards development of 2nd generation biofuel technologies like ethanol production through variety of biomass feedstock along with wide range of conversion technologies. Today research and development are more on the side of developing new biomass feedstock, biomass resource assessment, improvement of conversion technologies. In this paper we discuss policy, trends, projections, conversion technologies, integration of systems, regulatory efforts, we also summarize the challenges and consequences of biofuels development with special focus on energy and environmental concerns

Abstract No. 96

Microbial synthesis of silver nanoparticles by *Bacillus* sp. and its activity against some pathogenic bacteria

Charu Gupta[1] and Mahendra K. Gupta[2]

[1]School of Studies in Microbiology, Jiwaji University, Gwalior (M.P.), India
[2]School of studies in Botany, Jiwaji University, Gwalior (M.P.), India

ABSTRACT

Microbial synthesis of metal nanoparticles is a rapidly burgeoning green technology. It is used as alternative method of chemical and physical methods. In this study, a total of 12 bacterial isolates were collected from soil and identified as different species of Bacillus. Out of which three isolates C-1, C-3 and C-α were selected for synthesizing silver nanoparticles. These isolated species were grown in Luria-Bertani broth at $30^0C \pm 2$ for 24-48hrs. Furthermore, aqueous solution of silver nitrate were treated with culture supernatant and incubated at $30^0C \pm 2$ for 24-48hrs. The presence of silver nanoparticles (AgNPs) in the solution was indicated by the appearance of brown colour. Moreover, characterization was carried out by UV-vis spectrophotometer, PSA, FTIR, and TEM. The further aim of this study is in-vitro antimicrobial activity of these biosynthesized nanoparticles was tested against pathogenic bacteria i.e. *Escherichia coli, Bacillus cereus, Staphylococcus aureus* by well diffusion method. The zone of inhibition around the wells showed the antimicrobial activity against test pathogens. The current study emphasizes use of green metal nanoparticles to control resistance of bacteria against pathogens.

Abstract No. 97

Ecofriendly management of Anthracnose of *Catharanthus roseus*

Amita Mishra

SOS in Botany
Jiwaji University, Gwalior (M.P.), India

ABSTRACT

Anthracnose of *Catharanthus roseus* or periwinkle caused by the fungus *Colletotrichum capsici* has been found to be a serious disease. Plants of all ages are susceptible to the disease but the disease intensity increases with the age of the plant. This pathogen is found to be soil borne in nature. The present study revealed that the optimum relative humidity for mycelia growth and spor ulation was 100 percent. Six plant extracts and Cow urine (three different concentrations) were evaluated in in-vitro against *Colletotrichum capsici*. All the extracts were found significantly effective but Calotropis procera and Cow urine (30 and 45 percent) were found most satisfactory in reducing the disease intensity. However, under field conditions *Azadirachta indica* and Cow urine significantly reduced the disease intensity.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 98

Use of plant resources in nutrition, health and livelihood by rural communities of Kanpur (U.P.), India: An ethnobotanical survey

Sugandha Tiwari

D.G. College, C.S.J.M. University, Kanpur (U.P.), India

ABSTRACT

Ethnobotany is a discipline that deals with the uses of the plants traditionally for food, medicine, fodder, fibre, dyes, tannin, resin and gum etc. by the society. Ethnobotanical studies give us a glimpse of relationships between nature and people. Herbal healers understood their surrounding flora and used plants for the treatment of various ailments. The culture and traditions of native communities have remained unchanged for many years. The knowledge gathered by native people during hundreds of years, through a long series of observations and practice was transferred from one generation to another verbally. Traditional knowledge is an important aspect of our cultural heritage and protection of our traditional knowledge through documentation and patents is the need of the hour. The documentation of indigenous knowledge is important for sustainable management and conservation of natural resources. A study was conducted to document ethnobotanical knowledge on plant resource utilisation in nutrition, health and livelihood by rural communities of Kanpur division. The information was gathered using questionnaire based surveys along with informal discussions and semi structured interviews. The native rural people inhabiting Kanpur division have traditional knowledge of herbs and spices, powders and potions which they use to heal various ailments from the common cold to aches and pains, indigestion to allergies, depression to diabetes. Older native populations residing in villages have traditional knowledge regarding the use of plants as a source of medicine, food, livelihood etc. Plants are an integral part of their magico-religious beliefs. This traditional knowledge is showing erosion as the younger population is moving to cities for livelihood and they have lesser contact with their natural surroundings. Ethnobotanical studies have great significance in preserving this valuable knowledge.In the present study plants were categorised on the basis of their use as food, fodder, medicine, commercial use and medico-religious belief. Quantitative data was further analysed statistically to determine relative frequency of citation (RFC), use values (UV) and fidelity level (FL) for the reported plants and their particular use to establish their importance. Study on harvesting practices, processing, quality parameters and marketing of selected ethnomedicinal plants with high informant consensus factor, use value and fidelity level was also performed.The data accrued is expected to serve in documenting and preserving ethnobotanical knowledge and setting the quality standards of herbal products.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

Abstract No. 99

Phytoremediation prospective of macrophytes in purifying water of wetlands-A Review

Sushma and Neetu Rani

University School of Environment Management,
Guru Gobind Singh Indraprastha University, New Delhi, India

ABSTRACT

Wetlands are encountering high levels of stress and deficit due to various inputs like sewage discharge, industrial waste, agrochemicals, surface runoff, and residential waste. Currently, many researchers are working to discover sustainable ways to mitigate water quality degradation. Phytoremediation is one of green technique being used for removal of pollutant from wastewaters. It is a low-cost and eco-friendly technology for enhancing water quality. Aquatic macrophytes can withdraw excessive nutrient load from the wetlands that can compel eutrophication. It results in the bioaccumulation of heavy metals, which is precarious. In swamps, free-floating, submerged, and emergent macrophytes are usually seen. Considerable studies have investigated how macrophytes help to remove nutrients and heavy metals from wetlands. Their incredible capacity to absorb nutrients and other substances from water, mainly heavy metals uptake mainly happens through the roots of emergent and surface-floating plants. However, in submerged plants, roots, as well as leaves, remove nutrients and heavy meats. Introspections undoubtedly show that macrophytes have the prospect of lowering or eliminating the concentration of nutrients and heavy metals in water. According to numerous studies Water hyacinth (*Eichhornia crassipes*), Duckweeds (family Lemnaceae) and Typhaare the most commonly found plants in wetlands, it is because of the reason that their growing rate is very fast and they take up large number of nutrients and contaminants. Selection of these plant species is one of the proficient and challenging tasks.

Abstract No. 100

Bioaccumulation of Lead by Aquatic Plants

Veena Pandey

Tilak Mahavidyalaya Auraiya (U.P.), India

ABSTRACT

Lead is a heavy metal; it can be exert long term toxicity effect. Lead is used for shielding against x-rays and other nuclear radiation. Aquatic plants or weeds are generally classified as floating, submerged or amphibious Plants growing below the water surface are called submerged as *Hydrilla verficillafa*, above the water surface as *Cyperus papyrus* floating on water surface as *Nymphea stellate*. Lead is a heavy metal. Lead is toxic as it can mimic many aspects of metabolic behaviour of calcium and it also inhibits much enzyme system. Aquatic plants are therefore most affected by the increased lead concentration in their surroundings.

Abstract No. 101

The Role of Biotechnology in Environmental Sustainability

Zaheen Hasan and D.D.Tewari

Environmental Lab
M.L.K.(P.G.) College, Balrampur (U.P.), India

ABSTRACT

Establishing an environmental friendly co-existing mechanism on earth is of vital importance. Biotechnology is being considered as an emerging science for environmental protection and to support the sustainable development in different aspects. In agricultural sectors, increasing attention has been paid to the sustainable development in which the high productivities of plants and animals are ensured using their natural adaptive potentials, with a minimal disturbance of the environment. Rapid industrialization and urbanization over the past many decades has resulted in contamination of all the components of the environment. Bioremediation is an attractive and potential alter native for treatment of these contaminated sites. R ecent developments in molecular biology have been applied to develop novel strains of microorganism with desirable properties that would be applicable in bioremediation. This chapter also outlines the current and emerging applications of biotechnology in the production and processing of chemicals, for sustainable development.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 102

A review on Sustainability and Natural Resources Management with contributions of Human beings as a Society'

Ranjana Kushwah[1] and Ashutosh Singh[2]

[1]Jiwaji University, Gwalior (M.P.), India
[2]Netaji Subhash University of Technology, Delhi

ABSTRACT

A native American saying goes as "We do not inherit the Earth from our ancestors-we borrow it from our children." As stated in the statement, no one has entire birth rights to the planet Earth or its natural resources, not even all of its inhabitants at any given time. There is always the voice of the coming generations, and it is from this thought that the concept of sustainability emerges. Sustainability (in latin '*sus*' means up and '*tenere*' means 'to hold') is a complex concept that can broadly be understood as the capacity to consistently support or maintain a process across time. It can be explored from the standpoints of human, social, economic, and ecological categories. We as human beings want to trace an indefinite future on earth or beyond and in order to sustain humanity in the upcoming time, we need to adhere to these kinds of sustainability either as social scientist, economist or as biophysical specialists. We need to develop a profound culture of these kinds of sustainability by keeping in mind both the intra-generational and inter-generational equities of sustainable development. Sustainable Development incorporates the idea of 'meeting current demands without sacrificing the ability of future generations to fulfil their own needs'. Sustainability largely depends on the management of natural resources and energy whether renewable or non-renewable. Availability of these resources may not be a problem in historic times but with the increase in population with time is becoming a threat. The situation becomes worse with uncontrolled exploitation or abuse of these resources rather than a sustainable use that paved the way for scenarios like environmental degradation and climate change. It is critical to manage the sustainable use of resources and energy by addressing both local and global policies and legal regulations regarding their use. Although exponential progress in science and technology has improved and enhanced the lives of humanity, whether in terms of life expectancy or living standards, the increased interaction of humans and the environment with these advances has led to the rapid depletion of resources. Thus, with sustainable development comes the responsibility of natural resource management, which is readily accomplished with the assistance of scientific and technological breakthroughs, as well as the formulation of sustainable policies for society and we can sustain the ecosystem including ourselves by making our contributions in a balanced way.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

MISCELLANEOUS

Abstract No. 1

In vitro Arsenic Modulate Gene Expression of Epithelial Mesenchymal Transition Markers-Sox 4, EpCAM and CK-19 in Circulating Tumor Cell from Breast Cancer Patients

Ajit Kumar Saxena

All India Institute of Medical Sciences, Patna (Bihar), India

ABSTRACT

Arsenic contamination is a global health problem, large number of population continuously exposed to arsenic either through the contaminated water, soil, and food chain. There are scanty in reports how Arsenic causes of complex disease like cancer, infertility and Birth defects. Breast cancer is the second highest cause of women mortality and morbidity due to poor prognosis and diagnosis. Circulating tumor cells (CTCs) is highly sensitive biomarker of early diagnosis in cancer. CTCs are characterized by EMT (epithelial mesenchymal transition) markers - Sox4, CK-19 and EpCAM. Presently study has been designed with the aims to identify the role of EMT markers (Sox4, CK 19 & EpCAM) in CTCs of Breast cancer patients using two different procedures. CTCs activation was also evaluated using KRAS oncogene signaling and correlates genetic heterogeneity of methylene tetra hydro folate reductase C677T gene polymorphism. Sox4 gene expression increased with increasing time i.e. highest expression was observed at 72hrs (exposure). Interestingly, the gene expression of EpCAM (359bp) and CK19 (573bp) completely disappear at all the three-time intervals i.e.24, 48 and 72 hours exposure in CTCs from Breast cancer patients after Arsenic exposure. The calculated value of copy number variations (CNV) showing lack of significant ($p > 0.05$) difference with respect to controls. Sox4 is a stem cell epithelial marker and their enhance expression and maximum were observed at 72 hrs either activation of cell proliferation or early inhibition of dividing (proliferating) cell due to generation of free radicals by release of Na+ ions. It is showing highly sensitive for epithelial cell adhesive and activating molecules (EpCAM) and cytokeratin-19 during metastasis, confirming the role of oncogene (KRAS).

Abstract No. 2

Biochemical estimation of *Moniezia* sp. parasite in *Capra hircus* from Nashik region

Mukesh Patil[1], Ajit Kalse[2] and Avinash Bhangale[2]

[1]Department of Zoology
B.P. Arts, S.M.A. Science and K.K.C. Commerce College, Chalisgaon, Dist. Jalgaon, (M.S.)
[2]Department of Zoology
Nanasaheb Y. N. Chavan ASC College, Chalisgaon, Dist. Jalgaon, (M.S.), India

ABSTRACT

The biochemistry of parasite helps to identify the effect of parasite on the host animal in terms of its nutritive value. Goat (*Capra hircus)* intestine were brought to the laboratory and dissected carefully. Host normal intestine, infected intestine and cestodes were collected for powder. From this study we can say that the protein percentage is higher in parasite as compared to lipid and glycogen.

Abstract No. 3

Systematics and Histopathological study of *Capra hircus* L. intestine infected with Cestode, *Stilesia* sp. from Dhule (M.S.) India

R.B. Suryawanshi[1] and A.T. Kalse[2]

[1]Department of Zoology G.E.T' Arts, Commerce and Science College
Nagaon, Dhule (M.S.), India
[2]Department of Zoology, Nanasaheb Y. N. Chavan ASC College
Chalisgaon, Jalgaon (M.S.), India

ABSTRACT

Intestine of *Capra hircus* was collected from Dhule region. Dissected infected intestine shows number of cestode parasites attached to intestinal wall. Along with attached worms with intestinal part were fixed in Bouin's fluid for histopathological studies and other worms were preserved in 4% formalin for identification and morphological studies. Histopathological study of cestode parasites has been studied to find out the pathological conditionand extent of damage of the intestinal layer of *Capra hircus* L. The identified worm *Stilesia* sp.is having penetrative type of Scolex with four suckers; testis 3-4 in no and spherical ovary. Heavy infection shows damage to the intestinal layer i.e. mucosa, sub mucosa and lamina propria. The extent of damage is proportional to the penetration of scolex.

Abstract No. 4

Green Adeptness in the synthesis of Silver Nanoparticles from *Colocasia esculenta* and its Anticancer Activity

Takalkar S. Shashikant, Borole S. Chandrakant, Namrata G. Mahajan and Manojkumar Z. Chopda

Department of Zoology
Moolji Jaitha College (Autonomous), Jalgaon (M.S.), India

ABSTRACT

Cancer is a dangerous disease of uncontrollable cell fission in malignant tumor that invade the normal human body systems .In medical science the methods available to treat a cancer patient mainly includes surgery, chemotherapy and radiotherapy etc. As these known methods are very costly and have side effects with limitations of their use, there is need for effective and acceptable cancer therapeutics agents that would be non-toxic, highly efficacious against multiple cancers, palatable, cost effective. Medical plants have created great interest among researchers as they have been proved to possess anticancer activity and have no side effects). *Colocasia esculenta* (C. esculenta) is a tropical plant and widely distributed throughout Southern India and Southeast Asia. *Colocasia esculenta* Linn, (Family: Araceae) is an annual herbaceous plant with a long history of usage in traditional medicine in several countries across the world, especially in the tropical and subtropical regions. Nanoparticles of C. *esculenta* has not been used by any previous researcher for their anticancer activity, so far. This information gave us an impetus to synthesize the silver nanoparticles and evaluate its anticancer activity. Fresh leaves and tuber juice of *Colocasia esculenta* (5 ml) is mixed with 1 ml of Silver nitrate (AgNO3) solution having concentration 1M for reduction into Ag+ ions. Determination of cytotoxicity by MTT assay was carried out on Prostate cancer cell line (PC3). . IC50 value of Vincristine (standard) is 277.51 ± 30.05 μg/ml and IC50 value of juice of leaves and tuber is 28.57 ± 0.0 μg/ml and 112.97 ± 71.60 μg/ml.

Abstract No. 5

Microcystin-LR modulates oxidative stress markers and the palliative role of Co10 in the kidney, heart and brain of murine model

Roshni Rajpoot and Raj Kumar Koiri

Biochemistry Laboratory, Department of Zoology
Dr. Harisingh Gour Vishwavidyalaya, Sagar (M.P.), India

ABSTRACT

Microcystins are a group of cyclic heptapeptide toxins produced by cyanobacterial bloom. More than 100 microcystin analogues have been identified, among which microcystin-LR (MC-LR) is the most abundant and toxic variant. Present study was designed to reveal whether potential human carcinogen microcystin-LR could imbalance the oxidative status of kidney, heart and brain of mice and also to explore the amelioratory effect of coenzyme Q10. Balb/c mice were randomly divided to 3 groups with 6 mice in each group. The animals of normal control group (N) received water and normal diet ad libitum and (MC-LR as well as MC-LR+CoQ10) group received MC-LR (10 g/kg bw/day, ip) for 14 days. After two weeks of MC-LR treatment, mice of (MC-LR+CoQ10) received coenzyme Q10 (10 mg/kg bw, im) for 14 days. In microcystin-LR treated mice as compared to control, significant increase in the level of lipid peroxidation, hydrogen peroxide, protein carbonylation was observed with a concomitant decrease in the level of glutathione. These parameters thereby suggest microcystin-LR induced toxicity via modulation of oxidative pathway. In conclusion, coenzyme Q10 alleviated MCLR-induced tissue toxicities by mitigating oxidative stress markers.

Abstract No. 6

Recent studies on probiotic as beneficial mediator on various biological parameters of diseased fish, *Cirrhinus mrigala*

Parvati Sharma

Department of Zoology
Chaudhary Bansi Lal University, Bhiwani (Haryana), India

ABSTRACT

Epizootic ulcerative syndrome (EUS) is a dreadful disease of several aquatic animals including Mrigala (*Cirrhinus mrigala* Ham.). The use of chemical compound to prevent the disease with may prove harmful for the fish as well as the end consumer. Now-a-days the use of probiotics has become firmly established due to their beneficial effects at the nutritional as well as therapeutic levels. Therefore, research efforts have been concentrated on optimizing production with eco-friendly alternatives to the therapeutic use of antimicrobials. Commercially available probiotics were used for controlling this disease in *C. mrigal* in the present study. The effect of probiotic on various biological parameters such as haemotogical parameters, growth rate and survival rate of fish were studied over a period of eight weeks. The level of these parameters decreased significantly in the body of fish treated with pathogenic bacteria. The fish administrated with probiotics showed significant increase in the hematological parameters, growth rate and survival rate and revealed that intake of probiotic contributing towards overall health of the fish.

Abstract No. 7

Leukopenia : A big problem in Rural area

Nasreen Sayyad[1], Jankiram Jadhav[2] and Vasant Bawane[3]

[1]Manubai College, Manegaon, Aurangabad (MS), India
[2]Saint. Bahinabai College, Shivoor, Aurangabad (MS), India
[3]Jeevan Vikas College, Shivoor, Aurangabad (MS), India

ABSTRACT

Blood is liquid connective tissues useful to transport the intra cellular substances called as plasma, human blood is circulated through the blood vessels. Blood is with two main components such as blood corpuscles and blood plasma. The corpuscles are RBC, WBC and platelets. The leucocytes are WBCs. The decrease in the number of leucocytes causes leukopenia, The leukopenia is harmful to human beings as it decreases the ability of body to fight against the infections and decreases the immune system of body, In present study attempt has been made to study of environmental factors responsible for leucopenia, it's causes, and their symptoms among the rural people of Shivoor.

Abstract No. 8

Pesticide toxicity in fish of Gomti river at various locations with particular reference to organochlorine pesticides (ocps)

Sangam Kumar

Fish Biology Lab,, Department of Zoology
Tilak Dhari College, Jaunpur (U.P.), India

ABSTRACT

The levels and distribution patterns of certain organochlorine pesticides (OCPs) in fish samples obtained from three locations in the Gomti river, India, are reported in this study. POCPs in fish muscles varied from 2.58 to 22.56 ng g–1 (mean value: 9.66 5.60 ng g–1). There were no regional or chronological patterns in the distribution of the OCPs. Aldrin was the most abundant OCP, whereas HCB and methoxychlor were undetectable. The most often found OCPs were a-HCH and b-HCH among HCH isomers and pp DDE among DDT metabolites. According to the findings, the fish in the Gomti River are polluted with a variety of OCPs.

Abstract No. 9

Impacts of the Covid-19 pandemic on biodiversity conservation

Charu Singh[1], Daisy Rani[2] and Girijesh Shukla[3]

[1]Department of Botany, Govt. PG (Autonomous) College, Datia (M.P.), India
[2]Department of Zoology, Feroze Gandhi PG College, Raebareli (U.P.), India
[3]Department of Zoology, DDU Govt. PG College, Saidabad-Prayagraj (U.P.), India

ABSTRACT

The Covid-19 pandemic influenced all parts of human society. Like everyone else, conservation biologists are concerned first with how the pandemic has affected their families, friends, and people around the world. But we also have a duty to think about how it impacted the world's biodiversity? Globally, the Covid-19 pandemic affected the environment, placing a strain on the economy and all parts of human society. The effects of Covid-19 were inevitable, as there is a reduction in human pressures on the natural ecosystem because of the lockdown of social and economic activities. At present, essential conservation work (protected area/national park staff still patrol and guard vulnerable species and landscapes) is still ongoing across the globe with the accruing positive effects of the pandemic including reduced air/water pollution, short-term disruption in wildlife trafficking and ecosystem restoration. Despite this, prevailing problems such as indiscriminate exploitation of wildlife resources, tourism revenue loss, staff absenteeism/poor performance, increased human dependence on natural resources, disruptions of field/research work, and species monitoring would persist. The Covid-19 pandemic affected the conservation program funding in most countries. Our world is changing, and the conservation community must be ready to respond appropriately. Authors will discuss the positive and negative impacts of Covid-19 pandemic and lockdown on biodiversity.

Abstract No. 10

Study on chlorpyrifos exposure in the fish H*eteropneustes fossilis* and ability to induce oxidative stress

Deepak Varma and Sujata Singh

Fish Biology Lab,, Department of Zoology
Tilak Dhari College, Jaunpur (U.P.), India

ABSTRACT

When compared with fish from the reference location, fish from the polluted site had lower levels of antioxidant enzyme activity, which suggests a weakness in the antioxidant system's ability to counteract the effects of oxidative of stress. DNA damage was found to be greater in both of the fish species that were collected from the polluted location, confirming the presence of genotoxic effects. According to the findings, the chosen biomarkers in both species of fish may be useful for assessing the effects of pollution in coastal habitats that are impacted by a number of different pollution sources. During the course of the study, fish in groups B through D were the subjected to varying concentrations of BPA for a total of sixty days, while fish in group A acted as a control group. Fish that were given various treatments displayed a variety of behavioural and physical side effects, depending on the therapy and the time period. The amount of oxidative stress caused by substance A and the decrease in the amount of antioxidant enzymes found in the bighead carp's brain, livers, kidneys, and gills are both concentration- and time-dependent.

Abstract No. 11

Bio-potency of *Cassia occidentalis* against *Callosobruchus maculatu* sin pigeon pea for its sustainable storage

Shraddha Srivastava and Sangeeta Avasthi

A.N.D.N.N.M. Mahavidyalaya (CSJM University) Kanpur (U.P.), India

ABSTRACT

The agriculture system should be economically and socially sustainable to contribute in economies. Sustainable storage systems are the consequential part of a good agricultural development and demands for a proper management of stored cereals. *Cajanus cajan* commonly called as pigeon pea (Arhar) is a member of family Fabaceae and the most important grain legume crop grown in the semi-arid tropical areas. Grain legumes are susceptible to pest infestation during storage, but if properly stored, they can remain in edible condition for several years. The efficacy of *Cassia occidentalis* leaf powder against *Callosobruchus maculatus* was evaluated on pigeon pea grains under extensive laboratory onditions i.e. 32±0.64°C and 68±3% R.H. Four dosages of *Cassia occidentalis* leaf powder 5g,10g, 15g and 20g were separately admixed in 200g grains of pigeon pea in separate glass jars. Number of adult mortality, laid eggs, hatching of eggs, emergence of adult *Callosobruchus maculatus,* and weight loss from each treatment were comparatively examined with thecontrol treatment. Highest mortality, lowest number of eggs laid, lowest rate of oviposition and lowest egg hatching was recorded at dosage of 20g. The results concludes that the *Cassia occidentalis* contains valuable properties to control the infestation of *Callosobruchus maculatus* and can be advantageous for the sustainable storage of pigeon pea.

Abstract No. 12

Thiolate-assisted copper (I) catalyzed C–S cross coupling of thiols with aryl iodides: scope, kinetics and mechanism

Sneha Prasad Bakare and Mahendra Patil

UM-DAE Centre for Excellence in Basic Sciences, Nalanda,
University of Mumbai, Vidyanagari Campus,Santacruz (East), Mumbai, India

ABSTRACT

Transition metal catalyzed coupling of thiols with aryl iodide offers a convenient method for accessing C–S linkage in organic synthesis. Herein, we report an efficient and practical method for the C–S cross coupling of thiophenols with aryl iodides using a Cu (I) catalyst. A diverse set of thiophenols is coupled with electron rich and poor aryl iodides to obtain diary sulfides in good to excellent yields. Note worthily, these reactions proceed smoothly in polar protic solvents and under ligand-free environments. This procedure also finds application in the synthesis of 2-aminophenyl sulfide derivatives via ring opening of readily available benzothiazole. Furthermore, we performed kinetics and computational studies to understand the mechanism of the Cu (I) catalyzed reaction in the absence of a ligand. Hammett plots of the reaction rates versus the substituent constant show that these coupling reactions are modestly sensitive to the substituents on thiophenols as well as aryl iodides, indicating the involvement of both the reactants in the rate-determining step of the reaction. On the other hand, computational investigations of the different mechanistic pathways suggest that the strong coordination of thiolate to Cu may generate the catalytically competent intermediate [Cu(SPh)2]K which can initiate the catalytic cycle. The pathway initiated by [Cu(SPh)2]K is predicted to proceed through the lowest energy transition states and intermediates relative to the separated reactants.

Abstract No. 13

Effect of dithane M-45 on freshwater fish rohu (*Labeo rohita)*

Pushpendra Kumar Maurya and Shushant kumar Srivastava

Department of Zoology, School of Sciences
IFTM University, Moradabad (U.P.), India

ABSTRACT

Pesticides are applied to control the pests indoor and outdoor; however, their remarkable amount reaches the aquatic system through various routes like run-off, leaching, spray-drift, and effluent from factories. These pesticides are reported to have a negative metabolic impact on different non-target aquatic organisms like fishes. Thus, the present study was aimed to evaluate the acute toxicity of commonly used organophosphate pesticide dithane M-45 to the freshwater fish Rohu (*Labeo rohita*). The experimental setup was designed to test the acute toxicity, advanced behaviour, and some haematological as well as biochemical analysis for a period of 96h. The LC_{50} values for dithane after 96hr treatment were found to be 11.36 mg/L. In treated fish, alterations in various behavioural patterns respiratory metabolism, opercular beat rate, and blood parameters were examined for sub-lethal end-points following 1h, 24 hr, 48 hr, 72 hr, and 96 hr exposure. Accelerated opercular beat rate ($P < 0.05$) was recorded in pesticide-exposed groups in comparison to control. Though the respiratory metabolism was not significantly affected, an increment in oxygen consumption rate was recorded. The pesticide stress caused a significant elevation in haemoglobin ($P < 0.01$) whereas total protein content was significantly dropped ($P < 0.05$). The acute toxicity data reported in this study can be used to assess the tolerance level of Rohu to fungicide dithane M-45.

Abstract No. 14

Indigenous knowledge of antidiabetic medicinal plants

Ajay Kumar Gupta[1] and Jyoti Singh[2]

[1]School of Pharmaceutical Sciences, CSJM University, Kanpur (U.P.), India
[2]Department of Zoology, Govt. PG College Saidabad, Prayagraj (U.P.), India

ABSTRACT

Diabetes is a serious metabolic disorder and plenty of medical plants are used in traditional medicines to treat diabetes. Medicinal plants used to treat hypoglycemic or hyperglycemic conditions are of considerable interest for ethno-botanical community as they are recognized to contain valuable medicinal properties in different parts of the plant and numbers of plants have shown varying degree of hypoglycemic and anti-hyperglycemic activity. Hyperglycemic patients increase year by year throughout the world and 2nd leading cause of death af ter heart disease and cancer in many developed countries. Diabetes mellitus is a clinical condition characterized by increased blood glucose level (hyperglycemia) due to insufficient or inefficient insulin. An important feature of diabetes is that the body cells are starved of glucose despite its very high concentration around i.e., scarcity in plenty. Diabetes is a major cause of blindness, renal failure, amputation, heart attacks and stroke. Many plants have been used for the treatment of diabetes mellitus in Indian system of medicine and in other ancient systems of the world. Out of these only a few have been evaluated as per modern system of medicine. Plants have been used both in the prevention and cure of various diseases of humans and their pets. Since the plant products have less side effects, they have the potential as good hypoglycemic drugs. They may also provide clues for the development of new and better oral dr ugs for diabetes. With the advent of human civilization, many systems of therapy have been developed primarily based on plants.

Abstract No. 15

Medicinal potential of *Cordyceps sinensis*

Rashmi Singrore and and Arjun Shukla

Department of Zoology
Govt. Science College, Jabalpur (M.P.), India

ABSTRACT

Cordyceps sinensis (Latin words meaning club and head) has been described as a medicine in old Chinese medical books and Tibetan medicine. It is a rare combination of a caterpillar and Ascomycetes fungus. Cordyceps is the composite of a genus of fungus that grows on the larva of insects. To date, more than 350 Cordyceps-related species have been found worldwide based on fungus or insect hosts. *Cordyceps sinensis* has been recorded in 1964 (Dongchongxiacao) as an herbal drug in Chinese pharmacopoeia. According to the theory of Chinese medicine, *C. sinensis* is sweet in taste and neutral in nature and it can replenish the kidney, soothe the lung, stop bleeding, and eliminate phlegm. The fungus *C. sinensis* has been used for the treatment of fatigue, cough, hyposexuality, asthenia after severe illness, renal dysfunction, and renal failure. For hundreds of years, Cordyceps has been utilized in traditional Chinese medicine (TCM) as a tonic to treat several conditions such as respiratory diseases, liver or renal problems, hyperglycemia, and cancer or tumor disorders. Similarly, Cordyceps spp. has been applied as an energy level and endurance enhancer, to improve aerobic capacity and to boost cellular immunity. In the Ayurvedic pharmacopoeia, the mushroom/fungus, *C. Sinensis*, can be considered to fall in the Rasayana category.

Abstract No. 16

Overviews of the treatment and control of common fish diseases

Varsha Jain

Department of Zoology
Govt. M.H. College of Home Science and Science, Jabalpur (M.P.), India

ABSTRACT

Similar to other animals, fish can also suffer from different diseases. All fish carry pathogens and parasites. Disease is a prime agent affecting fish mortality, especially when fish are young. Pathogens which can cause fish diseases comprise: viral infections, bacterial infections, fungal infections, protozoan infections, water mould infection, etc. Fish are also exposed from different environmental pollutants, including drugs and chemicals. The most common fish diseases, particularly in freshwater aquaria, include columnaris, gill disease, ick (ich), dropsy, tail and fin-rot, fungal infections, white spot disease, pop-eye, cloudy eye, swim bladder disease, lice and nematode worms infestation, water quality induced diseases, constipation, anorexia, chilodonella, ergasilus, tuberculosis, glugea, henneguya, hexamita, hole-in-the-head disease, injuries, leeches in aquaria, lymphocystis, marine velvet, and neon-tetra disease, etc. Antibiotics are frequently used to control fish diseases caused by bacteria, but there is an increasing risk of developing antibiotic resistant strains of bacteria. The non-specific immune functions such as bacteriolytic activity and leukocyte function of fish have been improved by some herbs. Plants have been used as traditional medicine since time immemorial to control bacterial, viral, fungal and other diseases.

Abstract No. 17

Incidence of fungal infection in some economically important fishes in ponds of Jabalpur

Namrata Shrivastava

Department of Zoology
Govt. M.H. College of Home Science and Science, Jabalpur (M.P.), India

ABSTRACT

Fish culture has now become commercially an important industry worldwide. The growth of fish culture has also increases issues of fish health. Bacterial hemorrhagic septicemia, lernaeasis, saprolegniasis and anoxia are the most commonly found fish diseases in pond fishes. Fungal infections (fungal infections are called mycoses) are among the most common diseases seen in temperate fish because fungal spores are found in all fish ponds and create problems in stressed fish. Poor water quality can also lead to an increase in fungal infections in an otherwise healthy fish population. Most fungal infections invaded on external tissues and only few fungal infections affect the internal organs of fish. The ability of Aquatic fungi to cause disease in fish is well known. Potentially all fresh water fishes and incubating eggs are susceptible to fungal infection. The fungal sp. of fishes are *Aspergillus* sp., *Aspergillus fumigate, Aspergillus niger, Aspergillus nidulans, Alternaria tenuis, Saprolegnia ferax, Allomyces anomalus, Rhizopus* sp, *Saprolegnia parasitica, Achlya prolifera, Neurospora* sp. *Penicillium* sp. and *Aspergillus* fungal sp. these are most common infection causing fungi.

Abstract No. 18

The use of *Rauwolfia serpentina* in hypertensive patients

Kanchan Lata and Juhi Singh

Department of Botany, Govt. PG College Saidabad, Prayagraj (U.P), India

ABSTRACT

The root of Sarpgandha is a species of flowering plant in the family Apocynaceae has been traditionally used in Ayurveda for many years to treat a variety of diseases that at first thought appear to bear little similarity to one another. These include insanity, epilepsy, insomnia, hysteria, eclampsia and hypertension. On reflection, however, these various diseases could have a common denominator if they were all relieved symptomatically by a sedative or a 'relaxing' drug such as *Rauwolfia*. In the fifty decade, its root gained popularity for its effect on hypertension. The alkaloid found in its root is attributed to anti hypertensive pharmacological action. Thus, initially serpine was isolated with an objective of predictable and better efficacy in the management of hypertension. Ayurveda believes in use of whole herb because of apparent benefits over the extract. The whole herb has many components which can: (1) Help in biotransformation into pharmacoactive forms (2) Enhance bioavailability (3) Reduce the possible side effects (4) Help in smooth excretion and (5) Prevent development of possible drug resistance. These hypothesis is proved to be true in case of Sarpagandha as Reserpine has reported many ADRs and also human population have developed drug resistance resulting in discontinuation of Reserpine in hypertension management whereas Sarpagandha root is still in wide use.

Abstract No. 19

On a collection of butterfly (Lepidoptera: Rhopalocera) from Jabalpur division (Madhya Pradesh): A survey report

Shraddha Khapre

Department of Zoology and Biotechnology
Govt. Science College, Jabalpur (M.P.), India

ABSTRACT

Biodiversity or Biological diversity is the term given to the variety of life on Earth and the natural patterns it forms. Butterflies are one of the most important assemblages of insects that act as biodiversity indicators as well as nature's gardeners. The present paper is based on the Survey Report on the Butterfly fauna of Jabalpur Division, Madhya Pradesh, India. Faunistic surveys were undertaken during July 2021- August 2022 and recorded 47 species belonging to 39 genera under 04 families from various localities in and around the Jabalpur, of which the members of family Lycaenidae is outnumbering the other butterfly families. Moreover, the study revealed 08 butterfly species newly recorded in the Central Indian landscape and 12 Butterfly species New to Mandla and Jabalpur Region. This study is aimed towards contributing to the plan of biodiversity restoration in the studied region and development of management strategies so as to ensure sustenance of butterflies and ecosystem services derived from them.

Abstract No. 20

Biodiversity of venomous snakes (Squamata: Reptilia) in central India with special reference to Jabalpur (M.P.)

Arjun Shukla

Department of Zoology
Govt. M.H. College of Home Science and Science, Jabalpur (M.P.), India

ABSTRACT

There are more than 3000 species of snakes in the world but only about 350 are venomous. Snakes are limbless reptiles having an elongated body covered with scales which are arranged in rows. The form, arrangement number and structure of these snakes are important in identification till genus and species level. Snakes are cold-blooded animals and under normal circumstances they have to regulate their body temperature by choosing appropriate places in their environment (e.g., by sun bathing or hiding in holes), so they are very sensitive to weather and climatic changes and other ecological or environmental conditions. There are over 297 different species of snakes in India but in case of Jabalpur and surrounding region six types of Venomous snake. Snakes probably don't see color and many are near-sighted, including the vipers and all the burrowers. Cobra all have good vision and can see you coming from quite far away (Though how far is not yet known). About 60 species or approximately 25% of Indian snakes are ovoviviparous, that is, the eggs develop internally and females bear live young. The larger snakes like the cobra and Russell's viper are actively playing role of rodent controller in an around agricultural land. Especially cobra inhabit in grain storage after human habituation. Venomous snakes are usually defined as those which possess venom glands and specialized venom-conducting fangs, which enable then to inflict serious bites upon their victims. In general families of venomous snake recognize: Colubridae, Natricidae, Lamprophidae, Elapidae, Viperdae.

Abstract No. 21

Therapeutic benefits of Sinigrin: An overview

Ajaz Ahmed Wani[1] and B.K. Mishra[2]

Department of Zoology
[1]Govt. Degree College, Doda (J.K.), India
[2]HNB Govt. PG College, Naini, Prayagraj (M.P.), India

ABSTRACT

Sinigrin (allyl-glucosinolate or 2-propenyl-glucosinolate) is a natural aliphatic glucosinolate present in plants of the Brassicaceae family, such as broccoli and brussels sprouts, and the seeds of *Brassica nigra* (mustard seeds) which contain high amounts of sinigrin. Since ancient times, mustard has been used by mankind for its culinary, as well as medicinal, properties. It has been systematically described and evaluated in the classical Ayurvedic texts. The first glucosinolate discovered, it was originally found in mustard seeds about 200 years ago and is also present in cabbage, Brussels sprouts, and broccoli. Sinigrin is hydrolyzed to allyl isothiocyanate by plant myrosinase and a number of Gram-positive intestinal floras, including Lactobacillus agilis and Streptomyces, Bacillus, and Staphylococcus spp. Studies conducted on the pharmacological activities of sinigrin have revealed anti-cancer, antibacterial, antifungal, antioxidant, anti-inflammatory, wound healing properties and biofumigation. Sinigrin is known as the precursor of the myrosinase–mediated breakdown product allyl isothiocyanate, which exerts various biological effects and also has a vital role in the prevention of cancer and DNA damage caused by carcinogens. Sinigrin is a major component of cruciferous vegetables such as cabbage, Brussels sprout, mustard greens and broccoli.

Abstract No. 22

Ecotourism and its prospects in Ramoua Dam, Gwalior Madhya Pradesh, India

R.S. Sikarwar, R.K. Lodhi and R.J. Rao

School of Studies in Zoology
Jiwaji University, Gwalior (M.P.), India

ABSTRACT

The present study was conducted on Ramoua dam to evaluate prospects of Eco-tourism. A well-recognized Water body situated at latitude 26°9'32.20" North and longitude 78°13'24.91" East and covers about 3177 hectares of dam. It is about 6 km eastern side of Gwalior. The present investigation deals with the diversity of the biotic communities present in the system with various management measures for optimizing its scenic beauty. The Ramoua dam has around 54 species of birds including 28 species of Aquatic bird which are often sighted in and around the dam. Also, the area nearby is enriched with amphibians, reptiles, and mammals such as various snakes, wild boar, lizards, Rhesus macaques, pangolin, Asiatic jackal. Sightings of these animals are quite often around the dam which might be attractive tourist spot, with the provisioning of conserving the wildlife. Thus, for betterment and ecotourism development in a suitable manner could be well developed. The locals and NGO or private organization should be asked to be the stakeholders for both sustainable ecotourism as well as livelihood of generations.

Abstract No. 23

Impact of urbanization on House sparrow diversity in Gwalior city, Madhya Pradesh

T. Barik, R.K. Lodhi and R.J. Rao

School of Studies in Zoology
Jiwaji University, Gwalior (M.P.), India

ABSTRACT

House sparrow population has decreased considerably within the past decades in many parts of the world in particular urban area. The present study was conducted over a period from July-2022 to Dec-2022 in different zones viz; Buildings, Gardens, and Dense Tree Parks. Line transects methods and point count methods were followed for counting and data collection the sparrow population. The higher population was recorded in the building with an average of (42%) followed by Gardens (36%) and dense tree park (22%). Study concluded that the due to urbanization population of house sparrow decreased and urbanization is Major threat to sparrow nesting site.

Abstract No. 24

Effect of feed materials on the population dynamics of earthworms

Anjali Singh, Nazia Siddiqui and Keshav Singh

Vermibiotechnology Laboratory, Department of Zoology
D.D.U. Gorakhpur University, Gorakhpur (U.P.), India

ABSTRACT

Chemical fertilizers and synthetic pesticides are serious threats to human, animal health and environment. Animal dung and municipal solid wastes are caused various problems, if they are not properly managed. Vermicomposting of these wastes is a suitable solution for proper management of biological wastes. The combinations of different animal dung with municipal solid wastes significantly enhance the population of *Lampito mauritii* and *Eutyphoeus waltoni*. Combination of buffalo dung with municipal solid wastes (1:1 ratio) significantly increase the growth, development, and reproductive capacity of *Lampito mauritii* and *Eutyphoeus waltoni.* Significant decrease in pH, Electric conductivity, C: N ratio was noted in the final vermicompost whereas, increased total Kjeldhal nitrogen (TKN), total available phosphorus level (TAP), total potassium and calcium ultimately affects the growth of earthworms *Lampito mauritii* and *Eutyphoeus waltoni* population. Use of buffalo dung with sewage sludge is suitable combination for better growth, reproduction and development of *Lampito mauritii* and *Eutyphoeus waltoni.* The significant increase in number of earthworms with the help of combination of wastes as feed material will be helpful for more conversion of more municipal solid wastes in beneficial vermicompost.

Abstract No. 25

Study of phytochemical and sensory attributes of Ashwagandha ghrita ghee from Desi Cow Milk

Vishal Kumar, Ankur Aggarwal and Tarun Verma

Department of Dairy Science and Food Technology
Institute of Agricultural Sciences, BHU, Varanasi (U.P.), India

ABSTRACT

Present investigation was carried out to assess the study of *physico-chemical* attributes of Ashwagandha ghrita ghee from desi cow milk. The control sample (T0) of desi cow ghee was formulated with (4 percent milk fat) and Ashwagandha ghritaghee (T1) was formulated according to guidelines byCentral council for Research in Ayurvedic Sciences (CCRAS) and to study the physicochemical, antioxidant properties and sensory evaluation of both the samples i.e. control sample and Ashwagadha ghrita ghee. Physico chemical properties characteristics after incorporating Ashwagandha show that decreased total fat (99.50 gm to 94.80gm), Cholesterol (65 mg to 42 mg), Vitamin A (3280 IU to 2970 IU) and increased in Sodium (1.90 mg to 4.75 mg), Potassium (1.10mg to 2.89 mg), Calcium (1.48 mg to 3.72 mg) Iron (0.45 mg to 2.36 mg) , moisture (0.20 percent to 1.18 percent), butyro-refractometer at 40 ^{0}C (41 to 42 Brix), Peroxide (0.75 to 0.80), Polenske value (1.18 to 1.19) and Reichert meissel value (31 to 32) entreated product as compared to control. Antioxidant activity in Ashwagandha ghrita ghee is (40.67 mg/GAE) and DPPH Inhibition is (38.98 mg of GAE/gm). Sensory evaluation like (Flavour, texture, freedom from suspended solid, color and overall acceptability) was evaluated by trained panelist using 100 score card. On the basis of finding, ghee with (T1) was found to be with the desired as compared to desi cow ghee.

Abstract No. 26

Catfish Gonadotropin and its role in reproduction

Radha Chaube

Department of Zoology, Institute of Science
Banaras Hindu University, Varanasi (U.P.), India

ABSTRACT

It has been reported that teleosts lack a hypophyseal portal system and hence neurohormones are carried by nerve fibers from the preoptic region to the pituitary. Gonadotrophins (GTHs) play a central role in the regulation of gametogenesis and spawning. The structural duality of the GTHs [luteinising hormone (LH) and follicle-stimulating hormone (FSH)] is established in fishes with the exception of ancestral vertebrates. In recent years the availability of molecular cloning techniques allowed the isolation of the genes coding for the GtH subunits in more than 65 fish species representing at least 16 teleost orders. Most studies indicate that, in teleosts, the GTHs are secreted in separate cells. Phylogenetic analysis shows that the common α-subunit of the GTHs (and also of thyroid-stimulating hormone) and LHs are highly conserved in fishes, as in tetrapods. However, FSHs shows considerable divergence in teleosts. In catfishes, there are 13 cysteine residues and one N-linked glycosylation site. In an extreme situation, a potential glycosylation site is lacking in some fishes. Both FSH and LH receptors are characterized in teleosts. In catfishes, in the absence of native FSH protein, LH controls all aspects of reproduction, from early gametogenesis to spawning. Recently, by using yeast expression system recombinant GtH shave been produced in the catfish *Heteropneustes fossilis*

Abstract No. 27

Genome wide analysis, identification of Clp protease genes regulating dehydration tolerance and heat acclimation in Chickpea (*Cicer arietinum* L.)

Punam Sharma and Dipak Gayen

Department of Biochemistry, School of Life Sciences
Central University of Rajasthan, India

ABSTRACT

The Caseinolytic Protease C protein (ClpC), has functional conservation all over species to play an important role in heat acclimation and dehydration stress tolerance. In chickpeas, several CaClpC genes were identified and characterized, but yet has not been a comprehensive study. Given the complexity of the *Cicer arietinum* L. genome, a detailed study on the whole CaClpC family members is very important to find out the genetic basis of dehydration tolerance and heat acclimation in chickpea plants. In this comprehensive study, a genome-wide analysis of the CaClpC gene revealed six members of the CaClpC gene family and their expression pattern analysis in various chickpea tissue, stress conditions, and developmental stages of the chickpea. Detailed characterization of the CaClpC gene and its 3-D protein structure suggested potential variations in functional regulation and subcellular localization. We manifest homoeologous specific variations among CaClpC family gene members that have not been repor ted former. A comprehensive study of the CaClpC gene in the chickpea genome demonstrated different patterns of homologous gene expression during dehydration and heat stress conditions. The result of the CaClpC gene family gives insight into the strategies to improve dehydration stress tolerance and heat acclimation by targeting one or some of the CaClpC genes in the chickpea.

Abstract No. 28

A Comparative Study of Avian Fauna of Two Ponds (Hingoli and Nanded District) M.S. India

V.S. Kanwate and P.R. Totawar

Nagnath Arts, Comm. and Science College Aundha (Nag.) Dist. Hingoli (M.S.), India

ABSTRACT

In all worlds the biodiversity is not constant of each state and district level etc. Biodiversity is depend upon geographical area. i.e. on forest area, water spread area, Bushes, grosses, seasonal impacts, temp. rain, winter season. The some condition occurs in Maharashtra state in Nanded and Hingoli district ponds. The study of comparative avian fauna is necessary to keep biodiversity, food chain constant in forest, or land ecosystem good in Nature. The present study done to two ponds (Hingoli and Nanded District) i.e. 1. Nageshwarwadi Dam (Hingoli) 2. Dhanora Dam (Nanded). The Nageshwarwadi is small village; it is 32 km away from Hingoli, besides the village a Dam is constructed by Zilha Parishad Parbhani in 1978. About 52 hector water spread area. Dam converted by different bushes, trees, cropland like cotton, crop, tur, sobean, wheat, neem trees; caltrops etc. there are 24 species of birds found. The Dhanora dam is oldest dam in Bhoker Taluka District Nanded. Near about 45 km. away from Nanded and 5 km from Bhokar. The dam is constructed for irrigation project governed by Govt. of Maharashtra irrigation Dept. in 1968. Now a days the dam is situated at $77^0.40^0$ E longitude and 19^0 13' at latitude. Now days the tank dam is used for fish culture, drinking, cattle, water, Agriculture. In Dhanora dam there are 63-species of birds observed.

Abstract No. 29

Histochemical reaction in the Epithelial cells in different layers of the Epidermis of *Channa punctatus*

Vijeta Chaturvedi and Dev Brat Mishra

Fish Biology Lab., Department of Zoology
Tilak Dhari College, Jaunpur (U.P.), India

ABSTRACT

Toxicity of chlordecone to the Fish *Channa punctatus* as well as the effect of its fatal and sublethal concentration on the cellular components of the Epidermis, gills, and accessory respiratory organs was investigated. Unraveling the functional relevance of tissues is largely made possible by cellular localization of a wide variety of chemical components, as well as the availability of a wide variety of histochemical methods. A significant amount of sulphate mucopolysaccharides was also found in the sub - epithelial connective tissues of the ABO and the skin of the subject. After that, the skin experienced tremendous wear and tear, which eventually led to slouching; which ultimately resulted in bleeding. The dead skin cells that made up the epidermis outermost layers peeled away. The amount of sacciform-granulated cells (SGSs) that were present increased, and they stained quite brightly using the PAS method (almost negative in controls). The gills, which were exposed to air, also sustained significant damage as a result. During the beginning stages, the BLCs exhibited extreme congestion, which resulted in significant bulging and protrusion on to the surface. After some time had passed, the epithelial linings of the respiratory lamellar (SL) and the gill filaments (PL) were detached and rose up.

Abstract No. 30

Food security in India: issues, challenges and solutions

Neetu Singh

Department of Zoology
K.M.G.G.P.G., College, Badalpur, G.B. Nagar (U.P.), India

ABSTRACT

Food security refers to ensuring adequate food supply to people, especially those who are deprived of basic concerns in India. India ranks 68 out of 113 major countries in ter ms of the food security index 2022. The current population of India is 1.417 billion in 2022 and became 1.515 billion in 2030. According to UN-India; there are nearly 195 million undernourished people in our country, which is a quarter of the world's hunger burden. Also, roughly 43% of children in India are chronically undernourished. India has ranked 101 among the 116 countries on the Global Hunger Index, 2021. According to the Food and Agriculture Organization (FAO), the food price Index increased by 30% in 2021-22. The concept of food security is multifaceted. Food is as essential for life as air is for breathing. But food security means something more than getting two square meals. The definition of food security is given by the Food and Agricultural Organization of the UN (FAO) "Food security is a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe nutritious food that meets their dietary needs and food preferences for an active and healthy life". Although the Govt. of India has been actively addressing food security in households for a long time through the Public Distribution System and the Nutrition Food Security Act (NFSA) 2013, there are still concerns related to food security in India amidst increasing population, climate change and global supply chain disruption (Russia-Ukraine War) that need to be addressed. The present study is an attempt to understand different frames related to the food security concerns of India.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 31

Eco-friendly Management of Diamondback Moth, *Plutella xylostella* Linnaeus: A major insect-pest of Cauliflower in Gurugram district of Haryana, India

Bharat Singh[1], Anamika Sharma[1] Neetu Singh[2], Satyendra Singh[3] and Ram Sewak[1]

[1]ICAR-Krishi Vigyan Kendra, Gurugram (Haryana), India
[1&2]Amity institute of Organic Agriculture, Amity Centre for Bio-control and Plant disease Management, Amity University (AUUP), Noida (U.P), India
[3]ICAR- National Centre for Integrated Pest Management, IARI Campus New Delhi, India

ABSTRACT

The present experiment was conducted on the eco-friendly management of Diamondback Moth, *Plutella xylostella* Linn (Insecta; Lepidoptera: Plutellidae) at Khanpur research farm, Pataudi block of Gurugram district, Haryana during 2017, using egg perasitoid, *Trichogramma chilonis*+trap crop mustard; *T.chilonis*+*Bacillus thuringiensis* (*Bt.*); Spinosad 45% SC+NSKE 5% and untreated (control). The treatments were assessed after first and second application against the reduction of larval population of *Plutella xylostella.* The results showed that the Spinosad 45% SC+NSKE 5% gives maximum efficacy in terms of larval population reduction (92% and 100%); *Trichogramma chilonis*+trap crop mustard (53% and 70%); *T.chilonis*+*Bacillus thuringiensis* (52% and 79%) in first and second application respectively. Among them the spray of Spinosad 45% SC+NSKE 5% showed maximum reduction in larval population of *P. xylostella* under field conditions. Therefore, up to date knowledge about the DBM, *Plutella xylostella* management in cauliflower and other crucifer crops is a prerequisite for implementation of an effective and successful management practices against this pest. The judicious use of chemicals with novel mode of action needs to be implemented to manage the insect pests. There are many insecticides which have different mode of action then the conventional ones. These novel insecticides evolving with integrated pest management approaches may play an important role in effective management strategies against the Diamondback Moth.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

Abstract No. 32

Allelopathic impact of *Amaranthus viridis* L. extracts on weed and crop

Uzma Parveen and M.B. Siddiqui

Department of Botany
Aligarh Muslim University, Aligarh (U.P.), India

ABSTRACT

A laboratory investigation was performed to check the impact of aqueous extracts of different parts of *Amaranthus viridis* L. on a weed and a crop. The effect of leaf aqueous extract (LAE) of *Amaranthus viridis* L. was seen more repressing than the stem aqueous extract (SAE) and root aqueous extract (RAE) and inhibited the development of seedlings of weed (*Phalaris minor*) and crop (*Triticum aestivum*) and exhibited notice able reducing effects on their morphological development by inducing ultrastr uctural modifications in *Phalaris minor* and *Vicia villosa*. Root length (RL), shoot length (SL) and dry biomass (DB) of weed and crop was distinctly brought down at various LAE concentrations (0.5, 1, 2, 4%) as compared to control and the growth was directly inversely proportional to the concentration i.e, growth decreased with an increase in concentration. Also, the ultrastructural modifications revealing different abnormalities were also observed in the seedlings treated for 15 days with the aqueous extract of different parts (root, stem and leaf) of *Amarathus viridis* by means of SEM(scanning electron microscopy). Thus, we can conclude with the results of the present investigation that *A. viridis* might possesses phytochemicals, capable of inhibiting the growth of both weed and crop thus, this capability of suppressing the development and growth of other plants can be utilized in producing an organic herbicide and can be used in farming without affecting the quality of soil and has a sustainable development of natural resources.

Abstract No. 33

Toxic effects of profenofos on histology of gills and kidenys of freshwater fish, *Labeo rohita*

Anshu Chauhan and Smita Jyoti

Department of Zoology, School of Sciences
IFTM University, Moradabad (U.P.), India

ABSTRACT

Toxicity study was conducted on freshwater fish *Labeo rohita* to evaluate the histological effects of profenofos on gills and kidneys up to 96 hrs duration i.e. 24,48,72 and 96 hrs. The gills of fish exposed lethal concentration for different time exposure (24hrs, 48hrs, 72 hrs and 96hrs). Organophosphate pesticide profenofos (PFF) is widely used pesticides in agricultural practices throughout the world. Using of various group of pesticide create toxicological and environmental problems. This study evaluated the sublethal effects of PFF on the histopathological alteration. The lethal concentration (LC50) value of profenofos was 0.1 mg/L for 96 h of exposure. Fingerlings were exposed to two sublethal concentrations 0.02 mg/L (1/5th) and 0.01 mg/L (1/10th) of PFF for a period of 21 days. It is showed lesion, inflammation, pigment and necrosis of primary and secondary gill lamellae during low concentration while, increasing concentration for different time exposure showed necrosis, malignancy and cellular degeneration were seen at later time of exposure. Atropy of glomeruli and hemorrhages suggested that pesticides enter the kidneys and disrupt their normal functioning by histopathological alterations of kidney tissue. The necrosis of renal tubules affects the metabolic activities and promotes metabolic abnormalities in fish. The histopathological changes recorded in the gills and kidneys of *Labeo rohita* very clearly indicated that these profenofos strongly affects the health of food. Our study revealed harmful effect of profenofos exposure on *Labeo rohita*.

Abstract No. 34

Acid and alkaline phosphatase activity in the Indian apple snail *Pila globosa* (Swainson) during aestivation

Roshani Patel[1] and Anil Kurhe[2]

[1]Department of Zoology
M.V.P. Samaj's Arts, Science & Commerce College, Ozar (Mig),
Tal. Niphad, Dist. Nashik (M.S.), India
[2]Department of Zoology, P.V.P. College of Arts, Science & Commerce,
Tal. Rahata, Dist. Ahmednagar (M.S.), India

ABSTRACT

The Indian apple snail *Pila globosa* (Swainson) experiences an annual cycle of aestivation (summer sleep) as a survival strategy during a hot and dry period to avoid damage from high temperatures and the risk of desiccation. Alterations in the external environment reflect in their haemolymph. Changes in enzyme levels because of any type of stress are immediately reflected in the functional responses of animals. These environmental factors can be simulated in the laboratory so as to study enzymatic alterations occurring in the haemolymph of snails to overcome the adverse features during aestivation. Phosphatase enzymes are important for many biological functions. Acid and alkaline phosphatase activities have been studied in the haemolymph of three months aestivated and active snails. The activity level of enzymes ACP decreased and ALP increased significantly in the haemolymph of aestivated *P. globosa* when compared to active snails. The significance of these findings is discussed. This investigation explains the adaptability of *P. globosa* to overcome the adverse features during aestivation. This study also reveals that *Pila globosa* is a suitable model for studies on aestivation and provides an interesting case of aestivation.

Abstract No. 35

Study on reflected erythrocyte haemolysis and irreparable damage of gill morphology and function of fish *Catla*

Yadav Pradeep Kumar and V.K. Tripathi

Department of Zoology
Tilak Dhari College, Jaunpur (U.P.), India

ABSTRACT

In fish that were exposed to cypermethrin, the activities of the enzymes alanine amino transferase and aspartate aminotransferase in the liver significantly increased. On the other hand, the activities of lactate dehydrogenase in the muscles and acetylcholine esterase in the brain significantly decreased. The increased industrialization and household activity has led to an increase in the deposition of these metals in aquatic and terrestrial ecosystems, which has sped up the biogeochemical cycling of several elements, including heavy metals. This has led to an acceleration of the biogeochemical cycling of several elements, including heavy metals. In industrial processes, metals can be discharged into the environment in a wide range of various forms, including species that may be dissolved in water, insoluble precipitates that poison rivers and lakes, and particulate and volatile metal compounds that damage the atmosphere. While some of these types of metal pollution may be dissolved in water, others cannot be dissolved at all.

Abstract No. 36

Glimpses of indigenous life and potential for tribal tourism: Sahariya Tribes of Northern Madhya Pradesh, India

Sanjeev Suman[1], Sajal Dixit[2] and Sahil Dixit[3]

[1]Department of Hotel and Tourism Management, Jiwaji University, Gwalior (M.P.), India
[2]SOSTTM, Jiwaji University, Gwalior (M.P.), India
[3]College of Veterinary Science and Animal Husbandry, Jabalpur (M.P.), India

ABSTRACT

Sahariya tribe is found in abundance in the northern region of Madhya Pradesh state of India. This tribe has been declared the category of primitive tribe by the Government of India. The history of this tribe is still quite unsolved and full of mystery. So far, a lot has been discovered about this tribe through research, but still a lot of information is unresolved and incomplete. The purpose of this research paper is to observe the life of the Sahariya tribe in the Sahariya majority northern districts of Madhya Pradesh and explore the opportunities for tourism in Sahariya settlements. Which include study in depth the tradition, costume and heritage culture of the Sahariyas. Through this search paper, an effort will also be made that how tourists can be provided better information about the life of this tribe, and motivate tourists for tourism in these tribal villages, away from the glare of the city. And observe how despite having very few resources, these tribes are living their happy life away from the hustle and bustle of the city. As a result, with the help of tourism, the tribal's here get a cultural and economic boost and tourists will also get a chance to understand Indian culture closely. Secondary sources have been used to write this research paper, which includes magazines, research papers and articles. Literature review has also been done before writing this research paper. The nature of this research paper is descriptive.

Abstract No. 37

Animal bioacoustics: A critical review

Surya Kant Chaturvedi, Shalini Singh and Rachna Singh

Wildlife Biology Lab, Department of Biological Science
Mahatma Gandhi Chitrakoot Gramodaya Vishwavidyalay, Chitrakoot, Satna (M.P.), India

ABSTRACT

Present paper present a critical review on bioacoustics which is the one of the advance techniques by which not only animal behaviour but also taxonomy, ecology and their life pattern etc., can be studied scientifically. The study related bioacoustics started with "speaking machine" now we are using high tech microphone and sound recorder to record sounds and analyse the recorded sound in some advance sound analysing application on the computer (e.g., Sound ruler, PRAAT, Raven, Metlab etc.). Bioacoustics is useful to investigate about not only terrestrial animals but also aquatic animals. Through the bioacoustics animals can be observed and investigated without visual contact and its also prevents animal human conflict. Now, many animal vocalization reporteirs are available with their behaviour; so, Bioacoustics studies are helpful in conservational biology and ecology. The two approaches of bioacoustics are mostly used, first is active bioacoustics and second is passive bioacoustics. In active bioacoustics, observer record animal sound with the aid of recorder directly while in passive bioacoustics animal sounds are recorded passively with the aid of recorder, stabilized and remained passively in the field (the presence of observer s not needed for whole day). In passive bioacoustics observer can observe animal sound without being presenting whole time by leaving recorder in the field for recording sound. Many of devices are available in the market to investigate animal sounds passively by using passive bioacoustics approach. It is helpful in collecting data and doing research without disturbing animals and nature, thus bioacoustics is not only important in ethology but also important for sustainable development of our natural environment.

Abstract No. 38

Salicylic acid mediated modulation in photosynthesis, Redox status and Carbohydrate Metabolism that Boosts Overall growth and yield in okra Plant

Yamshi Arif, Anayat Rasool Mir and Shamsul Hayat

Department of Botany, Faculty of Life Sciences
Aligarh Muslim University, Aligarh (U.P.), India

ABSTRACT

SA acts as the potent phenolic signaling molecule in plants. It plays an important role in growth and development of plants. Therefore, in present experiment potentiality of foliar exogenous SA application was evaluated on the morpho-physiological, biochemical and yield traits in two different varieties of okra plants i.e., Sakata 713 (hybrid) and Neelam (desi). Four different doses (10^{-4} M ,10^{-5} M, 10^{-6} M, 10^{-7} M) of SA were applied as foliar spray at 25 days after sowing (DAS). The plants were sampled at 30 and 45DAS toassess various parameters, whereas yield traits were evaluated at 60 DAS. The results indicate that foliar application of SA improved growth, chlorophyll content, photosynthetic traits along with gaseous exchange parameters which further increased activities of nitrate reductase and carbonic anhydrase. Additionally, SA application modulates carbohydrate metabolism by increasing total carbohydrate, total reducing sugar, glucose, fructose, sucrose and starch content in both varieties of okra compared to control. The activity of several enzymes associated with several cellular metabolic pathways (rubisco, hexokinase, fumarase and succinate dehydrogenase) were also increased after SA application. SA application promoted activity of antioxidant enzymes such as catalase, peroxidase and superoxide dismutase which further reduced reactive oxygen species (O_2^-, H_2O_2) and lipid peroxidation. Thus, out of the various concentrations tested, 10^{-5} M of SA proved best and Sakata 713 gave more efficient results than Neelam.

Abstract No. 39

Analysis of honey sample from Gadchiroli District Maharashtra

A.M. Katgaye

Department of Botany
Shri Pundlik Maharaj Mahavidyalaya Nandura (Rly) Dist. Buldana (M.S.), India

ABSTRACT

Pollen in honey helps in identification of honey sources and analysis of the bee pollen loads. The information may be used to develop analytical standards for pollen, contributing to quality control of a product offered for export or for the home market. A pollen analysis of some honey samples was carried out in which pollen grains of *Bombax ceiba, Alternanthera sessilis, Coriandrum sativum*, *Ageratum conizoides, Brassica* spp., *Woodfordia fruticosa, Cajanus cajan* , *Syzygium cumini,* Chenopodiaceae*, Ocimum* spp and Poaceae, were recorded during January-May 2017 from bee hives. The data reflects the floral situation of the place where particular honey was produced. At the same time identification of geographical origin based on the presence of pollen types of that particular area and also importance of honey bees in the forest and agriculture ecosystem can also be traced.

Abstract No. 40

The Documentation and Validation of Indigenous Traditional Knowledge and their Implication in Modern Agriculture: A Review

Vandana Yadav and Sunita Arya

Department of Zoology
Dayanand Girls Post Graduate College, Kanpur (U.P.), India

ABSTRACT

Alike to the management of insect pests by chemical insecticides method applied in the modern agricultural farming, indigenous traditional knowledge (ITK) is a local farmer's and tribal system for managing pests in agricultural production that employs multiple tactics in consideration of economic, environmental, ecological and human health impacts. This paper presents an overview of the important steps in the validation and documentation of the indigenous traditional knowledge and their philosophy, evolving from a specific level of pest control that focuses on suppression of target pests to a more eco-friendly and/or systems approach of pest management. The main reason that led to need of validation of ITKs are immense use of chemical pesticides and their negative impacts on environment, biodiversity, different ecosystems and health of humans and animals and public awareness towards ecofriendly and pocket friendly approach of pest management that does not affect their health negatively. Finally this paper describes how ITKs have been embraced in modern agriculture.*

Abstract No. 41

Effect of foliar application of Silicon dioxide and Titanium dioxide nanoparticles on growth, photosynthesis and essential oil content in *Ocimum tenuiflorum*.

Urooj Hassan Bhat and Moinuddin

Plant physiology section, Department of Botany,
Aligarh Muslim University, Aligarh (M.P.), India

ABSTRACT

Globally, nanotechnology has generated attention due to its revolutionary impact on food security and agricultural sustainability. The effects of nanoparticles (NPs) on the growth and development of food crops has been the subject of numerous studies. Therefore, the current research was aimed to explore and investigate the foliar application of silicon dioxide nanoparticles (SiO2 NPs) and titanium dioxide nanoparticles (TiO2 NPs) on growth, physiology and essential oil production of Ocimum tenuiflorum. The plants were treated with different combinational treatments of 50, 100, 200 and 400 ppm, with double distilled water (DDW) used as a control. The findings imply that the aforementioned nanoparticle treatment modulated the Total chlorophyll content, Chlorophyll fluorescence, Carotenoid content, carbonic anhydrase activity, nitrate reductase activity and essential oil biosynthesis as compared to control at 120 days after planting (DAP). Among all the treatments the plants treated with 100 ppm concentration was found to observe the best performance for all the parameters including the fresh and dry weight of the plants. Furthermore, GCMS analysis of Ociumum tenuiflorum showed significant improvement of 423% and 11.7% in content and yield of Eugenol and cis- -Elemene essential oil (EO) respectively, as compared to control at 120 DAP.

Abstract No. 42

Organic contaminants and its correlation with Cancer

Roopali Bhati, Manisha, Ayesha Parvez, Sakshi Chauhan, Saurabh Kumar Jha, Niraj Kumar Jha and Abhimanyu Kumar Jha

Department of Biotechnology,
Sharda University, Greater Noida (U.P.), India.

ABSTRACT

One of the major cities in Uttar Pradesh's Gautam Buddha Nagar district is Greater Noida (India). DDT was the country's first synthetic insecticide, or dichlorodiphenyltrichloroethane. There are now 234 insecticides registered for usage in India (Centre for Science and Environment study, 2013). Through the contamination of food and water, the prolonged persistence of particular agrochemicals in the environment causes a number of unfavourable impacts. DDT and BHC (Benzene Hexa Chloride) were the two main chemicals utilised in public health and agricultural initiatives in India. The fact that these compounds are stable in the environment is our biggest concern. Chloroform, poly aromatic hydrocarbons, trihalomethanes, and other organic carcinogens in industrial wastes may be causing a variety of cancers in this region, including those of the stomach, liver, skin, blood, and gut. One of the main causes of death, according to statistics, is cancer. The primary goal of the proposed study is to evaluate the quality of ground water by using various techniques to screen out any impurities. Additionally, a large-scale population-based survey of cancer patients in the area is included in order to draw correlations between them. The promoter hyper methylation of the tumour suppressor genes will also be examined in patient blood/ser um samples to determine a potential mechanism by which these pollutants contribute to the development and progression of cancer.Thirdly, this study focuses on analysing their effects on cell lines for promoter hypermethylation of particular tumour suppressor genes in order to determine the direct influence of contaminants. Since promoter hypermethylation can be reversed, this work will also offer a crucial therapeutic target in the event that a link between pollutants, promoter hypermethylation, and cancer development.

Abstract No. 43

Study of the Contamination of Heavy Metals and its Chemical Speciation in Sediment from selected Locations of Pune District

Parveen H. Fard[1], Ashish V. Mane[1] and Kaushik Banerjee[2]

[1]Fergusson College (Autonomous), Pune (Maharashtra), India
[2]ICAR-Grape Research Institute, Manjri, Pune (Maharashtra), India

ABSTRACT

The Heavy Metal Speciation analysis in sediments helps us understand and evaluate very essential and unavoidable issues in terms of both health and environmental hazards that are impose by these metals in our lives. The total heavy metals concentration analysis enables only the assessment of its contamination in quantity. Hence to study its chemical forms becomes important so to determine their source, fate and impact on the environmental stability. Heavy metals speciation was studied by using four-stage sequential extraction BCR (Community Bureau of Reference). This study was aimed at determining the total concentration of selected heavy metals (Zn, Cu, Ni, Pb, Cd and Cr) and their chemical forms in sediments collected from different sites of Pune District, Maharashtra. Heavy Metals contents in the sediment samples were determined by using flame atomic absorption spectrometry (FAAS) and electrothermal atomic absorption spectrometry (ETAAS). This study shows that Ni and Zn appeared to be the most abundant in the sediment samples, while Cd and Cu were in the lowest concentrations. The oxidizable and residual forms were dominant for all the heavy metals. There was also a significant difference in metals speciation between sediment samples of different origin which was probably due to differences in water/soil composition and the agrochemicals like pesticides, weedicides and fertilizers used in agricultural practices; the wastewater generated from different pharmaceutical, chemical processing and manufacturing industries as well as the improper wastewater treatment methods.

Abstract No. 44

Isolation of Chitosan from Fish and its Application for Human Welfare

Kavita Verma and Neelam Yadav

Department of Biochemistry,
Dr. Rammanohar Lohia Avadh University, Ayodhya (U.P.), India

ABSTRACT

Chitosan is a cationic polymer made from deacetylated chitin that is prevalent in crustaceans, insects, fish, and arthropod exoskeletons, as well as mollusk exoskeletons. Deproteinization, demineralization, and discolorations are all processes in the chemical extraction procedure for getting chitin. Chitin must be deacetylated in order to produce chitosan. In our study extracted chitosan was characterized by different types of physicochemical properties and In vitro studies of chitosan will be performed for the analysis of its anti-inflammatory properties. These polymers can also be extracted using a biological extraction process that employs microorganisms. Large amounts of waste are generated by the fish and seafood processing sectors, which are at the root of a number of environmental, economic, and social issues. Fish waste, on the other hand, might include high-value-added compounds like biopolymers. The fish and seafood processing industries are extremely important all over the world. They produce a large amount of garbage, which is put directly into landfills, producing major environmental issues. These wastes, on the other hand, are made up of skins and shells, which may include high-value-added chemicals. One of the most significant methods for waste valorization is the extraction of biopolymers such as chitosan. Chitosan has been extensively studied for its excellent functional and biological properties and has a wide range of applications in the wastewater treatment, food, pharmaceutical, textile, and cosmetic industries. As a result, valorizing these by-products may be a significant eco-friendly option that allows organizations to improve their inventiveness, competitiveness, and productivity while decreasing their environmental effect. Because of its biological features of biocompatibility, biodegradability, and toxicity, chitosan is frequently employed as a biomaterial. It possesses antibacterial and antifungal properties, making it suitable for use in agriculture, medicine, the environment, and the food, cosmetics, and textile sectors.

Abstract No. 45

Impact of Strigolactones on ROS homeostasis,physio-biochemistry, histochemical responses, chloroplast ultrastructure, and Artemisin in production in Artemisia annua under cadmium stress

Kaiser Iqbal Wani and Tariq Aftab

Department of Botany, Plant Physiology Section,
Aligarh Muslim University, Aligarh (U.P.), India

ABSTRACT

Plant growth is regulated by the complex interaction of a plethora of biochemical processes in which phytohormones play a vital role. Strigolactones (SLs) play an important role in different growth and developmental processes of plants, however, information on the potential of SLs to elicit abiotic stress signaling is limited. In order to elucidate the same, *Artemisia annua* plants were exposed to different concentrations of Cd (20 and 40 mg kg^{-1}), with or without the supplementation of exogenous SLs (GR24) at 4 μM concentration. Under Cd stress, excess Cd accumulation resulted in reduced growth, physio-biochemical traits, and artemisinin content. However, the supplementation of GR24 maintained a steady state equilibrium between reactive oxygen species and antioxidant enzymes, improved chlorophyll fluorescence parameters such as Fv/Fm, $_{PSII,}$ and ETR for improved photosynthesis, enhanced chlorophyll content, maintained chloroplast ultrastructure, improved the glandular trichome (GT) attributes and artemisinin accumulation in *A. annua*. Furthermore, it also resulted in improved membrane stability, reduced Cd accumulation, and regulated the behavior of stomatal apertures for better stomatal conductance. The results of our study suggest that GR24 could be highly effective in alleviating Cd-induced damages in *A. annua* via the modulation of the antioxidant enzyme system for redox homeostasis, protection of the chloroplasts and pigments for improved photosynthetic performance, and improved GT attributes for enhanced artemisinin production.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 46

Density dependent biocontrol efficiency of the tortoise beetle, *Aspidomorpha miliaris* Fabricius (Coleoptera: Chrysomelidae)

Ruchita S. Tiwari and Desh Deepak Chaudhary

Department of Zoology
Indira Gandhi National Tribal University, Amarkantak (M.P.), India

ABSTRACT

Majority of the weeds are the invasive species that pose major threat to the biodiversity and also cause maximum loss to the world economy. In which *Ipomoea carnea* L. is one of the most important invasive weeds which is spreading rapidly on land as well as water due to their amphibious nature. It was introduced as an ornamental plant and eventually became a hazard towards agriculture as well as aquatic biodiversity. Henceforth it is mandatory to control such noxious weed. The *Aspidomorpha miliaris* F. is a tortoise beetle which is well known as the potential biocontrol agent of *I. carnea*. Several studies have been reported the potency of this bioagent in several ways but there is a lack of knowledge regarding its biocontrol efficiency in respect to different population density. Therefore, the present study was conducted to assess the biocontrol efficiency on different density of this beetle. Hence, it was hypothesized that different biocontrol parameters, body weight and growth of these beetles would be directly proportional to the density. To test the hypothesis, the beetles were grouped as 5, 10, 15 and 20 on the basis of number and released on pre- weighed weed plants which were further covered with the help of green sieved cylinders, topped with muslin cloths to prevent their movement from the experimental arena for 24 hours. On next day, weight of weed plants and individual beetles were recorded and also calculated the different biocontrol parameters. Results of the present study revealed that mean weight gain of beetles and efficiency of conversion of ingested food (E.C.I.) were significantly influenced by the density. In which maximum mean weight gain and E.C.I. were observed at five and minimum at twenty. On the other hand, growth rate was maximum at five and minimum at twenty whereas consumption index and difference in plant biomass were found maximum at ten and minimum at five. Further experimentation is needed to check the stress of the weed, caused by different density of the beetles.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

Abstract No. 47

HBV transmission in HBs Ag positive patients in North Indian Population

Tanu Yadav and Suchit Swaroop

Experimental and Public Health Lab, Department of Zoology,
University of Lucknow, Lucknow (U.P.), India

ABSTRACT

Hepatitis-B Virus (HBV), causes Hepatitis-B (HB)infection, is a member of family Hepadnaviridae.HBV is icosahedral in shape and its DNA remain encapsulated in a nucleocapsid in the core region with virally encoded polymerase. In the core region of HBV HBeAg antigen is found while on the surfaceHBsAg antigen present with lipids, which can be studied serologically and its presence in human body serum confirms the subject either as previously affected or active HB patient. HBV is present in body fluidsand can be transmitted through body fluids such as semen, vaginal fluid, blood etc. Transmission occurs via various ways such as during sexual intercourse, delivery of infant, blood transfusion, contact with unsterilized instruments. HBV transmission can take place horizontally as well as vertically; it transmits from one spouse to another and among children from either of the infected parent and from infected sibling to another one or to any other family member. Therefore, we studied the samples of active Hepatitis-B infected patients' and recorded their data along with their family members, to measure HB infection status and its transmission within the family. In our study it has been reported that horizontal transmission of Hepatitis-B patients is less in North Indian Population than Vertical transmission. This study would help, in developing new therapeutic policies to thepublic health authorities and also create awareness among infected patients so as in society and also provide help in the development of preventive measures for HB infection.

Abstract No. 48

Electrical Conductivity and Thermal Stability Studies on Parchment Impregnated Fe (II) Tungstate Synthetic Membrane

K.S. Dadoriya[1], Mohd. Ayub Ansari[2] and Anuradha Singh[3]

[1]Department of Chemistry, Govt. P.G. College, Datia (M.P.), India
[2]Department of Chemistry, Bipin Bihari College, Jhansi (U.P.), India
[3]Department of Chemistry, M.M.H. College Ghaziabad (U.P.), India

ABSTRACT

The study of electrical conductance across parchment supported Fe(II) tungstate synthetic membrane in various uni-univalent salt has been experimentally deter mined in order to evaluate selectivity of membrane using the values of the intramembrane permeability ratio. The synthetic membrane was tested for its antibacterial activity against Gram-negative and Gram-positive bacteria. The prepared membrane was characterized by Scanning electron microscopy (SEM), Transmission electron microscopy (TEM), Fourier transform infrared (FT-IR) spectroscopy, Thermo gravimetric analysis (TGA)/ Differential thermal analysis (DTA), and X-ray diffraction (XRD) analysis.

Abstract No. 49

Annual variations in PM10 level over NCT of Delhi for the period of 2015 to 2020

Bhupender Singh and Vishant Gahlot

Banasthali Vidyapith, Banasthali (Rajasthan), India

ABSTRACT

Air quality in National Capital Territory of Delhi has undergone severe changes which have led to increased level of air pollutants. Industrial activities, vehicles, and constructional activities are majorly responsible for degradation of air quality. A study on the annual variations in PM10level over National Capital Delhi was conducted for a period of 2015 to 2020. PM10 measurements were done over five selected sites of Delhi including ITO, Mandir Marg, Punjabi Bagh, Anand Vihar and R K Puram. Both seasonal as well as annual data was collected and interpreted to analyze of the trend of air pollution in Delhi. A significant increase in PM10at ITO, Mandir Marg and R K Puram was observed in the year 2016 while in case of Anand Viharand Punjabi Bagh the highest level of PM10were measured during the year 2017. The annual average data of all five sites indicates that PM10levels were above the air quality standard throughout the study period. Anand Vihar showed the highest level of PM10among all five locations during the study period of 2015 to 2020. The trend shows that air quality deteriorates more during winters>autumn>summers>monsoon.

Abstract No. 50

Socio-Economic impacts of Eucalyptus in Marginal Lands of Pudukkottai District of Tamilnadu

S. Gurunathan

ICAR- Krishi Vigyan Kendra, Tindivanam, Dist. Villupuram (T.N.), India

ABSTRACT

A study was conducted to analyze the Socio economic impact of eucalyptus cultivation in Pudukkottai district of Tamil Nadu. *Eucalyptus globus* and *Eucalyptus hybrid* were the most commonly cultivated species in the district. Survey was conducted among 120 farmers cultivating eucalyptus in their land. The study was conducted in Nilayapatti, Pulvayal and Nachandhupatti villages of Pudukkottai district. The sample size includes 20 commercial cultivators and 100 conventional cultivators. Structured questionnaire was administered collect information to analyze the cost of cultivation and economic analysis of eucalyptus cultivation, people's knowledge about environmental impacts of eucalyptus etc. Analytical tools like Cost of Cultivation, Net present worth (NPW) and Benefit Cost Ratio (BCR), Ordinary Least Square (OLS) and Logit Regression analysis were employed. The study concluded that eucalyptus cultivation was much suitable for marginal and barren lands. Most of the people were aware that eucalyptus cause environmental impact as it was a natural bio drainage crop and cause allelopathy effect on neighboring field plants with the release of secondary compounds but, it does not affect the mindset of the farmers to adopt eucalyptus cultivation in larger extent. Around 70 per cent of the respondents were into eucalyptus cultivation despite knowing the impacts only because of higher income, less maintenance and fast growth of the plant. From the study, we obtained profitable cultivation with BCR ranging 4 to 6.

Abstract No. 51

Exogenous application of silicon nanoparticles encouragesthe growth and physiological activities of menthol mint (*Mentha arvensis* L.) under chromium toxicity

Umra Aqeel and M. Naeem

Department of Botany
Aligarh Muslim University, Aligarh (U.P.), India

ABSTRACT

To attain food security, growing countries strive to promote nanotechnology for boosting crop production and ensuring agricultural sustainability. Additionally, the application of nanotechnology in terms of agrochemical formulations and specific target delivery of biomolecules proved helpful in uplifting agricultural productivity without doing any harm to the environment."The purpose of my research is to provide information that how growth and physiological parameters of *Mentha arvensis* L. (Lamiaceae) changed when supplemented with Silicon nanoparticles (SiNPs) which were already under chromium stress". Consequently, exogenous application of SiNPs, at the applied concentration (120 mg L-1) exhibited a beneficial effect and was found to be the most effective in improving Cr tolerance by strengthening chlorophyll content and improving photosynthetic rate due to enhancement in the activity of certain photosynthesis-related enzymes and enhance antioxidant related parameters.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 52

Work zone Monitoring in Foundry Industries with Special Reference to Free Silica

Abhijit M. Avasare[1], Ashish V. Mane[1], Mahesh Shindikar[2] and Satish Kulkarni[3]

[1]Department of Environmental Science,
Fergusson College (Autonomous), Pune (Maharashtra), India
[2]Applied Science Department, COEP Technological University, Pune (Maharashtra), India
[3]Department of Environmental Science,
New ACS College (Autonomous) Ahmednagar (M.S.), India

ABSTRACT

Silicosis has been recognized as notifiable disease as per Third Schedule (section 89and 90) of The Factories Act, 1948. Responsible factor for Silicosis is free silica at workplace which is inhaled by workers. The agenda of the present study was to understand what the status of free silica at work zone in the foundry industry is. Kolhapur district is recognised as foundry hub. In a foundry industry, major indoor pollutant is free silica which is generated in a different metal processing activity. Focus of the study was to monitor the actual quantity of free silica along with PM2.5 and PM10 at workplace environment ie particularly peoples exposing to free silica in foundry industries.Work zone area sampling of was done with the help of minipartisol sampler for free silica along with PM2.5 and PM10 with gravimetric method. Free silica was measured gravimetrically and analysed using colorimetric method. Workplace concentration of free silica (geometric means and geometric standard deviations) in foundries is as for small scale foundry (capacity <500 tonnes) is 27 mg/m3 to 32 mg/m3.For middle scale foundry (capacity in between 500 tones to 2000 tonnes) is 21 mg/m3 to 24 mg/m3 and for heavy foundry (capacity >2000 tonnes) is 15 mg/m3 to 19 mg/m3. The highest concentration of free silica is observed at sand plant process. As per OSHA standard i.e. 10mg/m3 free silica concentration is at higher side in all type of foundries.

Abstract No. 53

Microplastics Exposure: Potential Intergenerational and Transgenerational Threat on Human Health

Neha Bunkar

Department of Zoology
Govt. Ganesh Shankar Vidyarthi College, Mungaoli, Ashoknagar (M.P.), India

ABSTRACT

We are so accustomed to plastic that it is nearly impossible to imagine a world without it. How many microplastics are injected as a result of drinking a hot cup of tea in a disposable plastic coated cup or dipping a tea bag in hot water goes largely unnoticed. Microplastics are degraded particles less than 5 mm in diameter. During the use of plastic materials in any form, such as water bottles, disposable utilities, packaged food materials, cosmatics, and so on, where they are exposed to primary or secondary microplastics. The global production of plastic waste is estimated to be around 40 million tonnes per year, and it is growing by the day. Plastics, in particular, are highly resistant to degradation and can persist in the environment for an extended period of time, taking anywhere from 20 to 500 years to decompose, making microplastics readily available (after leaching in water marine and fresh, lands, even in the air). Microplastics enter the body through ingestion, inhalation, and dermal contact. Microplastics can accumulate in living organisms' cells and tissues, posing risks of chronic biological impacts injuries for humans such as gastrointestinal disorders, impaired immune function, respirator y issues, cancer, reproductive problems, and chromosome changes. Recent evidence examined the toxicological impact of particle engulfment and accumulation in the cells. This can lead to oxidative stress and inflammation, both of which can have an impact on cell function via a variety of direct and indirect pathways. That is how cellular mechanisms may influence that person's cellular response, tissue, organ, and/or organ function. However, exposure to microplastics during pregnancy, when susceptibility to environmental insults increases, has the potential to affect the development of the growing foetus and impact future generations. These changes may be mediated by metabolic, genetic (imprinting), or epigenetically (chromosomal remodelling, nucleosome positioning, histone code alterations, DNA methylation, etc.) driven actions. Plastic residues have already been discovered in the placenta, which serves as an important interface between maternal and foetal circulation, raising concerns about microplastics exposure. In this study, the researcher is attempting to address the largely unknown effects of microplastics on individuals as well as intergenerations and transgenerations using a suitable model organism.

Abstract No. 54

Bicentenary vision for the control of Human over-population

M.K. Khan

Department of Hindi
Vijayaraje Govt. Girl's P.G. College, Morar, Gwalior (M.P.), India

ABSTRACT

All the scholars and scientists who are concerned about the present and future of human society, animal society and environment are almost unanimous on the fact that the ultimate number and the consumerist lifestyle of human beings is a real threat to the existence of our this only Living Planet. To this crisis, political people; especially politicians of wealthy and powerful countries are well aware but they are doing nothing but only trying hard to save their power and top position in politics. They are not willing to create awareness and provide any leadership for a healthy, balanced and sustainable development of the society for the near and far future. Human beings will no longer be able to completely escape consumerism and will consume and destroy natural resources many times more than all other creatures. Reducing their numbers is the only way to save the Earth and the Environment from the biggest natural disaster (that is huge Human Population) in the last two centuries.I want that global to local organizations and authorities should adopt a universal policy which should make an action plan for the next 10, 25, 50, 100 and 200 years and make every effort to implement it, in which everyone's participation in controlling and reducing the human population can get success from.

Abstract No. 55

Chlorophyll fluorescence as a reliable tool to measure heavy metal stress in *Plagiomnium undulatum*

Priyank Chaturvedi[1], Shivom Singh[1]and Kajal S. Rathore[2]

[1]Department of Environmental Science, ITM University, Gwalior (M.P.), India
[2]SMS Govt. Model Science College, Gwalior (M.P.), India

ABSTRACT

Rapid urbanization and industrialization pose to a serious issue of heavy metals in Environment. The continuous influx of these metals in the atmosphere increases their concentration with time as they are nonbiodegradable in nature. Hence, heavy metal leaching and mobilization directly contaminate the air, water and soil. These are directly related to the living organism and heavy metals causes' serious health issues.There is none evidence about the direct method to measure the concentration of heavy metals in atmosphere. During The monitoring process bryophytes absorb metal precipitation directly from atmosphere to their green leafy surface and enter the plant cell through stomata. Bryophytes have maximum accumulation tendency for heavy metals but every organism has limit form the element or metal so, for the stress level tolerance chlorophyll fluorescence (Fv/Fm) act as reliable tool. Chlorophyll fluorescence is actually a non-destructive diagnostic technique that provides the detailed information by investigating the function of photosynthetic apparatus under environmental stress. For the validation of tolerance potential, different metal treatment will be given to selected moss and providing them suitable condition measure the chlorophyll fluorescence. Apart of (Fv/Fm), non-photochemical quenching (NPQ) and photochemical quenching (qP) were also calculated. Use of chlorophyll fluorescence technique is to identif y the tolerance potential species and further use them for biomonitoring purpose for future prospects.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 56

Estimation of variability in *Quercus griffithii* Hook. f. & Thomson ex Miq. using Simple Sequence Repeat (SSR) Markers

Ram Mohan[1], K.N. Nair[1], Nalini Pandey[2] and T.S. Rana[1]

[1]Molecular Systematics Laboratory, PDSH Division
CSIR-National Botanical Research Institute, Lucknow (U.P.), India
[2]Department of Botany, University of Lucknow, Lucknow (U.P.), India

ABSTRACT

Quercus griffithii Hook. f. & Thomson ex Miq.(Fagaceae) is a deciduous tree species found in the Indian subcontinent and China. In India, it is distributed in temperate broadleaved, tropical semi–evergreen forest in the Western Himalayan and northeastern regions, at900 – 3000 m elevation. It is used as firewood, fodder, compost, making building, and fruits eaten by wildlife. The genetic diversity of *Q. griffithii* is poorly understood; therefore, in the present study, ten polymorphic SSR markers were used to assess the extent and pattern of genetic diversity in *Q. griffithii* samples collected in northeast India.SSR primers used for the analysis showed good discriminating power, whose PIC value ranged from0.27 to 0.81 with a mean value of 0.61.A moderate level of genetic diversity (Ho=0.53; He=0.57) was observed with low genetic differentiation (Fst=0.05) and high gene flow (Nm=4.12) across all the populations. Bayesian analysis of STRUCTURE identified two genetic clusters, which were also in congruence by PCoAanalysis.Genetic diversity data generated in this study will be helpful for the future conservation and restoration of *Q. griffithii* in the northeastern region of India.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

Abstract No. 57

Impact of Climate Change in Indo-Gangetic Plain on Food Security of Indian Society

Upendra Goyal[1] and Dinesh Singh Kushwah[2]

[1]Jiwaji University, Gwalior (M.P.), India
[2]Madhav College, Jiwaji University, Gwalior (M.P.), India

ABSTRACT

The Indo-Gangetic Plains (IGP) are characterized by main cereal-based food-producing regions of India spread across the states of Punjab, Haryana, Uttar Pradesh, Bihar and West Bengal. Cereal crops (mainly rice and wheat) are crucial to ensuring the food security in the India, but sustaining their productivity has become a major challenge due to climate variability and uncertainty. This paper uses an integrated analysis to make an integrated assessment of climate change in this region and *provides an overview of the impact of climate change in this region on food security of Indian society*. The land surface air temperature has risen sharply as compare to the global average temperature in this region. Agriculture production of IGPR is highly vulnerable to climate change largely because agriculture production of this area largely depend on irrigation by rainfall and on the waters from major river systems. At the heart of the Sustainable Development Goals (SDGs) are targets to end hunger, achieve food security, and improve nutrition. For India, food security continues to be high on its list of development priorities because the country's relatively high rates of economic growth have not led to a reduction in hunger and undernutrition. As this assessment shows IGP is one of the main cereal crops - production regions in India. With climate change, crop yields in this region will be affected through changes in temperature and precipitation and decreased water availability for irrigation, raising major concerns for food security of Indian society.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 58

Human-snake conflict in Morar Area Gwalior Madhya Pradesh

Simran Parmar, R.K. Gurjwar and R.J. Rao

Conservation Biology Lab, School of Studies in Zoology
Jiwaji University, Gwalior (M.P.), India

ABSTRACT

Conflicts between humans and animals are a serious problem in many parts of the world. The damage and destruction caused by a variety of animals to human property-and sometimes to human life-is a real and significant danger to many human communities and with the animals often killed, captured, or otherwise harmed in retaliation, these conflicts areone of the main threats to the continued survival of many species. In Madhya Pradesh human snake conflict were a major problem with snakebite is considered a threat to man and there are cases of snakebiting human and theirlivestock.The purpose of this study is to explore the factors related to human-snake conflicts in MorarArea Gwalior Madhya Pradesh. Using these findings, various strategies were proposed to reduce the incidence of snakebites. Data were collected from 50 patients between July 2022 and December 2022. Patients were included if they had a history of snakebite or unknown bites. Patients with symptoms of envenomation but no known bites were also included, as were patients who were dead on arrival due to a snakebite.Methods have been suggested to promotepublic awareness and education for the conservation and management of Snake bitingmechanism.

Abstract No. 59

Phytochemical Investigation of Crude Methanol Extracts of different wild Vegetables from Bhandara District of Maharashtra, India

Suprabha Chute and Vimal Dakhane

Department of Botany, Dr. Ambedkar College, Chandrapur (M.S.), India

ABSTRACT

Wild vegetables are available in different seasons throughout the year in Bhandara district. It has been used in traditional medicine to treat various diseases including diabetes, immunity booster, cancer, infertility, anemia, jaundice etc. also use as food. It's good for human health, because absence of synthetic chemical like pesticide and fertilizer that are cause toEndo-destructive.Only a few people know about it especially those living in near forest area. Some are use wild vegetables for animal fodder, some are throw away or burn wild vegetables as useless because unknown about value of wild vegetables. However, comprehensive information on these wild vegetable is important. Therefore we aimed to provide comprehensive information of wild vegetables ethanobotanical use, pharmacological activities and phytochemistry. The study includes phyto-chemical screening of forty wild vegetables in methanolic extracts. Veryimportant phytochemicals i.e. bioactive compoundare present in the wild vegetables which are used to treat various diseasesthe present in the phytochemical wild vegetables make them more important. Wild vegetables are used as medicines as well as food by local people in daily life. Wild vegetables are more nutritious for human health than cultivating vegetables containing chemicals.

Abstract No. 60

Livestock Care by Ethnomedicines

Sushmita Shrivastava

Department of Zoology
Govt. K. R.G. Post Graduate (Auto.) College, Gwalior (M.P.), India

ABSTRACT

India is primarily an agricultural country in which villagers or rural populationkeep a dominant place. Villagers generally used to domesticate cattle for their livelihood. Livestock is the word used for cattle which play a significant role in economy and social welfare of our country. People use cattle's milk, meat, dairy products, and skin for their living and use the manure to enrich the soil. They are also the source of cash income as cropping is seasonal while livestock can provide a regular source of income. Thus, proper care of cattle is very necessary. Attention must be paid for the maintenance of health and working conditions of the cattle. For maintaining health and fighting against diseases, villagers and dairy person generally rely on traditional medicines available in their surroundings. The common farmers cannot afford costly modern medicines and new methods of disease management. Hence, majority of villagers use herbal formulations for the treatment of various diseases of their cattle. Ethnomedicines may be defined simply as the traditional medicines used through generations by livestock keepers for the treatment of their animals. These are highly effective, having no side effects, easily available in surroundings and people have full faith on them. The related work had been done in Gwalior region of Madhya Pradesh in which several herbal recipes had been documented which were used by villagers of the region against digestive, respiratory, parasitic, genital and dermal disorders of livestock. There ethnomedicines were found to be very beneficial, harmless andbetter means of care for the cattle.

Abstract No. 61

Detection of DNA damage in *Labeo rohita* exposed to copper oxide nanomaterials using the Single cell gel Electrophoresis (Comet assay)

Anand Kumar Vishwakarma and Vijay Kumar Singh

Department of Zoology, Agra College, Agra (U.P.), India
Toxicology Lab. Department of Zoology, Agra College, Agra (U.P), India

ABSTRACT

The increasing use of copper-based nanomaterials, particularly in applications with direct release, it is imperative to understand their human and ecological risks. To evaluate the genotoxic potential of copper oxide nanoparticle on an aquatic bio-system, freshwater fish (*Labeo rohita)* were exposed to copper oxide nanoparticle. The 96-h LC50 for Copper oxide nanoparticle was 118μg/L for the test fish in a static system. On the basis of the 96-h LC50, the fish were exposed to sublethal concentrations of the test chemical. Fish were exposed to Copper oxide nanomaterial'son days 24, 48, 72, 96 h post exposure and blood and gill cells were collected. Significantly ($p < 0.05$) higher DNA damage in both blood cells and gill cells was observed at different test concentrations and sampling times of the test chemical as compared to control fish. The mean% tail DNA in the comet tails assay showed a concentration-dependent increase and the maximum% tail DNA were observedat96 h of exposure in both cells. Copper oxide nanoparticle showed genotoxic potential in acute exposure of *Labeo rohita*, and the comet assay is the methods for sensitive and rapid detection of the genetic effects.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 62

Microsatellite markers revealed significantly high genetic diversity in *Gymnema sylvestre* (Retz.) R. Br. ex Schult

Kanchana Vaishnav[1], Anjala Durgapal[2] and T.S. Rana[1]

[1]CSIR-National Botanical Research Institute, Lucknow (U.P), India
[2]Maharana Pratap Government Degree College, Nanakmatta, Udham Singh Nagar (U.K.), India

ABSTRACT

The present study is an outcome of comprehensive analyses of the genetic diversity and population genetic structure in a medicinally impor tant plant species *Gymnema sylvestre* (Retz.) R. Br. ex Schult. The genetic diversity analyses were carried out with 14 pairs of fluorescence-labeled highly polymorphic microsatellite markers (SSR) using capillary electrophoresis system. The observed (HO) and expected heterozygosity (H_E), and Shannon's information index (I) were 0.39, 0.38, and 0.66 respectively, which revealed significantly high levels of genetic diversity. Moderate gene flow (N_m= 1.31) and low genetic differentiation (Fst= 0.26) were detected in the populations. Analysis of molecular variance (AMOVA) revealed that most of the variation (74%) was within the populations and very less (26%) among the populations. Clustering patterns based on STRUCTURE and PCoA analyses of the 118 samples resulted into three genetic clusters. The genetically diverse populations identified in the present study provided significant insights for conservation, sustainable use, and genetic improvement of this impor tant plant genetic resource.

Abstract No. 63

Dengue Cases in India October 2022

Nisha Siwal

Department of Zoology
A.N.D.N.N.M.M. College, Harsh Nagar, Kanpur (U.P), India

ABSTRACT

Dengue is the vector bone disease transmitted by the biting of female Aedes aegypti mosquitoes. According to NCVBDC (National Center of Vector Borne Disease Control) report September 2022 approximately 63280 cases of dengue has been reported from various parts of India and later 20,000 cases reported in the month of October according to the media reports. Official data have shown that interestingly in this year around 12 states found to be in the grab of this disease. In Kolkata the conditions are worse than since five years and 42,000 cases was reported in the month of October 2022. South India specially Kerala like state has been recorded 7,000 cases till this month. India's highly populated state i.e., Uttar Pradesh has been found to be recorded more than 18,000 cases since the beginning of 2022. According to the state health department Prayagraj recorded 882 cases as of October 31, 2022 and six deaths. Around 4,000 cases have been recorded from Bihar and more interestingly three- fourth cases are alone from Patna. More than 8,500 infections and nine deaths were recorded from Punjab till now. Odisha one of the eastern parts of India recorded 5,500 cases, with a little over 2,000 only from Bhubaneswar. According to the Department of Public Health of the State Government of Tamil Nadu 4,900 cases have been recorded from this state. The number of new cases (616) recorded in October was 10 per cent higher than in September.

Abstract No. 64

Impact of Covid-19 Pandemic on Socio-Political Environment: A Critical analysis

Ashish Kumar Lal

Department of Political Science
M.L.K.P.G. College, Balrampur (U.P), India

ABSTRACT

The COVID-19 pandemic has had a significant impact on human society and politics all around the world. It has been successful in altering a variety of processes, including the political process, public relations, educational institutions, interpersonal relationships, and community life. If the COVID-19 is not forcefully combated and the rules are not followed, the undesirable alterations brought on by the pandemic will persist and could eventually have an impact on civilization. Around the world, the COVID-19 pandemic has sparked numerous political crises, particularly when it comes to disputes inside and between parties. The COVID19 has had a significant impact on China's political environment, particularly after certain provincial political leaders were fired for their role in containing the virus's spread.

Abstract No. 65

Contribution of biodiversity water and forest management in the present environment

Vandana Rahul

Institute of Law
Jiwaji University, Gwalior (M.P), India

ABSTRACT

In the present environment we can keep our environment clean only by managing biodiversity water and wildlife growing industrialization urbanization pollution explosion poverty over exploitation of resources concern for mutual sources by energy and exploitation of raw materials are sum of the factors that contribute all over the world has taken place for environmental degradation. The changes caused by environmental degradation over turned the ecological patterns disturbed the balance between human life and environment and also gave rice innumerable problem affecting the environment and they have to be saved. Only then our environment can remain clean pollution is affecting human as well as animals and plants today pollution is causing fatal effect in the society in the form of air, water, soil, sound, radioactive pollution serious disease like cancer disability blindness deafness insanity, asthma tuberculosis are gradually affecting. Rather it does not even remain drinkable for the purpose of the preventions and control of water pollution the prevention and control act 1974 was passed by the Government of India

Abstract No. 66

Agro ecology- a step to support SDG8 decent work and economic growth

Mita Chourasia and Kalpana Maski

PGT, Physics, Kendriya Vidyalaya No. 1, Bhopal (M.P), India
Department of Physics, RIE, Bhopal (M.P), India

ABSTRACT

Most of our population is engaged in farming. Our country has seen drastic changes in the field of agriculture i.e. preparation of soil, use of fertiliser, selection of seeds, sowing of seed, new irrigation techniques and harvesting. Since ages, farmers have used age old techniques to determine the time of sowing seeds (The season, month, position of Nakshatras and sometimes the auspicious Nakshatras and Sometimes the auspicious tithis, were taken into consideration for a successful crops).This Method helped them for quite a long time, as nature and man, both were in alignment but the scenario changed when, this golden balance was disturbed due to global warming, pollution, deforestation, increase in population, rapid industrialisation etc. Due to these the soil quality has deteriorated. To increase the productivity, the farmers shifted from traditional method to chemical fertilizers. To maintain the underground water table level, bore well can be connected so that if water level in one is reduced the other can start working instantly. It can understood in this way also, that if the water table in one borewell goes below a certain level, then the water level can be maintained by external source. Growth of plants and flowering depends on two factors PHOTOPERIODISM (effect of light on the plant) and VERNALISATION (dependence of temperature on flowering) But due to the climatic changes taking place around, farmers needed change in traditional methods & to some extent non-conventional methods too. Due to these factors we see a necessity to introduce a third and more reliable method, to help farmers i.e artificial intelligence based agriculture monitoring devices. This will help the agriculture sector in many ways, like management of irrigation, use of soil, specific organic fertilizer. The best part of this project is that it promotes sustainable ecological wellbeing.

Abstract No. 67

A preliminary phytochemical investigation of the host defense with respect to infestation by the Indian lac insect

Atul Raikwar[1], Praveen Shyam[1], Sandeep Kaushik[1], S. Shweta[2] and S. Mukherjee[3]

[1]Department of Environmental Science, IGNTU, Amarkantak (M.P), India
[2]Department of Botany, Guru Ghasidas Vishwavidyalaya, Bilaspur (Chhattisgarh), India
[3]Department of Botany, Jangipur College, University of Kalyani (W.B.), India

ABSTRACT

The plantspossess an enhancement defense mechanism against biotic stress caused by bacteria and fungi investigation by insect through morphological and biochemical barriers. The bark of the host is known to possess several secondary metabolites. The insect infestation is known to trigger and enhance several secondary metabolites in the plant. The bark tissue of the host plant is the first major structural barrier for phytophagous insects such as *Kerria lacca*. The preliminary investigation was carried out to decipher any change in the major secondary metabolites, such as phenol content, flavonoid content, and antioxidant activity. The present study was carried out in an infested and non-infested bark of the lac host plants. The levels of TPC(Total Phenol Content), TFC(Total Flavonoid Content), and TAA(Total Antioxidant Activity) in the infested plant were increased in comparison to levels in the non-infested plant. This preliminary study attempts to elucidate the host plant mechanism in a way. Further investigations were carried out in non-host plants to determine whether there is a constant enhancement of these secondary metabolites for a longer duration.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 68

Groundwater Quality of Malanpur Industrial Area (Bhind) with Effect of Fluoride on Human Health

Ranjana Mandeliya and R K Dubey

Department of Zoology
Govt. KRG P.G. (Autonomous) College, Gwalior (M.P.), India

ABSTRACT

Present study was carried out to assess the chemical quality of ground water of village adjoined with the industrial area Malanpur Bhind during two years of study from (April 2018 to March, 2020). Water sample were collected from five village i.e., Lahchura Village, Malanpur Village, Sindhwari Village, Ghirongi Village, Badwari Village from summer, winter and rainy seasons. pH, Total Dissolve Solids (TDS), Total hardness (TH), Calcium (Ca^{++}), Magnesium (Mg^{++}), Sodium (Na^{+}), Potassium (K^{+}), Chloride (Cl^{-}), Sulphate (SO_4), Fluoride (F^{-}) were analyzed. The variation in pH was found from 7.08 to 7.37 with average of 7.27±0.02, TDS from 645.0 to 2360.0 mg/l with average 1102.9±159.5, Total hardness from 308.0 to 980.0 mg/l with average 513.5±56.3, Calcium from77.9 to 249.1 mg/l with average 127.6±15.9 from Chloride from 89.9 to 708.9 mg/l with average 268.1±57.9, Magnesium from 27.1 to 86.4 mg/l with average 47.2±4.40, Sodium from 75.3 to 255.3 mg/l with average 179.7±16.1, Potassium from 9.3 to 43.2 mg/l with average 19.7±3.0, Sulphate from54.4 to 324.3 mg/l with average 139.4±24.2, Fluoride from 1.04 to 2.43 mg/l with average 1.61±0.09. Highest concentration of fluoride was observed in the water sample of Malanpur and Badwari village. According to the Human Health Risk Assessment of, fluoride-related health problems are seen more in children than in adults. The result shows that there were considerable variations among the analyzed samples with respect to their physical and chemical parameters, which lie exceed the maximum permissible levels of the BIS and World Health Organization (WHO) drinking water standards. The assessment of water sample indicates that groundwater of some location are not fit for drinking purposes.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

Abstract No. 69

Efficacy of *Ocimum tenuiflorum*: A Strong immunostimulant, Anti-Carcinogenic, Antioxidant, Antiviral, Antimicrobial, Insecticidal Fungicidal, and Antiprotozoal

Dhananjay Pratap Rao

Department of Zoology
M.L.K PG College, Balrampur (M.P.), India

ABSTRACT

The plant is beloved in Hinduism and is frequently utilized in Ayurvedic and traditional medicine. It is a popular herbal tea for a variety of ailments. Holy basil has a complex molecular structure and contains a number of biologically active compounds. Phytochemicals found in *Ocimum tenuiflorum* (tulsi) include oleanolic acid, ursolic acid, rosmarinic acid, eugenol, carvacrol, linalool, and -caryophyllene. Tulsi essential oil is largely made up of eugenol (70percent), -element (11.0 percent), -caryophyllene (8 percent), and germacrene (2 percent), with the rest being made up of other trace compounds, mostly terpenes. Terpenoids are composed up of acetate units and are related to fatty acids in origin. Common terpenoids include methanol and camphor (monoterpenes), farnesol, and artemisin in (sesquiterpenoids). Antifungal, antibacterial, antiprotozoal, and antiviral effects have been demonstrated in them. Ursolic acid improves cognition and protects senescent mice's brains from D-galactose-induced oxidative damage. Ursolic acid stimulates liver regeneration in mice that have had their liversremoved partially. Ursolic acid boosts cellular immunity and pancreatic beta-cell function in diabetic mice fed a high-fat diet-induced by streptozotocin. Skeletal muscle growth, grip strength, and exercise capacity were all improved by the use of UA. Improved endurance, decreased expression of genes linked to muscle atrophy progression, and decreased signs ofcumulative weariness and exercise-induced stress. Ursolic acid improved metabolic anomaliesand reduced hepatic steatosis in rats with nonalcoholic fatty liver disease produced by a high-fat diet.Sesquiterpenes are a type of volatile organic hydrocarbons known as germacrenes.Germacrenes are antibacterial and insecticidal compounds generated by a variety of plantspecies, such as *Ocimum tenuiflorum*, but they also serve as insect pheromones.

Abstract No. 70

Mucus Bactericidal Activity of *Pleurotus florida* on *Clarias batrachus* Fingerlings

Asha K.C.

Department of Zoology
M. L. K. (P.G.) College, Balrampur (U.P.), India

ABSTRACT

The current study investigated the effects of oyster mushroom *Pleurotus florida*, powder on mucus bactericidal activity of Catfish, *Clarias batrachus* fingerlings. The fingerlings were fed with diets containing 0 (control), 5, 10, 15, and 20g of oyster mushroom powder in basal diets abis floating magur fish feed for 7 weeks. Mucus samples were collected after the7th week and checked for their effect on different strains of disease-causing bacteria Staphylococcus aureus, Streptococcus inane and Aeromonas hydrophila. The results of this study showed that feeding catfish with an oyster mushroom powder diet significantly stimulated bactericidal activity against different strains of bacteria in a dose and time-dependent manner.

Abstract No. 71

Genome-wide identification and expression pattern analysis of lipoxygenase genes of chickpea (*Cicer arietinum* L.) in response to accelerated aging

Rinku Malviya and Dipak Gayen

Department of Biochemistry, School of Life Sciences
Central University of Rajasthan, India

ABSTRACT

Lipoxygenase (LOX) plays a vital role in seed vigour during storage. In this study, we identified ten putative LOX gene family members in the chickpea genome, designated as "CaL OX," which are widely distributed in the cytoplasm and chloroplast. The majority of CaLOX genes are classified as type -2 based on sequence similarity and chloroplast transit peptide. Quantitative real-time analysis reveals that 6*CaLOX (CaLOX-1,CaLOX-5, CaLOX-6, CaLOX-8*, and *CaLOX-10*) genes were upregulated, and 4 *CaLOX* genes *(CaLOX-3,CaLOX-4 CaLOX-7, CaLOX-9)* were downregulated in response to aging in chickpea. Seed storage at high temperatures and moisture lowers germination. Accumulation of malondialdehyde, proline, and increased LOX enzyme activity indicates the alteration of cellular metabolism, causing seed deterioration during seed aging. This study will provide valuable information about LOX gene involved in seed quality deterioration. The identified gene might be used to develop high vigour seed to ensure nutritional loss and seed viability.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 72

Trend Analysis and Spatio-Temporal Variability Mapping of Groundwater Table Depth in Central Punjab, India

Manish Debnath, Arjamadutta Sarangi, Dipaka Ranjan Sena and Dhirendra Kumar Singh

ICAR- Indian Agricultural Research Institute, New Delhi

ABSTRACT

The trend analysis and spatio-temporal variability mapping of water table depth for 20 years (1998-2017) was undertaken in five districts of central Punjab, India viz. Moga, Bar nala, Patiala, Sangrur and Ludhiana. Modified Mann-Kendall trend test and Innovative Trend Analysis indicated a decreasing trend of groundwater table depth (GWTD) for all districts at 1% level of significance ($P<0.01$). The Sen's slope estimator (SS) showed highest rate of decline in GWTD for Sangrur district ($\geq$1.3m/year) followed by Barnala ($\geq$1.1m/year), Patiala ($\geq$0.9m/year), Moga ($\geq$0.8/year) and Ludhiana ($\geq$0.4m/year) for both the pre and post monsoon periods, respectively. Spatial variability maps of ground water table depth (GWTD) during both pre and post-monsoon periods for the year 2009, 2015, and 2018 were generated using geostatistical techniques. Gaussian semi-variogram model was observed to be the best with R2 values ranging from 0.685-0.987 and 0.646-0.989 for the pre and post-monsoon periods, respectively. Generated spatial variability maps indicated a decline of water table depth by 10m in 43% of the study area, 10-20m in 34.7% area, and 20-30m in 9.8% area and $\geq$30m in2.2% area during pre-monsoon period in year 2018 as compared to the year 2009. Moreover, during the post-monsoon period such depth variations were observed in about 26% and 36.9%, 15.9%, and 6.3% areas during 2018 compared to 2009. Nonetheless, the trend analysis and spatio-temporal variability analysis of water table depth will assist researchers, policy makers, and stakeholders in water table depth management through adoption of judicious agricultural water management technologies.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

Abstract No. 73

Behavioural ecology of lesser mouse-tailed bat or *Rhinopoma hardwickii*

Shaktivardhan Singh

Department of Zoology
Babasaheb Bhimrao Ambedkar University, Lucknow (U.P.), India

ABSTRACT

Rhinopoma hardwickii is a small body sized bat, tail is mouse like with small nose leaf, therefore called mouse-tailed bat.The body with soft fur and grayish to dark brown in color. *Rhinopoma hardwickii* reported in India from Rajasthan, Madhya Pradesh, Bihar and Uttar Pradesh. They roost in arid and semi-arid habitats, in abandoned buildings, caves, dry scrub, rocky areas etc. while in summer prefer roosting in cracks and large rocks because temperature of cracks and large rocks are less compared to outside. Rhinopoma hardwickii are adapted to live in dry climates of hot summer while they undergo torpor in winter season, to avoid severe cold, and food availability .The breeding seasons of this species start in spring, with three month of gestation period. They are mono-estrous and mono-generic group. In breeding season lactating mother live in group to avoid reproductive cost. *Rhinopoma hardwickii* echo locate with low harmonics with limited variation in frequency.

Abstract No. 74

Study of bacterial infection in fresh water fishes from Arali –Kalegaondam, Osmanabad District

Shivaji G. Jetithor[1] and Datta Ashok Nalle[2]

[1]Department of Fishery Science,Yeshwantrao Chavan Mahavidyalaya, Tuljapur Dist. Osmanabad (M.S.), India
[2]Department of Zoology & Fishery, Science, Rajarshi Shahu Mahavidyalaya (Autonomous) Latur (M.S.), India

ABSTRACT

The isolation study revealed the presence of *Aeromonas hydrophila* in skin, body fluid, heart, eye, kidney and liver of various species of fish collected from different geographical locations. The high percentage incidence of *Aeronomas hydrophila* in diseased fishes from various parts of Arali –Kalegaon dam Osmanabad district, Maharashtra strongly suggested the ubiquitous nature of the bacterium The present investigation was carried out at Osmanabad district Maharashtra state the diseased fishes were collected in variable water bodies. In the present study the load of bacteria in lesion, considerable variation was noted in different months during the study period. Monthly variation of bacterial load in body lesions varied from 4..17$\times10^3$ CFU/g June) to 3.11$\times10^6$ CFU/g (summer), in liver it varied from 7.17$\times10^3$ CFU/g to 5.13$\times10^6$ CFU/g . kidney it varied from 4.98$\times10^4$ CFU/g to 6.51$\times10^7$ CFU/g From the observation, monthly differences of bacterial load in three sampling sites varied from 4.28$\times10^6$ CFU/ml to 3.80 $\times10^7$ CFU/ml .

Abstract No. 75

Hepatitis-B: Infection in liver

Tanu Yadav and Suchit Swaroop

Experimental and Public Health Lab, Department of Zoology
University of Lucknow, Lucknow (U.P.), India

ABSTRACT

Hepatitis-B is a liver infection caused by Hepatitis- B Virus (HBV). HBV consists of an outer lipid envelope and an icosahedral nucleocapsid core composed of protein.HBV has different types of antigens on it,HBsAg proteins are present on the surface while HBcAg proteins are present in the core region. HBeAg proteins that can be found between the icosahedral nucleocapsid core and the lipid envelope, it circulates in the serum as soluble protein. These proteins are the markers for diagnosing HBV infection. When infection persists more than six months it develops into chronic infection and becomes an auto immune disease due to loss of tolerance against infection caused by HBV. It has been studied that there is molecular mimicry between HBV antigens and self-proteins. This mimical behaviour of the generation of immune complexes between HBV antigens and antibodies, and apoptosis/tissue damage results in the exposure of intracellular antigens to the immune system.Transmission of virus in normal patients from HBV infected patients is carried via body fluids such as blood during transfusion or in contact with any wounded region, during sexual contact via semen, to an infant at the time of delivery via vaginal fluid. Sometimes HBV transmission occurs through use of infected surgical instruments.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 76

Territorial behavior in Grey francolin, *Francolinus pondicerianus* (Gmelin, 1789)

Anshu Mishra and Ashish Kumar

Animal Diversity and Ecology Laboratory, Department of Zoology
University of Lucknow, Lucknow (U.P.), India

ABSTRACT

The grey francolin (*Francolinus pondicerianus*) belongs to the class Aves, order Galliformes and family Phasianidae, which includes pheasants, partridges, chickens, old world quails and peafowl. The present study was carried out in Lucknow district at few selected sites from November 2021 to October 2022 to observe territorial behavior in grey francolin. Males call throughout the year but more frequently at sunrise and sunset. The males produced territorial call which sounded like *kateelakateelakateela* which was quickly repeated but their calling frequency was high during the breeding season (April to September) in comparison to non-breeding season. Adult males demarcated their territories through active calling during breeding and remained in their territories for about 4–5 weeks, after which both males and females moved to adjacent land to raise their chicks. Territorial male approached the playback call to repel intruder and some time call works as a positive signal for predator.

Abstract No. 77

Obesity trends in population and its relation with non-communicable diseases

Arti Yadav and Suchit Swaroop

Experimental and Public Health Laboratory, Department of Zoology
University of Lucknow, Lucknow (U.P.), India

ABSTRACT

Obesity is very common non-communicable life style disease in adults and children which is directly associated with metabolic, nutritional and genetic factors. In the current scenario adiposity is reaching pandemic levels in India and in world too. Different types of non-communicable diseases continue to climb nationwide. It was observed that measures of obesity and its related co-morbidities are continuously increasing in southern and northern areas of the country. Obese population cannot be classified only on the basis of body mass index or increase body fat instead body fat composition and distribution in the body also play important role in being obese. Complex interaction of obesity with various non-communicable diseases changes it into a complex public health problem. Body mass index (BMI), waist circumference (WC), hip circumference (HC) and waist to height ratio (WHtR) could be better indicator to classify obese individuals under different categories of obesity such as class-1, 2, 3. Prevalence of obesity increases with age in both males and females and causes different types of co-morbidities such as coronary heart disease, hypothyroid, type-2 diabetes, hypertension, dyslipdemia, stroke, metabolic syndrome, fatty liver, chronic kidney disease, gallbladder diseases, sleep apnea and different types of cancers. Obesity is not only related with physical health problems but it is also related with psychological health and several types of mental health issues like depression, alzheimer's disease and parkinson's disease.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 78

Preliminary in vitro trial to assess the licicidal potential of aqueous extracts of Allium sativum (Garlic) against 'poultry fluff louse', *Goniocotes gallinae* (Ischnocera: Phthiraptera: Insecta)

Nidhi Gupta[1], Ghazi Khan[2], Shalini Roy[2] and Surendra Kumar[3]

[1]Department. of Zoology, Govt. Raza P.G. College, Rampur (U.P.), India
[2]Department of Zoology, Hindu College, Moradabad (U.P.), India
[3]Department of Zoology, Km. Mayawati Govt. Girls P.G. College
Badalpur, G.B. Nagar (U.P.), India

ABSTRACT

Poultry lice cause considerable loss to poultry industry by affecting the health and productivity of host birds. Dependence on organic pesticides is creating variety of problems and there is need to develop a reliable herbal licicide. Garlic (*Allium sativum*) is a species belonging to the family Alliaceae, used for both culinary and medicinal purposes. In an attempt, the preliminary *in vitro* trial was conducted to assess the lethality of aqueous extracts of *Allium sativum* against 'poultry fluff louse', *Goniocotes gallinae* by adopting filter paper bioassay. The *in vitro* experimentations provided a significantly high lousicidal property of ethanolic extracts of *Allium sativum* within 24 hours of the incubation period. As much as 90%mortality was caused by 100 LL-1 concentrations (in 24 hrs.) while the repellency remained at 80% (in 8 hrs.) under *in vitro* trials.The study indicates that extracts from *Allium sativum* bulbs possess better lousicidal property which was directly proportional to the concentration. The results are encouraging and provide scientific validation of the efficacy of *Allium sativum* against 'poultry fluff louse'. Knowledge of plants having licicidal properties should be the topmost importance not only to replace synthetic chemicals but also to unravel their effects in lesser-known species and to improve the poultry industry without affecting the host's health.

Abstract No. 79

Green remediation technologies- Today exigency solutions

Shilpa Varma

Dr B. Lal Institute of Biotechnology,
Malviya Industrial Area, Jaipur (Rajasthan), India

ABSTRACT

The "toxicant" creates toxicity in different sectors such as agriculture and the environment. Green remediation technology provides a Sustainable solution for environmental clean-up. It includes case studies of phytoremediation and organic agriculture, bioremediation (microbial removal of pollutants) and constructed wetlands for sustainable environmental cleanup. These eco-friendly techniques provide natural, clean and cost-effective approaches. Green remediation provides slow development (removal of toxins) but it will provide promise approach for stable and sustainable agriculture and environment. Phytoremediation is plant-based technology, Plants can be used to bio-accumulate various hazardous metals (Heavy metals) and pesticides and other toxins provide through wastewater. It is a novel, sustainable, cost-effective, promising, solar-driven, eco-friendly technology used for the decontamination of metal-contaminated or enriched sites by removing, destroying or sequestering (phytochelatins). Thus, using varieties of plant species growing naturally (in situ) or under controlled conditions (ex situ).Organic agriculture is an approach to producing quality food products that seek to develop and fulfill nutritional aspects in a crop. Grow crops which can help farmers economically with the minimum use of inputs. The use of biofertilizers provides a long-term sustainable solution for farmers. This also provides the solution to control and maintain soil nutrients. However, much research is going on with this topic but more implementations are required for achieving sustainable goals.

Abstract No. 80

A Systematic Evaluation of the Studies on the Role of Music Therapy in the Treatment of Cancer-Stricken Youngsters

Nikita Katiyar and Kalpana Singh

Laboratory of Bio-Musicology & Applied Zoology Research,
University of Lucknow, Lucknow (U.P.), India

ABSTRACT

Music therapy has been attracting a lot's of attention from academicians due to it's potential in acting as an effective aid in preventive palliative care pre- & post- treatment in Cancer treatments as well, with earlier studies demonstrating it's therapeutic qualities while coping up with the physical & mental stresses generated out of cancer diagnosis & treatment. This is a systematic review of the literature on the use of music therapy with cancer patients, to determine the goal of determining its practicality and advantages in improving physical and mental health of those adolescents undergoing Cancer treatments. The database search has been carried out via science direct from Elsevier. From the 462 studies found, 06 were chosen and included in this study, with adolescents and young with the age between 11-24 years. They were given music therapy in three distinct ways: receptive music therapy, active music therapy, and a combination of receptive and active interventions. Thestudies found a significant decrease in psychological problems an improvement in happiness. Few studies looked at the impact on subjective pain and other biological indicators, but the results were mixed.Duringoncological treatments, music therapy appears to be advantageous to both mental and physical health of the patients of all the age groups studies. Still, the types of interventions and study protocols, applied, make generalizability challenging. The clinical consequences of the therapeutic effect of music and other factors were examined in the literature review.

Abstract No. 81

Investigation of small molecules by density function theory in combination with roesy

Mohit Kumar Singh, Harish Saraswat and Sakshi Saxena

Institute of Applied Sciences,
Mangalayatan University, Beswan Aligarh (U.P.), India

ABSTRACT

The structural determination of small molecules such as fungi, plants, and bacteria etc. which are derived from natural sources is still a change in the present scenario. In the structural determination of organic molecules, stereochemistry plays an important role and has a profound impression on a number of molecular properties, such as chemical reactivity and catalytic, biological, and pharmacological activities. Over the past 20 years, density functional theory (DFT) has become a much-used tool in most branches of chemistry. DFT generally predicts the ground-state geometries, vibrational spectra, and electron–phonon couplings in most organic molecules with high accuracy and yields a qualitatively and often also quantitatively correct picture of the electronic structure of molecules, crystals, metallic systems, and metal–organic interfaces. In addition to this, two-dimensional nuclear magnetic resonance spectroscopy (2D NMR) is a set of nuclear magnetic resonance spectroscopy (NMR) methods which give data plotted in a space defined by two frequency axes rather than one. Two-dimensional NMR spectra provide more information about a molecule than one-dimensional NMR spectra and are especially useful in determining the structure of a molecule, particularly for molecules that are too complicated to work with using one-dimensional NMR. Among different types of NMR methods, ROESY method is useful for certain molecules of which their rotational correlation time is in the range where the nuclear Overhauser effect is too weak to be detected. Structural analysis, conformational and configuration analysis, inclusion complexes and solvent suppression, primarily in metabonomic studies are some applications of NOSY and ROESY which applied on large, small molecules and mid-sized molecules. Therefore, the purpose of this paper is to understand the structural determination of small molecules by DFT in combination with ROESY.

Abstract No. 82

Heavy Metal and Aquatic Macrophytes

Naina Srivastava

Botany Department
D.A.V College, Dehradun (U.K.), India

ABSTRACT

The hazard posed by heavy metals discharged during various industrial and mining activities to living things makes it urgent to foster techniques that really eliminate weighty metals from wastewater. Substance precipitation, layer processes, particle trade, fluid extraction, and electrodialysis are just some examples of the many heavy metal removal methods that are not cost-effective due to factors like their need for large amounts of use of resources (such as reagents and energy) or the production of hazardous byproducts . However, it has been shown that the adsorption method is the most effective technique to treat industrial waste effluents due to its many benefits, including its cheap cost, accessibility, productivity, straightforwardness of activity, and viability .A relatively novel method that has shown to be particularly effective in removing pollutants from aqueous effluents is the biosorption of weighty metals from watery arrangements. Maize grain, coconut shells, used tea bags, rice straw, tree leaves, sunflower stalks, eucalyptus bark, walnut and nut husks, and rice grains are just a portion of the farming squanders that have been attempted as normal adsorbents lately to successfully eliminate different weighty metals . Metallic compounds used to be present in natural aquatic environments at low amounts, typically between nanogram and microgram per litre. According to their geochemical mobility, heavy metals might source from either natural environments (such as water, air, and soil) or anthropogenic (such as land use and industrial) sources (such as pollution). These metals may eventually join floating particulate matter and/or collect in the bottom sediments, depending on how soluble they are. With the development of metals in the biota and vegetation, increased industrial activity has exacerbated environmental pollution issues and contributed to the decline of various aquatic ecosystems. Even while trace metals are necessary for life at low amounts, they can be dangerous at large concentrations. Aquatic macrophytes can be utilised to partially extract trace metal from wastewater

Abstract No. 83

Climate Change Scenario and Ozone Layer Healing

Meenal Gokhale

Govt. K.R.G. College, Gwalior (M.P.), India

ABSTRACT

Ozone layer is a natural sunscreen, absorbs and blocks the majority of the sun's UV radiation. Without this barrier, all of the radiation would reach earth, damaging the DNA of the plants and animals. It is a high concentration of ozone that is found around 15-30 km. above the earth's surface. Policy experts have advocated for a closer linking of ozone protection and climate protection efforts. Human activities that release pollutants into the atmosphere are responsible for causing ozone depletion and global warming.

Abstract No. 84

HY Zeolite mediated synthesis of 3-(phenyltellurO) propyl acetamide: Its characterization and antimicrobial studies

Richa Saxena[1] and S.K. Srivastava[2]

[1]M.J.S. Govt. P.G. College, Bhind (M.P.), India
[2]S.O.S. in Chemistry, Jiwaji University, Gwalior (M.P.), India

ABSTRACT

A novel 3-(Phenyl telluro) propylacetamide (1)) is first example of tellurium bearing acetamide (Te, N, O donor), which has been synthesized by acylating 3-(phenyl telluro) propylamine with acetic acid over HY zeolite as catalyst.Mechanistically, the carbonyl group of acid is protonated by HY zeolite giving rise to acylium ion which reacts with 3-(phenyl telluro) propylamine to produce1. However, in the absence of HY Zeolite 3-(phenyl telluro) propyl ammonium acetate salt2.(Te, N, O_2 donor) was the product.Upon reaction of 1 and 2 with $HgCl_2$ a unique chemistry is exhibited. Thus1on reaction with $HgCl_2$ got cleaved resulting in formation of cleaved product, phenyl acetamide (3) which has been structurally characterized while 2 on treating with $HgCl_2$ resulted in complexation of its cleaved product, 3-(Phenyl telluro) propyl amine (Te, N donor) to metal salt through Te alone, yielding compound 4. Compounds 1-4 has been characterized on the basis of physico-chemical and spectral (F T-IR, ESI mass, ^{1}H, $^{13}C\{^{1}H\}$, ^{125}Te NMR) studies. Compound 3 crystallizes in orthorhombic system with space group Pbca. The molecules are linked by H—O···N hydrogen bonds in the crystal packing.

Abstract No. 85

Molecular characterization, phylogenetic analysis and secondary structure identification of 28S rDNA of *Senga lucknowensis* (Cestoda: Bothriocephalidea) infecting *Channa punctata* from India

Deepika and Bindu Sharma

Department of Zoology
Chaudhary Charan Singh University, Meerut (U.P.), India

ABSTRACT

Freshwater fish is the most demanding host for cestode fauna to reside in the host intestine body.The present study deals with the Molecular, phylogenetic and secondary structural analysis of *Senga lucknowensis*. Cestode was isolated from*Channa punctata* collected from Meerut (U.P.), India. In the current work, the 28S rDNA region of the ribosomal DNA of Cestode was studied. Ribosomal DNA of the 28S rDNA region was initially amplified and sequenced in order to determine its phylogenetic position with respect to other species of the same genus. After phylogenetic analysis cestode was distinguished from other species of the same genus and identified as *Senga lucknowensis*. A combined comparative and thermodynamics study was also used to predict a secondary-structure model of the large subunit rDNA (28S rDNA) of *Senga lucknowensis.* The aim of the study was to identify *Senga lucknowensis* through molecular and phylogenetic relationships approach. The present study was extensively supported using bioinformatics tools.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 86

Inorganic Contaminants in Groundwater: The warning Bell

Runjhun Mathur[1], Gaurav Saini[2], S.P Shukla[3] andAbhimanyu Kumar Jha[4]

[1]Dr. A.P.J Abdul Kalam Technical University, Lucknow (U.P.), India.
[2]Department of Civil Engineering, Netaji Subhas University of Technology, Delhi, India.
[3]Department of Civil Engineering, Rajkiya Engineering College, Banda (U.P.), India.
[4]Department of Biotechnology, Sharda University, Greater Noida (U.P.), India

ABSTRACT

In today's world overexploitation of groundwater resources due to population explosion is making the problem more tedious all over the country. Inorganic contaminants like Arsenic, Chromium, Nickel, lead, and Mercury etc. rush in from industrial waste that is dumped untreated into water-systems. It has been identified that in urban areas like Greater Noida, heavy metals like lead, Nickel , Cadmium and chromium etc. also permeate into groundwater. It is known that Arsenic would be easily solubilized in water from these minerals depending on pH, redox conditions and temperature. Cr^{6+}contamination of groundwater can be due to natural conditions or to discharges from industrial activity such as chromium ore processing, metal plating, and use of Cr^{6+} as an anticorrosion agent in cooling water. Lead is a "potential human carcinogen". It is a contaminant in food and water. Total diet studies in industrial countries indicate a daily Intake of lead of the order of 200-300, microgram. Intake from drinking water provides about 20 microgram and inhalation of city air about another 20 microgram per day. Nickel is a "probable human carcinogen." These probable carcinogens may cause epigenetic changes which may cause cancer. Studies can be carried out to investigate the inorganic contaminants(Arsenic, Lead, Nickel, and Chromium)released by anthropogenic activitiesas the potential/ suspected carcinogens in various types of drinking water collected from Greater Noida and estimate potential health risk that might emanate from drinking these water types. Epigenetics refers to those heritable changes that are not encoded in the DNA sequence itself , but play an impor tant role in the control gene expression. Epigenetic mechanisms include changes in DNA methylation, histone modifications and non-coding RNAs. Hypermethylation limits the accessibility of transcription factors to promoters; promote the methyl-CpG binding domain (MBD) binding, which results in recruitment of additional silencing-associated proteins, and gene silencing. Modifications of DNA and histones are also reversible making them good targets for therapeutic interventions. Epidemiological studies show that exposure to these contaminants leads to gene specific DNA hypermethylation in some genes like p53, DAPK, p16, APC etc. Changes in Epigenetic marks at a global level require further evaluation for their involvement in epigenetic process.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

Abstract No. 87

Removal of body waste by free-radical scavengers: An Antioxidant

Nidhi Srivastava[1], Yogesh Kumar Mishra[2] and Namrita Shukla[3]

[1]Department of Chemistry, P.P.N.P.G College, Kanpur (U.P.), India
[2]Department of Zoology, Shiv Dharshan Lal Degree College, Fatehpur (U.P.), India
[3]Department of Chemistry, P.P.N.P.G College, Kanpur (U.P.), India

ABSTRACT

Consumption of certain foods, especially refined and processed foods, trans fats, artificial sweeteners, and certain dyes and additives, smoking, environmental pollution, and radiation exposure to chemicals, such as pesticides and drugs produces large no of free radicals. Free radicals are waste substances produced during various metabolic processes that occurs in our body. If the body cannot process and remove these free radicals efficiently, oxidative stress or cell damage can be produced. Oxidative stress harms cells and body function, therefore, is responsible for aging. Oxidative stress causes heart disease, cancer, arthritis, stroke, respiratory diseases, immune deficiency, emphysema, Parkinson's disease, and other inflammatory or ischemic conditions. Free radicals are also known as reactive oxygen species (ROS) and antioxidants as free-radical scavengers because they neutralize free radicals in our bodies. The sources of antioxidants may be natural or artificial. Natural antioxidants are present in fruits, vegetables, mushrooms, seeds, spices and herbs. They are found to be rich in antioxidants so they can protect the cell from damage and boost our overall health. Flavonoids, flavones, catechins, polyphenols, vitamins A, C, and E, beta-carotene, lycopene, selenium, manganese and phytoestrogens are all types of antioxidants and phytonutrients, and they are all found in plant-based foods.

Abstract No. 88

Synthesis and characterization of Copper oxide (CuO) nanoparticles for sequestering nickel ions from wastewater

Monika Jain

Banda University of Agriculture and Technology, Banda (U.P.), India

ABSTRACT

The copper oxide nanomaterials were synthesized in laboratory by chemical precipitation method. The synthesized nanomaterials were then used for the adsorption of nickel ions from waste water. The nanomaterials were characterized by using various instr umental techniques like SEM, EDS, TEM, XRD etc. SEM data revealed that the shape of particles was like rice grain. EDS results showed very prominent peaks of Cu and O confirming the synthesis of copper oxide nanomaterials. The size of nanoparticles was found to be in the range of 10-50 nm as indicated by TEM images. The XRD results indicated that synthesized copper oxide nanoparticles were monoclinic in nature. Batch mode studies were conducted in order to determine the effect of pH, initial metal ion concentration, dose and contact time on the removal of nickel ions. The adsorption capacity was found to be 15.4 mg/g. pH experiments indicated that the maximum percent removal was in neutral pH i.e 7.0 (76.9 %). Langmuir, Freundlich, D-R and Tempkin model were applied in order to find the nature of adsorption process. The kinetic models like pseudo-first order, pseudo-second order and intraparticle diffusion were applied to find out the mechanism involved for removal of nickel ions by copper oxide nanoparticles.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 89

Biosorption of Cadmium through *Lactobacillus* sp. and its Exopolysaccharides

Anchal Singh[1], Pinki Saini[1], Devinder Kaur[1] and Pravin K. Singh[2]

[1]Centre of Food Technology, University of Allahabad, Prayagraj (U.P.), India
[2]CMP Degree College, Prayagraj (U.P.), India

ABSTRACT

Heavy metal pollution is a serious environmental problem worldwide especially in developing countries. Heavy metal contamination of the environment may be a result of anthropogenic activities as well as natural processes. Cadmium is one of the most toxic heavy metals that is widely used in industrial processes and has no significant biological function. The chronic toxicity of cadmium to humans has been well documented. The maximum intake by humans recommended by the WHO is 0.4–0.5 mg/ week, and the maximum admissible concentration in drinking water specified by the US EPA is 0.005 mg/L. Numerous conventional methods are being continuously used in the eradication of these heavy metals. But recently the biotechnological innovative technique biosorption is being explored as the most promising phenomenon. Biosorption is a passive process, where heavy metal particles are adsorbed onto the surface of the bacterial cell walls. In the present study, optimization of biosorption conditions of cadmium using *Lactobacillusreuteri* and *Lactobacillus plantarum* and their exopolysaccharides (EPS) was studied. EPS were isolated from both strains and biosorption tests were performed using various conditions like pH (pH 2.0, 4.0, 6.0, 8.0), temperature (37°C, 42°C and 50°C) and contact time (6, 24 and 48 hours). Cadmium sorption was tested in both strains and their exopolysaccharides through atomic absorption spectrophotometer (AAS). The biosorption conditions were optimized at temperature of 50°C, pH 4 and contact time of 48 hrs. Biosorption of cadmium through EPS was higher as compared to cells in both strains. Although both the strains have the potential to remove heavy metals, biosorption of cadmium through EPS (89% through *L. reuteri* and 63% by *L. plantarum)* was higher as compared to cells (54% through *L. reuteri* and 27% by *L. plantarum*). Extensive use of LAB and its EPS are seen in different food and pharmaceutical industries, thus both the strains may be recommended as an inexpensive tool to detoxify heavy metal contamination from the environments and food products for industrial-scale applications.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

Abstract No. 90

Comparison of Ag NPs synthesis from two plant sources-*Phyllanthus amarus* (stem) and *Alliaria petiolate* (leaf): Optimization and Antimicrobial studies

Hemavathy R.V, Marie Jyotsna Jawahar and Neshanthini J.P.

Department of Biotechnology
Rajalakshmi Engineering College, Chennai (TN), India

ABSTRACT

Wastewater causes various hazardous threats to human health and the ecosystem. Industrial effluents affect the marine ecosystem and cause toxic effects on marine life. Conventional wastewater treatments are usually expensive and involve different chemicals that may increase the water's toxicity. Silver nanoparticles possess high surface tension and exhibit good adsorbent properties. Thus, it can be applied for the removal of heavy metals in wastewater treatment. The green synthesis technique uses microbes and botanicals to synthesize non-toxic, cheap, and eco-friendly nanoparticles. Plants have developed the ability to absorb and store metallic compounds from their environment. The leaf extracts of the Garlic mustard plant (*Alliaria petiolate*) release silver nanoparticles. The biosynthesized nanoparticles are applied to treat industrial effluent and remove heavy metals such as lead and cadmium. Similarly, the stem extracts of *Phyllanthus amarus* were also used as a source for AgNPS. Both sources were compared for the higher production of nanoparticles. The silver nanoparticles' antimicrobial properties can be applied in the field of drug development.

Abstract No. 91

The geographical collection, diversity, and conservation of *Cycas*

Ravi Yadav

Department of Botany, T. D. P.G. College, Jaunpur (U.P.), India

ABSTRACT

Cycas is the type of genus and the only genus recognized in the family Cyacadacae. Cycas is the most widely distributed genus of Cycadales. In India Cycas grows naturally only in the north-east. As ancient gymnosperm and woody plants, cycads have survived through dramatic tectonic activities, climate fluctuation, and environmental variations making them of great significance in studying the origin and evolution of flora biodiversity. However, they are among the most threatened plant groups in the world. *Cycas* is no exception to these trends. Most cycads live in valleys or monsoon forests on low-altitude slopes of ridges and cliffs, where is characterized by warm and moist conditions. However, the glacial–interglacial cycles, accompanied by a strengthened Asian winter monsoon dominating over continental southeast Asia.The principal aim of this review is to outline the collection, diversity, and conservation status of *Cycas* and provide medicinal its values. In this review, we describe the taxonomy, distribution, and conservation status of *Cycas* in India. Then discuss the current genetic diversity, genetic differentiation of *Cycas,* and try to disentangle the potential effects of Quaternary climate changes and topographical events on *Cycas*. High genetic diversity at the species level and strong genetic differentiation within *Cycas* have been observed. Most *Cycas* species in India have experienced population retreats in contrast to the coastal *Cycas*'s expansion during the Quaternary glaciation. Additionally, human activities and habitat fragmentation have pushed these endangered taxa to the brink of extinction. Although numerous efforts have been made to mitigate threats to *Cycas* survival, implementation and compliance monitoring in protection zones are currently inadequate.

Abstract No. 92

Localisation of acetylcholinesterase containing nuclei in the brain stem of *Channa punctatus*

Anurag Tripathi and Shri Prakash

Department of Zoology
Kulbhaskar Ashram P G College, Prayagraj (U.P.), India

ABSTRACT

Brain stem of teleosts presents many neuroanatomically promising features with an intricate system of complex nuclei of diverse nature and their complicated connections with different brain centres. Histochemical study of the distribution pattern of enzyme acetylcholinesterase provides cytologically distinct nuclear groups which are less demarcated through normal histological studies. In addition, acetylcholinesterase is a good marker of cholinergic and cholinoceptive neurons thus it gives a preliminary idea about cholinergic centres in the brain. In the present investigation a histochemical study has been carried out described by Hedreen .J.C. *et.al* on the brain stem of *Channa punctatus* . This study showed the differential distribution pattern of the enzyme. Fascial motor nucleus, intermedial raphe nucleus, secondary gustatory nucleus and vagal lobe exhibited very high intensity for acetylcholinesterase staining while most of the rest nuclei demonstrated moderate to intense staining. In the overview it was inferred that brain stem is a rich centre of cholinergic neurons which is correlated to its function. The present findings have also been discussed from phylogenetic point of view.

Abstract No. 93

Environmental catalysis by microporous and mesoporous materials

Smita Tripathi[1] and R. Prasad[2]

[1]Council of Surface Science and Catalysis, Anuradha Nagar, Indore (M.P), India
[2]SOS in Environmental Science, Jiwaji University, Gwalior (M.P), India

ABSTRACT

Catalysis by microporous materials pore size (~ 2nm) and mesoporous materials (pore size2-50nm) is reviewed. Such materials find applications as adsorbent, catalysts and in separation technology.Microporous materials consist of mainly zeolites.Templating approach for synthesis of zeolites is detailed. Characterizing Techniques for such materials are also detailed. Some important references for the applications in the fields of separation technology adsorption and catalysis are cited. A list of recently developed zeolites is presented. History of development of mesoporous materials such as MCM-41 is described. Template approach for synthesis of MCM-41 is detailed. Industrial applications of microporous as well as mesoporous materials are given.

Abstract No. 94

Malathion Intoxication on the Biochemical Parameters in *Mystus seenghala*

**Himanshi Goswami[1], AmitaSarkar[1], Shivendra Pratap Chauhan[1]
Anand Pratap Singh[1], Shekhar Biswas[1] and Prem Sagar[2]**

[1]Department of Zoology, Agra College, Agra (U.P), India
[2]Departmentof Zoology, Government PG College, Jalesar, Etah (u.P), India

ABSTRACT

Organophosphates are the most common and widely used pesticides. Malathion, an organophosphate as one of the most extensively utilized pesticide in agriculture, hygiene purpose, and environmental factors as it affects the aquatic animals. A significant decrement is shown in total protein and albumin in *Mystus seenghala* after 7, 15, 30, 45 and 60 days dosage to Malathionin comparison to control group. Present study shows the intoxication of Malathion on various biochemical parameters .These pesticides are favourable and helpful but constitute a serious threat to human as well as to the environment.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 95

Comparison of 3 different antigens of *Brucella abortus* for development of an indirect-ELISA for diagnosis of Bovine brucellosis

Arvind Kumar Tiwari[1], Subodh Kumar[2], Vijay Soni[2], B. Bharadwaj[3] and G.P. Rai[2]

[1]Department of Zoology, Government PG (Auto.) College, Datia (M.P), India
[2]Defence Research and Development Establishment, Gwalior (M.P), India
[3]RDDC, Udaipur (Rajasthan), India

ABSTRACT

Brucellosis is still one of the most common bacterial zoonotic disease in the world and an important cause of animal and human sufferings and economical losses. This disease is caused by gram-negative, non-spore forming facultative intracellular pathogens, *Brucella* species. *Brucella abortus* is the etiologic agent of bovine brucellosis and causes a chronic disease in humans known as Malta fever. In livestock the disease is characterized by abortion and sterility; and in humans by undulant fever, endocarditis, arthritis and osteomyelitis. Serological tests currently used for diagnosis of brucellosis infection are based on the detection of anti lipopo lysacharide antibodies. The cross-reactions of these anti lipo polysacharide antibodies with other gram-negative bacteria have been reported. The development of LPS-free protein based diagnostic system may be the key to overcome the shortcomings. So keeping this problem in mind, the present research work was carried out to develop an appropriate diagnostic system for detection of brucellosis. *Brucella abortus* S99 genomic DNA was isolated and 10, 14, 20 kDa proteins encoding genes were amplified, cloned and expressed. The recombinant proteins were purified by the Ni-NTA column chromatography. The diagnostic potential of the 3 recombinant proteins for serological diagnosis of bovine brucellosis was tested by performing indirect-ELISA with a total number of 200 brucellosis suspected and 50 apparently healthy bovine serum samples. Results indicated that the 10 kDa recombinant protein had a good potential for specific detection of bovine br ucellosis. This protein could be useful antigens for diagnosis of bovine brucellosis. However, to establish the usefulness of this protein as diagnostic reagent, evaluation on large number of clinical samples is essential.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

Abstract No. 96

Use of Some Medicinal plants in Cancer Therapy

Swati Verma

Department of Botany
Th. H.N. Singh P.G. College, Karaila bagh-Prayagraj (U.P.), India

ABSTRACT

Medicinal plants are potent natural sources of drugs to treat different human inflammations since ancient time. Many of anticancer lead bioactive molecules such as vinca alkaloid, vinblastine, vincristine, camptothecin, and taxanes have been characterized from different medicinal plants and are used as therapeutic agents in worldwide. Cancer is a major public health burden in both developed and developing countries. It is actually a group of many related diseases that all have to do with cells. It is one of the major causes of death worldwide where the number of cancer patients is a continuous rise. It is a major public problem whose estimated worldwide new incidence is about 6 million cases per year. It is the second major cause of deaths after cardiovascular diseases. There is a constant demand for new therapies to treat and prevent this life threatening disease. The plant kingdom produces naturally occurring secondary metabolites which are being investigated for their anticancer activities leading to the development of new clinical drugs.

Abstract No. 97

Chirata: An Eclipsed herb needs limelight

Poorti Pandey

Department of Botany
Govt. K.R.G. PG Autonomous College, Gwalior

ABSTRACT

Swertia chirayita, also known as Chirata is a herb which belongs to family Gentainceae also reffered as felworts. It widely distributed in the temperate Himalayas, between Kashmir to Bhutan. It is an annual, erect plant that has a height of about 0.5 to 1.5 meters. It is traditionally used to treat a variety of conditions like malaria, diabetes, and liver disorders. Xanthones, alkaloids, and glycosides are main compounds that contribute to its medicinal value. It also contains ophelic acid, chiratin, steric acid, oleic acid, and palmitic acid. Chirata's other important components include swertanone, amarogenin, and chiratol. It is used in Ayurveda, Unani, and Siddha medicine to cure various health conditions and also by different native population groups in several ways for various purposes. Its limited use account's to its distribution in northern region but nowadays it has been used in various preparation. It is available in three forms viz decoction, powder and tablets. It is found to have hepatic protecting property, wound healing capacity, normalize blood sugar and blood pressure, can also cure breath shortening, anemia, and also boost immunity and appetite. The best part is no major side effects are observed when Chirata is taken as a flavoring agent in foods. So it could be easily introduced in our daily diet as normal spices however there isn't enough information available, if chirata is safe in larger medicinal amounts.

Abstract No. 98

Niche overlap and niche breadth among wild *Citrus* of northeast India

Aakash Maurya, Ram Mohan, B.P. Mishra, T.S. Rana and K.N. Nair

CSIR-National Botanical Research Institute, Lucknow (U.P.), India

ABSTRACT

The genus *Citrus* (Rutaceae) is the source of citrus fruit crops of the world. Northeast India is one of the major centers of origin of *Citrus.* Five species of *Citrus* (*C. medica*, *C. indica*, *C. latipes*, *C. hystrix*, and *C. cavalereie*) occur naturally in the forest regions of northeast India. In this study, we employed Maxent model to identify the suitable habitat of each wild species of *Citrus* in northeast India. Further, we tested the niche overlap, niche breadth, and range overlap among these wild *Citrus*. The AUC (area under the ROC curve) of all five *Citrus* species was high (>0.74), reflecting a good predictive model. Pair wise niche overlap, range overlap, and niche breadth were analyzed in ENM tools. A high degree of niche overlap was identified between C. *medica* and *C. indica* ($D>0.5$; $I>0.8$), whereas the lowest was found between *C. medica* and *C. latipes* ($D<0.25$; $I<0.6$). Range overlap analysis revealed *C. medica* and *C. indica* contain high range overlap coverage. The highest and lowest niche breadth was observed in *C. medica* and *C. latipes*, respectively. Suitable regions, especially overlapped habitat region can be useful for introduction of wild *Citrus.* The finding in this study will be helpful in understanding the ecological characteristics and conservation management of *Citrus* in northeast India.

Abstract No. 99

Effect of Carbendazim on Hepatic Marker Enzymes of Albino Rats

Nirmal Kumar and P.K. Singh

Department of Zoology, School of Life Sciences
Dr. B.R. Ambedkar University, Agra (U.P), India

ABSTRACT

Over the past three decades, there has been an increasing global concern over the public health impacts attributed to environmental pollution, in particular, the global burden of disease. Numerous studies have found an association between pollution and several adverse health effects in the general population. These effects range from subclinical effects to premature death. The World Health Organization estimated that about a quarter of the diseases facing mankind today occur due to prolonged exposure to environmental pollution. Pesticides in the environment have potential for unintended impacts to wildlife and humans. Pesticides disrupt essential biological processes, for example through affecting nerve transmission or mimicking hormones. Thus, human health concerns related to exposure via water, food, or close proximity to spraying have been raised. Due to their intrinsic properties, pesticides can also be harmful to organisms in the wider environment. Carbendazim is a commonly used industrial fungicide with broad spectrum antifungal property and is used in the control of fungal pathogen in cereal and fruit crops. It is well absorbed (80–85%) after oral exposure and is subsequently metabolized into many compounds within the organism. The main metabolites are 5-hydroxy-2-benzimidazolecarbamate and 5,6-HOBC-N-oxides. Carbendazim and the metabolites are poorly catabolized but are retained in tissues such as gonads, liver, adrenals, adipose, skin and other organs. In the present study toxicity of carbendazim has been observed on liver marker enzymes of albino rat and found severe toxicity on liver tissues. The enzyme level alters due to toxic action of pesticide.

Abstract No. 100

Impact of Tin oxide on Some Hematological Parameters of *Channa punctatus* (Bloch.)

Vishan Kumar[1], Manish Maheswari[2] and Surbhi Mittal[3]

[1]Department of Zoology, NREC College Khurja, Bulandshahr (U.P.), India
[2]Department of Zoology, D.S. College, Aligarh (U.P.), India
[3]Department of Zoology, Kisan P.G. College, Simbhaoli, Hapur (U.P.), India

ABSTRACT

Environmental problems arising from the ceramics industr y in India include air pollution from combustion, coal ash disposal, effluents from the clays and possible impact on deforestation where wood is predominant. The major environmental problems arising from the pottery industry in Khurja are air pollution due to coal firing, the disposal of coal ash and effluent problems arising from the process of wet grinding. The UP SPCB has been aware of the significant, adverse environmental impacts generated by coal based down draft kilns for a number of years and has been asking the pottery units to take appropriate measures to rectify the problem. The main measure recommended is to build new and higher chimneys for coal fired kilns. Khurja is a prominent industrial and commercial town in Bulundshahr district, Uttar Pradesh the two main employment and livelihood sources in Khurja are pottery and agriculture, at roughly 50% each. The pottery industry directly employs about 25,000 workers with a further 5000-7000 employed in various support services and allied activities. Other sources of employment in Khurja include trade and commerce and a very small amount of other manufacturing. Tin oxide, also known as stannic oxide, is the inorganic compound with the formula SnO2. The mineral form of SnO2 is called cassiterite, and this is the main ore of tin. With many other names, this oxide of tin is an important material in tin chemistry. It is a colourles, diamagnetic, amphoteric solid. Tin oxide has long been used as an opacifier and as a white colorant in ceramic glazes. Keeping these points in view, the present study is undertaken to assess impact of pottery industry chemical tin oxide on total erythrocyte count, hemoglobin concentration and erythrocyte sedimentation rate of Channa punctatus (Bloch.). The TEC and Hb. Conc. have been found to be decreased, while ESR has been increased after treatment due to hematotoxic effect of tin oxide and adverse effect on hemopoietic system of fish.

Abstract No. 101

Modulatory Effect of Giloyon Some Hematological Parameters of Cigarette Smoke Exposed Rats

Suman and Rajvir Singh Ojha

Department of Zoology
Raja Balwant Singh College, Agra(U.P), India

ABSTRACT

According to report of medical council of India, nearly 25 Core persons consume tobacco consumption and its ban is more difficult challenge than AIDS. Each year about 438,000 people in United States die from illnesses related to cigarette smoking. Now a day, Cigarette smoking has become a great curse of air pollution. Smoking is addition because leading to physical, and mental dependence. Smoking basis are social diseases. Cigarette smoke is complex mixture of chemicals Produced by burning of tobacco and additives. The smoke contains for, which is made up of more than 4,000 chemicals, and that at least 60 of these chemicals are identified as those which can cause cancer. Some compound found cigarette smoke including, Nicotine, carbon monoxide, Hydrogen cyanide, ammonia, formaldehyde, Benzene, Methanol, Acetylene and tar. The smoke of cigarette is rapidly absorbed into blood stream, increases the rate of heartbeat and blood pressure because of the stimulation of the nervous system by the nicotine. Cigarette smoking likewise thickens the blood, thus increasing the risk at blood clots from happening. Any change in the blood tissue affects other tissues and organs because of special function of blood. Giloy (*Tinospora cordifolia*) is an important herb used from ancient times in many diseases. These days, corona pandemic specially highlights the significance of giloy in many conditions. The present study reveals toxic effect of cigarette smoke on total erythrocyte count, hemoglobin concentration and erythrocyte sedimentation rate which modulates and show healing effect after supplementation of giloy due to its antioxidant effect.

Abstract No. 102

Sustainable Goals India: Environmental Development: A Study of India's Developmental Programmes and Initiatives

Anjana Gupta

Department of Political Science
Govt. P.G. College, Datia (M.P.), India

ABSTRACT

Development, to be meaningful, must always be sustainable in nature, for it's a process of future character; it doesn't halt anywhere, any time. Sustained efforts should get on to reap the fruits of sustainable development. Sustainable development is one that of commitment towards social progress accelerated economic process and increased environmental conservation. This research paper is an understanding of sustainable development initiatives in India. This study found the sustainable goals of India following United Nation's Sustainable Development Goals. This research paper is concluded by identifying the sustainable development goals of environment protection, ecology protection, and responsible consumption and production as the most promising niches for future research development initiatives in India. This research paper is written with the aim of assessment for India to achieve the Sustainable Development Goals. The study assesses the public resources already available within various government programmes and policies which particularly look at programmes and policies that are aligned with the SDGs. This study should be taken as only a foundational exercise providing nominal estimates.

Abstract No. 103

Preparation and Characterization of Starch Nanomaterial for Efficient Adsorption of Heavy Metal ions from Aqueous medium

Bilal Ahmad Bhat and Harendra K. Sharma

School of Studies in Environmental Science (IGAEERE)
Jiwaji University (M.P.), India

ABSTRACT

Heavy metal ions are concerned as priority pollutants because of high toxicity and mobility in natural water systems. Therefore, this study aimed at evaluating the application of prepared starch nanomaterial for the efficient removal of heavy metal ions from aqueous solution. The prepared starch nanomaterial was characterized by means of the XRD, FTIR, PSA, SEM, EDX and TEM analyses. The effects of different affecting parameters like contact time, initial metal concentration, adsorbent dose and pH on the adsorption characteristics of the prepared starch nanomaterial were investigated thoroughly . The experimental results showed that starch nanomaterial has high ability to remove metal ions from aqueous medium. The experimental results concluded that better adsorption efficiency was obtained at 90 minutes. It was also observed from the results that adsorption efficiency of starch nanomaterial depended upon the initial metal concentration and adsorbent dose. The maximum removal of zinc metal ions onto the surface of starch nanomaterial was achieved at pH 6 of about 93.46%. The Langmuir adsorption isotherm model was found to be the best fit model in this study.

Abstract No. 104

Impact of Cadmium Contaminated Drinking Water on Livestock living near Industrial Area, Rairu

Madhuri Sharma, Shakti Bhardwaj and Sushmita Shrivastava

Department of Zoology
Govt. KRG PG (Autonomous) College Gwalior (M.P.)

ABSTRACT

Metal contamination in drinking water is a major public health problem in rural areas of Industrial area, Rairu. Cadmium may be found in water because of industrial discharges through electroplating, paintmaking, manufacturing plastics, land fill leachatesor by the corrosion of galvanized pipes. Cadmium may cause instant poisoning and harm liver and kidneys. It may also causes anemia and hepatic disorders in livestock. In the proposed study, heavy metal like cadmium was detected using Atomic Absorption Spectrophotometer in the study area. The maximum permissible limit for cadmium in drinking water is 0.005 mg/l. The result indicated that the surface water of nearby industrial areas had higher concentrations of cadmium. The concentration of heavy metal was found to be beyond the prescribed standards of drinking water quality in India, which led to cause severe health issues among livestock and the surrounding environment.

Abstract No. 105

Study of Repeat dose of neem extract in albino rats

Seema Pandey

Department of Zoology
A.N.D.N.N.M. Mahavidyalaya, Kanpur (U.P.), India

ABSTRACT

Neemtree with many medicinal properties is commonly used in leprosy, intestinal worms, piles and urinary diseases. Root, bark and young fruit are astringent tonic and antiperiodic.Repeat dose toxicity study of neem leaf extract was carried out in Charles Foster rats. The rats were administered daily dose of 4.0 g/Kg body weight for 14 days and one group was kept as control which received equal volume of distilled water for same duration. The routine toxicity parameters in haematological, biochemical and histopathology of the test animals did not reveal any significant change as compared to the control animals. It was concluded from the experiment that very high dose of 4.0 g/Kg is safe in the rats.

Abstract No. 106

Approaches towards Sustainable Development

Parul Trivedi Mishra

Department of Botany
D.G.P.G College, Kanpur (U.P.), India

ABSTRACT

Sustainable development includes social, economic and ecological objectives. It should fulfil people's cultural, material and spiritual needs in equitable ways. It should maintain the long term viability of supporting ecosystems. Some of the given strategies can be adopted for a sustainable development : The benefit of the natural resources should be distributed fairly among people, the policies pertaining to the environment, social and economic, should be uniform. There should be global coordination and cooperation for environmental protection and sustainability. Limiting poverty, major threats to public health, food safety and quality along with the equal use of resources should be discussed. One of the long term strategies is to limit climatic change by reducing the green house emissions. Continuous monitoring of the environmental issues and steps to improve the policies, programs and performances should be an ongoing process.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 107

Environmental DNA Metabarcoding: A promising tool for monitoring Biodiversity

Karan Singh Rajput

Department of Zoology,
Govt. Ganesh Shankar Vidhyarthi College Mungaoli, Ashoknagar (M.P.), India

ABSTRACT

Biodiversity is all different kinds of life forms found in one area like variety of plants, animals, fungi and microorganisms. Each of these species and organisms work together in harmony in ecosystem to maintain balance and support life. But as humans put increasing pressure on the planet, using and consuming more resources than ever before, we are disturbing the balance of ecosystems and losing biodiversity. Due to this, number of many species of mammals, fishes, amphibians, reptiles, aves and mammals are decreasing very rapidly and many of which are now even facing a threat to be extinct. So there is an urgent need to protect/conserve biodiversity to save environment. All conservation efforts to save biodiversity essentially depend on the monitoring of species and populations to obtain reliable distribution patterns and population size estimates. Normally, surveys involve going out and looking for species of plants, birds or mammals. However , traditional monitoring techniques remain problematic due to difficulties associated with correct identification of cryptic species or juvenile life stages, a continuous decline in taxonomic expertise, non-standardized sampling, and the invasive nature of some survey techniques. But in recent decades, the advancement of DNA sequencing technology has given scientists an entirely new way to monitor wildlife. Rather than going out to find the animals themselves, all that is needed is a tiny sample of their eDNA. Environmental DNA (eDNA) – defined here as: genetic material obtained directly from environmental samples (soil, sediment, water, etc.) without any obvious signs of biological source material is an efficient, non-invasive and easy-to-standardize sampling approach. Samples are taken from the environment via soil, water, sediment or air from which DNA is extracted, and then amplified using general or universal primers in polymerase chain reaction and sequenced using next-generation sequencing to generate thousands to millions of reads. From this sequenced data, species presence can be determined using reference DNA database through Bioinfor matics approach, and overall biodiversity can be assessed. F rom this information, detection and classification of species is possible. eDNA maycome from skin, mucous, saliva, sperm, secretions, eggs, feces, urine, blood, roots, leaves, fruit, pollen, and rotting bodies of larger organisms. Results from eDNA metabarcoading approaches have provided valuable insights to the study of ancient environments and proven useful for monitoring contemporar y biodiversity in terrestrial and aquatic ecosystems.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

Abstract No. 108

Microbiological methods for analysis of drinking water

Richa Mahant

Institute of Paramedical Sciences
Jiwaji University (M.P.), India

ABSTRACT

Water resources are great significance for various activities such as drinking, irrigation and aquaculture and power generation. Now a day's exploitation of fresh water resources results into contamination by various disease causing microorganisms like bacteria and viruses. Various studies reporting an alarming prevalence of various diseases causing microbes in drinking water and recreational water. The use of this water may lead to several life threatening diseases. Common diseases spread by water are typhoid fever, diarrhoeal diseases and cholera. Natural water can be contaminated with *Pseudomonas* spp, Flavobacterium, Chromobacterium and *Acinetobacter* etc. Fecal and total coliform counts can be performed using the standard membrane filtration technique and multiple tube technique to check the growth of these microorganisms on water samples. Bacteriological identification with molecular methods are advanced techniques. The immunological, polymerase chain reaction (PCR) and in- situ hybridization (ISH) techniques are some of the examples of them. In the immunological approach, various antibodies against colifor m bacteria have been produced. Significance of water as a potent ecological factor can be appreciated only by studying its physico-chemical and microbial characteristics.

Abstract No. 109

Under Ground Natural Resources can be explored by using the Geo-Electrical Survey method Successfully: A Case Study

Pradyumna Kumar Jain

School of Studies in Earth Science,
Jiwaji University, Gwalior (M.P.), India

ABSTRACT

In Dirman area, high commercial value, natural resources are well explored by using the geo-electrical survey method. The natural resource is recognized as Doleritic rock, which is well known as black stone in the building material market.The black stone is covering ver y large area and find beneath the ear th surface, as lying from 35 feet to indefinite depth at some places. During the geo-physical survey, the said rocks are observed as dyke form and making Mushroom like structure, that's why thickness of the black stone is not uniform. Some places it is lying in between the two low resistance rocks.High resistance (9999 Ω) Doleritic rock is showing high strength, generally used as foundation stone, road metal, building material and some time as decorative stone.The said survey is carried out for M/S Siddhi Vinayak Stone Aggregate, Kushwaha Colony, Etawah road, Bhind (M.P.), at in and around the Dirman village, block-Gohad in Bhind district. Total 13 VES have been recorded well during the survey in the year of 2019. Now days, in 15 hectare area, well equipped open cast mine is developed by the authorities within the survey site to exploit the said rocks well. A crusher plant is also installed near the site for making the building materials of various sizes as demand of the market.

Abstract No. 110

Economic and Grainage Attributes of Eri Silkworm with Different Castor Genotypes

G. Swathiga, S. Manimegalai, S. Ranjith Kumar and C.N. Hari Prasath

Department of Sericulture,
Forest College and Research Institute, Mettupalayam (T.N.), India.

ABSTRACT

Eri silkworm (*Samia cynthia* ricin) is one of the most exploited, domesticated and commercialized non mulberry silkworms. Eri silk production and productivity depends highly on feeds consumed by eri silkworms. A study was undertaken to evaluate different castor genotypes for the rearing performance of C2 breed. The treatments were laid out in a Completely Randomized Design (CRD) with three replications. The performance of eri silkworm viz., larval parameters, cocoon parameters and grainage parameters were studied by feeding them with the leaves of five castor genotypes separately in tray rearing method. The genotypes showed significant differences among rearing and grainage parameters of C2 breed of eri silkworm. Among the five genotypes, GCH 4 and DCH 519 genotypes showed superior among all the other genotypes on rearing and grainage performance. This study reveals that of the five castors genotypes GCH 4 cultivation would be more beneficial to the castor far mer for ERI culture as it yields more af ter local castor variety.

Abstract No. 111

Cadmium Toxicity induced Histological Alteration in Kidney of Fresh Water Fish *Heteropneustes fossilis*

Madhulekha and Sunita Arya

Department of Zoology
D G P G College, C S J M University, Kanpur (U.P.), India

ABSTRACT

The aim of this paper was to assess the toxicity of cadmium induced histological alteration in kidney of freshwater fish *Heteropneustes fossilis* at Kanpur, India. *Heteropneustes fossilis* was exposed to sublethal concentrations of 0.5 and 1.0 ppm Cadmium for 60 days and observed by light microscopy after staining with Haematoxylin- Eosine. Exposed fishes showed severe basement membrane of glomerular capillaries and Bowman ' s capsule was slightly degenerated. Glomeruli cells were hypercellular. There were proliferation of mesangial cells and endothelial cells also observed. Hypertrophy of these two cell types was observed. The mesangial matrix was also increased. In glomeruli, lysis of red blood cells was also noted. No other changes were observed in glomeruli but inner wall of tubules was damaged. The tubular damage was extensive and accumulation of red blood cells in between the tubules was prominent. The experimental fishes showed some ruptured tubular cells and nuclei show sign of shrinkage and clumping of blood cells.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 112

Assessment of genetic diversity using EST-SSR markers of *Bergenia ciliata* in Indian Himalayan Region

Harish Chandra Singh[1], Avinash Tiwari[2] and Tikam S. Rana[1]

[1]CSIR-National Botanical Research Institute Lucknow (U.P.), India
[2]School of Studies in Botany, Jiwaji University, Gwalior (M.P.), India

ABSTRACT

Bergenia ciliate (Haw.) Sternb. (Saxifragaceae) is a perennial medicinal herb found between in the Indian Himalayan Region (IHR). In the present study, genetic diversity of 96 individuals from eight populations in IHR using 17 newly developed EST-SSR markers was estimated. The genetic diversity of the MSR population (He=0.543, I=1.067) was the highest, whereas the DRJ population (He=0.309, I=0.419) showed the lowest. PIC value varied from 0.219 (BC73) to 0.897 (BC7) with an average value of 0.538 per SSR marker. The analysis of molecular variance (AMOVA) showed that 81.76% of the total genetic variation was within populations, while 10.55% was among populations and 7.69% was among the regions. In addition, a moderate to high level of genetic differentiation was found between the populations (F_{ST} = 0.182), which could be indicative of low to moderate gene flow (Nm=0.669) in the B. ciliata populations. The UPGMA analysis and principal coordinate analysis (PCoA) revealed that eight populations differentiated into two groups. The populations such as CHT, MSR, BWS grouped together with DGF, GSI, KUL in the cluster I, while population PNL and DRJ grouped in cluster II. The STRUCTURE analysis of the 96 individuals showed three clusters, and is independent of the clustering patter n of PCoA and UPGMA. The findings of this study has provided an important insights for the development of conservation and germplasm management strategies for this valuable medicinal species.

Abstract No. 113

Histological Study of Aqueous Extract of Polyherbal Formulation in Alloxan Induced Diabetic Rats

Geetanjali[1], Shakti Bhardwaj[2] and Rakesh Bhargava[3]

[1]Department of Zoology, S.M.S. Govt. Model Science College Gwalior (M.P.), India
[2]Department of Zoology, Govt. KRG PG (Autonomous) College, Gwalior (M.P.), India
[3]DRDE, Microbiology Division, Gwalior (M.P.), India

ABSTRACT

Medicinal plants and herbal formulations have been used as folk medicines for the treatment of hyperlipidemia, diabetes and related metabolic disorders in Asian counties. Current study was designed to evaluate the therapeutic potential of three ratio of polyherbal formulation consisting of *Trigonella foenum-graecum* (methi), *Withania somnifera* (Ashwagandha), *Butea monsperma* (Palash) in alloxan induced diabetic rats. Rats were grouped into 6 groups and induced diabetes using 100mg/kg alloxan monohydrate except control group. Group I served as control, group II was diabetic group and group III was considered +ve control (glibenclamide treated). Group IV, V and VI were treated with 250, 500 and 700mg/kg b.wt. of polyherbal formulation upto 28 days of experiment. Biochemical and haematological parameters analysis also was done of experiment. The histopathological study showed that there was regeneration of pancreatic -cells. The results observed with polyherbal formulation were found to be comparable to those obtained with glibenclamide. Results suggested that the polyherbal formulation possessed antidiabetic activity.

Abstract No. 114

Transmission of viruses causing mosaic disease of chilli (*Capsicum annum*)

Vipin Kumar, Ravindra Kumar and Drinkal Yadav

Post Graduate Department of Botany
M.L.K (P.G.) College, Balrampur (U.P.), India

ABSTRACT

The virus causing chilli mosaic disease in Tarai region of U.P. was transmitted by mechanical means with the aid of buffer containing antioxidant and other additives.It wasn't spread by way of the chilli seeds. *Aphis gossypii G*lov. and *Dactynotus sonchi* L. were also non-persistent carriers of the virus, with the latter being more effective. The virus was inactive between 70 and 75 degrees Celsius, at dilutions of 10 to 10, and at room temperature for up to 96 hours. A total of 38 test hosts from the Solanaceae, Compositae, Amaranthaceae, Aizoaceae, Apocynaceae, Chenopodiaceae, Cucurbitaceae, and Leguminosae were infected by the virus. The virus shared a serological relationship with the Alfalfa mosaic virus (AMV), but not with the cucumber and tobacco mosaic viruses.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 115

Prevention of tissue damage in the vital organs of *Clarias gariepinus* through feed supplementation

K. Vandana Rani[1], Vipin Kumar Verma[2] and Om Prakash[2]

[1]Department of Zoology, Kalindi College, New Delhi, India
[2]Department of Zoology, Sri Venkateswara College, New Delhi, India

ABSTRACT

Fish aquaculture provides about 16% of total protein requirement of people in the world. However their production is always under the threat of chemical contaminants and biological pathogens which majorly affect fish health. Recent reports have revealed a steady increase in the number of species that are affected with fish disease. Present study illustrates the deteriorative changes in tissue of *Clarias gariepinus* in response to infection of *Aeromonas hydrophila*, a gram negative fish pathogenic bacterium. The effect of *Ficus benghalensis* prop root powder on vital organs of fish (liver, spleen & head kidney) when challenged with Aeromonas hydrophila and fed with an artificial fish feed @ 5% w/w was studied. Fish were divided in different groups: Group I) Negative control (injected with saline and fed on non-supplemented feed), Group II) Positive control (challenged with *A. hydrophila* and fed on non-supplemented feed), Group III & IV) Experimental groups challenged with *A. hydrophila* and fed on feeds supplemented with *F. benghalensis*. Histo-pathological examination of liver, spleen and kidney tissue of *C. gariepinus* from positive control group showed severe damage. While experimental groups III & IV did not show any considerable changes with respect to negative control group. The findings of this study suggest the beneficial effect of these plants when introduced in artificial feed of fish.

Abstract No. 116

Study on roadside tree-animal interaction in Chitrakoot

Surya Kant Chaturvedi, Shalini Singh, Prarthana Devi and Rachna Singh

Wildlife Biology Lab, Department of Biological Science
Mahatma Gandhi Chitrakoot Gramodaya Vishwavidyalay, Chitrakoot, Satna (M.P.), India

ABSTRACT

Forest and tree cover are decreasing due to many anthropogenic activities. It causes global warming, biodiversity exploitation, decreasing forest and tree cover, decreasing natural resources and ecosystem disturbance etc. Trees provide animals shelter, food, protection, and oxygen etc., and animals helps trees in pollination, CO2, seed dispersal, making soil fertile and etc,. Without animal plant interaction, there cannot be imagined life in the Earth. For having life in the future Earth, the animals, plants and their interaction is very essential for existing life in the Earth. Here, we studied *Ficus religiosa, Ficus benghalensis, Magnifera indica, Azadirachta indica, Maduca longifolia* and *Polyalthia longifolia* to know dependent animals on the certain trees on the road side. We observed and collect data winter and summer seasons. We found out that 53 species of animals were depending on the trees of road side. Some of animals were endangered also. The study helps to understand tree ecosystem, the value of certain tree concerning its biodiversity under its canopy.

Abstract No. 117

Role of Tribal Women in Conserving Biodiversity

Manisha Sharma and Jaishree Daverey

Department of Zoology
Janki Devi Bajaj Government Girls College, Kota (Raj.), India

ABSTRACT

The role of indigenous communities in preserving, protecting and sustaining forests is commendable. They have nurtured and worshipped the forests. The tribal population in India are deeply connected to their communities and possess a profound understanding of their ecosystems. Studies have shown that tribal women play an important role as culture keepers and care takers of ancient tribal practices and traditional knowledge. They also possess valuable understanding on various issues such as the climate crisis, forests, and sustainability. There are several examples of individuals and groups of women from within tribal communities who have shown the way for inclusion and development. Young tribal women are helping lower maternal mortality rates in Araku valley, Andhra Pradesh, with no maternal deaths reported for three consecutive years prior to the pandemic. As they possess ancient knowledge regarding ethno medicinal values of trees, shrubs and herbs their voices need to be heard on community platforms like Panchayati Raj Institutions and Jan Arogya Samiti. Additionally, providing them with learning systems would go a long way in building knowledge, capacities and leadership so that they can shine at the forefront.

Abstract No. 118

Study on Concentration of Pd, Cu, Ni, Cd and Zn on Spinach, Fenugreek, Coriander and *Amaranthus* Growing near heavy Traffic areas of Bhopal

Asha Verma and Neelesh Agrawal

Department of Chemistry
Govt. Dr. Shyama Prasad Mukherjee Science and Commerce College, Bhopal (M.P.), India

ABSTRACT

Leafy Vegetables are important sources of many nutrients, including vitamins, dietary fibre, folate (folic acid), minerals and have beneficial antioxidative effects. Heavy metals like Pd, Cd, Ni, Cu and Zn are majorly release fromvehicular exhaust and non-exhaust emissions. These heavy metals in the form of minute aerosols particles can easily penetrates through the tissues of Leafy vegetables (Spinach, Coriander, Amaranthus and Fenugreek) due to broad size of their leaves and thin tissues. These metal containing aerosols may lead high accumulation of heavy metals in leafy vegetables due to atmospheric depositions. The number of vehicles in operation increasing year by year and lengthening of trips have resulted in the emissions of larger concentration of metals originating from brake, tyre, and road wear and engines. Zn is the most abundant heavy metal from tire wear. Its high concentration resulted from the addition of ZnO to the tire during vulcanisation of Tyre rubber. The significant level of Cu in vegetables growing in road sides areas may be due to high rate of brake abrasion from the vehicles. Due to heavy metal deposition by vehicular emission in road side growing leafy vegetables, heavy metal contents of these leafy vegetables should be determined properly as well as possible health risks assessment should be properly done. This research is an attempt to determine the effect of heavy metals coming out from vehicular exhaust and non-exhaust emissions on the leafy vegetables grown near road side areas.

SUPPLEMENTARY ABSTRACTS

Abstract No. 1

Sustainable development plan for restoration of abandoned quarry sites with suitable mitigation measures – A geospatial technology based study

R. S. Chaurasia and S. N. Mohapatra

S.O.S. Earth Science
Jiwaji University, Gwalior (M.P.), India

ABSTRACT

Mining activities involve delving beneath the earth's surface for the drive of manipulating the mineral resources. Whereas quarrying is the process of extracting rock, sand, or other minerals out of the earth and using them to make building materials or other products. Therefore, a quarry is any operation where minerals are taken out from the earth's surface. Quarrying activity produces massive dumps on the ground far from sites. However, quarries damages not only the land surface but also the natural vegetation as well as biodiversity. Geospatial technology has been used to identify the abounded mining area in north-eastern part of the district Jhansi and the quarry sites were verified and validated by groundtruth and field survey conducted in the year 2021. The geographical location of the selected abandoned quarry sites ranges from 25° 27' 32.0688" N - 25° 28' 8.9328" N and 78° 39' 24.6384" E – 78° 39' 59.3064" E and the total geographical area covered as 108.59 ha. The severity of abandoned quarry sites are not only deteriorating the land surface but also restricted the grazing animals as there are no useful biomass. As per the conclusion of results, the details of suggested restoration and management plan for affected/ abandoned quarrying sites with suitable mitigation measures are categorize in two parts *i.e.,* management plan for suitable mitigation measures (stabilizing slopes and creating artificial slopes; backfilling of the quarry pits; adding organic matter on slopes for plantation; protection of treated sites) and plan for restoration (afforestation; vetiver grass plantation; development of nature trails; grazing land; aqua-cultural practices; rain water harvesting). The abandoned mining/quarry area may be developed as above mitigation measures. It is also suggested that remote sensing and GIS/ GPS technique integrated with drone technology may be very helpful for live/ post monitoring of abandoned quarry areas.

Abstract No. 2

Hydroponics: The Future Agriculture

S.P Srivastava, Renu Goyel and Divayanshi Pandey

Department of Zoology
P.P.N College Kanpur (U.P.), India

ABSTRACT

As the name suggest HYDRO means WATER and PONICS means LABOUR. Basically hydroponics is the science of cultivation of plants in water without soil. In this technology we can grow plants using only water. It is more advanced way to provide food and water to our plants. Plants indirectly utilise the soil to get the nutrition. This may be a step towards ORGANIC FARMING. In a hydroponics garden, In the absence of soil, water provides nutrients, hydration and oxygen to plant life. Hydroponics has a long history, it was first started in the Ancient city of BABYLON (Iraq) with its famous HANGING GARDENS, which are listed as one of the seven wonders of ancient world. The floating gardens of AZTECS in CENTRAL AMERICA are another example. With the help of this technology we can grow high value food and vegetables like strawberries, spinach, onion, tomato, lettuce, coriander, sunflower, garlic, cucumber, cabbage,radish,etc. Here are some great advantages of this technology- Water usage is reduced by 98% as water is reused in this technology, no soil is used, so there is no chances of weed,pest and diseases, more plants can be grown in less area , faster growth rate, no pesticides used in this technique, complete control over climate, we can cultivate throughout the year. With the help of this technology NASA grew plants in space in zero gravity, in INTERNATIONAL SPACE STATION, opening up the possibility of sustainable agriculture in space. I also did an experiment using fenugreek seeds with the help of hydroponics and the results were encouraging and this experiment was conducted in 2021-2022. As per united nation, it is estimated that total world population will increase to 8.5 billion by 2030. Then there will be 80% increase in food requirement. Due to rapid urbanisation now only 65% fertile land is available. WHO also noted that one-third of children die due to malnutrition. To overcome the food scarcity is not easy and the path is so long but HYDROPONICS FARMING can be a gamechanger and make a significant difference.

Abstract No. 3

Reintroduction of Cheetahs in India

Fatima Farhan and S.P. Srivastava

Department of Zoology
P.P.N. College, Kanpur (U.P.), India

ABSTRACT

On 17 September, 2022 eight cheetahs were imported from Namibia as a part of an International translocation project . Then these cheetahs were set free for rehabilitation in the Kuno-Palpur National Park, M.P. About 50 years ago these animals were natural inhabitants of Indian Forests. But due to indiscriminate hunting they became extinct from India. The main motive behind this rehabilitation was to restore the India's historic evolutionary balance and to rejuvenate a important missing link of our forest and grassland ecosystem. This will help in conserving biodiversity and maintaining the environmental services like water security, carbon sequestration and soil moisture conservation, benefitting the society at large – : said the Prime Minister's Office. In between the excitement of reintroduction of cheetah in India we should not forget that it was an animal forgotten in pages of history about 50 years ago. This effort is like ' Ghar Wapsi' for it.

Abstract No. 4

Tourism potentials and culture in Tribal India: A Case Study on Sahariya Tribes of Shivpuri and Guna districts (M.P.), India

Sanjeev Suman

Department of Hotel and Tourism Management
Jiwaji University, Gwalior (M.P.), India

ABSTRACT

Sahariya tribe is a primitive tribe of Madhya Pradesh. The history of sahariya tribe has been completely mysterious. Much information has been known about this tribe but much more remains to be known. The purpose of this secondary research paper is to explore the possibilities of tourism and economy in Sahariya areas of Shivpuri and guna (Madhya Pradesh) and to observe the of sahariya tribe closely, which includes studying on their lifestyle, culture, heritage, costumes, values, belief, deities and traditions. Also focus to promote the tribal economy and culture to grab tourist's attention and encourage for tribal tourism activity, where tourists can visit these natural, tribal places to know how these communities live a happy life in a few resources. This research paper help in understanding the present Indian tribal culture in relation with the cultural history of the Sahariya tribe. The nature of this paper is descriptive in nature and Secondary resources have been used to write the research paper. This research paper was written after an extensive literature review.

Abstract No. 5

Wetland management for Biodiversity Conservation

Mitra Pal Singh

Department of Zoology
Paliwal (P.G.) College, Shikohabad, Firozabad (U.P.), India

ABSTRACT

India has a wealth of wetland ecosystems that support diverse and unique habitats. These wetlands provide numerous ecological goods and services but are under tremendous stress due to rapid urbanization, industrialization and agricultural intensification, manifested by the shrinkage in their areal extent, and decline in the hydrological, economic and ecological functions they perform. This paper reviews the wetland wealth of India in terms of their geographic distribution and extent, ecosystem benefits they provide, and the various stresses they are exposed to. The paper also discusses the efforts at management of these fragile ecosystems, identifies the institutional vacuum and suggests priority area where immediate attention is required in order to formulate better conservation strategies for these productive systems. It has been found that management of wetlands has received inadequate attention in the national water sector agenda. As a result, many of the wetlands are subject to anthropogenic pressures, including land use changes in the catchment; pollution from industry and households; encroachments; tourism; and over exploitation of their natural resources. Further, majority of research on wetland management in India relates to the limnological aspects and ecological/environmental economics of wetland management. But, the physical (such as hydrological and land use changes in the catchment) and socio-economic processes leading to limnological changes have not been explored substantially.

Abstract No. 6

Analysis of Antioxidant Activity of *Solanum sisymbriifolium* Aerial Part Extract

Richa Singh and Jyoti Vandana Mani

Department of Chemistry
Sam Higginbottom University of Agriculture Technology & Sciences (SHUATS)
Prayagraj (U.P.), India

ABSTRACT

The aim of the present study was to evaluate the antioxidant activity present in the *Solanum sisymbriifolium* aerial part extract. The collected aerial part of the plant was subjected for the extract preparation by soak method using water as a non-toxic, least expensive and safest solvent. The qualitative phytochemical investigation of the extract disclosed the presence of many bioactive secondary metabolites such as phenols, tannins, alkaloids, flavonoids, steroids, and saponins. The bioactive metabolites are the fundamental source for the antioxidant property of the plant besides novel drug development. Furthermore, the prepared aqueous extract was evaluated for the antioxidant activity by 2,2-diphenyl-1-picrylhydrazyl (DPPH) free radical scavenging assay and Ferric ion reducing antioxidant power (FRAP) assay using UV-vis spectroscopy at different concentrations of 20, 40, 60, 80, 100 μg/ml. The results showed that the % inhibition of the DPPH free radical by the prepared aqueous extract ranges in between 15 to 65 % of inhibition and the results of FRAP assay revealed that with increasing concentration of the aqueous extract, the reducing power also increased significantly. Thus, our findings, demonstrated that the *S. sisymbriifolium* aerial part aqueous extract, prepared via soak method, is capable of scavenging DPPH free radicals and reducing Fe^{3+} into Fe^{2+} ions, which confirmed its significant antioxidant activity for the novel drug development.

Abstract No. 7

A Review on Biodiversity of Cestode Parasites from Khandesh region

Ajit Kalse, Yuvraj Bhosale and Sanjay Patil

PG Department of Zoology
Nanasaheb Y. N. Chavan Arts, Science and Commerce College
Chalisgaon, Dist. Jalgaon (M.S.), India

ABSTRACT

The objective of the present study was to study the biodiversity of cestode parasites of Khandesh region. A total of 60 types of vertebrate host were examined, out of which 30 types of host were infected with cestode parasites, which belongs to 39 genera, seven genera of Pisces, two genera from Amphibia, single genera from Reptiles, Sixteen genera from birds and Thirteen genera from Mammals respectively (Viz., *Circumoncobothrium spp., Tricircumoncobothrium spp., Senga spp., Lytocestus spp., Polyoncobothrium spp*., *Bothriocephalus spp.,* and *Lecanicephalum spp.* from Pisces. *Oochoristica* and *Proteocephallus* from Amphibia, *Oochoristica* from Reptiles, *Cotugnia, Raillietina, Eugonodaeum, Pseudochoanotaenia, Similuncinus, Panuwa, Ophryocotyloides, Krimi, Killigrewia, Mogheia, Vampirolepis, Dilepis, Parorchites, Diplophallus, Davainea* and *Sureshia* from Birds and *Thysanotaenia, Anophryocephalus, Taenia solium (Taenoid larva), Hymenolepis, Vampirolepis, Shindeocephalus, Shindeobothrius, Moniezia, Aliezia, Avitellina, Stilesia, Diplopylidium,* and *Diphyllobothrium* from Mammalian host. The author compiles the data studied by various researchers during 1990 to 2020 from the Khandesh region. The present study will be helpful to database and status of biodiversity of cestode parasites from Khandesh region

Abstract No. 8

Effects of Beauty Products on Human Health & Environment

Nazish Nawaz[1], S.P Srivastava[1] and Nidhi Srivastava[2]

[1]Department of Zoology, P.P.N PG College, Kanpur (U.P.), India
[2]Department of Chemistry, P.P.N PG College, Kanpur (U.P.), India

ABSTRACT

According to the previous study , as we know beauty products have become an essential part of our Life, which is also necessary for today's life, but on the other hand the same beauty products are also harmful for us. On the basis of survey of urban and rural areas, where 99.9% people use beauty products in daily life which is also good for their skin but somewhere it is also very harmful for human health, like PARABEN is a most common chemical used in beauty products like perfumes, deodrants, moisturisers, shampoo, bodywash, and makeup ,and increases the chances of skin cancer . As we know that hair products used in every household like shampoo and conditioner with added sulfates. These surfactants like SLS (sodium lauryl sulfate), SLES (sodium laurth sulfate) and ALS (ammonium laurth sulfate) are all damaging. They can cause an allergic reaction on your scalp and may even cause fizzy hair and hair fall. SLS is the ingredients in the soap carries a high concern for irritation of the skin and eyes. Chemical like PABA, benzophenone, oxybenzone and homosalate are used in suns creams. They are believed to absorb light, but they cause damage to the body instead of protecting. They are many types of allergic problems by using daily chemical like, dry skin, Breakouts, allergic reaction, eye infection, agning, etc. Chemical beauty products is also harmful for our environment like perfumes body spray and deodorants an also cause for air pollution (voc) volatile organic compounds is found in Beauty products cosmetic products do not break down and keep pulling up in our ecosystem the toxins then and up in our oceans, lakes, streams, rivers and water supply.

Abstract No. 9

Status of Exotic Alien fish species in river Yamuna at Mathura, Uttar Pradesh, India; and its impact on fish Biodiversity

Praveen Ojha

Department of Zoology
K.R. P.G. College, Mathura (U.P.), India

ABSTRACT

Introduction of Invasive fish species for aquaculture purposes has become a threat to indigenous fishes in our rivers. Unauthorized introduction of Common carp (*Cyprinus carpio*), African cat fish (*Clarias geriepinus*), Silver carp (*Hypophthalimichthys molotrix*), Thai magur (*Clarias geriepinus x C. macrocephalus*), Big head carp (*Aristichthyes nobilis*), Tilapia (*Oreochromis mossambicus*), *Pangasius sutchi*, Mosquito fish (*Gambusia spp*.), Grass carp (*Ctenopharyngodon idella*) are some of the exotic alien species in to aquaculture causes major threat as these fish species destroying the native fish fauna, check the growth of same feeding habits fishes , spreading unwanted diseases to the native fishes. The "deliberate or accidental introduction" of the alien species was identified as a key component of the human induced biodiversity crisis that is har ming native species and disturbing the ecosystem processes. 54-fish species belonging to 15-families were recorded in Mathura waters so far. Species of the family Cyprinidae were most dominant followed by Bagaridae, Schilbeidae, Clupeidae, Ophiocephalidae. As far as concern with the trophic utilization of fishes; carnivorous fishes were dominant followed by herbivorous and omnivorous. In the present study recorded 16 -Species belonging to 15 genera and 8 families, of which reported 4-species as Alien. *Oreochromis nilocticus, Cyprinus carpio, Hypopthalmicthys molitrix and Clarias geripineus* are the alien species for the communities in Yamuna River and corresponding one of the major reason in decline of native fish fauna of River Yamuna.

Abstract No. 10

Bio-Fuels for Sustainable Development

Nidhi Gupta

Department of Botany
D.G.P.G College, Kanpur (U.P.), India

ABSTRACT

Biofuel is any fuel that is derived from biomass, plant or algae material or animal waste. Since such feedstock material can be replenished readily, biofuel is considered to be a source of renewable energy, unlike fossil fuels such as petroleum, coal, and natural gas. Biofuel is commonly advocated as a cost-effective and environmentally benign alternative to petroleum and other fossil fuels, particularly within the context of rising petroleum prices and increased concern over the contributions made by fossil fuels to global warming. Many critics express concerns about the scope of the expansion of certain biofuels because of the economic and environmental costs associated with the refining process and the potential removal of vast areas of arable land from food production. Biodiesel is not only sustainable, it's a more environmentally-friendly, cleaner-burning option that can be used in diesel engines without modification. In fact, biodiesel decreases greenhouse gas emissions by up to 86%. Biofuels are being promoted as a low carbon alternative to fossil fuels as they could help to reduce green house gas (GHG) emissions and the related climate change impact from transport. Biofuels are liquid or gaseous transport fuels such as bioethanol and biodiesel made from biomass. They serve as renewable alternatives to fossil fuels in the EU's transport sector, helping to reduce greenhouse gas emissions and improve the EU's security of supply. Replacing fossil fuels with biofuels has the potential to generate a number of benefits. In contrast to fossil fuels, which are exhaustible resources, biofuels are produced from renewable feedstock's. Thus, their production and use could, in theory, be sustained indefinitely.

Abstract No. 11

Environment and Human diseases

Anand Kumar Bajpeyee

Department of Zoology
M.L.K. (P.G.) College, Balrampur (U.P.), India

ABSTRACT

Environmental changes are associated with human health issues such as emerging infectious diseases, food security, etc. Collaboration between veterinary, medical, and public health professionals to understand the ecological interactions and reactions to flux in a system can facilitate a clearer understanding of climate change impacts on environmental, animal, and human health. A review of current knowledge on the impacts of climate-driven environmental change on human health. Human health and well-being are intimately linked to the state of the environment. Due to rapidly increasing impacts on our planet, threats to human health are escalating. Among these threats is an increasing incidence of cancer caused by pollution of air, land, and water and outbreaks of infectious disease caused by habitat disr uption. Good quality natural environments provide basic needs, in terms of clean air and water, fertile land for food production, and energy and material inputs for production. Green infrastructure also serves to regulate climate and prevent flooding. Access to green and blue spaces also provides important opportunities for recreation and supports the well-being.

Abstract No. 12

Impacts of heavy metals on soil, plants, aquatic life, and human health

R.B. Tripathi

Department of Zoology
M.L.K.P.G. College, Balrampur (U.P.), India

ABSTRACT

Composting is very cheap and reliable techniques for the solid waste containing organic matter .If the compost contains contaminants such as heavy metals then it is harm to environment. Heavy metals are toxic to soil, plants, aquatic life and human health if their concentration is high in the compost. Heavy metals exhibit toxic effects towards soil biota by affecting key microbial processes, decrease the number and activity of soil micro-organisms .Even low concentration of heavy metals may inhibit the physiological metabolism of plant. Uptake of heavy metals by plants and subsequent accumulation along the food chain is a potential threat to animal and human health. Contaminants in aquatic systems, including heavy metals, stimulate the production of reactive oxygen species that can damage fishes and other aquatic organisms. Hence the compost has to be use for agriculture it should be free from heavy metals. Therefore, the present study evaluated the impacts of heavy metals containing compost on soil, plants, aquatic life and human health.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 13

Caffeine induced mutagenesis in an important medicinal and spice crop – *Trigonella corniculata* L.

Neha Naaz, Sana Choudhary, Nidhi Sharma, Nazarul Hasan and Parul Verma

Department of Botany
Aligarh Muslim University, Aligarh (U.P.), India

ABSTRACT

Trigonella corniculata L. (Kasuri methi) is a small annual herb mainly grown for green herbage and dried herbs. It is also exploited for its use as nutraceuticals. To increase productivity, there is a demand to advance germplasms with desirable agronomic traits. Induced mutations are exploited to generate extensive genetic variability for developing variants with desirable agronomical traits. Novel genetic variability in qualitative and quantitative traits of fenugreek was induced by caffeine mutagen treatment, using various doses and concentrations viz., 0.2%, 0.4%, 0.6%, 0.8%, 1.0%. The qualitative and quantitative traits were observed from the seedling stage to maturity of the plant, which include plant height and habit, leaf size and leaf shape, fertile branches per plant, number of clusters per plant, number of pods per cluster, number of seeds per pod, weight of 1000 seeds in gram and yield per plant. In moderate and higher doses of chemical mutagen, various morphological variants affecting almost all par ts of the plant were obser ved. However, the quantitative traits at lower and moderate doses of caffeine showed positive effects. The highest total chlorophyll and carotenoid content were found at 0.2%, and the lowest was repor ted at 1.0% concentration. The proline content increased with the increasing concentration of the chemical mutagen. The cytological analysis of M_1 plants revealed a wide range of induced abnormalities like univalents, laggards, chromosome stickiness, disturbed polarity, and stray chromosomes by different mutagen doses. Meiotic studies showed a high frequency of chromosomal aberration in 1.0% concentration of caffeine. The subsequent changes observed in fenugreek can be further used to improve the quantitative and physiological characteristics through the plant breeding programs.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 14

Fish Diversity, Habitat Ecology and Their Conservation in Rajghat Dam, Ashoknagar District, M.P. with Reference to Anthropogenic Activities

Neetu Parihar[1] and Mohit Arya[2]

[1]Govt. Ganesh Shankar Vidyarthi College, Mungaoli, Ashoknagar (M.P.), India
[2]Govt. K.R.G. P.G. (Autonomous) College, Gwalior (M.P.), India

ABSTRACT

Rajghat Dam was built on the Betwa River in Bundelkhand region. The Rajghat dam is an interstate project between Madhya Pradesh and Uttar Pradesh which spans 15644 sq. km. of M.P. and 673 sq. km. of U.P. and is situated 22 km. from the U.P. and 18 km. from Chanderi Tehsil's headquarters in M.P. Geographically it lies between 23° 43' 21" N latitude and 78° 44' 41" E longitudes. The Rajghat Dam provides water for the production of electricity, irrigation for agricultural purposes, and development of fisheries, as well as the delivery of drinking water for the people of Ashoknagar district. The reservoir's maximum length is 11200 metres, and its height is 43.8 metres. The aquatic ecology of the dam contains a wide range of biodiversity, from minute planktonic organisms to bigger vertebrate animals like fishes, amphibians, reptiles, birds and mammals. There are several different species of fishes found in this water body. The present survey is conducting during regular intervals in different seasons. The local fish catchers assisted in the collection and identification of fish samples from several sampling locations. These fishermen catch fish using a variety of gill and cast nets with various mesh sizes. These nets are set up in the evening, and fish are caught in the morning. With the aid of common genuine keys, the obtained fish samples are analyzed and identified. The identified fish species i.e., *Notopterus notopterus, Tor tor, Puntius sophore, P. ticto, Catla catla, Cirrhinus mrigala, C. reba, Labeo bata, L. calbasu, L. rohita, Aorichthys aor, A. seenghala, Wallgo attu, Clarias batrachus, Heteropneutes fossilis, Mastacembalus armatus, Channa marulius, C. striata and C. punctatus.* The physico-chemical characteristics of water of Rajghat Dam including water temperature, depth, colour, transparency, turbidity, electrical conductivity, pH, dissolved oxygen, free carbon dioxide, total alkalinity, total hardness, chloride, calcium, nitrate, sulphate, phosphate, biochemical oxygen demand and chemical oxygen demand were determined.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

Abstract No. 15

Investigations on antagonism in Cat

Surya Kant Chaturvedi, Rachna Singh and Shalini Singh

Wildlife Biology Lab, Department of Biological Science
Faculty of Science and Environment
Mahatma Gandhi Chitrakoot Gramodaya Vishwavidyalay, Chitrakoot (M.P), India

ABSTRACT

Aggression in animals affects environment, biodiversity, and their social organization. Aggression mostly depends on genetic and environmental factors. There are seen many forms of aggression (territorial, dominance, sexual, parent- offspring, weaning, predatory etc.,). Cat is not only the most popular domestic animals in the world but also remain wild in nature and full of secrets. This paper describes various forms of aggression in cat during summer and winter seasons. It was observed that aggression between cat- cat, cat- dog, cat- mouse with their body position and other pattern. The study will helpful to understand and predict the cat behaviour and aggression through only observing at their body position. It will also helpful to prevent conflict and disturbances in environment and other animals.

Abstract No. 16

Role of Media in Disaster Management

Abhijeet Ingle

Jiwaji University, Gwalior (M. P.), India

ABSTRACT

Mass media have certain qualities that make them effective tools for communicating about disasters. For example, they offer quick and simple access to a significant number of people located in various locations, they highlight the issues and challenges faced by those affected by disasters, and they mobilise public opinion for humanitarian assistance. On the other hand, media sources are aware that the media can occasionally prove to be challenging avenues of communication. There is no direct control over the information being broadcast, and there may be moments when it is competing or even contradictory, which may be very helpful in rallying support for coordinated action. Journalists may not always operate impartially; instead, they may serve as "gatekeepers, translators, and commentators" for the media owners' greater commercial interests. A closer look at the world's media demonstrates that it is not one homogeneous institution that uses a consistent strategy to spread its viewpoints. On the other hand, there are a few powerful groups that vie with one another for more potential customers and financial gain. As a result, during each crisis event, media ethics becomes crucial to reporting. It aids media professionals in deciding what is right and picking the greatest option out of a variety of options. Journalists and other media professionals should be guided by ethics, which should establish standards, norms, codes, and principles.

Abstract No. 17

Biodiversity and Benthic Macro Invertebrate as Ecological Indicators in River Ganga

Anupama Gaur

Department of Zoology
M.M.H.College, Ghaziabad (U.P.), India

ABSTRACT

An important application of our ecological knowledge of stream macro invertebrate communities is the bio assessment of stream eco system health. Aquatic invertebrates live in the bottom part of surface waters. They are also called Benthic Macro Invertebrates. Freshwater ecosystems are facing degradation from human activities in the for m of alterations of flow regimes, changes in land-use, and intensive water abstraction, in turn generating adverse effects on biodiversity and ecological functionality. Efficient assessment of river/stream ecosystem response to such anthropogenic changes is urgently needed. Many human activities that have an effect on water quality and river health are increasing along the Ganga River. The aim of the study was to assess spatial variation in macroinvertebrate assemblages in relation to water quality of the Ganga River. The spatial difference in macroinver tebrate abundance was mostly related to changes in water quality. Presence of pollution sensitive fauna (Ephemeroptera, Plecoptera and Trichoptera) supported the clean water quality while abundance of Diptera and Oligochaeta suggests environmental conditions in a steam have deteriorated. The taxonomic composition of River Ganga at various locations subjected to various water uses indicated variation in dominance sequence of taxa of benthic macro-invertebrates. Biodiversity conservation has focused on large vertebrates compared with smaller organisms such as benthic macroinvertebrates that play a particular role in freshwater ecosystems. The increasing loss and degradation of freshwater habitats, threaten macroinvertebrate biodiversity.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 18

Biopesticides: A Need for Sustainable Agriculture

Saumya Shukla and Jyoti Singh Jadaun

Department of Botany
Dayanand Girl's P. G. College, Kanpur (U.P), India

ABSTRACT

Biopesticides are highly effective for minimizing the crop loss caused by pests and these are proven as a better substitutes for synthetic pesticides. These are eco-friendly as well as cheap which are good attributes for their public usage. Many microbial species or biochemical derived natural sources may provide protection against pesticide damage. The study of biopesticides and their implementation can help to reduce the harmful effects of chemical pesticide on environment. Bio-pesticides may play central role for development of sustainable agricultural practices. Numerous products having bio-pesticidal activity have been developed. Since the emergence of biopesticides, a few of them already placed at dominating position in the market. The scope for biopesticides in India is enormous. Biopesticides account for around 4.5% of global insecticide consumption while making up only 1.3% of either overall and being mostly promoted for pest control today. Over 3,000 tonnes of biopesticides are produced globally each year, and this number is rapidly rising. Approximately, 45% of globally commercialized biopesticides are consumed by USA , Canada, and Mexico while only 5% is consumed by Asia. Bio-pesticides have enormous scope in India but their adoption by farmers in India needs education for maximizing its gains. Many of them are based on local plants like beshram, neem, triphala, which are easily available to farmers. In India, various biopesticides notably *Bacillus sphaericus*, *Bacillus thuringiensis, Trichoderma viride,* NPV, neem-based insecticides, *Cymbopogan*, etc., are currently licensed and are used. Genetically modified bio pesticides are also available but currently no regulations are available for the registering of GM biopesticides that have been authorized by the Pesticide Registration Committee. The creation of biopesticides encourages agricultural modernization and will undoubtedly lead to a progressive abolition of synthetic pesticides. However, some of them exhibit some toxicity, which should be taken into account by the field's experts. Assorted biopesticides are perfect replacements for their conventional chemical equivalents in pollution-free crop yields.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

Abstract No. 19

Ameliorative Proficiency of Medicinal Plants Used by the Rural Community from Surajpur District of Chhattisgarh, India

Dhananjay Pandey and Bharosh Ram

Department of Botany
Govt. Rewati Raman Mishra P.G. College, Surajpur (Chhattisgarh), India

ABSTRACT

Indian traditional knowledge of medicinal plants as curatives is divulging increased attention globally. Chhattisgarh is an herbal state possessing substantial diversity of medicinal plants in many tribal districts including Surajpur. Despite its rich medicinal flora, the region is relatively less explored with special reference to the therapeutic potentiality of medicinal plants. Owing to this scenario, the present investigation deals with the exploration of eighteen medicinal plants which covers fourteen families and their therapeutic formulations extensively used by the rural communities of Surajpur district since time immemorial. The study spots light on the healing efficacy of various plant parts *viz*., root, stem, leaf, seed, bark, fruit, flower and rhizome used by the traditional healers of this region as powder, juice and gel in the amelioration of several alarming diseases such as arthritis, asthma, blemishes, blood pressure, blood sugar, cold, cough, diabetes, digestive disorders, jaundice, piles, respiratory problems, ringworm, skin disease, tumors, ulcers and wound healing etc. The aforesaid documentation confers a clear insight on the vast therapeutic potentiality of the medicinal plants under investigation. Although, the present work is an initial step towards the documentation of local potential medicinal plants having tremendous healing ability with natural, cost-effective and without any side effects. However, in time ahead cutting-edge efforts will be anticipated to extract the bioactive compound from these medicinal plants and to elucidate the complete structure of bioactives using several sophisticated spectral instruments. The present research will lead to the systematic documentation of precious traditional knowledge of local tribal healers and will certainly contribute for the better, safer and cost-effective novel drug development for future generations.

Abstract No. 20

Comparative Assessment of Protein Content and Fungi Associated with Boda from Bastar, Chhattisgarh, India

Dhananjay Pandey and Sheetal Soni

Department of Botany
Govt. Naveen Girls College, Surajpur (Chhattisgarh), India

ABSTRACT

Bastar is endowed with a unique blend of traditional knowledge and rich floral diversity. The region is well known as the island of *Shorea robusta* in natural forest which is a key source for white and black truffle called Boda. It is also known as black gold of sal forest. It sets underground with the onset of early monsoon in the soft and elevated soil. It is an edible mushroom with high protein, vitamin and fiber with low calorific value used by the local inhabitants as delicious food and in the amelioration of heart disease, blood pressure and stomach disorder. Owing to its tremendous health benefits, the present study deals with the assessment of the protein content, isolation and identification of fungi associated with boda. The qualitative analysis revealed that black boda contains more protein content as compared to white boda. The quantitative estimation documented the presence of 0.97 mg/ml and 0.33 mg/ml of protein for 0.2 mg weight of black and white boda respectively. Further, the boda sample were surface sterilized and inoculated on potato dextrose agar and incubated at 28-30 °C for 48 h. A total of fourteen fungi comprising of seven from white boda, three from black boda and four from the soil on the surface of boda samples were isolated. The isolates were subjected to morphological and microscopic characterization. The moisture content analysis showed that black boda contains more moisture content as that of white boda. Thus, boda is not only a nutritionally sound stuff but also provides seasonal employment for boda collecting communities of this area due to its high value in the local market. This is the pioneer research and first report of its kind from Bastar. However, characterization of protein and molecular identification of fungi from boda is the future prospect of the research.

Abstract No. 21

Effect of Zinc and Chromium on Protein Profile of the Fresh Water Fish *Channa punctatus* (BLOCH.)

Prem Sagar

Department of Zoology
Government PG College, Jalesar, Etah (U.P.), India

ABSTRACT

The fish, which sub serves the growing demands of food and is also the best source of protein and mineral salts has also been facing the havoc caused by environmental contamination. The present investigation is to determine the toxicity of zinc and chromium and its toxicological effects on the protein profile of freshwater fish *Channa punctatus*. Significant decrements are shown in the total Protein, Albumin, Globulin and Albumin-Globulin ratio after 15 days, 30 days, 45 days and 60 days exposure of zinc and chromium. This study shown toxic effects of zinc and chromium induced deleterious effect at protein profile in freshwater fish, *Channa punctatus*.

Abstract No. 22

A study on forest fire fighting personnel: National Parks of Madhya Pradesh, INDIA

Rajkumar Mehoriya[1] and Preeti Singh[2]

[1]Management and Commerce, Jiwaji University Gwalior (M. P.), India
[2]Department of Management ITM Gwalior (M. P.), India

ABSTRACT

Forest area of Madhya Pradesh is the largest area of forest in INDIA. There are 12 famous national parks in Madhya Pradesh. Every year in summer the incidents of fire in forest has been increased and burned the large area of these national parks, economic loss estimated millions of rupees from the forest fire and negative consequences for the wildlife and ecosystem of forest. This study light out the facilities are provides the forest worker to fight with fire in forest land, and the impact on the satisfaction of forest employees by existing fire fighting facilities. Through this research paper an effort will also be made that what kind of facility should be provided to the forest workers during fight? As a result, with the help of a risk allowance, insurance with a maximum sum, and advance fire extinguisher equipment facilities, forest workers would be able to do their work effectively and get satisfied with the job. Both primary and secondary source of data have been used to write this research paper which include information gather from the Forest Department of Madhya Pradesh by questionnaire filled by the forest workers, magazines, research papers and articles in news papers. The nature of this research paper is descriptive.

Abstract No. 23

Biological Soil Crusts-A Fragile Microecosystem: Its Main Components, Threats, and Preventive Measures

Meenakshee Pandey

Department of Botany
KNIPSS, Sultanpur (U.P.), India

ABSTRACT

Biological soil crusts (aka cryptogamic, cryptobiotic, microbiotic, or microphytic soil crusts) composed of an interwoven community of cyanobacteria, green algae, microfungi, bacteria, lichens, and mosses. Biological soil crusts are easily visible because of its peculiar color and roughness. In biological soil crusts, cyanobacteria are reported to be present on or just beneath the soil surface. One of the earliest soil crust species to colonize an area is the cyanobacterium *Microcoleus vaginatus* which secretes sticky substances that adhere to soil particles and act as a glue to help to stabilize arid soils. After the cyanobacteria colonize the soil surface, other organisms (like green algae, lichens and mosses) may join them. Biological soil crusts encompasses large areas in arid ecosystems where plant cover is naturally sparse due to water limitation. In some ecosystems, the biomass produced by soil crusts is even greater than that produced by vascular plants. The crusts builds on stability and erosion-resistance to soils along with carrying out other major ecological functions. Cyanobacteria can trap nitrogen from the atmosphere and fix it to the soil that enhances the nitrogen content of cr ust soils several times higher as compared to nitrogen content of soils lacking crusts. Soil crusts can also cater places where plant seeds are protected from the hostile weather conditions and have a higher possibility to thrive. When biological soil crusts gets disturbed, it loses the ability to carry out its basic ecological functions. The significant current challenges to soil crusts comes from extensive and widespread mechanical disturbance from livestock and vehicles. Establishing recreational use in arid areas to particular locations can help prevent widespread soil crust damage. Wildfire is arising as a new, imminent risk to biological soil crusts.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 24

Pivotal Role Played by the species of *Chironomus* (Diptera: Chironomidae) in Aquatic Food Chain Along with the Determination of Ecosystem Health of Aquatic Bodies

Parantap Sarkar[1] and Tanmoy Rudra[2]

[1]Department of Zoology, Rishi Bankim Chandra College, Naihati (W.B.), India
[2]Scientific and Environmental Research Institute (SERI), Kolkata (W.B.), India

ABSTRACT

The species of *Chironomus* inhabit at the benthic region of several aquatic bodies including lakes, ponds, rivers and man-made habitats like sewage and water treatment plants. These non-biting midges comprise major benthic invertebrate fauna and are considered as potent bio-indicators and they have achieved importance for the water quality assessment. They play a pivotal role in aquatic food webs, representing a major link between producers, such as phytoplankton and benthic algae, and secondary consumers. Majority of the species exhibits tolerance to pollution. Several heavily polluted aquatic habitats encompassing industrial establishments in West Bengal were explored for pollution considering the presence of heavy metals as Pb, Cd, As and Cu. All the habitats were inhabited by ubiquitous *Chironomus striatipennis* Kieffer. The fourth instar larvae of the species collected from the sites were investigated for their morphological features and salivary gland polytene chromosomes. The studies indicated that deformities appeared in several phenotypic characters and polytene chromosome of the larvae. These abnormal features of *Chironomus* larvae were in response to the heavy metal pollution in their habitats. *C. Striatipennis* larvae were reared in the artificially created polluted laboratory environment. Induction test on *Chironomus straitipennis* was carried out with different doses of As_2O_3, $PbNO_3$, $CdCl_2$and $CuSO_4$. Investigation revealed that the appearance of deformities of various structure and the aberrations along polytene chromosome arms. Thus the response of *C. striatipennis* Kieffer larvae in polluted habitats appeared to be in consistency with the response of the larvae of the species in the laboratory. Therefore, the larvae of the species of *Chironomus* acted as potent bio-indicator to assess the water quality thereby determining the ecosystem health of the aquatic bodies.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

Abstract No. 25

Reproductive Plasticity in Teleost fishes

Durgesh Singh, Sippy Singh and Atifa Haseeb Ansari

Department of Zoology, S.S. Khanna Girls' Degree College
(A Constituent College of University of Allahabad) Prayagraj, India

ABSTRACT

Teleost, ray-finned fishes belonging to class Actinopterygii are the most advanced form of bony fishes, and dominant in both freshwater and marine habitats. Changes in season are accompanied with variation in behaviour, physiology and endocrinology in animals. In *Oncorhynchus mykiss* (teleost) fish periodic changes are prominent during the gonadal maturation as there is decrease in level of fatty acid and lipid in both liver and muscles which shows that during the reproductive stages, they utilise more lipid and fatty acid as energy resources. It has been reported that, in *Clarias batrachus* amount of muscle albumin vary from season to season and its level increases during the post-spawning period (October). The immune system of fish is affected by seasonal temperature and seasonal cycle affects activities like feeding behaviour, metabolism and reproduction in fishes. Level of cortisol has been observed to be low in inactive gonadal phase while increases during pre-spawning phases and reaches at peak in spawning phase. In *Oncorhynchus mykiss* (rainbow trout teleost) seasonality occurs as thyroid hormone is often elevated during the development of and reproductive process such as gametogenesis and ovulation. In *Heteropneustes fossilis*, steroid hormone shows variation in brain region of fishes as estradiol has been reported to be significantly higher in males during pre-spawning period and in female during spawning period. It has been obser ved that all hormones elevated during the spawning period are involved in gonadal development and maturation in fish.

Abstract No. 26

Role of Higher Educational Institutions in Disaster Management

Alka Asthana and Fauzia

Department of Economics, P.P.N. College, Kanpur (U.P.), India

ABSTRACT

Disasters and calamities have been inflating all over the world. Today, with technological progress, attaining proficiency and its application in the domain of measure is heeded as the foremost persuasive route to stave off disaster. The multidisciplinary and complicated temperament of disaster management, education poses a challenge to higher level of educational organization to make them additionally responsive to industrial prerequisites and to train trainees for specialization in disaster management. Disaster management is an operational, functional and cost-effective mechanism for threat surveillance; it intends to nourish proficiency among people and companies to put up with measures to ameliorate their susceptibility to disaster. Education and learning can take place in diverse domain in better standardized ways. They can influence disaster susceptibility as the ability to predict, cope with, resist and rescue from natural menaces in direct and indirect ways. This paper talks with the role of higher education institution/organizations in delivering disaster management education, the challenges connected with it, and the footpath of dealing with these challenges through the higher education industr y confederation.

Abstract No. 27

Study on Biochemical Constituents based on Physico-Chemical Parameters and Metals Concentrations and Fish Biodiversity and Production

Yadav Sheela and Mishra Dev Brat

Fish Biology Lab. Deptt. of Zoology
Tilak Dhari College, Jaunpur (U.P.), India

ABSTRACT

River water quality is a contemporary issue of major concern . As a result of human activities, water bodies have experienced many ecological modifications. On the earth's other living creatures, including people and other animals and plants. Depend on rivers for their life. The presence of RNA ,DNA, glycogen, and protein as biochemical constituents in the liver and ovaries of Catfish *C. batrachus* reveals that these organs display well-defined seasonal changes. The variety and abundance of fish in their natural habitats and ecosystems are substantially influenced by physic-chemical variables and metal concentrations. Through absorption along the gill surface and gut , fish have the potential to accumulates heavy metals in their organs to higher concentrations than the harmful level in their environment. Damage to the gills has an immediate effect on the rest of fish body and behavior as they are a key target organ for pollutants.

Abstract No. 28

A Study on Removal of Heavy Metals from Aqueous Solution by Low Cost Bioadsorbent

Laxmi Dubey

Department of Botany
SMS Govt. Model Science College, Gwalior (M.P.), India

ABSTRACT

The human health and ecological systems are getting worse because of huge and harmful heavy metals that are found in the water sources due to the rapid industrialization and development in the agricultural sector accompanied with the population growth. Water pollution due to heavy metals is a serious issue. Adsorption is a good phenomenon which is used for the removal of heavy metals from aqueous medium. In the present work comparable study of removal of heavy metals from aqueous medium by low cost modified bioadsorbents were carried out. The selected powered and treated bioadsorbents were characterized by SEM, TEM, XRD, PSA, FTIR, and UV-Vis spectroscopy. Effect of different parameter such as pH, adsorbent dose, contact time and initial concentration of metal ions were investigated by batch adsorption process.

Abstract No. 29

Effect of Sodium Fluoride on Protein Profile in Albino Rats

Shalini Yadav[1] and P.K. Singh[2]

[1]Department of Zoology, Government PG College, Jalesar, Etah (U.P.), India
[2]Department of Zoology, Dr. Bhimrao Ambedkar University, Agra (U.P.), India

ABSTRACT

A substance becomes toxic at the dose which begins to damage an organism. Contrary to popular belief, all substances have certain toxicity. The present investigation is to determine the toxicity of sodium fluoride and its toxicological effects on the protein profile in albino rats. Significant decrements are shown in the total Protein, Albumin, Globulin and Albumin- Globulin ratio after 7 days, 15 days, 30 days, 45 days and 60 days exposure of sodium fluoride. This study shown toxic effects of sodium fluoride induced deleterious effect at protein profile in albino rats.

Abstract No. 30

Comparison of 3 different antigens of *Brucella abortus* for development of an indirect-ELISA for diagnosis of bovine brucellosis

Arvind Kumar Tiwari[1], Subodh Kumar[2], Vijay Soni[2], B. Bharadwaj[3] and G. P. Rai[2]

[1]Department of Zoology, Government PG (Auto.) College, Datia (M.P.), India
[2]Defence Research and Development Establishment, Gwalior (U.P.), India
[3]RDDC, Udaipur (Rajasthan), India

ABSTRACT

Brucellosis is still one of the most common bacterial zoonotic disease in the world and an important cause of animal and human sufferings and economical losses. This disease is caused by gram-negative, non-spore forming facultative intracellular pathogens, *Brucella* species. *Brucella abortus* is the etiologic agent of bovine brucellosis and causes a chronic disease in humans known as Malta fever. In livestock the disease is characterized by abortion and sterility; and in humans by undulant fever, endocarditis, arthritis and osteomyelitis. Serological tests currently used for diagnosis of brucellosis infection are based on the detection of antilipopolysacharide antibodies. The cross-reactions of these antilipopolysacharide antibodies with other gram-negative bacteria have been reported. The development of LPS-free protein based diagnostic system may be the key to overcome the shortcomings. So keeping this problem in mind, the present research work was car ried out to develop an appropriate diagnostic system for detection of brucellosis. *Brucella abortus* S99 genomic DNA was isolated and 10, 14, 20 kDa proteins encoding genes were amplified, cloned and expressed. The recombinant proteins were purified by the Ni-NTA column chromatography. The diagnostic potential of the 3 recombinant proteins for serological diagnosis of bovine brucellosis was tested by performing indirect-ELISA with a total number of 200 brucellosis suspected and 50 apparently healthy bovine serum samples. Results indicated that the 10 kDa recombinant protein had a good potential for specific detection of bovine brucellosis. This protein could be useful antigens for diagnosis of bovine brucellosis. However, to establish the usefulness of this protein as diagnostic reagent, evaluation on large number of clinical samples is essential.

Abstract No. 31

Review of The Control of *Aedes aegypti* (Diptera: Culicoidea: Culicidae) in Agra Region

Seema Yadav and Rajvir Singh Ojha

Department of Zoology
Raja Balwant Singh College, Agra (U.P.), India

ABSTRACT

Aedes aegypti is an anthropophilic mosquito involved in the transmission of a variety of viral pathogens worldwide including dengue, chikungunya, yellow fever and zika viruses. *Aedes aegypti* receives little control options targeting in the Agra. As such event of an Aedes aegypti-borne arboviral outbreak in the Agra. There is limited evidence- based control recommendations or Protocols in place. The increasing frequency of *Aedes aegypti*- borne outbreaks necessitates increased attention and research on control of this species to prevent and mitigate future outbreaks. The purpose of this review is to identify and highlight areas where additional research is needed. The review covers chemical control and insecticide resistance, biological control, source reduction, trapping, and alternative techniques.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 32

An Overview of Helminth Parasites from Freshwater Fishes of Godavari River from Ahmednagar District

N. G. Shinde, Komal and S. Deshmukh

Center Department of Zoology, K.J. Somaiya College, Kopargaon (Maharashtra), India

ABSTRACT

Fishes are cold-blooded vertebrates that dwell in an aquatic environment and breathe by means of gills India is the third largest fish-producing country which ranked second as the world's largest aquaculture fish producer. India contributes about 7% to global fish production. Economically Pisces is a very important group of vertebrates that play an important role in nutrients, income, employment generation, and an important share of the nation's economy. According to Kaldate fish flesh mainly consist high content of proteins. Parasitic diseases of fish are immensely common worldwide and in the tropics, it has its own significance. Numerous Helminth parasite completes their life cycle in freshwater fishes as definitive or intermediate hosts. Parasites affect fish health, growth, and survival. According to recent studies, certain adequate changes in the habitat of fishes may affect fish's health i.e. some emerging health issues like histopathological problems or parasitic infection. Mostly the association between parasites and fish health can't be ignored as they remain present in fishes but when they affect a particular fish species this becomes a matter of concern. Effects observed are decolonization in gills, white spots with mucus secretions at the site of attachment which leads to secondary infection they may destroy cells. The Helminths can damage the host by penetrating deep inside the tissue for nutrition it also leads to physiological changes in fish. Cell proliferation, amoebic gill diseases, immunomodulation, detrimental behavioral responses, and altered growth are the common symptoms observed in fish. Helminth Parasites directly influence the rate of fish production and indirectly they are accountable for the drop- down in the economy. Godavari River is the largest river in southern India, it originates from the Triambakeshwar rages of Western Ghats, which is a holy place of pilgrims, and flows through Nashik, Ahmednagar, and Marathwada region towards the south and drains off in the Bay of Bengal. The Jaikwadi Dam is the largest source for irrigation projects in Maharashtra. Its water is used mainly to irrigate agricultural land in the drought-prone Marathwada region. It also provides water for industrial usage to nearby towns and villages and to the municipalities and industrial areas of Ahmednagar and Marathwada. The current study will help to understand the Helminth association, infection, and their adverse effect on some common freshwater fishes of the Godavari River (Nashik, Ahmednagar region) with reference to histopathology, biochemistry, seasonal variation, prevalence, and water pollution. This study will provide further get ways to resolve or manage such kind of parasitic activities, creating awareness among society.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

Abstract No. 33

A study of the status of water with relation to anthropogenic activities performed in the river Wainganga, Ta. Wadsa Dist. Gadchiroli, Maharashtra (India)

Supriya B. Gedam

Shri Pundlik Maharaj Mahavidyalaya, Nandura (Rly). Dist. Buldana (Maharashtra), India

ABSTRACT

The present paper deals with the study to check the suitability of the water for domestic and drinking purposes. A research study has been carried out to assess the water quality index of Wainganga river at different locations. In this study, the physico-chemical parameters of the Wainganga river at Wadasa , Dist.Gadchiroli , State.Maharashtra. studied for the four locations which use for the many purposes of nearby people like bathing , farming, pooja, washing, etc. In the present paper, water quality index (WQI) was estimated for the River Wainganga to study the effects of human activities on the bank of the river and river water. The study was directed to describe the level of pollution in the river for the locations. The study also identifies the critical pollutants affecting the river water quality during its course through the taluka. The indices have been computed for four locations in the river. These samples are analyzed Physico-chemical parameters like pH, Turbidity(NTU), Total Dissolved Solids (mg/L), Total Alkalinity (mg/L),Total Hardness (mg/L), Calcium Hardness (mg/L), Magnesium Hardness (mg/L), Iron (mg/L),Chloride (mg/L), Fluoride (mg/L), Sulphate (mg/L), were taken to assess the impact of pollutants due to anthropogenic activities .The results are compared with standards prescribed by WHO. Water quality of existing untreated and intermittent chemical & distribution of Wadasa Taluka with special reference to the suitability of water for drinking and domestic purposes. The practical approach shows its unsuitability for drinking without treatment.

Abstract No. 34

Floristic Diversity of Plateaus in Ratnagiri District, Maharashtra and need for their Conservation

Arvind Kulkarni

Arts, Commerce And Science College, Lanja (Maharashtra), India

ABSTRACT

The present paper deals with the study of floristic diversity of different plateaus in Ratnagiri district of the Maharashtra State. Konkan, a coastal plain of western India, lying between the Arabian Sea (west) and the Western Ghats (east) is considered as one of the biodiversity hotspot. The generally uneven terrain is composed of eroded remnant ranges of the Ghats that form low lateritic plateaus in the west and terminate in a coastline of alternating bays and headlands. Plateaus of Konkan are diverse in different types of herbs, shrubs, trees, climbers, aquatic plants, insectivorous plant as well as grasses. The present paper focuses on the biodiversity of those plateaus in the Ratnagiri District.

Abstract No. 35

Studies on the parasitic diseases in certain teleostean fishes of North Bihar

Amit Kumar Tiwari

Department of Zoology
Jai Prakash University, Chhapra (Bihar), India

ABSTRACT

The parasitic diseases and stress due to an organophosphate pesticide, methyl parathion on the fishes in haematological and biochemical parameters and histological changes in blood and various tissues in sublethal concentrations were conducted, on the Digghi pond of Dighwara, Saran (Bihar). As in all the ponds, almost semi-intensive culture of fishes in similar environmental conditions, with no significant differences in physico-chemical characters of the pond as was observed. The fish exposed to selected concentrations of methyl parathion showed some behavioural changes. Blood glucose and tissue glycogen in liver, kidney, gill and gonads showed an initially statistically increased glucose level of blood. The cholesterol content in the blood of fish exposed to 3.28 ppm. The ovary consisted of less number of maturing oocytes and more atretic follicles than normal fish. The testes showed disorganized testicular lobules followed by pycnosis and vacuolations in all types of spermatogenic cells.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 36

Screening of bio-efficacy of two herbal extracts on vegetative crop of *Luffa acutangula* for Integrated Pest management approach

Prveen[1] and Suman Kapoor[2]

[1]Department of Zoology, Rajiv Gandhi University, Arunachal Pradesh, India
[2]Department of Zoology, Agra College, Agra (U.P.), India

ABSTRACT

Insects are one of the important agents for destruction in our standing crops, owing to their high rate of reproduction and short life cycle most insects have ability to multiply up to amazing numbers. The indiscriminate use of chemical pesticide is toxic for agriculture and its products to eliminate the dependence of agrochemicals, thereby encouraging eco-friendly agricultural practices and suggested biological control agents and integrated pest management as viable alternatives. The two botanical leaf extract of *Callistemon citrinus* and *Argemone maxicana* plants was tested on different pests of *Luffa* acutangula to observe the pesticidal potential for pest management in Luffa acutangula crop by the dry film method for the investigation of bio-efficacy. The results showed that alcoholic extract of *Argemone maxicana* found more effective as compared to *Callistemon citrinus* alcoholic and acetonic extract. The crop protection or management by herbal extracts provides mass productivity and safety of natural enemies and therefore, indicated their acceptability for taking in IPM.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 37

Elucidation of Yeast like symbionts in parthenium beetle, *Zygogramma bicolorata* Pallister (Coleoptera: Chrysomelidae)

Khomesh H. Lanjewar and Desh Deepak Chaudhary

Department of Zoology
Indira Gandhi National Tribal University, Amarkantak (M.P.), India

ABSTRACT

Endosymbionts are found in a wide range of the organisms, from invertebrates to vertebrates. The class Insecta is one of the diverse groups of organisms which are also associated with different kinds of endosymbionts. Which may act as reproductive manipulators, nutritional mutualists and defenders of their hosts, etc. Unlike bacteria, fungi are also frequently associated with insects as endosymbionts. Therefore the present study was conducted to know whether the *Z. bicolorata* show any association with such fungal endosymbiotic partner and also analyzed their phylogenetic relationship. So here it was hypothesized that *Z. bicolorata* might be associated with fungal endosymbiont partners and have distinct phylogenetic relationships and functions. To verify this hypothesis, the whole genomic DNA of the beetle was isolated and amplified with the help of yeast-like symbionts (YLS) specific primers NS1 and F18SB1. Further amplified DNA was processed for sequencing and sequences were aligned with the help of sequence alignment tool. Thereafter, phylogenetic trees were constructed by the using of Mega 11 software. The results of the present study revealed that *Z. bicolorata* showed association with the YLS. Further, phylogenetic analysis revealed that YLS of *Z. bicolorata* shows close association with the *Pusulissus coronomensis*, *Lasioderma serricorne*, *Stegobiumpaniceum* and is quite distinct from *Nilaparvata lugens* and *Neolucanus sinicus*. Phylogenetic analysis revealed that, YLS of *Z. bicolorata* was closely placed with the species of Basidiomycetes such as *Leucosporidium scottii* and *Spongipellis unicolor*. By the earlier studies in other organisms, the nutritional supplementation and detoxification might be the putative role of YLS in *Z. bicolorata.* But it needs further experimentation to know the proper role in this beetle.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

Abstract No. 38

A Study on Effective Role of Mass Media in Disaster Management

Rachana Gangwar

Department of Mass Communication and Journalism
Babasaheb Bhimrao Ambedkar University, Lucknow (U.P.), India

ABSTRACT

Mass media is having a very significant place in our life. It plays a very important role in emergency situations. It acts as a bridge between the public and system. It is an important channel of communication between disaster management organizations and affected people. Media does the work of disaster management by providing important information to the public at the time of any disaster. The important role of the media is collecting and disseminating information about disasters, educating people about the dangers ahead, etc. It not only helps the public, but also helps the administration and officials engaged in disaster work and speeds up the relief work. A working relationship should be established between media and disaster management organizations so that media can cooperate better in times of disaster. The presented research paper investigates what is the role of mass media in disaster management? How can the role of mass media be improved in disaster management? How can the mass media act as a communication agent between the administration and the public during disaster?

Abstract No. 39

In vitro study to evaluate fungitoxic property of *Cuminum cyminum* to control *Botrytis cinerea*

Alka Rani[1] and Pramila Tripathi[2]

Department of Botany
[1]PPN College, Kanpur (U.P.), India
[2]DAV College, Kanpur (U.P.), India

ABSTRACT

In the present study in vitro experiments were carried out to evaluate effect of Cumin seeds (*Cuminum cyminum*) to control fungal disease caused by *Botrytis cinerea* on chilli. The Fungus was grown on Potato Dextrose Agar medium. The fungitoxic property was evaluated in vitro. The investigation showed that at lower concentrations of the oil , the mycelium inhibition percentage was ranging between 20-30% but at higher concentration the mycelial inhibition percentage of the fungi increased up to 60%. The oil was found to be 50% more effective over control. More of such investigations can be done in order to test bioefficacy of botanicals to control plant diseases. This can reduce dependence on harmful chemical fungicides and pesticides which are not only absorbed by the crops but also cause other harmful effects on the environment in variety of ways.

Abstract No. 40

Plastic Pollution

Anjali Srivastava

Department of Zoology
Dayanand Girls' P.G. College, Kanpur (U.P.), India

ABSTRACT

Accumulation of plastic particles and objects in the environment of Earth that affects adversely to humans, wildlife and their habitat is considered as plastic pollution. Plastic pollutants are categorised in to micro, meso, or macro debris according to size. As they are durable and inexpensive, manufacturers choose to use plastic over other materials. Plastics are slow to degrade as chemical structure of plastics renders them resistant to many natural processes of degradation. These factors make heavy amount of plastic to enter the environment as mismanaged waste and for it to persist in the ecosystem. Pollution due to plastic can afflict land, waterways and oceans. Living organisms mainly marine animals can be harmed by mechanical effects such as entanglement in objects of plastic, problems related to ingestion of plastic waste is through exposure to chemicals within plastics that interfere with their physiology. Plastic waste which is degraded can affect humans directly through direct consumption, indirect consumption, disruption of various hormonal mechanisms. The plastic waste quantity produced during the COVID-19 pandemic due to high demand for protective equipment and packaging material. Higher amounts of plastic ended up in the ocean, especially plastic from masks and medical wastes.

Abstract No. 41

Study of the Ethnic variation through Morphological variables of Crease form of Radial longitudinal Crease among the males of different Populations

Anjali Pandey

Department of Sociology, Faculty of Arts and Humanities
Mahakaushal University, Jabalpur (M.P.), India

ABSTRACT

The palmar and finger prints are unique to individuals and play an important role in the personal identification. These traits are going to develop in early embryo face. The dermal ridges differentiate during the third and fourth month of pregnancy, while the flexion creases are seen/differentiate during the second and third month of pregnancy. Therefore, a pregnant woman exposed to environmental pollutants during the first half of her pregnancy may alter the dermatoglyphics of her fetes. The present attempt is to study the ethnic variation through Morphological variable of crease form of Radial Longitudinal Crease among the males of different populations. For which 150 males from each population likewise Brahmins, Gonds and Kacchis was examined. For analyzing the radial longitudinal creases, morphological variable was applied. The values are quantitative in nature so that for statistical interpretation chi-square test is applied. The various types of Radial Longitudinal flexion creases show significant value of chi-square among the Brahmins, Gonds and Kacchis, male's population and showing the ethnic variation as well.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 42

Characterizing *Micrococcus yunnanensis* strain JUG S2a and *Micrococcus yunnanensis* strain JUG S16c for multifarious traits of naphthalene bioremediation, multi-metal resistance and plant growth promotion

Meenakshi Shrivastav, Mir Sajad Rabani, Mahendra Kumar Gupta and Madhu Gupta

Jiwaji University, Gwalior (M.P.), India

ABSTRACT

The polycyclic aromatic hydrocarbons (PAHs) are the persistent organic compounds include two or more fused benzene rings in their structure. As a result of incomplete combustion of fossil fuels, petrochemical industries, transportation, forest fires, volcanic eruptions etc., PAHs are released into the environment. Since they are known to have mutagenic and carcinogenic properties, PAHs are considered as prioritized pollutants. Large amounts of PAHs that are present in the soil are absorbed by plants and enter our food chain, posing a significant threat to mankind and the environment. These pollutants have a deleterious impact on plant development when present. For environmental sustainability, restoring areas that have been contaminated by PAHs, heavy metals, and other hydrocarbons is a major problem. The present study obtained seven isolates where only two isolates designated as S2a and S16c have shown a good naphthalene degradation potential, with S2a showing(99.40, 94.15, 83.34, 77.06, 64.54, 48.73%) and S16c exhibiting (100.00, 98.79, 90.14, 80.51, 53.64, 41.78%) degradation at 100, 200, 400, 600, 800 and1000 mgl-1 respectively after 7 days of incubation period. The isolates were also characterized for their heavy metal tolerance against seven selected heavy metalsalts (Zinc, Copper, Cadmium, Chromium, Mercury, Cobalt and Nickel) at different concentrations (0.1%, 0.5% and 1.0%). The minimum inhibitory concentration of the metals for S2a was found as 0.1% Cd, 1% Zn, Cu and Cr, 1.5% Ni and Co and for S16c 0.1% Cd and Hg, 0.5% Zn and Co, 1% Cu, Cr and Ni. The two potent isolates were characterized for various plant growth promoting traits such as phosphate solubilization, production of auxin, ammonia and siderophore. Both the strains showed auxin (14.25 ± 0.217 for S2a and 23.458 ± 0.363g ml-1 for S16c) and siderophore production. While as the strains were negative for phosphate solubilization and ammonia production. They were identified as Micrococcus yunnanensis strain JUG S2a and Micrococcus yunnanensis strain JUG S16c by 16S rRNA gene sequencing. Therefore, on the basis of multi-trait activities of PAH bioremediation, heavy metal tolerance andplant growth promotion, these strains can be used as bioinoculants for degrading these xenobiotic compounds and to enhance the soil fertility.

In association with
Glocal Environment & Social Association (GESA), New Delhi
Govt. KRG PG (Autonomous) College, Gwalior (M.P.) | Govt. P.G. (Autonomous) College, Datia (M.P.)
Mahakaushal University, Jabalpur (M.P.) | Nepal Aquaculture Society, Kathmandu, Nepal
Asian Biological Research Foundation (ABRF), Prayagraj, India
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India

Abstract No. 43

Self-Purification of Ganga Water by some microflora at Kanpur

Vijay Tiwari

Department of Botany
D.G. P.G. College, Kanpur (U.P.), India

ABSTRACT

Ganga is the largest and largest and most sacred river of India with enormous spiritual, cultural and physical influence. In water ecosystem, fungi occupy some functional status as bacteria bringing about effective degradation. Bacteria induce BOD reduction alone while fungi also set in degradation of phosphates and ammonia-N spilled through domestic waste. Fungi possess capability of reducing BOD as well as Phosphate and Ammonia-N. Therefore, Fungi are better degraders as compared to bacteria. During Investigation, two fungal genera bipolarize and Drechsler were recorded and involved in self-purification of water. Unfortunately, as fungi are now green, now photosynthetic organisms only consume oxygen present in water during respiration. It is well-known fact that fungi decompose their activity is responsible for maintaining the balance of raw material in the ecosystem because these are the organisms which are capable of decomposing the complete organic matter and releasing the simpler inorganic constituents into the system. Therefore, the study of this will give an indication of the state of ecosystem

Abstract No. 44

Toxicological and Biochemical Alterations of Cypermethrin (Synthetic Pyrethroids) against Freshwater Teleost fish, *Colisa fasciatus* at different seasons

Shailendra Kumar Singh

Department of Zoology
T.D.P.G. College, Jaunpur (U.P.), India

ABSTRACT

The cypermethrin (synthetic pyrethroids) has shows strong piscicidal activity in freshwater teleost fish *Colisa fasciatus* for all the exposure periods (24h or 96h) in time as well as dose dependent manner. The LCso values decreases from 0.009 (24h) to 0.006 (96h) in winter season (water temp. 16°C) and 0.06 (24h) to 0.02 (96h) in summer season (water temp. 28°C). Sub-lethal doses (40 and 60% of LCs) of cypermethrin after 96h was also significantly alter the levels of total protein, total free amino acid, in muscle and liver tissues, nucleic acids (DNA and RNA) in gonadal tissues and the activity of enzyme acetylcholinesterase (AChE), lactic dehydrogenase (LDH) and succinic dehydrogenase (SDH) in nervous tissue of the freshwater teleost fish C. fasciatus in time and dose dependent manner.

4TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2022)
Theme: Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability
23rd & 24th December 2022 • Jiwaji University, Gwalior (M.P.), India

Abstract No. 45

Computational evaluation of mycosporine 2 glycine as a potent tyrosinase inhibitor for treatment of hyperpigmentation disorder

Nasreen Amin[1], Vinay Singh[2] and Vinod K. Kannaujiya[1]

[1]Department of Botany, MMV, Banaras Hindu University, Varanasi (U.P.), India
[2]Center for Bioinformatics, School of Biotechnology
Banaras Hindu University, Varanasi (U.P.), India

ABSTRACT

Solar ultraviolet radiations are the major cause of hyper activated melanocytes which induces skin hyperpigmentation, neurodegenerative disorder and development of potential life-threatening diseases in humans. Human tyrosinase-related family proteins are playing key role in the modulation of melanocytes for regulation of skin pigmentation. Currently, several types of synthetic drugs/ointment products are available in the market which effectively reduce the tyrosinase activity in skin pigmentation. However, rapid utilization of synthetic products causes chronic side effects on skin cells as well as development of unwanted life-threatening diseases. Thus, eco-friendly based natural de-pigmenting agents may play indispensable role to reduce the damaging effect of solar ultraviolet radiations without any side effects. In the present study, we have selected 9 photoprotective compounds of micro/macroalgae including 2 reference compounds from synthetic and semisynthetic sources for computational analysis against human tyrosinase-related protein 1 (TYRP1). In the computational drug efficiency analysis, we have identified mycosporine 2 glycine act as potential drug ingredient for the development antimelanogenic products. In the molecular docking and MD simulation studies, we have found higher docking score (102.376) as well as lower binding energy (-128.04 kcal/mol) and higher binding affinity of mycosporine 2 glycine compound against human tyrosinase-related protein 1 (TYRP1) as compared to reference drugs. Therefore, mycosporine 2 glycine act as promising natural drug ingredient for the development of novel anti-melanogenic ointment for treatment of hyperpigmentation disorder. The outcome of results also promotes pharmaceutical and cosmetic industries to utilize this compound for commercial purpose in human welfare.

Abstract No. 46

Enhancement in seed germination and various seedling growth parameters of Wheat (*Triticum aestivum* L.) induced by Melatonin, L-cysteine, Glutathione seed priming under salt stress

Mohit, Reena Sharma and Shikha Yashveer

CCS Haryana Agricultural University, Hisar (Haryana), India

ABSTRACT

Salinity creates a hazard to the productivity of agricultural crops by hindering plant growth and development through osmotic stress and ionic cytotoxicity.This investigation contrasts how wheat (*Triticum aestivum* L.) seeds primed with Melatonin, Glutathione, L-cysteine respond to salt stress at seed germination and seedling level. Present investigation was conducted on WL-711 wheat variety in petri dishes under controlled environment conditions. During the first phase of experiment seeds were subjected to different NaCl concentration (50 mM, 100Mm, 150Mm, 200Mm, 250Mm, 300Mm) to study the effect of salt stress. During the second phase of experiment seeds were primed with different (2mM, 3mM) concentration of glutathione, melatonin, L-cysteineand then placed in inhibitory effect of salt stress.Wheat seeds which wereprimed with different concentration of glutathione, L-cysteine, and melatonin undersalt stress (300 mM and 350 mM) were transferred in jam bottles to investigate the affect at seedling level. The result reviled that salt stress cause marked reduction in frequency of seed germination, seedling growth parameters but significant improvement was observed in seed germination and growth of seedling in high salt concentration after priming with Glutathione, Melatonin, L-cysteine.Pre-treatment with melatonin, glutathione,(2mM, 3mM)increased seed germination rate, photosynthetic pigment and antioxidant enzyme activity such as ascorbic peroxidase, catalase under the salinity stress. By understanding the function of glutathione, melatonin, L-cysteine in plants and how effectively it is explored in the cropping system will be made easier with the information presented here.The finding of this studysuggestseasy application of glutathione, L-cysteine, melatonin in wheat seedling to get established under salt stress. We anticipated that melatonin, glutathione and L-cysteine beneficial role in reducing salt stress will open up new possibilities for its use in agriculture.

Abstract No. 47

Hydroponics-A Sustainable Technique for Cultivation and Conservation of Plants

Monika Sharma[1], A.C. Raghuvanshi[2], Pragya Singh Pawaiya[1] and Tejovathi Gudipati[1]

[1]VISM College, Gwalior (M.P.), India
[2]SMS Model Science College, Gwalior (M.P.), India

ABSTRACT

Hydroponic is an ancient soilless method of cultivation of plants that has been successfully used for the growth of vegetables, flowers, herbs and other crops. Hydroponics is an oldest technique used as early as 2nd world war. In 1960s and 70s commercial hydroponics farms were developed in various countries such as Abu Dhabi, USA, Denmark, German, Holland, Iran, Italy, Japan, Russian federation. In India hydroponic market is expected to grow at a CAGR of 13.53% during the forecasting period (2022-2029). There are many types of hydroponic systems such as NFT, DFT, Drip system, Grow Bag, Hanging bag technique, that are used to cultivate different crops. Commercial cultivation of various green leafy vegetables like Spinach, Coriander, Beans, Brinjal, Cauliflower etc, horticulture plants like Mint, Tomato, Blueberries, Strawberries etc , floriculture plants such as Peace lilies, Hoya, Dahlias, Orchids, Chrysanthemum etc. proved that plants grown in soilless cultures with nutrient solutions under controlled environment were proven to be more productive than conventional agriculture. Urbanization and industrialization, reduction in land and water availability for conventional cultivation has facilitated the application of this technique. Extended Vertical raise in cultivation resulted in increased density of plants in less area. Further, round the year cultivation under controlled environment, with less labour, reduced water consumption, relatively less or no application of insect and pesticides has proved this hydroponics technique as suitable method for cultivation and conservation of various crops.

Abstract No. 48

Fungal and parasitic infections in fresh water edible fishes in Jabalpur region (M.P.)

Neetu Soni

Department of Zoology
Govt. M.H. College of Home Science and Science, Jabalpur (M.P.), India

ABSTRACT

Fish constitutes half of vertebrates in the world. Fishes are totally dependent upon quality of water with respect to breathing, feeding, growth, excretion, maintenance of salt balance, and also for reproduction. Some important genera found in Jabalpur included *Catla calta, Channa, Cirrihinus, Clarius, Ctenopharyngodon, Cyprinus, Heteropneustas, Labeo, Mastacembalus, Mystus, Notopterus, Ompak, Puntius, Rita, Wallago, Xenentodon.* Similar to other animals, fishes also suffer from various types of diseases. All fishes carry pathogens and parasites. Fungal and parasitic infections of fish harmed fisheries and aquaculture. These infections in fishes cause damages on various parts of their body. Fungal infections are mainly caused due to immune suppression. Fungi can attack fishes of all the ages and it can also prevent successful hatching when it invades fish eggs. Parasites are extremely abundant and diverse in nature, representing a substantial portion of global biodiversity. Fishes are important from ecological, medicinal, nutritional, pharmaceutical and economical point of view. These fishes are parasitized by Helminthes parasites, which reduce the food value of host fish. Therefore study of Helminthes is an urgent necessity today. These helminthes infection leads to various disorders i.e., anemia. So it is necessary to provide data for the prediction of integrated methods to achieve the regulation of numbers of harmful parasites.

Abstract No. 49

Study on biochemical constituents based on physico-chemical parameters and metals concentrations and fish biodiversity and production

Deepak Singh

Department of Zoology
T.D. College, Jaunpur (U.P.), India

ABSTRACT

River water quality is a contemporary issue of major concern. As a result of human activities, water bodies have experienced many ecological modifications. The earth's other living creatures, including people and other animals and plants, depend on rivers for their life. The presence of RNA, DNA, glycogen, and protein as biochemical constituents in the liver and ovaries of the catfish *Clarias batrachus* reveals that these organs display well-defined seasonal changes. The variety and abundance of fish in their natural habitats and ecosystems are substantially influenced by physico-chemical variables and metal concentrations. Through absorption along the gill surface and gut, fish have the potential to accumulate heavy metals in their organs to higher concentrations than the harmful level in their environment. Damage to the gills has an immediate effect on the rest of the fish's body and behaviour as they are a key target organ for pollutants.

Abstract No. 50

Management of snakebite with special reference to disaster in Uttar Pradesh

Ashish Tripathi[1] and N.K. Sharma[2]

[1]Mission Snakebite Death-free India (U.P.)
[2]Faculty of Agricultural Engineering and Technology, CSAUA&T, Etawah campus (U.P.), India

ABSTRACT

India is a big country of Agriculture with huge biodiversity, in which many types of common and poisonous animals are found according to the geographical location in the various states. Out of which four main species of snakes are called deadly Big F our snakes including 300 species of snakes found in India, but four of these poisonous species including Cobra, Krait, Russell's viper and Saw scaled viper are the main causes of death from snakebites. Recent researches say that 80% of snakebite deaths in the world only occur in India. Uttar Pradesh has the highest number of deaths approx. 16,100 per year. After that it happens in Rajasthan and Madhya Pradesh. Keeping this huge loss of life in view, the Uttar Pradesh Government has now declared snakebite as a state disaster, but there is still a lack of awareness among people about snakebite, people still waste their golden hour of treatment by wasting time in exorcism. If snakebite awareness programs are accelerated across India, then people will become aware and stop to kill snakes, which will reduce the number of snakebite cases along with biodiversity conservation, save lives and also save people from the lack of antivenom across the country. People will not have to struggle, as well as the financial assistance announced by the Uttar Pradesh government to the families of snakebite victims Rs 4 lakh will be save sure. Now in the forthcoming future, there is a great need for the central and state government to run snakebite awareness programs across the country so that people become aware and every year 64,100 casualties can be prevented across the country.


HAPPY
NEW YEAR
2023

Glocal Environment & Social Association (GESA), New Delhi

In order to serve the Nature and Society for a better future, the Glocal Environment & Social Association (GESA) is constituted. Its headquarter is located in New Delhi. Its main aim is to develop and promote 'global thought and local action' ideology to save the nature. It organizes the seminars; workshops etc. to aware and educate the people on blazing environmental and social issues. The GESA felicitates the persons and organizations for their outstanding services rendered in various fields of agriculture, arts, biodiversity conservation, commerce, culture, education, environment, healthcare, humanities, literature, mass communication, music, patriotism, peace and harmony, science, sports, technological innovations and other social services. GESA confers following categories of awards and honours to its members:

1. Lifetime Achievement Award (Above 55 years of age)
2. Hon. Fellowship/ Fellowship (FGESA)
3. Dr. APJ Abdul Kalam Green Environment Promotion Award
4. Dr. Sarvepalli Radhakrishnan Education Promotion Award
5. Chaudhary Charan Singh Award for Agricultural Innovations
6. Sardar Patel Glocal Award for Social Awareness
7. Lal Bahadur Shastri Glocal Award for Biodiversity
8. Senior Scientist Award (Above 40 years of age)
9. Best Faculty Award for Teaching/Research Innovations
10. Distinguished Service Award / Distinguished Teacher Award (Crop, Plant Protection, Horticulture, Fisheries, Home Science, Social Science, Animal Science, Life Science etc.)
11. Innovative Educationist Award/ Agriculture Extensionist Award
12. Teacher of the Year / Extension Professional of the Year / Doctor of the Year Award
13. Technological Innovations Award
14. Paryavaran Ratna Puraskar
15. Vigyan Bhushan Puraskar
16. Sahitya Shri Samman
17. Young Scientist/Young Researcher Award (Below 35 years of age)

Note: Life Membership of GESA is mandatory for above awards. Each awardee receives an angavastram, a potted plant, a multicoloured & delightful award certificate and a high quality entrancing memento during its annual session or conference. GESA Award selection is mainly based on applicant's biodata. For detailed guidelines, please log on to website: **http://www.gesa.org.in [Email id: president.gesa@gmail.com]**

International Journal of Biological Innovations (IJBI)

GESA publishes the IJBI Research Journal (ISSN: 2582-1032). The IJBI is a peer-reviewed, refereed, multi- indexed, open access and online journal with DOI and high citations; published twice in a year i.e. June and December. It plays an important role in global academia by encouraging research, fostering knowledge and promoting new dimensions/ developments in the areas related to biological sciences. Its aim is to disseminate the scientific research and recent biological innovations and to provide the reliable source of information on current developments in the field. Its emphasis is to publish quality research articles **FREE OF COST** and the published work is freely available to global academia. **http://www.ijbi.org.in/**

Dr A. K. Verma

M.Sc.(Gold Medalist), Ph.D., D.Sc. (*honoris causa*)
F.S.L.S.,F.I.S.C.A.,F.A.Z.R.A.,F.B.P.S.,F.Z.S.I.,F.I.A.Z.R.,F.I.F.E.E.,
F.I.B.R.F., F.S.F.S.N.,F.N.S.F., F.E.S.W., F.I.A.S.R., F.G.E.S.A., F.A.B.R.F.
(Recipient of SARASWATI SAMMAN 2017 of U.P. Govt.)
Editor-in-Chief
International Journal of Biological Innovations (IJBI)
Website: http://ijbi.org.in/index.php
Ph.:09919835838 Email: chiefeditor.ijbi@gmail.com
ORCID ID: https://orcid.org/0000-0002-5683-5969
Google Scholar Citations: Around 2,000
https://scholar.google.com/citations?user=9GXzXjoAAAAJ&hl=en&authuser=2