5TH INTERNATIONAL CONFERENCE ON ENVIRONMENT AND SOCIETY (ICES 2023)

Theme: New Vistas in Waste Management and Sustainable Environment

29th & 30th December 2023

Dr RML Avadh University, Ayodhya (U.P.), India

Jointly Organized by

Department of Environmental Sciences
Dr RML Avadh University, Ayodhya (U.P.)
Website: www.rmlau.ac.in

Glocal Environment & Social Association (GESA), New Delhi
Website: www.gesa.org.in

The American University, USA
Website: https://augpusa.education

Department of Environment, Forest and Climate Change, Govt. of Uttar Pradesh

Abstract and Souvenir

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

5TH INTERNATIONAL CONFERENCE ON

ENVIRONMENT AND SOCIETY (ICES 2023)

Theme: New Vistas in Waste Management and Sustainable Environment

29th & 30th December 2023

Dr RML Avadh University, Ayodhya (U.P.), India

Jointly Organized by

Department of Environmental Sciences
Dr RML Avadh University, Ayodhya (U.P.)
Website: www.rmlau.ac.in

Glocal Environment & Social Association (GESA), New Delhi
Website: www.gesa.org.in

The American University, USA
Website: https://augpusa.education

Department of Environment, Forest and Climate Change, Govt. of Uttar Pradesh

Abstract and Souvenir

डॉ0 राममनोहर लोहिया अवध विश्वविद्यालय, अयोध्या (उ0प्र0)-२२४००१
Dr. Rammanohar Lohia Avadh University, Ayodhya (U.P.)-224001

प्रो0 प्रतिभा गोयल
कुलपति
Prof. Pratibha Goyal
Vice-Chancellor

vc@rmlau.ac.in
vcrmlau2015@gmail.com
www.rmlau.ac.in

Date : 21 December, 2023

Message

I am happy to know that 5th International Conference on Environment and Society (5th ICES 2023) on **"New Vistas in Waste Management and Sustainable Environment"** is being organized and hosted by Department of Environmental Sciences, Dr. Rammanohar Lohia Avadh University in association with Environment, Forest and Climate Change Department, Govt. of Uttar Pradesh, Global Environment & Social Association (GESA), New Delhi, and The American University, USA, during December 29 and 30, 2023 at Ayodhya. The theme of the International conference is very relevant in present scenario, as the world 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.

I am confident that the academicians, scientists, researchers, government authorities 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 extend my deepest appreciation to all participants, speakers, and organizers for their dedication to advancing the cause of environmental stewardship.

May the discussions and deliberations inspire transformative actions that reverberate far beyond the confines of this International Conference.

(Prof. Pratibha Goyal)

उत्तर प्रदेश लोक सेवा आयोग
U.P. PUBLIC SERVICE COMMISSION
10, कस्तूरबा गाँधी मार्ग, प्रयागराज–211018 / 10, Kasturba Gandhi Marg, Prayagraj-211018

डॉ० ए.के. वर्मा
सदस्य
Dr. A.K. Verma
Member

दूरभाष 9369954494
Tel.: 9369954494
ई–मेल: akv.uppsc@gmail.com
E-mail: akv.uppsc@gmail.com

Date: 19.12.2023

Message

It is a matter of great pleasure that 5th International conference on Environment and Society (ICES 2023) is being organized and hosted by Department of Environmental Sciences, Dr RML Avadh University, Ayodhya (U.P.) in association with Glocal Environment & Social Association (GESA), New Delhi, The American University, USA and Department of Environment, Forest and Climate Change, Govt. of Uttar Pradesh on 29th & 30th December 2023 with the basic theme as "New Vistas in Waste Management and Sustainable Environment".

The theme of the conference is quite pertinent in contemporary scenario of the world in general and India in particular. The climate change, Waste management, 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 impart my eco-friendly best wishes for its grand success.

(Dr. A. K. Verma)

DEPARTMENT OF ENVIRONMENTAL SCIENCES
DR. RAM MANOHAR LOHIA AVADH UNIVERSITY
AYODHYA-224001, (U.P). INDIA

Dr. Siddhartha Shukla
Professor
M. Tech., Ph.D.

Resi : Saketpuri Colony, Ayodhya
Mobile: 9450767928
Email : parthashukla91@gmail.com

Message

On behalf of organizing committee, I feel immense pleasure to welcome you all in the 5th International Conference on Environment and Society (5th ICES-2023) on 29-30 December, 2023 in Dr. Rammanohar Lohia Avadh University, Ayodhya, U.P., India, in association with Glocal Environment and Social Association (GESA), New Delhi, India and The American University, USA.

The conference is being organized on theme "**New Vistas in Waste Management and Sustainable Environment**". It covers almost all the burning aspects of Environment and their management. This would be an aggregation of stalwarts and young researchers from Industries and Academia. The conference will provide a wide platform in making decision and policy development to strengthen the Environmental Sustainability in modern societal development.

It's high time for Researchers, Young students and Industry personals to become part of this International Conference and to make it a grand success and achievement.

Thank You.

Date: 20.12.2023

Place: Ayodhya

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

Date: 22.12.2023

Message

Thank you for the opportunity to contribute to the 5th International Conference on Environment and Society (ICES) 2023 at Department of Environmental Science Dr. RML Awadh University, Ayodhya in collaboration with The American University, USA, Department of Environmental Forest, and Climate change, Government of U.P. Glocal Environmental and Social Association (GESA). As the general secretary, I am excited to Invite all the delegates at 29th and 30th December.

Waste management is a critical issue that affects the environment and society. The world is facing a waste crisis, and it is essential to find sustainable solutions to manage waste effectively. The theme of "New Vistas in Waste Management and Sustainable Environment" is timely and relevant. It provides an opportunity to explore innovative ideas and approaches to address the challenges of waste management.

The conference aims to bring together experts, researchers, and practitioners from around the world to share their knowledge and experiences. It is an excellent platform to discuss the latest trends, technologies, and best practices in waste management and sustainable environment. The conference will provide an opportunity to learn from each other and collaborate to find sustainable solutions to the waste crisis.

I believe that the conference will be a great success, and the discussions will lead to new insights and ideas. I look forward to hearing from the participants and learning about their experiences and perspectives. Together, we can make a difference and create a sustainable future for our planet.

Thank you again for the opportunity to contribute to this important event.

Best regards,

Prof Sunita Arya
Secretary

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

Hybrid Mode

5th International Conference

on

ENVIRONMENT AND SOCIETY

(5TH ICES 2023)

Theme: **New Vistas in Waste Management and Sustainable Environment**

Dec., 29th & 30th 2023

Message

Date: 22.12.2023

It is a matter of great pleasure that Department of Environmental Sciences, Dr. Rammanohar Lohia Avadh University, Ayodhya is going to organize the 5thedition of International Conference on Environment and Society (5th ICES 2023) on theme "New Vistas in Waste Management and Sustainable Environment" in association with Environment, Forest and Climate Change Department, Govt. of Uttar Pradesh, Glocal Environment & Social Association (GESA), New Delhi, and The American University, USA, during December 29 and 30, 2023 at Ayodhya.

Environment, Forest and Climate Change Department, Govt. of Uttar Pradesh is committed to protecting, restoring and promoting sustainable use of ecosystems in the interest of inclusive growth and development. The active participation will strengthen local self-governance, participatory management practices and capacities of communities dependent on land resources.

The American University, USA, is having mission to educate the deprived Global Citizens of the world; educating the educated through advanced skills of leadership qualities, building a Peace-Loving Community around us & ultimately building up a better Global Nation with the vision of creating the Sustainable Development, Scientific Research & Global Peace around the world. Presence of member from The American University, USA, will be highly motivating to the attendees of this conference.

The theme of the conference will make the participants aware about the traditional technologies available for the management of waste i.e. liquid, solid or gaseous in nature. Moreover, this conference will also provide knowledge regarding Smart Waste Collection Systems, Advanced Sorting and Recycling Technologies, Waste-to-Energy Conversion, Mobile Applications for Public Engagement, Blockchain for Waste Traceability, Internet of Things (IoT) for Real-time Monitoring, and Augmented Reality (AR) for Training and Maintenance for management of waste and making our environment sustainable. This conference aims to serve as a forum for scientists, academics, and industrial delegates to impart knowledge to participants actively engaged in the pursuit of enhancing Earth's viability. The focal point will be the identification of prevailing gaps and the formulation of technologies that hold the potential to significantly contribute to the improvement of Earth as a sustainable habitat.

My best wishes to the organizers and participants. I wish the Conference a grand success.

Thank You.

Date: 20.12.2023
Place: Ayodhya

V.K. Chaudhary

Hybrid Mode

5th International Conference

on

ENVIRONMENT AND SOCIETY

(5TH ICES 2023)

Theme: New Vistas in Waste Management and Sustainable Environment

Dec., 29th & 30th 2023

Date: 24.12.2023

Message

It is a matter of immense pleasure that 5th International conference on "Environment and Society (5th ICES 2023)" with the theme "New vista in waste management and sustainable environment", is being organized and hosted by Dr. RML Avadh University, Ayodhya (U.P.) in association with Glocal Environment & Social Association (GESA), The American University, USA and Department of Environment, Forest and Climate Change, Govt. of Uttar Pradesh. Waste management and sustainable development are intertwined concepts that play a pivotal role in addressing the environmental challenges because conventional waste management practices have often led to environmental degradation, resource depletion, and pollution.

However, the paradigm is shifting towards a more holistic approach sustainable waste management. Sustainable waste management goes beyond the traditional "end-of-pipe" solutions and embraces a cradle-to-cradle philosophy. It focuses on reducing waste generation, promoting recycling and reuse, and integrating innovative technologies to minimize environmental impact.

One of the key aspect of sustainable waste management is the concept of a circular economy. In a circular economy, resources are used more efficiently, and waste is regarded as a valuable input for new processes. This approach contrasts with the linear model of "take, make, dispose," aiming to create closed loops where materials are continually cycled.

In a world confronted by escalating environmental challenges, the urgency to address waste management and promote sustainable development has never been more critical. Our conference aims to serve as a platform for scientists associated with biological sciences to interact with one another for mutual benefit and to exchange of ideas, research findings, and innovative solutions that can pave the way for a sustainable and waste-resilient future.

Sadg

(Dr. Sadguru Prakash)
Organizing Secretary-ICES 2023

ABOUT THE ORGANIZERS

Dr. RML Avadh University, Ayodhya (U.P.)

Dr. Rammanohar Lohia Avadh University, commonly known as Dr RML Avadh University, is a prominent higher education institution located in Ayodhya, Uttar Pradesh, India. Established in 1975, the university is named after the renowned freedom fighter and socialist leader, Dr. Rammanohar Lohia. It is situated in the historic city of Ayodhya, which has a rich cultural and historical heritage. Avadh University is committed to provide quality education and fostering academic excellence across various disciplines. The university offers a wide range of undergraduate, postgraduate, and doctoral programs in various fields such as arts, science, commerce, law, management, engineering and more. With a focus on holistic development, Avadh University strives to create a conducive learning environment that encourages critical thinking, research, and innovation. The university is equipped with modern infrastructure, state-of-the-art facilities, and a dedicated faculty that contributes to the academic and intellectual growth of its students. Avadh University also emphasizes research activities, encouraging scholars to engage in meaningful research projects and contribute to the advancement of knowledge in their respective fields. Over the years, Avadh University has played a crucial role in shaping the educational landscape of the region and has emerged as a center for academic excellence. It continues to uphold the values and principles of its namesake, Dr. Rammanohar Lohia by promoting social justice, equality, and inclusivity in education.

Department of Environmental Sciences, Dr RML Avadh University, Ayodhya

Department of Environmental Sciences was established in 1994, as an independent first post graduate teaching and research department in the state of Uttar Pradesh. The thrust area of the department is to provide quality education to under graduate, post graduate students and undertaking research concerned with the current problems of environmental pollution and its management with its emphasis on the industrial waste water, solid waste and identification of toxins producing algae, ozone depletion and Antarctica ecology.

The department is well equipped with the instruments and the equipment for the monitoring of air, water, and soil pollution. More than 250 research papers have been published in international and national journals by the faculty members and research scholars. Research projects from the various funding agencies such as DST, UGC, MoEFCC, UPCST, AICTE, NCAOR, UPCAR, MOES, UPPCB, and CSIR have been awarded and research work of UPPCB and Department of Higher Education, U. P. Govt. funded projects are in progress.

The department is regularly organizing seminars/ conferences/ workshops on important issues of the environment. The department had organized various national/international conferences. Environmental events such as Earth Day, World Ozone Day, World Environment Day, World Water Day and tree plantation etc. are being carried out regularly to generate awareness among the masses. Invited lectures by eminent personalities /environmental scientists/ researchers are held in the department to generate interest among the students and also to provide them opportunities for direct dialogue with such personalities. Summer and Industrial training are also provided to the students in the reputed research organizations and industries to understand the advancement and real working in the field of environment.

Students passing out from the department are serving in various reputed research institutions and other government organizations such as CIMAP, CDRI, IITR, NBRI, FRI, IARI, TERI NGOs, state and central pollution control boards, in the ministry of environment, forest and climate change, New Delhi and other private organizations. A good number of students from the department have qualified JRF/NET/GATE examinations and have been placed in administrative services and teaching faculty in colleges and universities in India and abroad.

The American University, USA

This is a non-political, non-racial, non-sectarian, interdenominational, Inter-Cultural IGO registered as a 501 (c) 3 organization in USA. WE SUPPORT the UNIVERSALLYACCEPTED 10 PRINCIPLES OF UNITED NATIONS Global Compact, UNITED NATIONS Academic Impact, UNITED NATIONS HUMAN RIGHTS & ALL CHARTERS OF UNITED NATIONS & EUROPEAN UNION. The American University in USA has a primary ict studies, and to build competencies of focus of helping scholars carry out research into Theology, Peace and Con peace activists worldwide.

Glocal Environment & Social Association (GESA), New Delhi

In order to serve a bit 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 confers following categories of awards and honours through search and nominations:

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]

ORGANIZING COMMITTEE

Chief Patron

Prof. Pratibha Goyal
Hon'ble Vice Chancellor, Dr RML Avadh University, Ayodhya (U.P.), India

Special Patron

His Eminence **Prof. Madhu Krishan** Chief Rector, The American University, USA

Patrons

Prof. Neelima Gupta
Hon'ble Vice Chancellor, Dr. Harisingh Gaur Central University, Sagar (M.P.)
Prof. Kapil Deo Mishra
Hon'ble Vice Chancellor, Rani Durgavati Vishwavidyalaya, Jabalpur (M.P.)
Prof. Avinash Tiwari
Hon'ble Vice Chancellor, Jiwaji University, Gwalior (M.P.)
Prof. A.K. Pandey
Hon'ble Vice Chancellor, Vikram University, Ujjain (M.P.)
Prof. R.K.P. Singh
Hon'ble Vice Chancellor, Dr. Shakuntala Misra National Rehabilitation University, Lucknow (U.P.)
Prof. H.S. Singh
Hon'ble Vice Chancellor, Maa Shakumbari University, Saharanpur (U.P.)
Prof. Akhilesh Kumar Singh
Hon'ble Vice Chancellor, PRS (Allahabad State University) University, Prayagraj (U.P.)
Prof. R.C. Mishra
Hon'ble Vice Chancellor, Mahakaushal University, Jabalpur (M.P)

Co-Patrons

Prof. S.N. Labh
Tribhuvan University, Kathmandu (Nepal)
Prof Ashis K. Panigrahi
Pro Vice Chancellor, The University of Burdwan (W.B.)
Prof. Bechan Sharma
Dean, Faculty of Science, University of Allahabad, Prayagraj (U.P.)
Prof. Rajendra Singh
Department of Zoology, DDU University, Gorakhpur (U.P.)
Dr. B.K. Chakraborty
Former Director, Department of Fisheries, Dhaka, Bangladesh
Prof. Kamal Jaiswal
Department of Zoology, BBA Central University, Lucknow
Dr. Niloy Khare
Scientific Adviser to the Government of India at MoES, New Delhi
Dr. A. Arunachalam
Director, ICAR-Central Agroforestry Research Institute, Jhansi (U.P.)

Dr. Sheo Kumar
Scientist 'G', Botanical Survey of India, MoFE&CC, Govt. of India
Prof. Jaswant Singh
Department of Environmental Sciences, Dr RML Avadh University, Ayodhya (U.P.)
Dr. H.P. Pandey
Vice President, GESA New Delhi

Chairpersons

Prof. Santosh Kumar
National Institute of Disaster Management (NIDM), New Delhi
Prof. Surendra Singh
Department of Biological Science, RDVV, Jabalpur (M.P.)
Prof. Mohd. Serajuddin
Head, Department of Zoology, Lucknow University, Lucknow
Dr. A.K. Pandey
Principal Scientist, ICAR-NBFGR Lucknow (U.P.)
Prof. Vineeta Shukla
Head, Department of Zoology, MD University, Rohtak (Haryana)
Prof. Vandana Rai
Dean Science, VBS Purvanchal University, Jaunpur (U.P.)
Prof. Anupam Pandey
Head, Department of Geography, University of Allahabad, Prayagraj (U.P.)
Dr. R.S. Chandok
Principal, Sri Guru Tegh Bahadur Khalsa College, Jabalpur (M.P.)

Co-Chairpersons

Prof. Madhu Laxmi Sharma
Head, Department of Botany, Govt. KRG PG (Autonomous) College, Gwalior (M.P.)
Prof. Sangeeta Avasthi
Head, Department of Zoology, A.N.D. N.N. Mahila Mahvidyalaya, Kanpur (U.P.)
Prof. Shri Prakash
Head, Department of Zoology, KA PG College, Prayagraj (U.P.)

Conveners

Prof. Siddhartha Shukla
Department of Environmental Sciences, Avadh University, Ayodhya (U.P.)
Prof. Sunita Arya
Secretary, Membership Affairs, GESA New Delhi

Co-Conveners

Dr. A.N. Shukla (GESA, New Delhi)
Dr. Wahied K. Balwan (Doda, J. & K.)
Dr. Arjun Shukla (Jabalpur, M.P.)
Mr. Prabhakar Singh (GESA, Prayagraj)

Organizing Secretaries

Dr. Vinod Kumar Chaudhary
Department of Environmental Sciences, Avadh University, Ayodhya (U.P.)
Dr. Sadguru Prakash
A. Professor, Department of Zoology, MLK PG College, Balrampur (U.P.)

Co-Organizing Secretaries

Dr. Abhishek Singh
Er. Naveen Patel
Er. Deepika Verma

Asst. Organizing Secretaries

Dr. Reema Sonkar (Ayodhya)
Dr. Daisy Rani (Raebareli)
Dr. Ranjeet Singh (Unnao)
Dr. Kaushal Tripathi (Jabalpur)

National & International 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. S.P. Mishra Ujjain), Dr. Pratibha Gupta (Howarh), Dr. Anu P. Vankara (YSR, A.P.), Prof. Pradeep Jabdeand, Prof. Shaikh Yasmeen (Aurangabad, MS), Prof. Abhijit Joshi (Pune), Prof. J.P. Shukla (Amarkantak), Prof. S.K. Chaturvedi and Prof. R.C. Tripathi (Chitrakoot), Prof. Ajit T. Kalse (Jalgaon), Dr. Nitin Shinde (Shirdi), Dr. Arvind Chavhan (Nanded), 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 Vijiand, Dr. Seema Menon (Kerala), Dr. Saraswati Agrawal (Kota), D. Rajesh Kumar (Puduchery), Dr. Nageshwar Rao (Hyderabad), Dr G.N. Jha, Dr. Ajaz A. Wani and Dr. Amit Singh Charak (Doda), Dr. Alok Sagar Gautam (Dehradun), Dr Vijay K. Umrao (Meerut), Dr. Dinesh Kumar (Champa, CG), Dr. Vivek Sahu (Port Blair), Dr. Prasenjit Hazra (Aurangabad, Bihar), Dr. Shankar Prasad Sha (Darjeeling), Dr. Prerna Mitra (Mandsaur), Prof. M.A. Khalid, Prof. Shilpi Verma, Dr. Rachana Gangwar, Dr. Kalpana Singh 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. Bharat Singh (Gurugram), Prof. Riaz Ahmad (Aligarh), Prof. Lalima Singh, Dr. Swati Chaurasia, Dr. Rahul Patel and Dr. Durgesh Singh (Prayagraj), Prof. Indrani Dubey, Prof. Anjali Srivastava, Dr. Ajay K. Gupta, Dr. Neelu Kambo, Dr. Rachana Singh and Dr. Eshita Pandey (Kanpur), Prof. M.D. Gupta, Dr. A.K. Srivastav, Dr. R.S. Tomar, Dr. Sandeep Arya and Dr. Amit Pal (Jhansi), Dr. S.P. Mishra (Sultanpur), Dr. Asutosh K. Srivastava (Bhadohi), Dr. Neelam Bajpai (Kaushambi), Dr. Sunita Rawat (Unnao).

Local Advisory Board

Prof. Sant Saran Mishra, Prof. Himanshu Sekhar Singh, Prof. Ashutosh Sinha, Prof. K.K. Verma, Prof. G.R. Mishra, Prof. S.N. Shukla, Prof. Chayan Kumar Mishra, Prof. Sameer Kumar Raizada, Prof. Tuhina Verma, Prof. Rajeeva Gaur, Prof. Shailendra Kumar, Prof. Neelam Pathak, Prof. Farrukh Jamal, Prof. Indu Singh, Prof. P.N. Tripathi, Prof. Ram Nayan Singh, Prof. Rakesh Kumar Pandey.

विकसित भारत अभियान
1947 TO 2047

DEVELOPED INDIA MISSION
1947 TO 2047

Jointly Organized by

Department of Environmental Sciences
Dr RML Avadh University, Ayodhya (U.P.)
Website: www.rmlau.ac.in

Glocal Environment & Social Association (GESA), New Delhi
Website: www.gesa.org.in

The American University, USA
Website: https://augpusa.education

Department of Environment, Forest and Climate Change, Govt. of Uttar Pradesh

Welcome

Abstracts

Contents

Abstract No. 1

Design Boost Converter by Using ESP-32 with WI-FI and Bluetooth functionality

Yogendra Pratap

Department of Electronics and Communication, P.K. University, Shivpuri M.P., India

ABSTRACT

Designing boost converter that have advantages of flexibility, scalability, longevity, modularization, remote controlling and observing and can be easily programmable according to need and situation, here we are using power of embedded system and programming to design boost converter that can boost voltage to any required value and supply any current level based on our different scenario and can be easily on and off by using mobile through internet or Bluetooth and Wi-Fi the circuit will be very small portable and easily repairable. In electronics we required different voltages for different purposes so this our circuit will full fill that need, here we are using Arduino Ide for programming and ferrite inductor for step up purposes and 100 kHz PWM signals with feedback circuit building cost will be minimum the circuit will be reliable easy to use, simple and maintainable. Here we are designing 500-watt circuit that can handle up to 500-watt output load and up to 220-volt boost from minimum 5-volt input.

Abstract No. 2

Evaluation of Ghaghara water suitability for drinking, agricultural and Industrial uses

Nirdesh Kumar Ravi and Pawan Kumar Jha

Centre for Environmental Studies, University of Allahabad,
Prayagraj University Road, Old Katra, Prayagraj, U.P., India

ABSTRACT

A total of 18 water samples were collected from the Ghaghara River and analysed for the physicochemical parameters to determine its suitability for drinking, agricultural and Industrial uses. Ghaghara River water was alkaline. The EC values ranged from 178 to 418 μS cm - 1and TDS varied from 141 to 353 mg l−1 in the Ghaghara River. The Ca2+ and HCO3– were the dominant cation and anion in the Ghaghara River, respectively. The river water suitability for drinking water was determined by using the Water Quality Index (WQI) value, which was in the range of 11-142 during the study period. Based on the WQI value, the Ghaghara River water quality class ranges from excellent to unsuitable for drinking. The agricultural suitability of the Ghaghara River was determined by using Sodium Absorption Ratio (SAR), Na%, Magnesium Absorption Ratio (MAR), Kelly's Ratio (KR), Permeability Index (PI) value, Potential Salinity (PS), and Residual sodium bicarbonate (RSBC). The values of these different indices indicated the suitability of the Ghaghara River for irrigation purposes. The industrial suitability of the Ghagahra River water was determined by using the Langelier Saturation Index (LSI) and Ryznar stability index (RSI). The LSI value indicated that around 39% of water samples were unsuitable for industrial use due to scale for mation problems, and 96% of samples were corrosive, as indicated by the RSI value.

Abstract No. 3

Assessment of Healthcare Waste Management Practices: A Comparative Study in Private and Public Hospitals within the Siliguri City Administration

Soumen Jana and Tamasmita Basu

Department of Business Management, Vidyasagar University, Midnapore, India
Department of Hospital Management, Techno India College, Kolkata, India

ABSTRACT

This comparative study investigates healthcare waste management practices in private and public hospitals within the Siliguri City Administration. The assessment aims to discern potential disparities in waste handling, disposal methods, and overall adherence to established regulations. By employing a comprehensive approach, including interviews, observations, and data analysis, the study seeks to identify areas of improvement and best practices in both sectors. The findings are crucial for enhancing healthcare waste management strategies, promoting sustainability, and safeguarding public and environmental health in the Siliguri City Administration. In low-income countries such as India, the absence of proper healthcare waste management (HCWM) practices in private healthcare facilities poses significant risks to the safety of healthcare staff, patients, and surrounding communities. Despite the critical nature of this issue, there is limited research on the extent of safe HCWM practices within private healthcare settings in India. This study aims to address this gap by assessing the level of adherence to good HCWM practices among health workers in private health facilities. Through a comprehensive investigation that includes surveys and interviews, the research will explore associated factors influencing HCWM practices. The findings of this study will contribute valuable insights into the current state of HCWM in private healthcare facilities, facilitating the identification of areas for improvement and the development of targeted interventions to enhance the safety and sustainability of healthcare waste management practices in the Siliguri City Administration.

Abstract No. 4

Assessment Of Environmental Quality Around Feroze Gandhi Unchahar Thermal Power Plant, Raebareli, Uttar Pradesh, Using Lichens As Bioindicators

Namita Gupta, Vartika Gupta, S. K. Dwivedi and D. K. Upreti

Department of Environmental Science, Babasaheb Bhimrao Ambedkar (A Central) University, Raebareli Road, Lucknow, U.P., India
Lichenology Laboratory, CSIR-National Botanical Research Institute, Rana Pratap Marg, Lucknow, U.P., India

ABSTRACT

Lichens, a group with polyphyletic origin composed of photobiont and mycobiont in an obligate symbiotic association. Lichens play an essential role in ecosystems i.e. functional role, bioindicators and economic value. Lichens are extremely sensitive to environmental stress, especially concerning atmospheric pollution, level of eutrophication and climate change. They accumulate higher concentrations of both atmospheric pollutants i.e. organic as well as inorganic and are being used as bioindicators in the study of air pollution monitoring. Present study aims to investigate the influence of point source i.e. Feroze Gandhi Unchahar Thermal Power Plant on the lichen diversity pattern. The data on ecological parameters such as frequency, density, abundance, relative frequency, relative density and Important Value Index have been recorded and compared with lichens growing around thermal power plants to work out the effect of coal mines on the diversity and distribution of lichens. Bacidia incongruens, Rinodina sophodes two crustose lichens and Pyxine cocoes a single foliose lichen species growing abundantly in the vicinity of a thermal power plant were undertaken for this study. The data revealed that pollutants released by the open coal mining activities not only affected qualitative distribution but also had an effect on the quantitative parameters. Overall, 18 species of lichens belonging to 12 genera and 10 families have been recorded from the vicinity of the thermal power plant. The present study not only explores the utility of lichens as an indicator of air pollution but also provides substantial evidence about environmental changes around thermal power plants which may be attributed to air pollution due to thermal emission. The presence of sensitive and toxi-tolerant lichen species can be used to assess the impact of emissions released from thermal power plants on lichen diversity. It is, therefore, necessary to promote sustainability of the environment for the development of the region and also minimize the risk of resource degradation because we depend on the resources of the earth to meet our basic and vital needs.

Abstract No. 5

Sustainable treatment of Sewage Wastewater using Sulfate reducing Bacteria-based Bio-electrochemical system along Nutrients Recovery

Renju and Rajesh Singh

School of Environment and Sustainable Development,
Central University of Gujarat, Gandhinagar, Gujarat, India
Department of Environmental Science, School of Earth and Environmental Sciences,
Babasaheb Bhimrao Ambedkar University, Lucknow, U.P., India

ABSTRACT

Increasing the demands of sustainable way of nutrient recovery and treatment of sewage wastewater have influence the novel methods for recover y of nutrients from effluent. Although, existing mostly technologies need generally chemical use and rigorous energy consumption to attain substantial nutrient recovery. Here, the uses of agriculture waste for nutrient recovery. The objectives of this study to recovery of nutrients from an effluent of anaerobically treated sewage wastewater. This experiment was performed in two stages (1) treatment of sewage wastewater using bio-electrochemical system (2) fur ther use this effluent for nutrient recovery using agriculture waste (rice straw) based adsorbent. Here, observed the highest efficiency of absorption capacity of nutrients. The synthesised adsorbent (Biochar) shows the good functionalities to capture the nutrients from the effluent. To identified the functionalities changes in the adsorbent before and after recovery using FTIR and morphological change on the surface of the adsorbent using SEM also, elemental analysis using ICP-OES. The recovery of nutrients from sewage wastewater is a sustainable method for management of wastewater and serving social sustainability.

Abstract No. 6

Role Of Liquid Biofertilizer With Biopesticide On The Infestation Of Earias Vittella And Productivity Of Okra *(Abelmoschus Esculentus)*

Gorakh Nath, Deepak Kumar Bhartiya and Keshav Singh

Vermibiotechnology Laboratory, Department of Zoology,
D. D. U. Gorakhpur University, Gorakhpur, U.P., India.
Department of Zoology, S.V.M.M. Mahavidyalya, Aryan agar,Gorakhpur, U.P., India
Department of Zoology, Govt. P G College Dhadhabujurg, Hata, Kushinagar, U.P., India

ABSTRACT

Abundant use of chemical fertilizers and pesticides leads to a concentration of chemicals and metals, which ultimately affect the ecosystem. Agricultural production based on chemical fertilizers and pesticides is dangerous for soil fertility and conservation. The excessive use of phosphatic, nitrogenous and potash fertilizers pollute the water and food items, causing serious health problems and eutrophication in aquatic. Vegetables play a very important role in global food security. The low proportion of vegetables in dietary composition play important role in improvement of malnutrition. Okra (Abelmoschus esculentus (L.) Moench) is a popular and worldwide commercially cultivated vegetable crop, commonly called bhendi or ladies finger in India. It occupies an area of 3.70 lakh ha with an annual production of 36.57 lakh t and encourage yield of 9.88 t/ha during 2005-06 (Anon., 2005). Major okra producing states are Uttar Pradesh, Bihar, West Bengal, Andhra Pradesh, Karnataka and Assam. Okra belong to family Malvaceae which have been infested by nineteen insect pests and four mites causing both quantitative and qualitative loss to the crop.

The municipal solid wastes (MSW) caused environmental hazards and various adverse effects on ecosystem, if proper management is not available. There was recycling of MSW through vermibiotechnology and vermiwash production. The aim of present study was to determine the effect of vermiwash with neem plant parts on the germination, growth, productivity of okra and its pest infestation. The significance germination of okra seed in vermiwash with aqueous extract of neem bark (VW+NB) 97±5.21% than other combinations and early germination was observed (11.48±0.49 days). The maximum height of okra 42.42±0.79 cm was observed in after 90 days by sprays of VW+NB. The combination of VW+NF was important for high productivity of okra. The maximum productivity of okra plant was observed 773.23±20.64 g/m2 in treated with VW+NF. The lowest pest infestation of okra pod borer was observed after spray by VW+NF combination.

Abstract No. 7

Effect of Soil Pollutants on the diversity of Earthworms in Eastern Uttar Pradesh

Pankaj Kumar Singh, Yogendra Kumar and Keshav Singh

Vermibiotechnology Laboratory, Department of Zoology,
D. D. U. Gorakhpur University, Gorakhpur, U.P. India.
Department of Zoology, R.R. P G College, Mansurgunj, Maharajgunj, U.P. India

ABSTRACT

Indiscriminate use of chemical fertilizers and pesticides disturbs the soil texture and physicochemical properties as well as affects human health and the environment. The use of agrochemicals viz. pesticides, herbicides, fungicides, nematicides, bactericides, weedicides, and fer tilizers has posed a serious threat to the environment and destroyed useful microorganisms, insects, and worms in the soil. Different kinds of heavy metals also entered the agriculture field with these agrochemicals and destroyed soil flora and fauna. Earthworms are Annelids that have cylindrical and elongated bodies with metameric segmentation. Earthworms play an important role in the stabilization of inorganic plant nutrients to organic form and increase soil fertility. The worms added their cast with compost and increased the inorganic nutrients many times along with some plant growth hormones and vitamins. Earthworms have been the subject of studies on vermicompost formation and also have been used as bio-indicators. Difficulties in their taxonomy and parallel classification systems hindered the ecological and biogeography investigations of ear thworms. Therefore, despite enormous factual materials and several previous efforts, earthworm taxonomy, phylogeny and biogeography need general and urgent revision. The present study aims to investigate the impact of the pollutants on earthworm diversity and physico-chemical properties of soil in eastern Uttar Pradesh.

Abstract No. 8

Role of *Eisenia fetida* in Vermicomposting for Management of different Wastes and Self-employment

Anjali Singh, Nazia Siddiqui and Keshav Singh

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

ABSTRACT

The problem of handling different biological wastes needs attention for their proper management because they cause many environmental and health problems. Farmers do not have any knowledge about the potential use and management of these wastes. The indiscriminate use of chemical fertilizers and pesticides has caused more problems in soil fertility, human health, and the environment. For the solution of all these problems, vermicomposting is one of the best ways of biofertilizer which is produced through proper management of these wastes through earthworm, Eisenia fetida. Vermicompost is an alternative to chemical fertilizers. The awareness of organic matter and the concept of sustainable agriculture is gaining impetus among our farmers in recent years to produce good quality consumable agriculture products. Vermicomposting is an important tool of organic farming without much financial involvement with the help of earthworm Eisenia fetida. It has a positive effect on the growth and yield of crops is less expensive easily biodegradable and is no hazard to human health and the environment. Farmers and youth need sufficient knowledge about waste management and production, storage, use, and marketing. Production and marketing of vermicompost will provide self-employment to thousands of youth of weaker sections which will improve their socio-economic condition. At present time is a need to train F armers and youth in waste management and production of vermicompost, storage, its use, and marketing.

Abstract No. 9

Accumulation of Heavy Metals by Earthworm *Eisenia fetida* during Vermicomposting from different Biological Wastes

Deepak Kumar Bhartiya, Nishat Fatima and Keshav Singh

Department of Zoology, Govt. P.G. College Dhadhabujurg, Hata, Kushinagar, U.P., India
Vermibiotechnology Laboratory, Department of Zoology,
D. D. U. Gorakhpur University, Gorakhpur, U.P., India

ABSTRACT

Heavy metals constitute an impor tant class of toxic substances that are encountered in numerous occupational and environmental circumstances. Heavy metals occur naturally in the environment. The large quantities of heavy metals already affect the flora and fauna and cause various ill effects on human health. The use of a wide variety of heavy metals in industries and our daily life problems arising from the toxic pollution of the environment have assumed serious dimensions. It is released into the environment by volcanic activity, erosion of rocks, forest fires, human activity, paper mills, and industries. As well as the abundant use of chemical fertilizer and pesticide increase heavy metals in the environment. Generally, the human body is exposed to heavy metals by breathing, drinking, eating, or inhalation. Exposure to high lead levels caused damage to the brain and kidneys and ultimately caused death. In pregnant women, a high level of exposure to lead may cause miscarriage. The high level of exposure in men can damage the organ responsible for sperm production. Cadmium and Nickel exposure is encountered in industries dealing with pigment, metal plating, some plastic, and batteries. These heavy metals enter the human body by ingestion of contaminated foodstuffs, especially grains, cereals, and leafy vegetables. It can cause several respiratory irritations lung diseases, cancers, and kidney problems. Chromium spreads diseases in human beings life breathing problems such as asthma, cough, and wheezing. Skin contact can cause skin ulcers. Long-term exposure can cause damage to the liver, kidney, circulatory, and nerve tissues. Cobalt can be responsible for the beer heart syndrome because it is toxic to humans. However, when given orally to man it may cause hypercholesterolemia. Arsenic is a carcinogen and causes cancer of the skin, lungs, and liver, lower levels of exposure cause nausea and vomiting, decreased production of RBCs, and WBCs, and damage to blood vessels. Heavy metal concentration continuously increases in successive trophic levels in a food chain. This phenomenon is known as biological magnification or biological amplification. Generally different heavy metals like arsenic (As), barium (Ba), cadmium (Cd), chromium (Cr), lead (Pb), mercury (Hg), selenium (Se), and silver (Ag) by ingestion exposed to various problem in the human body. It is difficult to remove them completely from the environment. However, their entrance into the biological system can be minimized. The earthworm Eisenia fetida plays a very important role in the reduction of heavy metals from foodstuffs. The worms can accumulate various heavy metals viz Pb, Ni, Hg, and Cd in their body. Earthworms can accumulate heavy metals in their body and transfer the hazardous elements from the soil to higher levels of the tropic system and also be helpful to the production of good quality consumable agriculture production and the safety of human life. The present study will aim to investigate the accumulation of the various heavy metals that are already present in vermicomposts as well as in soil by earthworm *Eisenia fetida*.

Abstract No. 10

Utilization of Earthworms for Potential Management of Municipal Solid Wastes

Nishat Fatima, Zaveesha Saman and Keshav Singh

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

ABSTRACT

Rapidly increasing population and high rate of industrialization have increased the problems of waste. Waste is a serious problem for society, humans, and the environment. Vermicomposting is one of the useful tools for the management of municipal solid wastes. It is eco-friendly, less expensive, and an appropriate alternative for the safety of the environment. Earthworm *Eisenia fetida* is a very suitable species for vermicomposting because it tolerates a high range of ecological variations like temperature and humidity. The earthworms can earlier double capacity with a high rate of fecundity which causes the production of more no earthworms and more conversion of wastes into nutrient-rich organic manure called vermicompost. Vermicompost is a peat-like material having plant growth hormones, vitamins, and enzymes along with micro and macronutrients. The application of chemical fertilizer has been also recognized to cause environmental pollution and leave chemical residues in the soil, water, and agricultural products. Solid waste is defined the organic and inorganic waste material produced by different source and have lost value in the eye of their owner. It has been estimated that India, as a whole, generates as much as 30 million tones of urban solid wastes of diverse composition per year. Most practices of waste processing are uncontrolled dumping which causes mainly water and soil pollution. The use of vermiculture technology i.e. the breeding and propagation of earthworms and the use of its casting has ever an important tool of solid waste recycling. The vermiculture provides for the use of earthworms as bio-reactors for the management of municipal solid wastes.

Abstract No. 11

Assessment of Persistent Organic Pollutants in Urban Air: A Comprehensive Analytical Approach

Rajesh Kumar Singh

Department of Chemistry, M.L.K.P.G. College, Balrampur, U.P., India

ABSTRACT

The escalating concerns surrounding environmental pollution necessitate a thorough investigation into the presence and distribution of persistent organic pollutants (POPs) in urban air. This study employs a multidisciplinary analytical approach to assess the abundance, sources, and potential health implications of POPs in the atmospheric environment. Gas chromatography-mass spectrometry (GC-MS) and high-performance liquid chromatography (HPLC) techniques are employed for the targeted analysis of a diverse range of POPs, including polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and organochlorine pesticides (OCPs). The sampling campaign spans multiple urban locations, considering factors such as industrial zones, residential areas, and traffic-congested regions. Preliminary findings reveal elevated concentrations of specific POPs near industrial complexes, emphasising the impact of anthropogenic activities on air quality. Moreover, a temporal analysis elucidates seasonal variations and potential meteorological influences on POP levels. To elucidate pollution sources, a combination of statistical analyses, such as principal component analysis (PCA) and receptor modelling, is applied to discern the primary contributors to POP concentrations. Additionally, health risk assessments are conducted to evaluate the potential adverse effects on human populations exposed to these pollutants. This research contributes valuable insights into the spatial and temporal dynamics of POPs in urban air, fostering a deeper understanding of the intricate relationships between pollution sources, atmospheric transport, and human exposure. The outcomes of this study are essential for formulating targeted mitigation strategies aimed at curbing the release of these persistent pollutants, thereby advancing efforts to safeguard both environmental and human health.

Abstract No. 12

Chemical Characterization and Environmental Impact Assessment of Industrial Effluent Pollutants

Mohiuddin Ansari

Department of Chemistry, M.L.K. P. G. College, Balrampur, U.P., India

ABSTRACT

Industrial effluents represent a significant source of pollutants that can have profound and lasting effects on the environment. This study employs a comprehensive chemical analysis to identify, quantify, and assess the potential environmental impact of pollutants present in industrial effluents. The investigation focuses on diverse industries, including manufacturing, chemical processing, and wastewater treatment plants, to capture the broad spectrum of pollutants released into water bodies. Analytical techniques such as gas chromatography (GC), liquid chromatography (LC), and mass spectrometry (MS) are employed to profile the chemical composition of effluent samples. Targeted pollutants include heavy metals, organic solvents, persistent organic pollutants (POPs), and other hazardous substances commonly associated with industrial processes. The study integrates advanced analytical methods with environmental fate modeling to predict the dispersion and persistence of these pollutants in aquatic ecosystems. Results indicate a complex mixture of pollutants with varying degrees of environmental persistence and toxicity. Effluent samples exhibit elevated concentrations of heavy metals, such as lead, mercury, and chromium, as well as organic compounds including volatile organic compounds (VOCs) and chlorinated derivatives. The impact of these pollutants on aquatic ecosystems is assessed through toxicity assays and ecological risk assessments, shedding light on potential disruptions to aquatic flora and fauna. Furthermore, the study explores potential remediation strategies, considering the feasibility and effectiveness of treatment technologies to mitigate the impact of industrial effluents. The findings contribute to the development of targeted regulatory measures and industry best practices aimed at minimizing the environmental footprint of industrial activities. This research underscores the urgency of addressing the chemical complexities of industrial effluents and provides a foundation for sustainable environmental management practices. By understanding the nature and behaviour of effluent pollutants, industries and regulatory bodies can collaboratively work towards minimizing environmental degradation and ensuring the long-term ecological health of water ecosystems.

Abstract No. 13

Exploring the Interplay Between Environmental Pollutants and Health Metrics: An In-Depth Examination

Ashok Kumar

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

ABSTRACT

Environmental pollutants exert a profound influence on human health, necessitating a comprehensive examination of the intricate relationships between pollutants and environmental health indicators. This study employs a multidimensional approach to assess the impact of pollutants on various facets of environmental health, encompassing air quality, water quality, and soil contamination. The investigation utilizes advanced analytical techniques to measure the concentrations of key pollutants, including particulate matter (PM), nitrogen oxides (NOx), heavy metals, and emerging contaminants in air, water, and soil matrices. Health indicator data, such as respirator y health indices, waterborne disease prevalence, and soil quality metrics, are collected and correlated to pollutant levels to discern direct and indirect health impacts. Spatial and temporal variations in pollutant levels and corresponding health indicators are analysed to identify hotspots and potential trends. Furthermore, statistical models and geographic information systems (GIS) are employed to assess the cumulative effects of multiple pollutants on environmental health, offering insights into the synergistic or antagonistic interactions that may exacerbate or mitigate health risks. The study also considers vulnerable populations, such as children, the elderly, and communities residing in proximity to industrial zones, to highlight disparities in pollutant exposure and health outcomes. Risk assessments are conducted to quantify the potential health risks associated with long-term exposure to specific pollutants, facilitating targeted interventions and policy recommendations. The findings contribute to the development of a robust framework for understanding the complex dynamics between pollutants and environmental health indicators. By elucidating these relationships, policymakers and public health professionals can formulate evidence-based strategies to mitigate environmental health risks, promote sustainable practices, and safeguard the well-being of communities affected by pollution. This research is integral to advancing the broader goal of achieving a healthier and more resilient environment for present and future generations.

Abstract No. 14

Impact of Domestic Effluent Pollutants on Fisheries Mortality

Sadguru Prakash

Department of Electronics and Communication, P.K. University Shivpuri M.P., India

ABSTRACT

The discharge of pollutants from residential sources poses a significant threat to aquatic ecosystems, particularly in the context of fisheries mortality. This study conducts a comprehensive examination of the relationship between pollutants originating from household discharges and their detrimental effects on fish populations, contributing valuable insights into the sustainability of aquatic environments. Employing advanced analytical techniques, including water quality assessments and targeted pollutant analyses, the study investigates the composition and concentrations of pollutants commonly found in domestic effluents. These pollutants include nutrients, pharmaceuticals, heavy metals, and other contaminants discharged into water bodies through sewage and stor m water systems. Fish mor tality rates are monitored and cor related with the identified pollutants, considering both acute and chronic effects on different life stages of fish. The research also explores potential pathways of pollutant exposure, examining how pollutants may bioaccumulate within fish tissues and impact broader ecosystem dynamics. Spatial analyses are conducted to identify areas with elevated pollutant levels and corresponding fisheries mortality, highlighting potential hotspots of environmental concern. Additionally, the study examines the cumulative impact of various pollutants on fisheries mortality, recognizing the interconnected nature of different pollutants in aquatic ecosystems. The findings from this research not only contribute to understanding the direct consequences of domestic effluent pollutants on fisheries but also provide a basis for developing targeted mitigation strategies. By unravelling the complex interactions between household-derived pollutants and fisheries mortality, this study aims to inform sustainable water management practices, regulatory frameworks, and community-based initiatives aimed at preserving the health and resilience of aquatic ecosystems and fisheries resources.

Abstract No. 15

Municipal Solid Waste Characterization and Valorization Potential in Lucknow City: Advancing Sustainability through Eco-Friendly Technologies

Nkululeko S. Dlamini and Pawan Kumar Jha

Centre of Environmental Studies, University of Allahabad, U.P., India

ABSTRACT

The persistent rise in population, economic growth, and urbanization, is set to keep increasing municipal solid waste (MSW) generation. This highlights the urgency of implementing sustainable strategies for managing and valorizing MSW resources. Lucknow, the capital city of Uttar Pradesh State, is home to 3.29 million residents and produces approximately 1946 tonnes of MSW daily. This reflects a 17% increase in five years, as the waste generation stood at 1662 tonnes per day in 2018. Effective solid waste management hinges on a comprehensive understanding of the physical and chemical characteristics of waste materials, influencing their interactions with the environment and subsequent impacts on ecosystems and public health. The research was initiated to characterize MSW in Lucknow and explore its potential for valorization, aligning the city with sustainability objectives and endorsing a circular economy framework for development. Employing American Society for Testing and Materials (ASTM) standards, collected samples underwent proximate and ultimate analysis. The findings revealed that, on average, the MSW in the city exhibited a 44% organic content and a high 50% moisture content. Furthermore, calorific values surpassed the Central Pollution Control Board's safe disposal limit for landfills (2500 calories per gram), registering an average value of 14.31 MJ/Kg. This indicates the suitability of Lucknow's MSW as an energy source. Additionally, the city's MSW boasts a favourable carbon-to-nitrogen (C/N) ratio of 53:1, and its temperature range of 40-45°C to 5-15°C provides conducive conditions for biogas production to meet diverse energy needs such as cooking, heating, and electricity generation.

Abstract No. 16

Understanding Hydroclimatic Change on Climate Resilient Agriculture Strategy for River Basin Management

Chiranjit Singha and Satiprasad Sahoo

Department of Agricultural Engineering, Institute of Agriculture, Visva-Bharati
(A Central University), Sriniketan, Birbhum, West Bengal, India.
Department of Geoinformatics,
Indira Gandhi National Open University Maidan Garhi, New Delhi, India
International Center for Agricultural Research in the Dry Areas (ICARDA), Cairo, Egypt.

ABSTRACT

This paper focuses on exploring the potential of Climate resilient agriculture (CRA) for river basin-scale management. Our analysis is based on long-term historical and future climate and hydrological datasets within a GIS environment, focusing on the Ajoy River basin in West Bengal, Eastern India. The standardized anomaly index (SAI) and slope of the linear regression (SLR) methods were employed to analyse the spatial pattern of the climate variables (precipitation, Tmax and Tmin) and hydrological variables (actual evapotranspiration (AET), r unoff (Q), vapor pressure deficit (VPD), potential evapotranspiration (PET), and climate water deficit (DEF)) using the TerraClimate dataset spanning from 1958 to 2020. Future climate trend analysis spanning 2021 to -2050 was conducted using the CMIP6 based GCMs (MIROC6 and EC -Earth3) dataset under shared socio-economic pathway (SSP2-4.5, SSP5-8.5 and historical). For spatiotemporal water storage analysis, we relied on Gravity Recovery and Climate Experiment (GRACE) from CSR and JPL data, covering the period from 2002 to 2021. Validation was performed using regional groundwater level data, employing various machine learning classification models. Our findings revealed a negative precipitation trend (approximately −0.04 mm/year) in the southern part, whereas the northern part exhibited a positive trend (approximately 0.10 mm/year).

Abstract No. 17

Climate Change: Impacts, Adaptation and Challenge for Sustainable Development

Pradeep Kumar Sharma and Vibha Tiwari

Department of Environmental Science, Jhunjhunwala P.G. College, Ayodhya, U.P., India
Department of Botany, Jhunjhunwala P.G. College, Ayodhya, U.P., India

ABSTRACT

Climate changes refer to a change of climate which is directly or indirectly to human activity that alters the composition of the global atmosphere. According to IPCC's report earth climate has warmed by 0.740C. Warming oceans and melting glaciers due to global warming and climate change could cause sea levels. To avoid significant climate impacts and reduce the risk of creating impacts beyond our ability to respond and adapt, we need to reduce greenhouse gas emissions. The remedial measures of climate change may be incurred with less use of carbon releasing energy substitute or increase level of carbon dioxide can be sequester in to biomass by green plants, microalgae and microbes. Bio-energy deployment offers significant potential for climate change mitigation. Rapidly raising greenhouse gases, enhanced land and sea temperatures and increased frequency and magnitude of extreme events pose enormous risks to various economic activities and fresh water availability and affect the sustainability of agriculture and food security of billions of people around the world, especially in the developing countries. Over the course of this century, climate change is expected to lead to higher average global temperatures, changes in annual and seasonal precipitation patterns and increase in the frequency and intensity of extreme weather events. Elevated concentrations of atmospheric carbon dioxide could also influence crop yields through the CO2 fertilization effect. These factors will fundamentally alter crop yields and the distribution of agriculture production. Sector sensitive to Climate change like agriculture, water resources, forests and coastal setting may be endangered because of projected climate change. It shall affect the hydrological cycle which would result in further intensification of temporal and spatial variations in precipitation, causes melting of snow/ice in mountain glaciers and Polar Regions. Extreme climate driven episodic events may occur like coastal storms/cyclones, flood and drought. Plants and animals are now becoming extinct at an alarming rate almost entirely as a direct result of human activities. The link between climate change and sustainable development stems from the fact the climate change is a constraint to development, and sustainable development is a key to capacities for mitigation and adaptation. It follows that strategies for dealing with sustainable development and climate change have many common elements so that applying them together creates synergies.

Abstract No. 18

Significance of Religion in Social and Environmental Sustainability.

Vikash Kumar and Nisha Saroj

Banaras Hindu University, Varanasi, U.P., India
Dr. R.M.L.A.U Ayodhya, U.P., India

ABSTRACT

This paper aims to draw the significance of religion in social and environmental sustainability. The vedas, upanishads, tripitakas and other many religious and mythological texts have a few references about Environmental sustainability. The vedas propound that all of us (every entity of nature), especially the human beings (as we are the overtly conscious ones) must have friendly relations with each aspect. The oldest and Simplest form of nature- worship finds expression in vedic texts. Many scholars have come to the conclusion that the vedas are primarily concerned with cosmology. The Rig veda venerates deities like Mitra, Varuna, Indra, Maruts and Aditya, that are responsible for maintaining the requisite balance in the functioning of all entities of Natural things. The tripitaka and Jataka stories define the social and environmental sustainability settlement which comprises forests, mountains, water, air etc. The vedas talk about enjoying nature with Tyag Bhava means selfless sacrifices. The wealth of natural resources does not belong to anybody and must be shared with everyone .The pandemic has proved that for nature there is no geographic boundary and effects of nature reaches everybody.

Abstract No. 19

Sustainable Development and Organic Farming

Keshav Singh

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

ABSTRACT

Abundant use of chemical fertilizers and pesticides leads to a concentration of chemicals and metals, which ultimately affect the ecosystem. Agricultural production based on chemical fertilizers and pesticides is dangerous for soil fertility and conservation. The excessive use of phosphatic, nitrogenous and potash fertilizers pollute the water and food items, causing serious health problems and eutrophication in aquatic systems. In the modern age, the increasing population in every sphere is a critical challenge in the sustainable development of our environment. The agricultural system is also affected by pollution. Modern farming techniques (such as the use of pesticides, synthetic fertilizers, etc. to maximize crop yield) disturb the nutrient balance of the soil and reduce soil fer tility. Organic farming is an environment-friendly, animal and plant-based organic resource that enriches nutrients that are required for crop plants. Organic agriculture is an efficient and promising agricultural approach for environmental sustainability as it provides yield stability, improves soil health, no environmental concerns, organic food and reduction in the use of synthesized fertilizers. Sustainable development is an economic development conducted without depletion of natural resources. Fundamentally, organic farming is closely related to sustainable development. Organic agriculture is helping us to restore the ecological balance. The most important aspect of organic farming is its ecological balance maintaining abilities. Export of organic outputs fetches high prices because of their health benefits. Effectively, they result in an inflow of profitable foreign currency reserves. In recent years gaining impetuous among farmers to produce good quality agricultural products. The use and application of biofertilizers, biopesticides, bio-herbicides and bioinsecticides as well as integrated pest management system are basic need for organic framing and sustainable development.

Abstract No. 20

Comparative Study on The Yield of Pleurotus Florida Mushroom on Different Lignocellulosic Agro-Waste

Simpal Kumari

Department of Microbiology, Faculty of Science &Technology
Dr. Shakuntala Misra National Rehabilitation University, Lucknow, U.P., India

ABSTRACT

Mushroom growing is a viable and promising method for managing crop waste that may pique farmers' interest. Here I used five lignocellulosic agricultural bi-products and evaluated which one was the best substrate for the cultivation of white rot fungi *Pleurotus florida*. The mycelia run on rice straw was very quick in 10 days only whereas, on mustard husk, it took more time about 17 days. The yield of mushrooms on different substrates were 162.2, 145.3, 123.1, 111.2, 27.6 for rice straw, wheat straw, corn cob, banana leaves, and mustard husk, respectively. The biological efficiency (BE) was highest for substrate rice straw and lowest for mustard husk. Based on the yield and BE of the cultivated white rot fungi on the different substrates rice straw was the best substrate for this purpose. Agro-based residues provide ideal conditions for the rapid growth of fungi (mushrooms), despite being rich in numerous nutrients and lignin-cellulosic components that are difficult to break down. Mushroom cultivation is one of the alternative ways to use rice straw (Parali) which is burned in the fields.

Abstract No. 21

Characterization and Nutritional Analysis of Major Cultivable Mushrooms Collected from District Ayodhya, (UP) India

Balwant Singh and Vinay Kumar Singh

Mycology and Plant Pathology Laboratory, Department of Botany,
K. S. Saket P.G. College, Dr. R.M.L. Avadh University Ayodhya, U.P., India
The University of Texas, Austin

ABSTRACT

Ayodhya is situated at the bank of river Saryu and has vast diversity of macrofungi especially mushroom mycoflora. Some of which are excellently edible and cultivable. Characterization and nutritional composition of four selected cultivable naturally growing mushrooms viz. *Agaricus bisporus*, *Pleurotus ostriatus*, *Volvariella volvacea* and *Calocybe indica* from different site of study area (Ayodhya) were evaluated. Macroscopic and microscopic characteristics expressed with natural photographs. The proximate analysis of nutritional values was done by encountered complete mushroom sample were shade dried, powdered and processed. The macronutrients profiles revealed that the cultivable wild edible mushroom contains protein, carbohydrate, lipid, fiber and ash content ranged from 31.44 – 36.43%, 29.15% - 52.10%, 2.36 – 3.77%, 12.52 – 24.31% and 1.26 – 12.97% respectively on dry weight basis. Current study confirms that the selected cultivable wild edible mushrooms are healthy and good source of food and major alternative source of protein. It also exposed that the used of varieties of mushroom in their cultivational practice as well as diet to decrease malnutrition and increase socioeconomic values.

Abstract No. 22

Biodeterioration of Prehistoric Rock Art and issues in site preservation with reference to Brij Region

Ravindra Goswami, Vinamrata Poonia and Seema Bhadauria

Department of Botany, R.B.S. College, Agra, U.P., India
Principal, BVRI, Bichpuri, Agra, U.P., India

ABSTRACT

Lichens, algae and mosses growing on prehistoric rock art pose a major worldwide threat for its preservation and conservation. Most rock art is surficial, as paintings, or shallowly pecked or incised into the rock surface. Breakdown of the rock surface by lichens and other microflora can easily erase these images. Lichens and other damaging flora inhabit a wide variety of environments and have destroyed entire panels of rock art. Methods of lichen control developed for buildings and large historic monuments may be inappropriate for more delicate rock art. Rock art researchers must consider conservation, research and ethical issues for site preservation where biodeterioration is a factor. But it is more essential that the identification of problem and selection of chemical should be accordance the problem of stone surface and preservative solution applied on monuments is of good quality. It should be colorless and transparent and should not turn yellow or become colored with age and should be fairly stable for long parried of time. It should offer reasonable protection to monument and sculpture against moisture and its film should be hard and stone enough to protect the stone surface from injurious accretions. Fatehpur Sikri also covered with such kind of the rocks and have rock arts of earlier time which need to preserve for future.

Abstract No. 23

Impact of climate change on wetland ecosystem: A Review

Anita Kumari

Department of Botany
Mahatma Gandhi Post Graduate College, Gorakhpur, U.P., India

ABSTRACT

According to Ramsar Convention 'Wetlands are areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters.' In simple words, it is a combination of hydric soil and unique conditions that are intermediate between terrestrial and aquatic environments. Wetlands can be found in various landscapes, including coastal areas, river floodplains, lakeshores, and inland depressions. It harbors diverse fauna and flora of unique plant communities adapted to waterlogged conditions. It also serves as natural buffers against floods by absorbing and storing excess water. They reduce the risk of downstream flooding and contribute to regulating water flow. It plays crucial roles in maintaining biodiversity, water quality, and ecosystem services. Now days wetland ecosystem is under threat. Excessive withdrawal of water from rivers and aquifers that feed wetlands can disrupt natural hydrological patterns, leading to reduced water levels and the drying up of wetland areas. Uncontrolled harvesting of resources from wetlands also leads the depletion and degradation of wetland ecosystems. Climate change is a major factor impacting wetlands through altered precipitation patterns, temperature change and sea level rise. These changes can affect the hydrology of wetlands loss of habitat shifting of vegetation and changes in water availability.

Abstract No. 24

Efficacy Of Oyster Mushroom in Promoting Hematological and Health Status of Catfish *(Clarias Batrachus*)

Asha K.C. and Ashok Kumar

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

ABSTRACT

Aquaculture practices continually seek sustainable and innovative approaches to enhance the overall health and productivity of farmed fish. This study investigates the potential benefits of incorporating oyster mushroom *(Pleurotus sp.*) into the diet of catfish *(Clarias batrachus*) and its impact on haematological parameters and overall health status. Oyster mushrooms are renowned for their nutritional content, including essential amino acids, vitamins, and bioactive compounds that may have positive effects on the immune system. The experimental design involves feeding catfish with a formulated diet supplemented with varying concentrations of oyster mushroom biomass. Hematological parameters such as red blood cell count (RBC), white blood cell count (WBC), haemoglobin concentration, and hematocrit levels are monitored over a specified experimental period. Additionally, key health indicators, including growth performance, liver and kidney function, and immune response, are assessed. Preliminary findings suggest that the inclusion of oyster mushrooms in the catfish diet positively influences haematological parameters, with potential implications for immune function and overall health. The study aims to provide valuable insights into the feasibility of using oyster mushrooms as a functional feed additive in aquaculture, contributing to the sustainable improvement of fish health and productivity. Further research is warranted to elucidate the underlying mechanisms and optimize the dietary incorporation of oyster mushrooms for enhanced aquaculture practices.

Abstract No. 25

Effect of Immunostimulant *Ocimum tenuiflorum* in Disease Management of Freshwater Carp, *Labeo rohita*

Dhananjay Pratap Rao and Ashok Kumar

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

ABSTRACT

Aquaculture faces significant challenges related to disease outbreaks, necessitating the exploration of alternative strategies for disease management. This study investigates the potential immunostimulatory effects of Ocimum tenuiflorum in enhancing the disease resistance of freshwater carp, *Labeo rohita*. Ocimum tenuiflorum is known for its immunomodulatory properties, and its application in aquaculture may offer a sustainable solution to mitigate the impact of diseases on fish populations. The experimental design involves incorporating Ocimum tenuiflorum extract into the diet of *Labeo rohita* and assessing its influence on the immune response and disease susceptibility. Immunological parameters, including phagocytic activity, lysozyme activity, and serum antibody levels, are monitored over a designated experimental period. Furthermore, the study evaluates the fish's resistance to common pathogens, examining the incidence and severity of diseases. Preliminary results suggest that the immunostimulant properties of Ocimum tenuiflorum positively impact the immune parameters of *Labeo rohita*, potentially leading to increased resistance against common pathogens. The findings aim to contribute valuable insights into the development of sustainable and natural approaches for disease management in aquaculture. The study underscores the potential of Ocimum tenuiflorum as an immunostimulant in enhancing the overall health and disease resistance of freshwater carp, paving the way for its practical application in aquaculture practices. Further research is warranted to elucidate the underlying mechanisms and optimize the incorporation of Ocimum tenuiflorum in aquafeed formulations for improved disease management strategies.

Abstract No. 26

Impact of Distillery Effluent on Relative Growth rate and Oxygen Consumption rate of Freshwater Catfish, *Mystus vittatus* (Bloch)

Santosh Kumar Tiwari and Sadguru Prakash

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

ABSTRACT

Present investigation has been carried out to study the physico-chemical parameters of raw distillery effluent and also to determine the chronic impact of sublethal concentrations of raw distillery effluent on mortality or survival rate, relative growth rate and rate of oxygen consumption of effluent exposed fish, *Mystus vittatus*. The result of physico-chemical characteristics of raw distillery effluent revealed that pH was acidic and other parameters such as electrical conductivity, total dissolved solids, hardness, total alkalinity, biological oxygen demand and chemical oxygen demand were found to be beyond the permissible limits of ISI, CPCB India and WHO. On the basis of 96 hours LC50 value (4.073 % v/v) of raw distillery effluent for Mystus vittatus the selected sub-lethal concentrations 2.5% v/v (about1/10th of 96h LC50) and 5.0 % v/v (about 1/5th of 96h LC50) were selected for the study of chronic toxicity. There was no mortality i.e., 100% survival was observed in both sublethal concentrations of distillery effluent. The relative growth rate (RGR) decreases as the sublethal concentration and period of exposure of distillery effluent increases. A significant decreased in the rate of oxygen uptake was recorded in distillery effluent exposed fishes. The effect was more pronounced as the concentration and duration of exposure to distillery effluent increased. Thus, the chronic response of the fish towards toxicity was grossly dependent on concentration and length of exposure.

Abstract No. 27

Zooplankton Diversity in Bhagda Taal, A Fresh Water Wetland of Balrampur District of Tarai Region of Eastern U.P., India

Varsha Singh and Sadguru Prakash

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

ABSTRACT

Wetlands are very productive ecosystems, which help in the regulation of biological cycles, maintenance of water quality, nutrient movement and support for food chains. Zooplankton are cosmopolitan in nature and one of the most important ecological parameters in water quality assessment because they help in disposal of sewage and act as natural purifiers of water. Present study was carried out for a period of one-year from July 2021 to June 2023. The present study deals with Zooplankton diversity throughout the year in raja Bhagda Taal of Balrampur, U.P. The diversity of various types of zooplankton was studied and the result revealed that the zooplankton was represented by various genera viz., rotifera, cladocera, copepoda and ciliates. Present study revealed 28 genera belonging to four groups, Rotifera, Copepoda Cladocera and Ciliates. Out of 28 species, 09 genera, *Asplanchna sp., Brachions sp., Cephalodella sp. Filinia sp., Keratella sp. Lecane sp. Notholca sp., Polyarthra sp. and Roraria sp. to rotifera; 05 genera, Cyclops sp., Diaptomus., sp. Gammarus sp., Mesocyclops sp*. and Nauplius larvae belong to Copepodas; 10 genera, *Alona sp., Alonella sp. Biapertura sp., Ceriodaphnia sp., Chydrorus sp. Daphnia sp., Diaphnosoma sp., Monia sp. Moinodiaphnia sp*. and *Sida sp*. belongs Cladocera. 04 genera, *Chilodonella sp., Epistylis sp., Paramecium sp*. and *Vorticella sp*. belonged to Ciliates. Present study revealed that the annual percentage composition comprises of Cladoceran (35.71%) constitute the maximum zooplankton species followed by Rotiferas (32.14%), Copepods (17.85%) and Ciliates (13.93%).

Abstract No. 28

Seasonal Phytoplankton Diversity in Chittaura Jheel, a wetland of Bahraich, U.P.

Dilip Kumar Yadav and Arvind Kumar Sharma

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

ABSTRACT

Phytoplankton forms the vital source of energy in the aquatic environment and these are the base of aquatic food chain and food web and is the most important factor for production of organic matter in aquatic ecosystem. Phytoplankton diversity also help to determine the trophic status and water quality of waterbodies. The interplay of physical, chemical and biological properties of water most often lead to the production of phytoplankton, while their assemblage (composition, distribution, diversity and abundance) is also structured by these factors. Some of phytoplankton species gives a reliable information about pollution status of aquatic bodies. So, these are called good indicator of water quality. In the present study only, few species are present throughout the year, while other species were distributed in different seasons mainly in winter and summer seasons. During winter, Chlorophyceae was dominant group followed by Bacillariophyceae. On the other hand, Cyanophyceae and Euglenophyceae were dominant during Summer. Pandoria. Pediastrum, Gonium, Chlorella, Scendesmus, Oedogonium, Oscillatrria and Euglena were recorded throughout the year. Presence of Pandoria, Chlorella, Oscillatoria, Anacystis, Cymbella and Nitzschia in the marginal sites' incidence the polluted condition of taal water.

Abstract No. 29

Impact of Paper Mill Effluents on Qquatic Animal: A Review

Lavi Jaiswal and Arvind Kumar Sharma

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

ABSTRACT

The chemical compounds present in paper mill effluent is a major source of environmental toxicity. Treated effluents of paper mills is one of the major sources of aquatic pollution and pose serious threat to aquatic biota due to its complex nature. More than 250 chemicals have been identified in effluents which are produced at different stages of papermaking. These chemicals potentially threatening substances including heavy metals and endocrine disrupting chemicals. Their toxic nature is derived from the presence of several naturally occurring and compounds which are formed and released during various stages of papermaking. Paper mills effluent pose great risk to fish species in terms both acute and chronic effects. Therefore, it is absolutely necessary to regulate the discharge of effluent in water bodies besides taking adequate steps to treat the effluent. Several workers discussed endpoints of paper mill toxicity in fish ranging from acute and behavioural toxicity, developmental and growth studies, immune toxicity, hepatotoxicity, genotoxicity, histotoxicity as well as effects on enzymes, reproductive and endocrine disruption.

Abstract No. 30

Climate Change and Natural Resource Degradation in India

Surendra Kumar Maurya

Kalinga University, Raipur Chhattisgarh, India

ABSTRACT

This article explains that climate change is a big change today, the crisis of climate change is increasing so rapidly around the world that sea level is rising, incidents like landslides, earthquakes and floods are happening. We have started overusing resources like chimneys and vehicles, due to which if the carbon emissions from these are not stopped, the consequences will be disastrous. All natural resources are ver y important for us. It is not possible to live without them. All natural resources like water, oil, coal, natural gas, stone, sand, air and soil are all natural resources. Climate change is having a huge impact on all natural resources. Degradation of natural resources is increasing rapidly due to changing temperatures and excessive environmental pollution. The reasons behind the degradation of natural resources are increasing population, consumer habits, industrialization, increasing pollution, leakage of poisonous gases etc. Today natural resources are depleting rapidly because all governments and all human beings are engaged in the blind phase of development. And they see only development. F or which they are continuously har ming the environment and today the rivers have reached the verge of dr ying up. New cities are being established by cutting trees on agricultural land. Multi-storey buildings are being built, the level of potable water is going down, the land is being continuously polluted by using chemical fertilizers and pesticides to increase the yield in the fields. If governments do not become serious on climate change, then the day is not far when humans will not be able to get pure food to eat, pure water to drink and pure environment to live. Therefore, we need to think about what we will leave for our future generations. Polluted environment or pure environment.

Abstract No. 31

Environment, Climate Change and Waste Management

Shree Bhagwan Singh

Department of Philosophy, R.N.S. College, Maner, Patna, India

ABSTRACT

Environmental change is the disturbance in the environment most often caused due to man-made activities and the concerned effects other than natural ecological processes or systems. Environmental changes may include a number of things be it; natural disasters, human interferences, animal interaction or flora-fauna interaction imbalances. There are 10 simple objectives which can help in the protection or conservation of the earth. Viz. ;(i) Reduce, recycle and reuse, (ii) Volunteer clean-up society or community, (iii) Education and awareness, (iv) Conservation of water bodies, (v) Sustainable developments, (vi) Balanced population of flora and fauna species, (vii) Management of the natural resources, (viii) Balance of the ecological system, flow of energy, ecological succession and ecological plyramids, (ix) Plantation and green vegetation enhancement and (x) Synchronization between food chain and food web." Large-scale and global environmental hazards to human health includes the following; climate change, stratospheric ozone depletion, changes in ecosystem due to loss of biodiversity, changes in the hydrological system and the supply of freshwater, land degradation, urbanization and stress on the primary producers or the first most topic level.

Abstract No. 32

Allelopathic effect of Leaf Aqueous Extract of Sphagneticola trilobata on the Germination, Growth and Physiological Activities of *Vicia villosa* L.

Mo Shadab and M.B. Siddiqui

Section of Environmental Botany and Allelopathy Lab
Department of Botany, Aligarh Muslim University, Aligarh, U.P. India

ABSTRACT

The aim of this study is to find out how leaf aqueous extracts from *Sphagneticola trilobata* L. affect the growth, biochemical activities, and germination of *Vicia villosa* L. The main goal is to assess the potential allelopathic interactions between these plant species, with a focus on the morphological, physiological, and biochemical alterations induced by the leaf aqueous extracts (LAE) of S. trilobata. The toxic effects of leaf extracts were investigated in the root meristematic cells of onion *(Allium cepa* L). The experiment involved extracting compounds from the leaves of *S. trilobata* and applying varying concentrations (0.5, 1, 2, and 4%) of these leaf extracts to *V. villosa* seeds and seedlings. Multiple parameters, including germination percentage, growth parameters, cytological and biochemical activities, and allelochemical profiling, were measured and compared against the control group. Germination percentage, seedling growth, seedling length, and chlorophyll content decreased notably, especially at higher concentrations (4%). Scanning electron microscopy revealed ultrastructural and stomatal abnormalities in the leaves and roots. Varied concentrations of LAE had distinct effects on both the mitotic index and the occurrence of chromosomal aberrations. These results show how the *S. trilobata* extract can inhibit *V. villosa* from growing. GC-MS analysis of methanolic leaf powder extracts identified 48 chemical compounds. The most prevalent compounds in the methanolic extract were Benzyl nitrile, Lauric acid, Dodecanoic acid, Benzene acetic acid, 11-Bromoundecanoic acid, and Palmitic acid. Additionally, we identified allelochemicals responsible for the observed physiological changes. Identification of allelochemical compounds offers prospects for eco-friendly weed management and the development of natural-based herbicides or growth regulators, crucial for sustainable agriculture and reducing chemical pollution.

Abstract No. 33

Biodiversity And It's Conservation in India

Vijay Praksh Singh

Ramabai Govt. Girls P.G. College Akbarpur, Ambedkar Nagar, U.P., India

ABSTRACT

Paper throws light on biodiversity of India which is considered one of the mega diversity countries of world. India harbours four hotspots, viz: Indian Himalaya, Western Ghats, North-East India entire except Assam and Andmam group of Islands and fourth one is Sundaland which includes Nicobar group of island. The great has given shape to variety of cultural and ethnic diversity which includes over 550 tribal communites of 227 ethnic groups spread over 5000 forested villages. Present status of flora and fauna of country shows 47000 species of plants and 90,000 species of animals. There are about 2000 species of fishes in fresh and marine water and near about 1200 species of birds.

Abstract No. 34

Recent Approaches for the Remediation of Textile Dyes from Polluted Environment: Challenges and Future Directions

Manikant Tripathi, Pankaj Singh, Pradeep Kumar Singh, Neelam Pathak, Rudra Pratap Singh, Naveen Patel

Biotechnology Program, Dr. R.M.L. Avadh University, Ayodhya. U.P., India
Department of Biochemistry, Dr. R.M.L. Avadh University, Ayodhya. U.P., India
Department of Environmental Sciences, Dr. R.M.L. Avadh University, Ayodhya. U.P., India
Department of Civil Engineering, IET, Dr. R.M.L. Avadh University, Ayodhya. U.P., India

ABSTRACT

Toxic wastes like dyes are released into the environment as a direct result of industrialization and technological developments. The presence of dye in wastewater causes substantial threats to the environment, and has negative impacts not only on human health but also on the health of the ecosystem. Because of the increase in textile manufacturing, the inhabitants of the area, along with other species, are subjected to the potentially hazardous consequences of wastewater discharge from textile and industrial manufacturing. Different types of dyes emanating from textile wastewater have adverse effects on the aquatic environment. Various approaches including physical, chemical, and biological advanced strategies are applied in order to reduce the amount of dye pollution in the environment. The development of economical, ecologically acceptable, and efficient strategies for treating dye-containing wastewater is necessary. It has been shown that microbial communities have significant potential for the remediation of hazardous dyes in an environmentally friendly manner. In order to improve the efficacy of dye remediation, numerous cutting-edge strategies, including those based on nanotechnology, microbial biosorbents, bioreactor technology, microbial fuel cells, and genetic engineering, have been utilized. The removal of hazardous dyes from polluted sites using microorganisms is a strategy that is both efficient and sustainable.

Abstract No. 35

Growth Yield and economics of summer moong *(Vignaradiate L.)*" as affected by planting geometry and phosphorus doses under irrigated conditions

Abhishek Raj Ranjan, Ram Pyare, Narendra Singh and Shiv Kumar Rana

Department of Agronomy, BUAT, Banda, U.P., India
Member UPPSC, Prayagraj, U.P., India
Department of Agricultural Statistics, A.N.D.U.A. &T., Ayodhya, U.P., India

ABSTRACT

The experiment was conducted at Agronomy Research Farm, Acharya Narendra Dev University of Agriculture and Technology, Kumarganj, Ayodhya (U.P.) during the Zaid season of 2021. The field trial was laid out in Factorial Randomized Block Design with three times keeping three planting geometries viz., 30 cm x 10 cm, 30 cm x 15 cm, 30 cm x 20 cm and four phosphorus levels viz., 0 kg/ha, 20 kg/ha, 40 kg/ha and 60 kg/ha. Results proved that the growth and yield parameters were higher at 30 cm x 15 cm planting geometry and 40 kg/ha application of phosphor us level in summer moong as compared to rest of the treatments. The yields and economics were proved significantly superior in terms of the planting geometry of 30 cm x 15 cm with 40 kg/ha phosphorus doses compared to the rest of treatments under irrigation condition.

Abstract No. 36

Gamma Irradiation Effects on *Salvia hispanica* L. Seeds in M2 Generation: A Comprehensive Study of Genetic Variation and Phytochemical Responses

Satya Pandey and Girjesh Kumar

Naithani Plant Genetics Laboratory
Department of Botany, University of Allahabad Pryagraj, U.P., India

ABSTRACT

This study investigates the impact of gamma irradiation on Chia *(Salvia hispanica* L.) seed development, including germination, growth, and metabolite synthesis. Various irradiation doses (0, 50, 100, 150, 200, and 250 Gy) were applied, leading to improved phytochemical constituents, morphological traits, and overall plant profile. Gas Chromatography-Mass Spectrometry analysis revealed novel findings, including significantly increased Alpha-linolenic acid (60.23%) at 100 Gy irradiation. This research highlights the potential of gamma irradiation to enhance Chia seeds' nutritional and phytochemical proper ties, promising advancements in seed development and crop improvement for nutrient-rich agricultural products.

Abstract No. 37

Biodiversity and its Conservation in India

Vijay Prakash Singh

Department of Botany,
Ramabai Govt. Girls P.G. College Akbarpur, Ambedkar Nagar, U.P., India.

ABSTRACT

Paper throws light on biodiversity of India which is considered one of the mega diversity countries of world. India harbours four hotspots, viz: Indian Himalaya, Western Ghats, North –East India entire except Assam and Andman group of Islands and fourth one is Sundaland which includes Nicobar group of island. The great ecological diversity makes India as one of the mega diversity regions on the globe. The rich biodiversity in India has given shape to variety of cultural and ethnic diversity which includes over 550 tribal communities of 227 ethnic groups spread over 5000 forested villages. Present status of flora and fauna of country shows 47,000 species of plants and 90,000 species of animals. There are about 2000 species of fishes in fresh and marine water and near about 1200 species of birds.

Abstract No. 38

Carbendazim Modulates the Metabolically Active Bacterial Populations in Soil and Rhizosphere

Soni Chauhan, Amita Dubey and Poonam C. Singh

Microbial Technology Division, CSIR-National Botanical Research Institute
Rana Pratap Marg, Lucknow, U.P., India;
Department of Biosciences, Integral University, Kursi Road, Lucknow, U.P., India

ABSTRACT

The impact of fungicide residues on non-target soil bacterial communities is relatively unexplained. We hypothesize that the persistence of fungicide residues in the soil will affect the soil bacterial populations. Persistence depends on biotic and abiotic factors, primarily determined by agricultural activities. Activities such as fallow soil (F), farmyard manure (FYM) amendment, rice straw (RS) mulching, and cultivation of maize *(Zea mays*) and clover *(Trifolium alexandrinum*) were used as treatments. The soil CO2 efflux showed no effect of Carbendazim on dormant bacteria (unwatered condition). However, in irrigated condition, Carbendazim enhanced the CO2 efflux by 8, 164, 131, 249, and 182% in fallow, FYM, RS, maize, and Trifolium, respectively. However, 16S rRNA metagenome study after 30 days of carbendazim treatment showed that maize rhizosphere microflora was most susceptible, decreasing the Shannon diversity index from 0.321 to 0.165. Diversity indices generally increased in maize and RS treatments, and Proteobacteria was most prominent bacterial phyla in the maize rhizosphere. The microbial communities separated into distinct groups on the Principal Co-ordinate analysis (PCoA) plot. The separation on scale 1 (35%) and scale 2 (13%) was based, respectively, on microbial activity and carbendazim treatments. Functionally Maize+Carbendazim treatment showed the highest enzyme activities dehydrogenase (82.25%), acid phosphatase (78.10%), alkaline phosphatase (48.26%), β-glucosidase (59.99%), protease (126.65%), and urease (50.66%) compared to fallow soil. Overall, Carbendazim enhanced non-target bacterial activity in metabolically active niches, while it did not affect the dormant microflora. Thus, organic amendments and cultivation of fungicide-contaminated soil may help render the contaminant through bacterial activity.

Abstract No. 39

Time series modeling and statistical analysis of sugarcane yield.

Shiv Kumar Rana, Manish Kumar, Ram Pyare and Abhishek Raj Ranjan

Department of Agricultural statistics, ANDUA&T, Ayodhya, U.P., India
Member UPPSC, Prayagraj, U.P., India
Department of Agronomy, BUAT, Banda, U.P., India

ABSTRACT

In this study, a time series data on sugarcane yield from 2010-2019 in several chosen Indian states is used to assess growth and trend patterns by fitting widely acknowledged statistical models, namely the linear model and the exponential model. The trend values were acquired by fitting the appropriate models. Furthermore, the "goodness of fit" of the various models was evaluated using the Chi-square test statistic. The study shows that both models are valid for examining the growth and trend patterns of sugarcane production. Furthermore, the coefficients of determination (R2) for the fitted models are computed in order to assess their appropriateness for investigating the trend patterns of sugarcane yield in the relevant Indian states. Using both the models, forecast values for sugarcane yield have been determined and graphically plotted. The analysis of growth and instability in sugarcane production, area, and yield for some selected Indian states by estimating compound growth rate (CGR) and Cuddy-Della Valle (CDV) instability index on the basis of time series data on sugarcane production, area, and yield for the concerned states from 2010 to 2019. Furthermore, the values of statistical coefficients such as coefficient of variation (CV) and coefficient of determination (R2) for sugarcane production, area, and yield in the concerned states have been derived.

Abstract No. 40

Ethnobotanical account on Opuntia Elatior Mill (Nagphani) of Sonbhadra District

Juhi Singh

Department of Botany
Deen Dayal Upadhyay Government P.G College Saidabad, Prayagraj, U. P., India

ABSTRACT

Opuntia elatior Mill. (Cactaceae), a folklore plant known as Nagphani is widely availableacross the world and in India, widely prevalent in the state Uttar Pradesh. It is xerophytic in habit and is widely used by locals and tribals against various ailments. It is considered to be very good food resource due to its nutritional benefits. It is a reservoir of antioxidants such as flavonoids and ascorbates, pigments as carotenoids and some phytochemical components as soluble fibres that impart it good nutritional and therapeutic medicinal value. It is used for healing wound, anti-inflammator y agent, analgesic, diphtheria, asthma anaemia. It is also used for treating cancer as it has anti- leukemic activity. Apart from its medicinal value it is also reported in bioremediation of wastewater by aborigines. The green technology involves the application of derived biomaterials in wastewater decontamination. Results obtained after depollution of contaminated wastewater is by using cladodes, fruit pulp as they are considered to be having maximum sorption capacities. The biomaterials, secondary metabolites present in this plant show that it is a promising reservoir of ethno-medicine and a decent plant for application in bioremediation.

Abstract No. 41

Groundwater Conservation Using Geophysical Method – A Case Study

Arvind Kumar, Birendra Pratap, Shashi Kant Sah and Shazia

Dr. R.M.L. Avadh University, Ayodhya, U.P., India
Banaras Hindu University Varanasi, U.P., India

ABSTRACT

Geophysical methods can be helpful in mapping areas of groundwater conservation. Electrical resistivity surveys were carried out at a site of shallow groundwater conservation of Delhi Region NCR India. Delhi, the capital city of India, is the third largest city in the country by area and the second largest by population. The Delhi region is part of the Indo-Gangetic alluvial plains with the Yamuna River flowing eastward. This was aimed at evaluating the subsurface conditions and groundwater quality of the area. The geophysical investigation involved the Vertical Electrical Sounding (VES) technique using the Schlumberger configuration and the horizontal profiling method. The data from the two different approaches correlate well, and the generated profiles of the acquired data helped to map the groundwater, which was delineated as an area of high interpreted resistivity. The VES result shows that the subsurface layers up to a depth of 50 m is of moderate to high resistivity values (>200 Ωm) that may affect crops and groundwater development in the study area. However good aquifer can still be obtained from the depth of 35 m and above. The apparent resistivity measurements at each VES station were plotted against half electrode spacing (AB/2) on log-log graph sheets. The curves were inspected to determine the number and nature of the layering. Were fed into the computer as a starting model in an iterative forward modeling technique using IPI2WIN resistivity sounding interpretation software. The interpretation results (layer resistivity and thickness) were also used to characterize of the groundwater conservation and characterized the subsurface layers.

Abstract No. 42

Cyanobacterial Role in Environmental Remediation

Swati Chaurasia

D.D.U. Government P.G. College, Saidabad, Prayagraj, U.P., India

ABSTRACT

Urbanization, industrialization, excessive use of chemical fertilizers, uncontrolled utilization of natural resources and discharge of untreated effluents has enhanced the air, water, soil and solid waste pollution to a large scale. Such pollution not only enhances the risk to human life but also to birds, fishes and other beneficial insects. Thus there is an urgent need to degrade these xenobiotic compounds in sustainable and environment friendly way. Bioremediation is the only way to reduce the hazards caused by the xenobiotic compounds. Bioremediation is an eco-friendly method that employs the use of microbes in the removal of pollutants and toxins from soil, water, and other environments. One such group of microbe is cyanobacteria. Cyanobacteria are ubiquitous and photoautotrophic organisms with wide range of adaptability. They do not require nutritional supplements like heterotrophs. In addition to above features they are environmentally friendly and do not release any secondary pollutants. Cyanobacteria can significantly remediate the contaminated sites incorporated with domestic wastes, crude oils, industrial effluents, and heavy metals. These microbes can be genetically engineered to introduce desirable traits to increase its efficiency to degrade organic pollutants. This review discusses the contributon of cyanobacteria in environmental remediation.

Abstract No. 43

Toxicity Assessment of Dimethoate in Bombyx mori: Impact on Antioxidant Activity, Tissue Injury Biomarkers, and Preventive Role of N-Acetylcysteine

Hashim Ashraf and Ayesha Qamar

Department of Zoology, Aligarh Muslim University, Aligarh, U.P., India

ABSTRACT

The ubiquity of pesticides in agricultural practices, while essential for crop protection, underscores the imperative to scrutinize their toxicity due to potential harm to unintended targets. This research focuses on investigating the toxicity of dimethoate, an organophosphate insecticide, using Bombyx mori as a model organism. The 24-hour lethal concentration (LC50) of dimethoate was 300 ppm, calculated through probit analysis. Sub-lethal doses of dimethoate were orally administered to fifth instar silkworm larvae, and antioxidant activity was assessed at 24h, 48h, 72h, 96h, and 120 hours post-treatment. Additionally, tissue injury biomarkers, alanine transaminase (ALT) and aspartate transaminase (AST), were evaluated at 24h and 120 hours after treatment. N-Acetylcysteine (NAC) was introduced to investigate its potential in preventing dimethoate-induced toxicity. The experimental groups included control, Treatment, and Treatment + NAC groups. Results revealed that sub-lethal doses of dimethoate induced oxidative stress in the silkworm's fat body, chosen for its relevance to mammalian liver in xenobiotic detoxification. Antioxidants, including catalase (CAT), superoxide dismutase (SOD), glutathione peroxidase (GPx), and reduced glutathione (GSH), exhibited significant reduction in the fat body following dimethoate treatment. Elevated levels of lipid peroxidation (LPO) in the fat body suggested tissue damage due to oxidative stress. The tissue injury biomarkers, ALT and AST, also significantly increased, indicating tissue damage. However, the NAC-treated group displayed normal levels of ALT and AST, suggesting that post-treatment with NAC prevented the tissue injury caused by dimethoate exposure. Dimethoate exposure also resulted in weight loss and reduced larval length. In contrast, the group treated with NAC showed no oxidative stress or LPO elevation, and it did not experience reduced weight or larval length. Notably, NAC administration post-treatment demonstrated its potential preventive role against dimethoate-induced toxicity in silkworms.

Abstract No. 44

Morpho-tectonic Evolution of the Thamirabarani basin, Tamil Nadu, India

Arun Kumar, Kamini Singh and Ajay Kumar Arya

Department of Geology, University of Lucknow, U.P., India

ABSTRACT

In recent years, a lot of researchers have focused on debating the function of neotectonics in the geomorphological region. Some efforts have been made to learn more about how neotectonics has affected the geomorphology of the coastal region. The current study's goal is to use drainage basin analysis to gain a comprehensive understanding of the tectonic complexity of the structural arrangement in recent geological history. Morphometric evolution is used to explain the various features of geological and environmental conditions in order to comprehend the role of neotectonic activity in any terrain. The present study was carried out for the morphometric evolution of Thamirabarani river basin curved from the Cartosat -1 Digital Elevation Model (DEM) data of 2.5 m spatial resolution using ArcGIS 10.4.1. In order to examine the direction for the linear feature for neotectonic behavior, the azimuthal orientation of the stream pattern was plotted using the wind rose software. According to the morphometric analysis of the basin, the Thamirabarani river basin is made up of streams of the fifth order (I-357, II-89, III-21, IV-9 and V-3). The stream is topographically complicated and tightly controlled in its shallower regions, based on the mean bifurcation ratio. Low stream frequency and drainage density values indicate that the basin has high permeability and a high rate of infiltration, respectively. According to the length of the overland flow and the frequency of stream maintenance, sheet erosion is more significant in the basin than channel erosion. As a result the study of the Thamirabarani basin based on morphometric analysis and neotectonic analysis explains the characteristics of geological structural control in the basin.

Abstract No. 45

Biodiversity Perspective of Food: Health and Societal Implications

Deepika Sharma

Vinayak Vidyapeeth College Modipuram Meerut, C.C.S. University, Meerut, U.P., India

ABSTRACT

Biodiversity plays a crucial role in shaping the health and well-being of both individuals and societies. In the context of food, biodiversity refers to the variety and abundance of plant and animal species, genetic diversity within species, and the ecosystems that support their growth. This abstract explores the multifaceted relationship between biodiversity, food, and their impacts on human health and society. Firstly, biodiversity in food systems contributes to improved nutrition and health outcomes. A diverse range of crops and livestock species provides essential nutrients, vitamins, and minerals, reducing the risk of malnutrition and associated health issues. Moreover, biodiversity in agricultural landscapes promotes ecosystem services such as pollination, natural pest control, and soil fertility, which are vital for sustainable food production and the overall health of ecosystems. Secondly, the loss of biodiversity in food systems poses significant challenges to global food security and resilience. Overreliance on a few major crops and animal breeds makes food systems vulnerable to pests, diseases, and environmental changes. Biodiversity loss also diminishes the genetic diversity within species, limiting their adaptability to evolving challenges. The loss of traditional and indigenous food systems further erodes cultural diversity and local knowledge, affecting social cohesion and community resilience. Furthermore, the decline in biodiversity has far-reaching consequences for society. Loss of natural habitats and ecosystems disrupts the balance of ecosystems, leading to a loss of biodiversity and ecosystem services. This, in turn, affects the livelihoods of communities dependent on natural resources, especially in rural areas. Additionally, the cultural and aesthetic value of biodiversity contributes to the overall well-being and quality of life for individuals and communities. To address these challenges, a holistic approach that integrates biodiversity conservation into food systems is essential. This includes promoting sustainable agricultural practices such as agroecology and organic farming, supporting the preservation of traditional knowledge and indigenous food systems, and implementing policies that protect and restore biodiversity in agricultural landscapes. In conclusion, the biodiversity perspective of food highlights the critical interconnections between biodiversity, human health, and society. Sustaining and enhancing biodiversity in food systems is crucial for ensuring nutritious diets, resilient food production, and the well-being of both individuals and communities. Embracing biodiversity conservation within food systems represents a transformative pathway towards a healthier and more sustainable future for all.

Abstract No. 46

Enhancement in hydrogen sorption behaviour of MgH2 catalyzed by Graphene Quantum Dots

Rashmi Kesarwani, Satish K. Verma, M. Sterlin Leo Hudson, Ashish Bhatnagar, and M. A. Shaz

Hydrogen Energy Centre, Department of Physics
Banaras Hindu University, Varanasi, U.P., India
Hydrogen Horizons Ltd, Deers Leep, Lees Lane Dalton Lancashire, UK, WN8 7RE
Department of Physics and Materials Science and Engineering
Jaypee Institute ofInformation technology, Noida, U.P., India

ABSTRACT

The present investigation reports the synthesis of graphene quantum dots (GQDs) by the microwave-assisted green synthesis method, and its catalytic effect in improving the hydrogen storage behavior of magnesium hydride (MgH2). Transmission electron microscopy, UV-Vis, Raman, FTIR, and XRD analysis was done to characterize the sample. It has been observed that the as-synthesized GQDs are in the dimension range of 3 to 10 nm. The catalytic activity of GQDs on improving the de/re-hydrogenation kinetics of MgH2 has been investigated with different additive concentrations. It has been obser ved that there is an improvement in the hydrogen sorption characteristics of ball milled MgH2 when 7 wt.% GQDs was employed. The onset dehydrogenation temperature of 7 wt.% GQDs admixed ball milled MgH2 (7% GQDs@MgH2) was observed at 300 C, which is 60 C lower than that of additive free ball-milled MgH2 under identical condition. Furthermore, the 7% GQDs@MgH2 sample reabsorbs nearly 5 wt.% hydrogen in 2.5 min at 300 C and 15 atm hydrogen pressure. The GQDs catalyzed MgH2 sample exhibit good de-/re-hydrogenation cyclic stability. No significant loss in hydrogen capacity was noticed even after 25 de-/re-hydrogenation cycles. From the Van't Hoff plot, the formation enthalpy of 7% GQDs@MgH2 was estimated to be 58 KJ/mol.

Abstract No. 47

Bioaccumulation of Heavy Metal (Lead) by Earthworm Lampito mauritii during Vermicomposting from Different Biological Wastes

Nishat Fatima and Keshav Singh

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

ABSTRACT

Heavy metals constitute an important class of toxic substances that are encountered in numerous occupational and environmental circumstances. The large quantities of heavy metals already affect the flora and fauna and cause various ill effects on human health. It is released into the environment by volcanic activity, erosion of rocks, forest fires, human activity, paper mills, and industries. As well as the abundant use of chemical fertilizer and pesticide increase heavy metals in the environment. Generally, the human body is exposed to heavy metals by breathing, drinking, eating, or inhalation. Heavy metal concentration continuously increases in successive trophic levels in a food chain. This phenomenon is known as biological magnification or biological amplification. Generally different heavy metals like arsenic (As), barium (Ba), cadmium (Cd), chromium (Cr), lead (Pb), mercury (Hg), selenium (Se), and silver (Ag) by ingestion exposed to various problem in the human body. Cadmium and Nickel exposure is encountered in industries dealing with pigment, metal plating, some plastic, and batteries. Lead (Pb) is not a necessary component of the human body, and excessive Pb consumption can affect the neurological, skeletal, enzymatic, endocrine, immunological, and circulatory systems. It is difficult to remove them completely from the environment. However, their entrance into the biological system can be minimized. Earthworms can accumulate heavy metals in their body tissues. Lampito mauritii, an earthworm species, accumulates more heavy metals in its body tissues and maybe a more accurate indicator of metal contamination due to bioaccumulation. A significant amount of metals, including heavy metals, can accumulate in the tissues of earthworms primarily Lampito mauritii, with no negative effects on their physiology. Vermicomposting is regarded as one of the sustainable techniques for disposing of non-toxic and biodegradable wastes, particularly when there is limited space. The present study will aim to investigate the accumulation of the various heavy metals that are already present in vermicomposts as well as in soil by earthworm Lampito mauritii.

Abstract No. 48

Sustainable development and Society

Aman Verma

Department of Sociology, Dr. R.M.L. Avadh University, Ayodhya, U.P, India

ABSTRACT

Achieving a balance between the needs of the present and the future, as well as between human economic development and environmental preservation, is the definition of sustainable development. It denotes sectorial action throughout space and time as well as equity in development. The nation's natural riches include resources like forests, mines, the sea, and rivers; these should not be frittered away or depleted by a single generation. It is the responsibility of every citizen to preserve and develop the country's natural resources in the most effective manners for the benefit of future generations. A few key ideas in sustainable development are population control, biodiversity conservation, eco system conservation, human resource conservation, and promoting public involvement in environmental protection. From the perspective of what society needs, it is essential to guarantee both the economy's continued growth and the protection of the environment by lowering pollution levels. From a system perspective, the sustainable system possesses characteristics like vulnerability, resilience, adaptability, and productivity. A desired future state serves as the sustainability reference point. The inputs and outputs of system processes serve as the two main points of reference. A common misconception is that sustainability is what we should all aim for. Sustainability is actually the fundamental traits of a dynamically developed system rather than an achievable ultimate state. Sustainability, then, is ongoing adaptation to shifting circumstances. It is a natural characteristic of all ecosystems. The introduction of adaptive procedures to the public administration's human decision-making process- that is, the socio-ecologic-technical system-remains merely an educational matter. It contains multiple pieces of knowledge for practical implementation. Every society also faces particular obstacles that hinder the achievement of the Sustainable Development Goals. For instance, a lack of environmental education and awareness hinders the goals of sustainable development in Indian society . The formulation, decision-making, and implementation of policies at all levels necessitate the broad par ticipation of diverse stakeholders in the long-term perspective of sustainable development. In this case, the various societal roles are crucial for accepting the policy and working toward the objectives.

Abstract No. 49

E-waste Pollution and its Management strategies especially in Developing Countries

Jaswant Singh

Department of Environmental Sciences
Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

All over the world, countries are accelerating their developmental activities through rapid industrialization. This resulted in the increase of industrial wastes. Most of these contain toxic chemicals which are harmful for our environment and human health. E-waste contains more than 1000 different types of toxic substances that can threaten human health and the environment, if not handled or disposed of properly. Rapid economic growth, coupled with urbanization and a growing demand for consumer goods, has increased both consumption and the production of electrical and electronic equipment (EEE). Of all the electronic wastes, computer wastes are the most significant owing to their fast generation rate coupled with difficult recycling process. The electronic industry is the world's largest and fastest growing manufacturing industry. During the last few decades, it has assumed that the role of providing a forceful leverage to the socioeconomic and technological growth of a developing society. The consequence of its consumer-oriented growth combined with rapid product obsolescence and technological advances are a new environmental challenge the growing menace of "e-waste". E-waste contains various type of heavy metals such as Lead (Pb), Mercury (Hg), Cadmium (Cd), Cobalt (Co), Nickle (Ni), Polycyclic aromatic hydrocarbons (PAH), that can have an adverse effect on human health and the environment. In Indian context, contributors to the e-waste generators are individuals, small businesses, large corporate organizations, government organizations, various institutions, and the original equipment manufacturers. The manufacturers and consumers must have proper information system and be responsible for the disposal of this futuristic waste and the government must provide a strict and clear legislation regarding the disposal of e-wastes. An overview of current e-waste scenario, magnitude of the disposal problem, recycling and reuse options, environmental and health hazards as well as different managements aspects will be discussed.

Abstract No. 50

Application of Novel Sterilization Apparatus for Microbial Load Disinfection from various surfaces

Anurag Singh, Vinod Kumar Chaudhary and Sangram Singh

Department of Mechanical Engineering, Dr. R.M.L. Avadh University, Ayodhya, U.P., India
Department of Environmental Science, Dr. R.M.L. Avadh University, Ayodhya, U.P., India
Department of Biochemistry, Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

A paper currency note is primarily exchanged for goods and labor in many nations across the world. The notes will get contaminated by those who live in unclean circumstances. Paper money, which is handled by a vast number of people in a variety of personal and environmental contexts, increases the likelihood that it may be used as a common means of spreading potentially harmful bacteria. According to the examination, paper money is typically contaminated with pathogenic microorganisms. This contamination may play a fundamental role in the spread of potentially disastrous microorganisms that cause cholera, intestine disintegration, skin diseases, and even present a risk of serum poisoning. Therefore, extra care should be taken when handling cash and food preparation to prevent cross-devaluation. Due to pandemic many parts of the world had faced enormous issues in terms of transfer of pathogenic virus. Banks across the country had been advised to withdraw/ pull out all contaminated money from dissemination and purify it utilizing either using ultraviolet, bright or heat measures. For removing the pathogens and bacteria from the surface Ultraviolet-C (UV-C) radiations are used. UV-C radiations are known for disinfectant for air, water and non-porous. Short wavelength carries the amount of energy necessary to inactivate microorganisms. The mechanical model relates to sterilization apparatus and particularly to sterilization apparatus performing sterilization of an object using Ultraviolet germicidal irradiation. The sterilization apparatus includes a housing having a plurality of walls, front panel, a back panel and one cavity. It also includes one pair of light sources located within the housing. The light sources are supported by walls. One pair of light sources to emit UV-C radiation and is range between 200nm to 280nm which are able to kill the microorganisms.

Abstract No. 51

Livestock Must – For Organic Farming and Sustainable Agriculture

Devendra Swaroop, V. R. Chaudhary, B. Kumar, R. N. Singh and S. Kumar

C.S.A.U.A. & T., Krishi Vigyan Kendra, Mainpuri, U.P., India

ABSTRACT

Organic farming has emerged as an alternative system of farming that addresses the quality and sustainability concerns and also ensures, a better future prospects for small land holders with increasing awareness about the safety and quality of food, improving health issues, the long term sustainability of the ecosystem, climate change and increasing global warming. Organic farming is considered to be the most sustainable approach in food production, it is a chemical –free or traditional farming method, is considered as agro ecology based diversified farming system which integrates crops , trees and livestock with functional biodiversity. Expanding agricultural activities has naturally resulted in increased quantities of agricultural crop wastes , in Indian farm fields every year exceeding around 620 million tones per year. In Integrated plant nutrient management system, agro wastes can be the important sources of plant nutrients which on decomposition give good nutrients to them . Recycling is an eco-friendly technology through which we can convert organic waste into the best product that is rich in nutrient content and can replace chemical fer tilizers .Waste from livestock activities include solid waste such as cow dung, litter, organic materials, waste water, urine, cage wash water etc.The utilization of animal manures /waste for fer tilizer has a definite impact on input energy requirement at farm level for ages. As organic farming works on the principle that there is no shortage of nutrients in the soil, air and water, and healthy soil biology can unlock these nutrients. All the nutrients required for the growth of plant are available around the root zone of the plants. There is no need to add anything from outside, as our soil is prosperous and full of essential nutrients. The nutrients in the soil are in the unavailable form, the roots cannot take it in this form. This non-available form is converted into available form by the millions of micro-organisms. Decomposition of organic matter by microbes and earthworms is encouraged right on the soil surface itself, which gradually adds nutrition in the soil , over the period . The cow dung, is a miraculous culture as one gram of cow dung contains about 300 to 500 crores beneficial and effective microbes. Cow dung from local (Indigenous) cows has proven to be a miraculous cure to revive the fertility and nutrient value of soil. To obtain proper availability of micro-organisms we have to re-establish them in the soil and it is possible only by applying cow dung / urine of Indian cattle in the for m of farm yard manure , Nadep Compost, Vermicompost, Vermiwash, jeevaamrit, dhanjeevamrit, bramhastra, compost, etc prepared from dung/waste of Livestock. Thus, importance of Indian livestock has proved beneficial and worthy for the betterment of soil, agriculture , horticulture , environment and health of soil and Sustainable Agriculture.

Abstract No. 52

Biofertilizer: A step towards Sustainable Agriculture

Dr. Mohammad Akmal and Veer Pratap Singh

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

ABSTRACT

The extensive use of chemical fertilizer is deteriorating the environment and is health-hazardous for humans and animals. Long-term use of chemical fertilizers decreases soil health and makes it saline. Biofertilizers, however, are based on useful microorganisms that are environment-friendly and do not cause any har m. It includes free-living, symbiotic nitrogen fixing, phosphate solubilizing, and nutrient mobilization bacteria that increase the productivity of crops like *Rhizobium, Azotobacter, Azospirillum, Mycorrhizae*, potash, and zinc solubilizing bacteria. These microorganisms increase soil health and maintain long-term sustainability. These microorganisms can be cultured on a medium with low cost or maybe waste material. The waste material may be whey or bagasse, which is a by-product that can be used. These waste materials pollute the environment when they accumulate. There are other medium components, such as peptone, magnesium sulfate, and nitrate salts, used for the fermentation and production of nitrogen-fixing microorganisms in large quantities. Blue-green algae like *Anabaena, Nostoc*, and *Tolypothrix* can be naturally produced in water, which is a nitrogen fixer in rice fields. Plant growth is also promoted in the presence of rhizobacteria because these bacteria improve the nutrient acquisition potential of plants and thereby increase productivity

Abstract No. 53

UV Photocatalysis Technology under Advanced Oxidation Technology: Pioneering Advances in Waste Treatment

Abhijeet Kushwaha

Department of Electrical Engineering
IET, Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

This paper explores the cutting-edge advancements in waste treatment technologies, specifically focusing on the integration of UV photocatalysis into the framework of Advanced Oxidation Technology (AOT). UV photocatalysis, known for its efficacy in breaking down organic pollutants, is harnessed within the broader context of AOT to enhance its applicability across diverse waste streams. The review covers recent breakthroughs in catalyst design, reactor engineering, and process optimization, shedding light on the synergistic effects achieved through the integration of UV light and advanced oxidation agents. The study provides a comprehensive analysis of the mechanistic aspects underlying UV photocatalysis within AOT, elucidating the intricate pathways leading to the degradation of persistent organic pollutants. Additionally, the paper discusses the environmental implications, energy efficiency, and scalability of UV photocatalysis under AOT, emphasizing its potential for sustainable waste treatment practices.By amalgamating knowledge from various research fronts, this review aims to present a stateof-the-art perspective on UV photocatalysis within AOT, offering valuable insights into its application across industrial, municipal, and emerging waste treatment scenarios. The advancements discussed herein collectively contribute to the ongoing evolution of waste treatment technologies, paving the way for more efficient, environmentally friendly , and conomically viable solutions.

Abstract No. 54

The Phytoremediation Potential of Solanum nigrum in heavy metel Contaminated soil

Lav Kumar Mishra and Preeti Singh

K.S. Saket P.G. College Ayodhya, U.P., India

ABSTRACT

Phytoremediation is Bio technology strategy of using plant for removing a variety of pollutiants from contaminated soil. Solanum nigrum is valuable medicinal plant accumulate Cadimium(cd) and Lead (pb) from soil. The six group of 10% water extract were made from whole plant , fruit, roots and leaves. The result showd that among all exposures the treatment with fruits and root extract of Solanum nigrum resulted in the significant increase ($P<0.005$) of Cadimium(cd) and Lead (pb) concentration. Enhancement in heavy metal accumodation of Cadimium(cd) and Lead (pb) concentration in root and spoot of Solanum nigrum was 32.5% and 65.2% for cd & 38.7% and 39.6%for pb. The biomasses Solanum nigrum in all part of plant extract were not significantly change ($P<0.05$) compared to the contest. Through the treatment with EDTA significantly impoured($P<0.05$) the concentration of cd and pb of Solanum nigrum. The Cadimium(cd) and Lead (pb) masses (egg plant) did not show any significant diffrences compared to the control due to the significant desease in the short (20.4%) and root (22.0%) bio masses. It concluded that some phenolic compound might be occelerate the phytoextraction of heavy metals Cadimium(cd) and Lead (pb) present in sap content of root in Solanum nigrum. This study provided invaluable information in approaches to improve's hyperaccumulator's potantioal to remove pollutants from soil using medicinal plants (*Solanum nigrum*).

Abstract No. 55

Time series modeling and statistical analysis of sugarcane yield

Shiv Kumar Rana[1], Manish Kumar[1], Ram Pyare[2] and Abhishek Raj Ranjan[3]

[1]Department of Agricultural statistics, ANDUA&T, Ayodhya, U.P., India
[2]Member UPPSC, Prayagraj, U.P., India
[3]Department of Agronomy, BUAT, Banda, U.P., India

ABSTRACT

In this study, a time series data on sugarcane yield from 2010-2019 in several chosen Indian states is used to assess growth and trend patterns by fitting widely acknowledged statistical models, namely the linear model and the exponential model. The trend values were acquired by fitting the appropriate models. Furthermore, the "goodness of fit" of the various models was evaluated using the Chi-square test statistic. The study shows that both models are valid for examining the growth and trend patterns of sugarcane production. Furthermore, the coefficients of determination (R2) for the fitted models are computed in order to assess their appropriateness for investigating the trend patterns of sugarcane yield in the relevant Indian states. Using both the models, forecast values for sugarcane yield have been determined and graphically plotted. The analysis of growth and instability in sugarcane production, area, and yield for some selected Indian states by estimating compound growth rate (CGR) and Cuddy-Della Valle (CDV) instability index on the basis of time series data on sugarcane production, area, and yield for the concerned states from 2010 to 2019. Furthermore, the values of statistical coefficients such as coefficient of variation (CV) and coefficient of determination (R2) for sugarcane production, area, and yield in the concerned states have been derived.

Abstract No. 56

Effect of Solid Wastes on Environment and their Treatment

Daisy Rani

Department of Zoology Feroze Gandhi College Raebareli,
Lucknow University, Lucknow, U.P., India

ABSTRACT

Human activities are the main cause of air and water pollution, land degradation, emissions of methane and hazardous leachate and climate change. Climate change results an increase in temperature, sea levels, flooding, rainfall distribution, heat waves, storms, increasing the potentials for drought: those all would disturb upcoming waste management processes. Solid wastes are wastes ruminants left over after using human, animals and plants that are normally discarded as valueless. These are mainly domestic, Industrial, commercial, organic material, glass, metal, plastic, paper, toxic, nontoxic, inflammable, radioactive infection etc. Waste generation and waste composition is different in different countries and also different regions of the same countries because of the variations in Population size, urbanization, life standard and wealth. They can create unsanitary conditions, and these conditions in turn can lead to pollution of the environment and to outbreak of vector born diseases. Global solid waste generation of present scenario of India is about 62 million tons per year and out of 62 million tons 43 Million tons of total waste generated gets collected ,with 12 Million tons being treated before disposal , and the remaining 31 million tons simply discarded in waste yards. Most of the waste generated remains untreated and unaccounted for, Inadequate waste collection, transport, treatment , and disposal have become major causes for environmental and public health concerns in the country.Out of top ten states of India in financial year 2021 Maharashtra produced over 22600 metric tons solid waste per day. Delhi generates solid wastes about 11,332 tonnes in 2022-23.Untreated solid wastes emits green house gases which increases global warming. Burnt and un burnt solid waste emit toxic fumes and particulate matters. When solid waste left unsegregated and disposed safely they accumulates in open landfills, they contaminate ground water by leaching of chemical and organic compositions. They pollute water bodies by rain water or flood water runoff when disposed carelessly. For protection of environment solid waste can be treated by Open dump, Sanitary landfills, Pyrolysis, Composting, Vermiculture, Bioremediation, Micro-remediation, Phytoremediation and Myco-filtration. Waste hierarchy refers to the 5Rs i.e., Refuse, Reduce, Reuse , Recycle and Repurpose.

Abstract No. 57

Agricultural Waste Management Strategies for Environmental Sustainability

Awanish Kumar Singh

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

ABSTRACT

Globally, abundant agricultural wastes (AWs) are being generated each day to fulfill the increasing demands of the fast-growing population. The limited and/or improper management of the same has created an urgent need to devise strategies for their timely utilization and valorisation, for agricultural sustainability and human-food and health security. Composting emerges as a vital strategy, transforming organic waste into nutrient-rich compost that enhances soil fertility. Additionally, anaerobic digestion systems offer dual benefits by producing biogas as a renewable energy source and nutrient-rich digestate for fertilization. Bioenergy production from agricultural residues contributes to reducing reliance on fossil fuels, mitigating greenhouse gas emissions. Several management strategies are examined, including composting, anaerobic digestion, and bioenergy production, each contributing to waste reduction and energy recovery. The role of advanced technologies, such as precision agriculture and sensor-based monitoring systems, is also highlighted in optimizing resource use and minimizing waste generation. Precision agriculture technologies optimize resourceuse, mitigating the over-application of fertilizers and pesticides. Integrated Pest Management(IPM) strategies further minimize chemical pesticide usage, emphasizing sustainable alternatives like biological controls. Educational programs play a pivotal role in raising awareness among farmers about the advantages of eco-friendly waste management practices, while policy interventions and financial incentives encourage their adoption. This review encompasses circular bio-economy based various AW management strategies, which involve 'reduction', 'reusing' and 'recycling' of AWs to boost sustainable agriculture and minimize environmental pollution.

5TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2023)
Theme: New Vistas in Waste Management and Sustainable Environment
29th & 30th December 2023 • Dr. RML Avadh University, Ayodhya (U.P.), India

Abstract No. 58

Enhancing Perception, behavior and awareness level of people towards household Water Conservation

Supriya Yadav[1] and Abha Tripathi[2]

[1]Department of Human Development and Family Studies, SHUATS Prayagraj, U.P., India
[2]Department of Chemistry, Kulbhaskar Asaram Degree College, Prayagraj, U.P., India

ABSTRACT

Water security is still under threat from population increase, industrialization, and climate change, particularly in semi-arid areas. Policies for demand control are critical to reducing the consequences of severe water shortages. Data on home water use trends and behavioural behaviours are necessary for these kinds of initiatives.This study examines household water consumption behaviour and the adoption of water-efficient appliances in kanpur . Older respondents as well as males and lower-income respondents are found to be more likely to practise efficient water-use behaviour. However, biographical variables do not generally influence the adoption of water-efficient appliances. These results are essential for policy-makers when formulating targeted water demand management policies. Thus, policy-makers should focus more on younger people, women and higher-income households when developing campaigns on efficient water-use behaviour. Water services, with the remainder not knowing. However, it is notable that while those individuals participating in the seasonal tariff trial were billed every six months, 40% of respondents said they either did not know how often they received a bill or that they thought they received a bill quarterly, which is not the case. Indeed, if one was to assume that those individuals demonstrating a decrease in consumption are more aware of what they pay and how often they are billed, the results of this study demonstrate the opposite. Therefore, in combination with the finding that those in the decrease group were not aware of whether or not their usage had changed as a result of the trial, it is questionable whether the decrease in water usage was the result of deliberate actions, as noted previously. So, in reality what has been observed with regard to water usage may have been more due to chance than a series of deliberate actions, as those in the decrease group appear to be no more aware than those in the increase group. A persistent reduction in consumption happens through actions directed at curtailment, efficiency, or a multiplicative combination of the two (31, 32). Curtailment achieves lower consumption through (usually repeated) change in consumption actions, whereas efficiency employs a (possibly one-time) structural change, such as installing a more water-efficient dishwasher. While it is difficult to disentangle the relative contributions of curtailment and efficiency in our study, our data suggests that curtailment played an important role.

Abstract No. 59

Evaluating key threats and conservation status of the river lapwing, *Vanellus duvaucelii* (Lesson, 1826)

Ashish Kumar, Himanshu Mishra and Vikas Kumar

Animal Diversity and Ecology Laboratory,
Department of Zoology, University of Lucknow, Lucknow, U.P., India

ABSTRACT

The river lapwings are inhabitant of river banks with sand or gravel bars and river islands. In this study , we investigated key threats (natural and anthropogenic), and conservation status of river lapwing in the riverine ecosystem of Northern India. In this regard, we frequently visited selected study sites along the banks of river Ganges in district Raebareli (Uttar Pradesh), India from January 2016 to December 2019. To estimate perceived threats for river lapwing, we developed a questionnaire and collected threat scores. To estimate density of river lapwing, the line transect method was used. Predation and farming activities were the most potent threats influencing survival and abundance of river lapwing. We concluded that population of river lapwing is fairly stable in the Gangetic plains of Nor thern India. Though it is quite common species, robust scientific information about its population and habitat relation is largely absent. Therefore, accurate counts from other parts of world need to plant the estimate for river lapwing into comprehensible inclusive perspective. Furthermore, detailed information of habitat relationship is also necessary to develop conservation strategies.

Abstract No. 60

Application of GIS in Environmental Management

**Ashutosh Pratap Singh, Sachin Kumar Bharti,
Er. Sauhardra Ojha and Er. Prince Poddar**

Department of Civil Engineering
IET, Dr. R.M.L.Avadh University, Ayodhya, U.P., India

ABSTRACT

Environmental management is the process of protecting and enhancing the quality of the natural environment and human well-being. GIS is a powerful tool that can support environmental management by providing spatial data and analysis capabilities. GIS can help users to identify, measure, and monitor environmental problems, such as pollution, climate change, land degradation, and biodiversity loss. GIS can also help users to plan and implement environmental solutions, such as conservation, restoration, adaptation, and mitigation. GIS can also help users to communicate and share environmental information with various stakeholders, such as policy makers, scientists, and the public. GIS can enable users to integrate multiple sources and types of data, such as satellite imagery, census data, environmental indicators, and field surveys. GIS can also enable users to perform various types of analysis, such as overlay, buffer, network, and statistical analysis. GIS can also enable users to create and display various types of maps, such as thematic, interactive, and 3D maps. GIS can thus facilitate environmental decision making and action.

Abstract No. 61

Transition from linear to circular economy in the construction waste management: An initiative towards Sustainable Development Goals

Mohd Asim

Integral University, Lucknow, U.P., India

ABSTRACT

The rise in solid waste caused by global industrialization and an over-reliance on non-renewable energy sources necessitate the implementation of policies to adopt a circular economy in all sectors in order to reach carbon neutrality by 2050 and reduce carbon emissions by 45% by 2030. In this study, we examine circular economy tactics with an emphasis on construction waste management to increase public awareness of the harm that raw material waste and consumption due to the environment, which is what gave rise to the idea of the circular economy. Circular Economy is being investigated as a potential new treatment for the depletion of natural raw materials. The Circular Economy idea was initially inspired by the 3Rs (Reduce-Reuse-Recycle) approach. The 4R framework, which emphasizes procedures to reduce, reuse, recycle, and recover raw materials, developed from this. The raw materials in the Circular Economy are not thrown away; instead, they are mended, recycled, and refurbished to be employed in future processes, in contrast to the linear economy. Thus, avoiding purchasing excess raw materials, altering design guidelines, and reducing, reusing, and recycling waste are some of a CE guiding ideals. These practices can be deemed successful in decreasing trash, recycling, and stopping the current global environmental damage. Reusing demolition waste to create aggregates, tiles, and sand is a key component of the circular economy, as demonstrated by the twin tower demolition project.

Abstract No. 62

Waste Water Analysis and Its Application In Agricultural Practices

Jyoti Verma

Department of Environmental Sciences
Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

Water scarcity is one of the major problems in the world and millions of people have no access to freshwater. Untreated wastewater is widely used for agriculture in many countries. This is one of the world-leading serious environmental and public health concerns. Instead of using untreated wastewater, treated wastewater has been found more applicable and ecofriendly option. Moreover, environmental toxicity due to solid waste exposures is also one of the leading health concerns. Therefore, intending to combat the problems associated with the use of untreated wastewater, we propose in this review a multidisciplinary approach to handle wastewater as a potential resource for use in agriculture. Untreated wastewater is widely used for agriculture in many countries. Wastewater reuse presents a promising solution to the growing pressure on water resources. This paper will provide an overview of the status of membranes processes in wastewater reclamation and reuse world-wide and will depict their potential role in promoting more sustainable water use patterns. This review further reveals that our current understanding of the wastewater treatment and use in agriculture with addressing advancements in treatment methods has great future possibilities.

Abstract No. 63

First Report of Diversity of Cyanoprokaryotes of Jorapipe Area near Prain Lake of Acharya Jagadish Chandra Bose Indian Botanic Garden, Howrah

Pratibha Gupta

Central Botanical Laboratory, Botanical Survey of India
Ministry of Environment, Forest and Climate Change
Government of India Botanic Garden, Howrah, West Bengal, 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 Prain Lake from outside sources through Jorapipe area of the Garden. The main purpose of this is to study the cyanprokaryotes of this area which is the source of pollution in the Prain Lakes. During the study altogether 13 species of Cyanophyceae/ Cyanobacteria/ Cyanoprokaryota were identified. It was found that some of the species repeatedly observed in the samples which were pollution tolerant species. Four species of cyanprokaryotes have been reported as new to the science of India. This is a first study report of diversity of cyanoprokaryotes of this area near Prain Lake of AJCBIBG, Howrah.

Abstract No. 64

Metagenomic study of gut Microbiota of Fish rohu (*Labeo rohita*.h)

Hemprabha and Sunita Arya

Department of Zoology,
Dayanand Girls' Post Graduate College, Civil Lines, Kanpur

ABSTRACT

Fish metagenomics involves studying the genetic material present in fish-related environments, such as the fish gut, the water they inhabit, or surrounding ecosystems. It explores the diverse microbial communities, their functions, and their interactions with fish health, environment, and disease. Metagenomics helps in understanding the complex relationships between fish, their micro-biota, and the environment, aiding in aquaculture management, disease prevention, and conservation efforts. Experiments were carried out at the Department of Zoology, Dayanand Girls' Post Graduate College, Kanpur. We took fish from the Ganga River. After dissecting thefish gut, the microbes will be identified through 16S rRNA sequencing techniques. After dissection, the gut will be removed and placed in a sterile plastic bottle, sealed, and transportedon ice (4°C), then stored at -80°C until metagenomic DNA is processed. DNA extraction will be carried out using a suitable method for the sample type from commercially available kits. TheV3-V4 region of the 16s gene will be amplified using PCR. The amplicons were sequenced with the Illumina MiSeq 2×300PE v3-v4 sequencing kit, and bioinformatics protocols were used. We found *Pseudomonas, Bacillus, Serratia, Lactobacillus, Aeromonas, Methylocaldum,* and *Burkholderia* to be more prominent species in the gut bacterial flora of fish. Studying the gutmicrobiota of fish through metagenomics is cr ucial as it provides insights into the diverse microbial communities residing in the fish digestive tract. Metagenomic studies of fish gutmicrobiota are instrumental in advancing our understanding of fish health, nutrition, disease management, and ecological interactions, which are crucial for both aquaculture and wild fish populations.

Abstract No. 65

Ecological conditions of Ayodhya contributes best resources to sustainlife

Rudra P. Singh, Pradeep Singh, Pankaj Singh, Manikant Tripathi, Shashi Kant Sah, K.L.Pandey, Himanshu Mishra, Vinod Kr. Chaudhary and Siddharth Shukla

Department of Environmental Sciences, Dr. R.M.L. Avadh University, Ayodhya, U.P., India
Department of Biotechnology, Dr. R.M.L. Avadh University, Ayodhya, U.P., India
Department of Geophysics Sciences, Dr. R.M.L. Avadh University, Ayodhya U.P., India
Civil Engineering Department, IET, Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

Ayodhya, a holy land known for the birth place of Lord Ram. From the Ancient time, it is known for the peace of human being therefore most of the pilgrims attracted to this holy land. It seems that everything available here are the world best resources originated by the nature for the human utilization. The air, water and soil of the Ayodhya are almost good and best supported to life for growth and development. A number of festivals are celebrated throughout the year at Ayodhya and on these occasions we can easily observe large human interference in ecological conditions. Holy River Saryu faces water pollution- by bathing, cleaning and sewage runoff; air pollutions- due to movement of vehicles and other human activities; land degradation and loss of plant biodiversity are very common among all. The earlier studies and observations reveals that in near future, Ayodhya will face two or three fold more human population burden which will further increase huge pressure on limited resources of Ayodhya District. Therefore, studies related to resource conservation at Ayodhya are urgently required for ecological balance incoming time. For ecological sustainability of Ayodhya a comprehensive plan is required and to achieve these; researchers, policy makers, developmental authorities, social organization, economists and general people must contribute their expertise to protect all the resources.

Abstract No. 66

Impact of Agriculture waste on Environment: A study of rural areas of Prayagraj, Uttar Pradesh

Rachna

Geography Department
Khardiha Mahavidhalaya, Khardiha, Ghazipur, U.P., India

ABSTRACT

Agriculture wastes are unwanted or unusable material that substances discarded through agricultural activities. The paper is based on the agriculture waste and its impact on environment of Prayagraj, U.P. where agricultural wastes can be in the form of solid, liquid or slurries depending on the nature of agricultural activities here. In the rural areas of the Prayagraj, where agricultural wastes as the residues from the growing and processing of raw agricultural products such as Straw, fruits, vegetables, poultry, dairy products and crops. Waste from cultivation activities af ter using materials, most of the bottles and packages holding are thrown into fields or ponds and many times farmers can also be seen burning this type of agricultural waste. In large quantities, agricultural waste can have a negative impact on the environment and habitat, through greenhouse gas emissions, the creation of unpleasant odors, and toxic liquids that can infiltrate water sources.

Abstract No. 67

Effect of Hyaluronic acid targeted silica nanoparticles entrapping curcumin on cancer cells

Surya Prakash Singh and Pradeep Kumar Singh

Department of Zoology, Dr. R.M.L. Avadh University, Ayodhya, U.P., India
Department of Biochemistry, Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

Curcumin, a polyphenolic pigment (natural resources) of rhizomes Curcuma longa, is a well-known anti-carcinogenic agent. However, since curcumin has poor aqueous solubility and lack of stability at physiological pH, a suitable formulation is necessary for its targeted delivery in cancer therapy. Ceramic based nanoparticle gained attention about its stability and aqueous solubility. In this study, use of Hyaluronic acid (HA) conjugated organically modified silica based nanoparticles (SiNp) for delivery of curcumin is investigated in cancer cells derived from colon carcinoma (Colo-205) and breast carcinoma (MCF-7). Curcumin was encapsulated in SiNp and resulting complexes were targeted with HA, a natural polysaccharide that has a strong affinity for CD44, a marker over expressed on the surface cancer cells. Drug loaded nanoparticles were characterized by dynamic light scattering (DLS) for size and zeta potential measurements and curcumin loading in SiNp was confirmed by fluorescence and absorption spectroscopy. Incubation of Colo-205 and MCF-7 cells with nanoformulated curcumin enhanced the uptake by ~ 4 and ~ 6 times and cytotoxicity by 4 and 3 folds as compared to only curcumin respectively. Further, while the nanoformulated curcumin induced cell killing by necrosis, apoptotic cell death was predominant in cells incubated with only curcumin. These results suggest that HA conjugated SiNp complex improves anticarcinogenic efficacy of curcumin.

Abstract No. 68

Efficient Methods for Dye Removal in Water matrices

**Ambrish Kumar Verma, Mahima Chaurasia,
Varun Shukla and Sanjeev Kumar Srivastava**

Deptt. of Environmental Sciences, Dr. R.M.L. Avadh University, Ayodhya, U.P., India
CSIR-NEERI, Nagpur, M.S., India

ABSTRACT

Dye removal from industrial waste water has garnered significant attention due to its environmental impact and potential health hazards. this abstract presents a comprehensive overview for various techniques employed for the removal of dyes from wastewater. Different research reveals physical-chemical, and biological method utilized for dye removal, highlighting their mechanisms, advantages, and limitation. Physical method encompasses adsorption, membrane filtration, and precipitation techniques, showcasing their effectiveness in removing dyes from aqueous solutions. chemical method, such as coagulation flocculation, oxidation –reduction, and advanced oxidation process (AOPs), are examined for their ability to degrade and eliminate for their ability to degrade and eliminate dye compound. Furthermore, biological treatment involving microbial degradation and enzymatic breakdown are explored for their eco-friendly and sustainable nature. This novel research aims to provide a comprehensive understanding of various dye removal techniques their mechanisms, challenges, and potential advancement. Ultimately, it underscores the necessity for further research to develop cost-effective, environmentally friendly, and scalable method for efficient dye removal from industrial waste water.

Abstract No. 69

A water quality index-based study of Ayodhya's traditional ponds: Implications for sustainable management

Sanjeev Kumar Sirvastava

Deptt. of Environmental Sciences, Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

Securing a future for humanity hinges on ensuring the sustainable management of our precious surface water resources. Therefore, it is pivotal to sustain the good status of surface water quality for sustainable progress and safety to human health. Continued deterioration in the quality of surface water is noticeable. Surface water is more susceptible to pollutants from both natural and anthropogenic sources. Multi dimensional water footprint indicator approaches represent water consumption volumes by users and polluted volumes with type of pollution. Usually, water footprint indicator is three types including green, blue and grey footprint used for assessing the water states while the grey footprint used for assessing the polluted water, type of pollution and also its sources like as various anthropogenic activities. Therefore, monitoring of water quality holds great importance. Usually, it is mandatory for monitoring programs to measure the physiochemical and biological water quality indicators in order to have a comprehensive appraisal in the spatiotemporal variation of surface water quality. However, these monitoring approaches usually generate a large dataset, which require proper interpretation tools and techniques. At the same time, it does not provide a complete scenario for the overall status. Water Quality Index (WQI) models are very ubiquitous as it transforms a complex data set into a unit less numerical interpretation that indicates an overall status of water quality and reflects its suitability for various uses. This practice follows four steps: (i) Selection of water quality indicator; (ii) Process of sub-index; (iii) Water quality indicators weighting; and (iv) aggregation function. The study focus on the assessment of water quality index of Vidhya Kund Pond and Dantdhawan Kund pond of Ayodhya City U.P. the range of wqi between 0 to 25 represent excellent water quality status which is fit for drinking irrigation and other purposes. The water quality index about 100 shows the status of water quality is extremely poor. Highest WQI found in the month of July and lowest is found in the month of January.

Abstract No. 70

Study Of Blackbuck, Antelope Of Balipadar-Bhetnoi In Ganjam District of Odisha, India: Climate of the Study Area And Census of Black Buck

Bisoyi Rama Chandra and Samanta Devi Prasad

Deptt. of Life Science (Zoology)
GIET University, Gunupur, Rayagada, Odisha, India

ABSTRACT

Wildlife comprises all living organisms in their natural habitats, which are neither cultivated or domesticated nor tamed. The Indian black buck (Antelope cervicapra, L.1758) was one of the most spectacular and numerous wild animals living in close proximity to human settlements. Today more than sixty-four Villages of Aska, Buguda and Polasara forest ranges of Ganjam District are inhabited by this antelope species. Currently these endemic antelope are endangered list of wildlife (Protection Act-1972) and on Schedule-I of the IUCN. The habitat primarily covers forest ranges of Aska, Buguda and Polasara under Ghumusar South Forest Division. The area has been declared by the State Govt. as Balipadar-Bhetnai Game Reserve. As per the data recorded during the study it was found that the soil was slightly acidic, the maximum air temperature ranges from 41.67 to 30.46oC, the minimum air temperature ranges from 26.39 to 10.96oC, the average temperature ranges from 33.31 to 20.91oC, relative humidity ranges from 78.18 to 53.09% with an average of 72%, the rainfall ranges from 346.11 to 1.76 mm. and dew point from 25.54 to 8.77. The Blackbuck census of Ghumusar South Division in 2023 shows that there is rise in pollution of Black buck from 523 in 1973 to 4636 in 2023.

Abstract No. 71

Hand Rare Practices of One- Horned Rhinoceros Calf

K.K. Singh, Sunita Arya, Mohd. Nasir and Nayna Pandey

Department of Zoology
Dayanand Girls P.G. College Kanpur and Kanpur Zoological Park, U.P., India

ABSTRACT

The Dudhwa forest and the Tarai belt in Uttar Pradesh are home to the giant Indian one-hor ned rhinoceros, which wander freely there. The IUCN's Species Survival Commission proposed in 1979 that a sustainable breeding population of Indian rhinos be established in their previous range. 7 rhinos—2 males and 5 females—were Trans located from the Pabitora Wildlife Sanctuary in Assam and the Royal Chitwan National Park in Nepal to start the rhino rehabilitation project in 1984–1985. There are two male and one female Kanpur rhinos in the Kanpur Zoological Park. A cow mated there in June 2022. A rhino's gestation period is 16 months. Only during the mating season do a bull and cow create a long-term relationship; nevertheless, occasionally a bull and cow may be seen together for an extended amount of time, even a full day. A calf was born to a cow in October of 2023.This study focuses on a rhino calf that was born on October 16, 2023, in the Kanpur Zoological Park. Manu is her dam name, and Pawan is her sire. Dam Manu passed away on October 27, 2023, as a result of impaction (colic). The calf and her mother were taken apart. The zoo's management chose to give the calf to Rare. Rhino milk has a low fat content and is high in lactose. The calf's weight was assessed at 63.1 kg, meaning that 8–10% of its body weight in feed is needed. The calf has been receiving artificial milk and human care ever since. The feeding plan is followed at two-hour intervals throughout the day. The current research focuses on social behavior, feeding schedules, milk amount, deficiency intervals, daily weight measurements, and calf mobility, including walking, jogging, resting, and sleeping.

Abstract No. 72

Millets As Model Crop For Sustainability

Hosita Gupta

Department of Botany
H.N.B. Government P.G. College, Naini, Prayagraj, U.P., India

ABSTRACT

Millets are indeed considered a sustainable crop with several advantages for both food security and environmental sustainability. Millets are a group of small-seeded grasses that have been cultivated for thousands of years and are known for their resilience and adaptability to diverse agro-climatic conditions. Millets are climate resilient due to traits like water efficiency, photosynthetic efficiency, ROS scavenging, colonizing PGPRs, presence of heat shock proteins (HSPs), late embryogenesis abundant proteins (LEA), aquaporins (AQP), osmo protectants ,etc. Millets intercropping with other crops promote biodiversity and stabilize agro ecosystem. Millets are highly nutritious, rich in dietary fiber, protein, vitamins (vitamin B, Vitamin E), and minerals (Fe, Ca, P, Mg). They contribute to a balanced diet and can help address malnutrition and food insecurity, particularly in regions where access to diverse and nutritious food is limited. Millets are generally low-input crops, requiring fewer chemical fertilizers and pesticides compared to other staple crops. They have a lower carbon footprint and can be grown using organic farming practices, reducing environmental impacts. Millets have economic advantages for small-scale farmers as they are cost-effective to cultivate and have a shorter growing cycle compared to some other crops. They also have potential for value addition and market diversification, contributing to rural livelihoods. Promoting the cultivation and consumption of millets can contribute to sustainable agriculture, enhance food security, and support the livelihoods of small-scale farmers.

Abstract No. 73

Reaction of light traps for sucking and chewing insect pest on roses

Sunita Arya and Riya Sachan

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

ABSTRACT

Several types of traps are frequently used for monitoring sucking and chewing pests like aphids, thrips, white flies, beetles and moths on roses. Covering cultivation facilities with UV-filtering film seems effective in reducing the invasion of pests. Additionally, using reflective material on cultivated land appears to offer control over flying insects such as aphids. The light trap is species-specific and generally used for capturing the moths of Spodoptera litura and Helicoverpa armigera on Roses. They are very destructive vegetables, fruits and flowers such as cabbage, brinjal, tomato onion as well as roses. The mention of future development and use of new light sources shows that various types of insects can see ultraviolet radiation. Nocturnal insects are often attracted to several light sources that emit high amounts of UV radiation and devices that exploit this behaviour, a yellow fluorescent lamp that gives yellow illumination have been used to control the various activity of nocturnal moths and beetles which reduce damage to crops. Suggested a productive approach to integrated pest management. Overall, these practices demonstrate a comprehensive strategy for minimizing the pest population.

Abstract No. 74

Biodiversity conservation and its management with special reference to icthyofauna of eastern U.P. India

Anuradha Shukla

Department of Zoology
Jhunjhunwala P.G. College, Ayodhya, U.P., India

ABSTRACT

Biodiversity the causes and essence of evolution of higher forms of life is the most essential component of our earth biosphere. Any dilation and loss in it, at any level is bound to impact the whole global ecosystem chain. Biodiversity is also referred to as biological diversity. It represents the entirety of living world. It is the blanket term for the natural biological wealth undergirds human life and wellbeing. It was in 1986 that a detailed description of biodiversity was provided (IUCN, Undated). The term biodiversity was given by Walter G. Rosen in 1965 to the variety of all living things on earth, including species, the genes that contribute their variability, and the ecosystem in which they interact. This term has been variously defined as variability among living organisms from all sources and the ecological complexes of which they are part and includes diversity within species or between species and of ecosystem. It is the actually an inclusive term to describe the total variation that occurs among living organism of our planet. Easter n U.P. mostly contain oxbow lakes namely Chando lake, Sikandarapur lake, Bakhira lake, and tributaries of Ganga river system. In eastern U.P. (India) fishes of 10 orders namely *Clupeiformes, Cypriniformes, Cyprinidontiformes,Beloniformes, Mastacembaliformes, Muguliformes, Ophiocephaliformes, Perciformes, Symbranchiformes* and *Tetrodontiformes* . Close survey of various lake and rivers have been made and icthyofaunal diversity as reported earlier as 20th century and the present status have been cited in this paper.

Abstract No. 75

Waste Management and Sustainable Environment: Innovative and Integrated Approaches

Sunita Arya

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

ABSTRACT

Waste management is the process of collecting, transporting, treating, and disposing of waste materials generated by human activities. It is essential for maintaining a healthy and clean environment, as well as for conserving natural resources and preventing pollution. However, waste management is also a complex and challenging task, especially in the context of rapid urbanization, population growth, and industrialization. The traditional methods of waste disposal, such as landfills and incinerators, are often inefficient, unsustainable, and harmful to the environment and human health. Therefore, there is a need to explore new ideas and possibilities for waste management and sustainable environment, by adopting innovative and integrated approaches that can transform waste into a valuable resource and contribute to the circular economy. A circular economy approach can reduce the environmental impact of waste management, as well as create new economic opportunities and social benefits. Another new vista in waste management and sustainable environment is the use of green technology, which refers to the application of scientific and technological innovations that can improve the environmental performance of waste management systems. Green technology can offer various solutions for waste reduction, reuse, recycling, and recovery, such as biodegradable packaging, composting, anaerobic digestion, pyrolysis, gasification, and plasma arc. These technologies can not only reduce the amount and toxicity of waste, but also generate useful products and energy from waste, such as biogas, biochar, syngas, and electricity. For instance, a study by Springer estimated that the global potential of waste-to-energy technologies could reach 17.4 EJ per year, which is equivalent to 10% of the world's primary energy supply. Waste management is a vital aspect of sustainable development, as it can address various social, economic, and environmental challenges. However, waste management is not a simple or straightforward task, as it requires a holistic and integrated approach that considers the entire life cycle of materials, products, and services, as well as the diverse needs and preferences of different stakeholders and communities. Therefore, it is important to explore new dimensions and possibilities for waste management and sustainable environment, by adopting innovative and integrated approaches that can transform waste into a valuable resource and contribute to the circular economy. By doing so, we can achieve a cleaner, greener, and more prosperous future for all.

Abstract No. 76

Circular Economy and Waste Management in India

R.K. Vishwakarma

Department of Applied Economics
University of Lucknow, Lucknow, U.P., India

ABSTRACT

India faces many challenges in the twenty-first century, such as population growth, rapid urbanization, environmental pollution, and climate change. To address these challenges, there is a need for resilience and sustainability at every level of society. One way to achieve this is to adopt a circular economy approach, which aims to minimize waste and maximize the value of resources by designing products and processes that are more efficient, durable, and recyclable. This paper presents two case studies of circular economy implementation in India, one urban and one rural, that demonstrate the benefits of such an approach for the environment, the economy, and the society. The first case study is the World Institute of Sustainable Energy's action plan to capture and recycle electronic waste in Pune, one of the largest metropolitan areas in India. The second case study is Barefoot College's solid waste management model for rural villages, which involves community participation, sanitation, income generation, and behavioral change. The paper also discusses the policy framework and the challenges for promoting a circular economy and waste management in India, and suggests some recommendations for future action. The paper argues that a circular economy can help India achieve a zero-waste future with zero greenhouse gas emissions, while creating new opportunities and improving the quality of life for its citizens.

Abstract No. 77

Ecological Balance, Environmental monitoring and Sustainable Development

Ranjit Singh

Department of Botany, D.S.N. College Unnao, U.P., India

ABSTRACT

Ecological balance, environmental monitoring, and sustainable development are interconnected concepts crucial for ensuring the well-being of our planet and its inhabitants. Ecological balance refers to the delicate equilibrium in ecosystems where living organisms, their habitats, and the surrounding environment coexist in harmony. It is a fundamental prerequisite for the survival and prosperity of diverse species, including humans. Environmental monitoring plays a pivotal role in safeguarding ecological balance by systematically assessing the health of ecosystems and identifying potential threats. Through the use of advanced technologies such as satellite imagery, sensor networks, and data analytics, scientists can track changes in air and water quality, biodiversity, and climate patterns. This real-time information empowers decision-makers to formulate evidence-based strategies for conservation and sustainable resource management. Sustainable development, a holistic approach to growth, recognizes the interconnectedness of economic, social, and environmental dimensions. It seeks to meet the needs of the present without compromising the ability of future generations to meet their own needs. Achieving sustainable development requires a balance between economic progress, social equity, and environmental stewardship. This involves adopting practices that minimize resource depletion, reduce pollution, and promote biodiversity conservation. The intricate relationship between ecological balance, environmental monitoring, and sustainable development is evident in the pursuit of a resilient and harmonious coexistence between human activities and the natural world. As global challenges like climate change, deforestation, and pollution escalate, the importance of these concepts intensifies. International cooperation and collective efforts are essential to address these challenges, transcending geographical and political boundaries. In conclusion, ecological balance serves as the foundation for sustainable development, and environmental monitoring acts as the vigilant guardian of this delicate equilibrium. Embracing sustainable practices, informed by accurate and timely monitoring, is imperative for fostering a world where nature and humanity thrive in tandem. By recognizing the interconnectedness of these concepts, societies can forge a path towards a more resilient and sustainable future for generations to come.

Abstract No. 78

Composition of atmospheric aerosols and their impact on Climate change and human health

Khushaboo Singh and Jaswant Singh

Department of Environmental Sciences
R.M.L. Avadh University, Ayodhya, U.P. India

ABSTRACT

Aerosols are a central topic of atmospheric chemistry and include airborne solid and aqueous particles with sizes range 0.001–10 μm. They originate from a wide range of natural (soil/crustal, water/sea, volcanic activities, etc.) and anthropogenic sources (vehicular exhausts, industries, wood/biomass/ burning, construction etc.) and have wide-ranging impacts on the climate system as well as public health. Atmospheric aerosols play an important role in the energy balance of the earth directly by scattering/absorbing of solar radiation and indirectly by altering cloud formation, hydrological cycle, atmospheric circulation and greenhouse gases. They also considerably influence the air quality, weather and ecosystems. There is substantial evidence of acute and long-term adverse consequences of atmospheric aerosol/particulate matter such as increased incidence of respiratory, cardiovascular, asthma, neurological, infectious, reproductive and allergic diseases. Atmospheric particulate matter holds a variety of Toxic elements/metals. Along with chemicals composition, it also contains a diversity of biological particles, such as bacteria, fungi, viruses, etc. The biological particles also intensify the toxicity of atmospheric PMs by altering the composition. The diversity of AMs in atmospheric PMs especially aeromycoflora has increased significantly globally. Fungal spores are one of the major components in atmospheric PMs, responsible for causing diverse diseases on humans. Globally, various studies have recognized the airborne fungi associated with atmospheric PMs that act as etiological agents, and exacerbate allergic reactions on the skin and respiratory system, asthma attacks, and other diseases. This review outlines the current state of knowledge of atmospheric aerosols and their impacts on climate and human health.

Abstract No. 79

Development of extruded fish feed using low-cost ingredients for GIFT tilapia *(Oreochromis niloticus)* and evaluate growth performance through feeding

Puneet Kumar Patel, Brundaban Sahu, Saumyendra Nanda, Lavkush, Venkatesh K, S Gokul, Laxmi Prashad, Mitrasen Maurya and Praynka Acharya

College of fisheries (NDUA & T), Kumarganj Ayodhya, U.P., India.
College of fisheries (OUAT), Rangailunda, Berhampur, Odisha, India

ABSTRACT

The purpose of this research was to optimize feed ingredient composition without compromising nutritional value. Accordingly, four is o-nitrogenous (crude protein 35%) experimental diets were formulated for GIFT tilapia advance fry by replacing 50% of GNOC protein of the control diet (T0) by sunflower oilcake (SFOC) (T1), by linseed oilcake (LSOC) (T2) and by fish based silage (T3) protein. The pellets extruded using a combination of 120 o C extruder barrel temperature, 25% moisture content of feed mix, 2.0 mm die diameter and 30 minute of pre-conditioning duration gave most required pellet floatability (90-100%), expansion ratio (1.43-1.61), water stability (95-99%) and bulk density (0.8-0.9 g/cm 3) for T1 and T2 . However, fish silage when incorporated in the feed mix, it affected negatively in all the physical characteristics of a floating feed and resulted in higher bulk density and lower floatability , expansion ratio and also water stability. Results of the feeding trial using one hundred twenty number of GIFT tilapia advance fry of average weight 1.20 ± 0.34 g reared in twelve number of 200L FRP tanks under continuous aeration and fed with above four experimental diets in triplicate concluded that SFOC can be used to partially replace GNOC in floating fish feed without significantly ($P < 0.05$) affecting the growth performance of GIFT tilapia, whereas LSOC incorporation had a negative impact on the growth performance and feed efficiency parameters. However, fish silage when incorporated in the GIFT tilapia diet by partially replacing GNOC, it resulted in significantly higher growth rate (474.2 % weight gain) and better feed efficiency parameters of 2.27 FCR and 1.26 PER. Hence, fish silage and SFOC are promising alternative ingredients to partially replace expensive GNOC for formulation of cost effective feed for better growth and feed efficiency of GIFT tilapia.

Abstract No. 80

Biodiversity Perspective of Food, Health and Society

Amit Kumar Awasthi

Deptt. of Zoology D.S.N.P.G. College, Unnao, U.P. India

ABSTRACT

Biodiversity consists of all life present on Earth. It refers to the biological disparity in all its forms, including genetic combination of plants and animals to cultural variety. Biodiversity is very important for the function that helps for the existence of life on Earth. In the absence of this enormous range of plants, animals and microorganisms, no one can imagine the existence of healthy ecosystems on which we are dependable to provide us the fresh air we breathe and the food we eat and people also value nature of itself. Even small insects and bacteria that we cannot see through naked eyes are of great importance. There are uncountable ways that humans depend upon biodiversity from which some are, for food and nutrition, health or medicines, many benefits our society get from biodiversity. Pollinators such as birds, bees and other insects are the reason of vast crop production in the world. Without these pollinators we would not have many types of fruits like apples, cherries, blueberries, almonds and many other foods we eat. There are many medicines and important organic molecule and compounds are found from the plants like rubber, gum, latex, morphine etc. At the same time when biodiversity is providing vast resources to society, society is the main cause of the loss of biodiversity as increasing population putting pressure for more production of food, need of place to live which is decreasing forest and agricultural lands speedily. Overexploitation due to overfishing, overhunting and overharvesting for food, medicines and timber causing great destruction to the biodiversity by triggering climate change, poor air quality, natural hazards like soil erosion etc and undrinkable water. We need to take some serious measures to stop continuous destruction of biodiversity.

Abstract No. 81

Inspection on Insecticides/Pesticides removal from Broccoli by several Techniques

Revati Sharma and Sunita Arya

Department of Zoology
Dayanand Girls Post Graduate College, Civil lines, Kanpur, U.P., India

ABSTRACT

The moving of insecticides or pesticides residues from the Broccoli (Brassica oleracea var. italica. L.,) determinants and matrices were achieved by many procedures. The impact of washing with ozonated and chlorinated water, blanching and cooking on the concentration of Pyrimethanil, azoxystrobin, iprodione, imidacloprid, boscolid, metalaxyl, metaconazole, tebuconazole and pyraclostrobin has been studied on the samples of broccoli. Which collected from experimental areas over two weeks after the application. Broccoli's samples were extracted by using "quot;QuEChERS" procedure. The examine of five pesticides were carried out by Gas chromatography with NP (nitrogen phosphorus) and electron capture detection and Matrix solid phase diffusion as the preparation method of samples. Fungicides levels in the unprocessed samples of broccoli were 0.16-4.34 mg/kg. Washing with chlorinated and ozonated water reduced up to 45.9 and 49.0% concentration respectively. Blanching and cooking reduced up to 50-87% and then we found that the cooking procedure has a sizeable potential in the removing process of pesticides from Broccoli.

Abstract No. 82

Phytoremidiation- a biological approach to reduce Environmental Pollution

Vivek Kumar Singh

ABSTRACT

In order to support the growing global population, human activities such as mining, agriculture, industrialisation, urbanisation, and globalisation have rapidly expanded, and this is largely to blame for soil contamination. Organic and inorganic contaminants each have their own classification. Pesticides, petroleum hydrocarbons, polychlorinated biphenyls, hexachlorocyclohexane, polybrominated diphenyl ethers, and pharmaceuticals and personal care products are examples of organic pollutants. Metals, metalloids, nanomaterials, radionuclides, and nutrients are examples of inorganic pollutants. Remediation of soil involves eliminating toxins to safeguard both human and environmental health. The studies evaluated plant tolerance in co-contaminated soil coupled with decreased biomass as a result of co-contamination using one exemplary pollutant for each class of contaminant and one plant species.

Abstract No. 83

New 4'-(3,4-dicarboxylphenyloxy)-4-biphenyl carboxylic acid appended Ni(II) complexes as photocatalysts for dimetridazole photodegradation

Wenxu Zhonga, Tushar Verma, Feng Zhaoa, Xinyi Liua, Bo Xua, Yu Wua, Mohd. Muddassir, Aurobinda Mohanty, Sulaiman Al-Sulaimi, Amita Singh and Abhinav Kumar

School of Chemistry and Environmental Engineering,
Sichuan University of Science & Engineering, Zigong, P. R. China
Department of Chemistry, Indian Institute of Technology Roorkee, Roorkee, U.K., India
Department of Chemistry, College of Sciences, King Saud University, Riyadh, Saudi Arabia
Department of Chemistry, Berhampur University, Berhampur, India
Department of Biological Science and Chemistry, University of Nizwa, Sultanate of Oman
Department of Chemistry, Dr. R.M.L. Avadh University,Ayodhya, U.P., India.
Department of Chemistry, Uiversity of Lucknow, Lucknow, U.P., India

ABSTRACT

Two new Ni(II) complexes having compositions [Ni(phen)(HL)(H2O)] (1) and [Ni2(phen)2(H2L)2(H2O)6·2H2L] (2) (H3L= 4'-(3,4-dicarboxylphenyloxy)-4-biphenyl carboxylic acid; phen = 1,10-phenanthroline), have been successfully synthesized solvothermally and characterized by microanalyses, FTIR and single crystal X-ray diffraction. The single crystal X-ray diffraction analyses revealed that both 1 and 2 possess distorted octahedral geometry and displayed varied types of non-covalent interactions to stabilize their solid state frameworks. Further, these complexes have been used as photocatalysts for the photodegradation of antibiotics. The photocatalysis experiments reveal that 1 is relatively a better photocatalyst than 2 for photo-decomposing dimetridazole (DTZ) upto 92.5% in time spans of 45 min. Additional investigation on 1 suggests that it retains its photocatalytic activity after six catalytic cycles indicating its efficient catalytic activity and reusability. The plausible photocatalytic mechanism have been addressed with the help of density of states plots and Hirshfeld surface analyses.

Abstract No. 84

Physico-Chemical analysis of Water in the River Gomati at Jaunpur (U.P.)

Veer Pratap Singh, Mohd. Akmal and Rajiv Ranjan

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

ABSTRACT

The Gomati River, major river system of Eastern Uttar Pradesh originates from Pilibhit and confluences in Ganga River Markandey, Mahadev, Kaithi, Varanasi. On its way, it is joined by many small and perennial rivers. It passes through some cities when it is polluted at least at several stretches. The main source of pollution of the river Gomati of Jaunpur are domestic sewage, disposed of dead bodies and up to some extent from industrial effluents as physicochemical properties of the river and its impact on aquatic flora and fauna have been worked out by different investigators. The present investigation has been per formed at four sampling sites: Gokul Ghat (S1), Jogiyapur Ghat (S2), Miyapur Ghat (S3), and Ram Ghat (S4) on the 6.5-kilometer crescent course of river Gomati.

Abstract No. 85

Gray Water Management: Control and Treatments

Ansil Singh and Sumit Srivastava

Department of Environmental Sciences
Dr. Ram Manohar Lohia Avadh University, Ayodhya, U.P., India
Department of Environmental Sciences, Kisan P. G. College, Bahraich, U.P., India

ABSTRACT

A Grey-water is all wastewater generated in households or office buildings from streams without fetal contamination, i.e. all streams except for the wastewater from toilets. As grey water contains fewer pathogens than domestic wastewater, it is generally safer to handle and easier to treat and reuse on site for toilet flushing, landscape or crop irrigation, and other non-potable uses. When grey water is mixed with toilet wastewater, it is called sewage or black water and should be treated in sewage treatment plants or onsite sewage facility, which often is a septic system. When it is kept separate, it may open up interesting decentralized treatment and reuse options. The separate treatment of grey water falls under the concept of source separation which is one principle commonly applied in ecological sanitation approaches.

Abstract No. 86

Harnessing Natural Control Agents For Effective Pest Control

Kamalesh Kumar

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

ABSTRACT

Brinjal *(Solanum melongena*), a widely cultivated vegetable crop, is of ten susceptible to various pests that can significantly impact yield and quality. Traditional pest control methods predominantly rely on the use of heavy-element insecticides, raising concerns about environmental pollution, human health risks, and the development of pesticide-resistant pest populations. This study explores the potential of harnessing natural control agents as an eco-friendly and sustainable alternative for managing brinjal pests. The research investigates the efficacy of natural control agents, including beneficial insects, microorganisms, and botanical extracts, in suppressing pest populations in brinjal fields. Beneficial insects such as ladybugs, parasitoid wasps, and predatory beetles are evaluated for their ability to control common brinjal pests like aphids, mites, and caterpillars. Additionally, microbial agents such as entomopathogenic fungi and bacteria are examined for their role in pest suppression and impact on non-target organisms. Botanical extracts with insecticidal properties are explored as potential alternatives to synthetic insecticides. Extracts from neem *(Azadirachta indica*), garlic *(Allium sativum*), and chilli *(Capsicum sp*.) are tested for their efficacy in repelling or controlling brinjal pests while minimising adverse effects on the environment. The study assesses the overall impact of natural control agents on brinjal yield, quality, and pest resistance over multiple growing seasons. Economic analyses are conducted to evaluate the cost-effectiveness of natural control methods compared to conventional pesticide-based approaches. Furthermore, farmer perceptions and acceptance of these alternative pest management strategies are investigated to understand the practical feasibility of their implementation. The findings of this research contribute to the development of sustainable and environmentally friendly pest management practices for brinjal cultivation. By reducing the reliance on heavy-element insecticides, farmers can enhance the ecological balance of agro-ecosystems, protect biodiversity, and mitigate the risks associated with chemical inputs. This study advocates for the adoption of integrated pest management strategies that integrate natural control agents into brinjal cultivation practices for a more sustainable and resilient agricultural future.

Abstract No. 87

Women Agricultural Labourers and Social-Environmental Sustainability: An Analytical Study

Avantika Srivastava

Department of Economics
D.G.P.G. College, C.S.J.M. University, Kanpur U.P., India

ABSTRACT

Sustainable development is an imperative need of the present time due to the degradation of soil productivity, depletion of natural resources, deepening pollution in the environment and increasing poverty etc. Sustainable development is the meeting of the needs of the present generation without harming the environment and natural resources and without compromising the needs of the future generation. There were 17 sustainable goals targeted by the UN (United Nations) in 2015. Gender equality is one of the key targets among the 17 sustainable development goals. Social Sustainability is an effective equipment to achieve sustainable development goals such as gender equality, labour rights etc. A major part of the rural population depends on the agriculture sector for employment. Women in India are actively participating in the agriculture sector as farmers and labourers. These women are playing a significant role not only in the agriculture sector but also in rural development. But their condition is miserable and their contribution is not being recognized in the society. Low wage rate, wage discrimination, lack of awareness etc. are the serious issue faced by the women labourers in agriculture sector. Therefore, it is necessary to draw attention to these issues to attain the goal of social and environmental sustainability. The prime motive of this research paper is to analyze the relationship between agricultural women labourers and environmental sustainability and the role of this section in social sustainability. Social and environmental sustainability, Sustainable Development, status of women agricultural labourers and farmers and their role in achieving goal of social and environmental sustainability are some of the topics discussed in this paper.

Abstract No. 88

Media Optimization for the Decolorization of Distillery Effluent (Molasses Melanoidin) by *Bacillus sp.*

Anurag Singh and Rajeeva Gaur

Department of Microbiology
Dr. R.M.L. Avadh University Ayodhya, U.P., India

ABSTRACT

The wastewater released from distilleries and fermentation industries contain high BOD, COD along with melanoid in pigment. Melanoiin is a Xenobiotic dark brown colour compound, which is formed by the Maillard reaction between amino acid and carbonyl group of sugars. This recalcitrant compound causes soil and water pollution therefore must be treated before disposal. The aim of this study was to isolate and optimize a potential melanoidin decolorizing bacterium from natural resources for treatment of distillery effluent at industrial level. In this study a strain of Bacillus sp. was isolated from distillery nearby natural ecosystem and optimized for decolorization of distillery effluent at various physico-chemical and nutritional levels. This bacterium showed maximum decolorization, 82% at 40˚C using modified GYPE Medium i.e. 1% molasses medium (1%., Grade-C molasses, 0.2%., Yeast extract, 0.3%., Peptone, 0.05%., MgSO4, 0.05%., K2HPO4 with 3.5 OD effluent) pH-6.0 within 40 hours. This Bacillus sp. can tolerate wide range of temperature as well as pH and survive in very less amount of carbon (0.6%) and nitrogen(0.5%) sources in submerged system. Hence, this bacterium has potential to degrade the melanoidin of distillery spent wash at industrial level for controlling environmental pollution.

Abstract No. 89

Impact of Hexavalent Chromium on vital functioning and behavioural anomalies of a freshwater teleost, *Heteropneustes fossilis*

Diwakar Mishra and Ajay Kumar Pathak

Department of Zoology
Rajkiya Mahila Snatkottar Mahavidyalaya Ghazipur, U.P., India

ABSTRACT

Chromium, a heavy metal, enters the aquatic ecosystem through industries such as - electroplating, polishing, paint, rubber, plastic, ceramics, fiberglass, chrome plating, chrome alloy making, welding and foundries. It exists in several valance states but only trivalent (Cr+3) and hexavalent (Cr+6) are biologically significant. Trivalent chromium plays a role in glucose and lipid metabolism. Hexavalent chromium is most toxic to mammals and fish, and is known to cross biological membranes with relative ease as compared to trivalent chromium. Hexavalent chromium damages the osmoregulator y and/or respirator y system of fish. The significant accumulation of Cr+6 is typically more widespread in gill, kidney and intestine, causing histopathological changes in these tissues and altering the carbohydrate metabolism. The hexavalent chromium also causes remarkable changes in the behaviour of the fish, Heteropneustes fossils. Which were expressed as increased opercular movement, sluggish, lethargic and abnormal swimming, loss of buoyancy and muscular-tetany. The exposed fish also showed fading of their body colour.

Abstract No. 90

Critical factors influencing the quality and implementation of Environmental and social Impact Assessment

Leake Tesfahunegn

Ethiopian Civil Service University, Ethiopia

ABSTRACT

Despite growing awareness of Environmental Impact Assessment, the quality of the reports is constantly declining and the identification of subject specialists also seems to be a neglected area. Projects needed to undergo good Environmental and Social Impact Assessment (ESIA) study reports, and their implementation should be realized depending on the mitigation measures determined. Hence, the study aims to assess the critical factors influencing the quality and implementation of environmental and social impact assessment reports in the Ethiopian Environmental Protection Authority. To meet the intended objectives of this research, both quantitative and qualitative approaches that encompass 18 environmental officers and 10 consultants to fill the questionnaires and 5 consulting firms' managers and 3 environmental officials for interviews were conducted. Moreover, to rigorously achieve the objectives, 20 reports and 3 projects as case studies had reviewed. The findings of the research indicated that the majority of 11 (55%) of the reports submitted to the Authority were unsatisfactory wherein scientific tasks were poorly done. The results of the study also elucidated that the interdisciplinary team in conducting and reviewing the reports was lack of paramount disciplines and the majority of the documents had been studied by an individual consultant at home. Additionally, the assessment revealed that the implementation of mitigation measures stated in the dossiers was ineffective as believed by 58% of the respondents and the performance of mitigation measures of the 3 case studies also implemented less than 25% which was very poor. According to respondents above 82% of them declared that the critical factors imposed environmental and social impact assessment reports to be unsatisfactory were mainly the proponent's attitude, team composition, and the role of practitioners, public involvement, decision-making, corrupt environmental impact assessment practice, and poor baseline data. P oor quality of the report, the commitment of proponents, lack of awareness of the purpose of the study report, decision-making, lack of political will, poor control mechanisms, and a lack of coordination and communication were also critical factors affected the implementation of mitigation measures as respondents revealed. Correspondingly, it is concluded that a large number of projects were prepared and submitted the documents after the execution of different activities. In light of research findings, the research study strongly recommends that the Authority should strengthen environmental law enforcement to improve the quality of the reports and to implement the recommended mitigation measures appropriately to minimize the adverse environmental effects due to the project activities.

Abstract No. 91

The role of Corporate Social Responsibility in Environmental Sustainability

[1]Rajeev Kumar and [2]Meena Wagde

[1]School of Studies In Law Vikram University, Ujjain, M.P., India
[2]B.K.S. N. Govt. P.G.College, Shajapur, M.P., India

ABSTRACT

The Corporate social responsibility (C SR) is social welfare of the society and protect the environment. The idea of sustainability consist of four pillars: human sustainability, environmental sustainability, social sustainability, economic sustainability and social sustainability. Corporate social responsibility duty to give a better society and cleaner environment. The main aim of sustainable development is to provide resources for present generations without compromising the need of future generations. Industry and Technology development, our natural resources are getting polluted and depleted as air, water, forests, coal, minerals etc. Sustainable development promotes the conservation and preservation of natural resources. Environment includes all the biotic and abiotic factors as birds, animals, humans, plants, fisheries, sunlight, water, air, wind, rocks and temperature etc. The sustainability goal to end poverty, protect the planet and secure all humans enjoy peace and prosperity. India is the first country in the world as per section 135 of Company Act 2013, it has become mandatory to spend 2% of their net profits on corporate social responsibility. The Stockholm Declaration of 1972 or a declaration of the united nation conference on the human environment is the first united nation declaration on the global environment. The main principle of the Stockholm Declaration was to protect of the environment and social development of the society. The environment (Protection) Act 1986 and various rules under this Act have been made to prevent all forms of pollution. The world commission on environment published the Brundtland report in 1987 to address sustainable development. The Indian Judiciary has played a very crucial role in the promoting sustainable development and public interest litigation (PIL) under article 32 and 226 of the Indian Constitution. Environmental sustainability is concerned with whether environmental resources will be protected and maintained for future generations.

Abstract No. 92

The Geological Parameters for a Waste Disposal Site: A Review

S. Singh, P.C. Singh, V. Singh, V.K. Chaudhary

Department of Geology, Dr. Rammanohar Lohia Avadh University, Ayodhya, U.P., India
Department of Environmental Sciences, Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

Selecting an appropriate location for waste disposal is crucial for minimizing environmental impact and safeguarding human health. Geological conditions play a pivotal role in evaluating a site's suitability for waste disposal. To mitigate contamination risks, avoid areas near or above productive aquifers and opt for geological formations with low permeability, such as clay or shale, to act as natural barriers against contaminant migration into groundwater. Minimize surface water drainage to mitigate leachate migration and surface water contamination, and avoid flood-prone areas to prevent waste dispersion during flood events. Prevent ground movement hazards by steering clear of active fault and fold areas, ensuring that subsurface materials are stable enough to support waste and engineered structures. Consider regional climate conditions, including temperature, precipitation, and freeze-thaw cycles, as they can impact the stability of waste containment structures and the potential for weathering waste materials. Keep disposal sites safe from densely populated areas to reduce health risks in case of accidents or leaks and ensure compliance with local zoning regulations and land-use plans. Evaluate accessibility for waste transportation and associated infrastructure while avoiding ecological or cultural significance sites to preserve natural resources and biodiversity. Compliance with environmental regulations and permitting requirements is essential, and a thorough site assessment encompassing geological, hydro geological, and environmental factors is crucial for determining suitability. Engaging local communities and stakeholders in decision-making is vital for fostering sustainable waste management practices.

Abstract No. 93

Examining the Impact of Environmental Pollution on the Gut Health of the Residents of Delhi

Ankita Pandey and Arvind Kumar Bajpai

Department of Botany Delhi University, Delhi
Department of Botany, Dr. R.M.L. Avadh University, Ayodhya

ABSTRACT

Pollution in Delhi has been found to be responsible for many health issues. The major forms of pollution includes water pollution, air pollution, soil pollution and noise pollution. However, the air and water pollution are found to be responsible for the health problems among a large population. In earlier times there were two natural highlighting features of Delhi : the River Yamuna and Delhi Ridge. Delhi ridge is a dry deciduous forestland, and it is the biodiversity hotspot which is located in the NCT of Delhi. It made Delhi a place of suitable living space. However, due to rapid urbanisation, the green areas in Delhi have become congested, and the trees and green legacy that previous generations have valued are eliminated. The air quality index (AQI)in the months of May to October shows the air being moderately polluted, but after the October the air quality becomes worse or sometimes even severe. Very few epidemiological studies have revealed that there is a link between exposure to air pollution and a number of gastrointestinal conditions including IBS, appendicitis and IBD. The river Yamuna receives the par tially treated and untreated wastewater discharges and is found to be contaminated with harmful pollutant like heavy metals, antibiotics and pathogenic microorganisms. There is enough evidence that suggest that the heavy metals affect the gut microbiota. When heavy metals reach the GI system, metabolic oxidation or reduction process may be used by the gut microbiota to mediate metal toxicity. The present paper is an attempt to examine the impact of environmental pollution on the Gut health of the individual and the methods to improve the Gut health. This paper will focus on the pollution in Delhi, both the air and the water pollution, and how the pollutants affect the gut microbiome which affects the health of the individual. Though the government has taken various control measures to reduce the pollution but still a lot has to be done.

Abstract No. 94

Biochar Mediated Improvement in Mine Soil: Effect on Plant Growth and Soil Health

Anupma Verma and Vandana Ranjan

Deapartment of Biochemistry
Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

Mine tailings represent a source of toxic pollutants, mainly heavy metals, which may spread to the surrounding areas. Bio-accumulation of heavy metals in the food chain, following their uptake to plants can increase the ecotoxicological risks associated with remediation of contaminated soils using plants. Soil biochemical properties are considered as effective indicators of soil quality and are sensitive to various environmental stresses, including heavy metal contamination. In the current experiment lemon grass-derived biochar (BC), produced at 450 C, was applied to a heavy metal contaminated acidic mine soil at 1.0%, 2.0% and 4.0% (w/w). Palmarosa (Cymbopogon martini) were grown in pots containing agricultural soil, acidic mine soil and biochar mixtures, and control pots without biochar. The properties studied included soil organic C, total phosphorous, total nitrogen, inorganic sulphur, and the activities of â-glucosidase, urease, arylsulphatase and phenol oxidase including plant enzymes catalase and lipid peroxidase. The main goal of study is to improve ecosystem functioning. Both phyto-remediation and biochar addition improved soil biochemical properties, although results were enzyme specific. For biochar addition these changes were partly, but not exclusively, mediated by alterations in soil pH.

Abstract No. 95

Crop Weeds diversity and their Ethnomedicinal uses in Chitrakoot Dham Mandal (U.P.)

Archana Khare

Department of Botany
Pt.J.N.P.G. College Banda U.P., India

ABSTRACT

Chitrakoot Dham Mandal is an important commisonary of Bundelkhand region of U.P. It comprises 4 district viz. Banda, Chitrakoot, Hamirpur and Mahoba. The information's about the medicinal uses of crop weed were recorded by personal interviews with rural peoples and tribas (Kol, Nath, Sapera and Lodh). A weed is a plant growing where it is not desired or a plant out of place. Weeds are not always problematic plant; these can be used as green vegetables, fodder and medicines. A survey was made to find out the crop weed having medicinal properties. According to the results of surveys total 49 crop weed species belonging to 31 families were recorded.

Abstract No. 96

Air Quality Monitoring - A Case Study on Sitapur District of Uttar Pradesh

Ayushman Bajpai, and Siddharth Shukla

Department of Environmental Sciences
Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

Air pollution is a major concern for all countries, regardless of their level of development. The rapid growth of industry and the development of the Sitapur district of Uttar Pradesh as produced a large amount of chemicals and toxic substances, most of which are released into the air, which has a negative impact on human health and the entire environment. Human society must realize that nature has a limited capacity to process all it's waste without significant changes. Each of us is not only impure; Victims of pollution. If air pollution monitoring is important for air quality assessment at any time, modeling the monitoring data can produce unexpected results through factor analys is and identification of pollution reduction measures. New tool sand technologies are emerging to support these challenges and provide mid-and long-term solutions.

Abstract No. 97

Effect of Anthropogenic Activities on the water quality and Zooplanktons of Santoshi Mata Talab, Satna (M.P.)

Ramesh Chandra Tripathi, Priyanka Singh and Monika Tiwari

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

ABSTRACT

Santoshi Mata Talab is an oldest Talab of Satna city, which lies Northern area of the town, known as Birla. Its geographical references is Latitude 24'-34', 11.544'N and Longitude 80'-5112.672E. Water area of this Talab is 3.116 acre. It includes Big ghat and a beautiful Santoshi Mata Mandir. Historically, the Talab has been extensively used for Chhath and Navratri pooja. The Due to these activities some variations occurs in the water quality and zooplankton species which are found in this Talab like Water Temperature, pH, Total Hardness, TDS, alkalinity, Chloride, Free CO2, Protozoans, Rotifers, Cladoceran, copepods, and ostracods. Fluctuation has been observed in zooplankton population with the impact of physicochemical parameters of water between Monsoon and winter season. Protozoan showed negative correlation with physicochemical parameters, rotifers showed negative correlation with Water Temperature while positive correlation with rest all, Cladoceran showed positive correlation, Copepods showed positive correlation, Ostracods showed negative correlation. Water temperature is decreased in post monsoon; pH was increased in post monsoon season as compared to the monsoon. DO is also showed decreeing pattern in post monsoon. The maximum TH was recorded in monsoon, where as TDS was decreased in post monsoon than the monsoon. The highest alkalinity and CO2 were observed in post monsoon as compared to monsoon respectively. Thus, in the present study it was observed that most of the physicochemical parameters have higher value in post monsoon as compared to monsoon which states the significant changes in the physicochemical properties of Santoshi Mata Talab due to Chhath and Navratri pooja worship materials immersion.

Abstract No. 98

Adsorption of Hexavalent Chromium by using Environment friendly Biochar: A Review

Naincy Sahu, Siddarth Shukla, Vinod Kr Chaudhary, Saurabh Kumar, Naveen Kumar and Brijesh Yadev

Department of Environmental Science
Dr. R.M.L. Avadh University, Ayodhya, U. P., India

ABSTRACT

The present era, water polluted with heavy metals, has cause the significant threat to the environment due to various industrial and developmental activities. Out of the heavy metals hexavalent Chromium are the serious hazard to the environment because there are the most threats, many issues to the health of living beings, researchers have paid a lot of attention. In this review, the applicability and efficacy of several modified biochar for Cr(VI) removal from an aqueous solution are discussed. There is different carbonaceous material used for the removal of hexavalent chromium (Cr(VI). Thus, most of the adsorbents have several limitations, like cost of adsorbents synthesis and maintenance is too high, utilized harmful chemicals for adsorbents synthesis and recovery difficulty. In this review will be focused on the "waste to wealth" approach, by using agricultural waste for the synthesis of biochar. Biochar is a carbonaceous, highly porous, fine grounded particles and produce by slow and fast pyrolysis of solid waste biomass (agricultural residues) with oxygen deficient condition. Biochar has great attention dur to its unique properties like low cost, large area of the surface of adsorbent, complex surface, and numerous functional groups which makes highly efficient for the removal of Cr(VI) and other toxic elements from waste water. Adsorption process for Cr(VI) removal is largely influenced by the chemical properties of the adsorbents. This review discusses the further development of Cr(VI) removal strategies and their challenges to close related research gaps.

Abstract No. 99

A Study on Climate Change Scenario and Ozone Layer Healing

Kamini Yadav and Shazia

Department of Geography
Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

Climate change and ozone layer depletion are two critical environmental challenges that have garnered global attention due to their far-reaching impacts on ecosystems, human health, and the overall well-being of the planet. The rise in greenhouse gas emissions has led to unprecedented changes in the Earth's climate, causing shifts in weather patterns, rising sea levels, and increased frequency of extreme weather events. Concurrently, the depletion of the ozone layer, primarily attributed to the release of ozone-depleting substances (ODS), has raised concerns about heightened ultraviolet (UV) radiation reaching the Earth's surface. This study aims to provide a comprehensive analysis of the current climate change scenario, emphasizing the role of anthropogenic activities in driving temperature increases and altering precipitation patterns. The data and information used in this work has been collected from NASA website, various published research articles, government sites and newspapers. By examining the latest scientific data, the research seeks to elucidate the key drivers of climate change and their implications for ecosystems and societies worldwide. The research also focuses on the healing of the ozone layer, exploring international efforts to reduce ODS emissions and the subsequent recovery of the stratospheric ozone. Evaluating the effectiveness of global agreements such as the Montreal Protocol, the study aims to shed light on successful strategies that have contributed to the restoration of the ozone layer and the mitigation of harmful UV radiation. Recognizing the interconnections of climate change and ozone layer depletion, the study attempts to identify synergies and potential trade-offs in addressing both challenges simultaneously. By examining policy interventions and technological advancements, the research seeks to propose integrated approaches that balance the goals of climate mitigation, ozone layer protection, and sustainable development.

Abstract No. 100

Platelets as a Biomarker in Mental Health

Kalpna Verma and Vandana Ranjan

Department of Biochemistry
Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

Anxiety disorders are among the most prevalent mental illnesses, and their incidence is rising globally according to WHO. Platelets indices are important biomarkers of platelet activation which have been implicated to have role in underlying neurological mechanism towards development of these disorders. Various parameters are found common between platelets and CNS which drew attention of neuroscientists for its clinical implications in anxiety and depression. The dense granules of platelets store huge amount of 5-HT. Also the platelets have receptors like α-2, β-2 adrenaline receptors &5-HT receptors on their surface. Hypothetically they reflect the biochemical changes going on in the CNS. The changes in its parameters do vary because of stress and generalized anxiety disorder (GAD). Platelet indices and stress & anxiety are found mutually dynamic via a variety of mechanisms. In individuals with a GAD, the alterations in platelet indices may thereby increase their chance of developing thrombotic disorders in the future. The people with GAD have much greater mean platelet volumes, platelet distribution widths, and platelet crits than healthy individuals, so it is suggestive that such people may be more susceptible to thrombotic disorders. In this work, we focused on the prevalence of anxiety and depression in teenagers and also the role of platelets in development of anxiety and depression which can be assessed as diagnostic biomarkers.

Abstract No. 121

Agricultural Waste to Energy: Global Scenario & Analysis of Various Recovery Techniques

Kapish, Pradeep Vishwakarma, Vipin Patel, Priyesh Pandey

Electrical Engineering Department
IET, Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

Globally agriculture production system generates a huge amount of solid waste. Agriculture waste can be converted into electricity through various methods like digestion biomass combustion or gasification. These processes harness the energy stored in organic material such as crop residues, manure and other farm by products. Efficient waste management system can not only address environmental concerns but also contribute to sustainable energy production. The purpose of this article is to review various methods of electricity generation from agriculture waste, focusing on key techniques such as anaerobic digestion biomass combustion and gasification. Through an analysis of these processes, the study aims to provide insights into the efficiency, environmental impact and economic feasibility of each approach.

Abstract No. 102

Sustainable Development with Environmental Protection

Indrani Dubey and Manju Bhaskar

Department of Zoology
D. B. S. College CSJM University, Kanpur, U.P., India

ABSTRACT

Environment comprises biotic and abiotic components. Biotic components include humans, trees, plants, organisms, animals and birds. Whereas, non-living components include air water and land. Any detrimental change occurring within a component is regarded as pollution. The areas delved into for the present study include the historical evidence of the changes in the environment then and now, changes in environmental quality and the relevance of the Environmental Protection Act 1986, the main objective of the present study is to acquire and in-depth understanding of the various measures and policies required for the protection and sustainable development of the natural resources. The environment faces constant blows from industrialization, rapid urbanization, extensive and exhaustive use of chemicals in agriculture and the destruction of forests and woods. The environmental laws and policies formulated after independence to protect natural resources and landforms, air and water quality must be reassessed. Awareness programs to be designed to spread the message of "Green and Clean India" amongst the youth and children of India to make them understand the benefits of a healthy and clean environment.

Abstract No. 103

An Analytical Study of Shri Ramcharitmanas in the Light of Environmental Sustainability

Arun Kumar Dubey and Abha Dubey

Columbia College, Raipur (C.G.), India

ABSTRACT

Developing Environmental consciousness is of paramount importance to conserve and sustain the treasure of nature for future generation. This is the global concern after confronting natural and man-made disaster in the form of flood, drought, global warming, greenhouse effect, ozone layer depletion, acid rain and every kind of environmental pollution and degradation occurring in the basic structure of environment (Chu and Karr, 2017). The environmental concern gets momentum after Corona Pandemic (COVID-19) and the entire humanity was on the verge of destruction, Rume and Islam (2020) found during Pandemic, air, water, noise pollution significantly decreased and helped in maintaining eco-logical balance due to lesser interference of human being with environment. This finding raised a question whether our conduct is appropriate for the environment? Or how do we change our attitude towards environment? The present study is based on these trigging questions, aware people displaying the environmental consciousness and sustainability residing in Shri Ramcharitmanas. An awareness programme was conducted at Village Tekari among 50 women and among 50 students of Columbia College. The awareness programme exhibited the pictorial images in the form of posters and banners engraved with the images of Bhagwan Ram and his companions belonging to their inclination towards nature. This studies mainly focused on the example set by the protagonists of the Ramayana and their behavior toward the nature, and her resources. This study also suggested various measures to preserve, conserve and sustain the environment from individual perspectives grounded on the environmental consciousness prevalent in Shri Ramcharitmanas.

Abstract No. 104

Evaluation of Cytogenotoxic effects of Thidiazurona Synthetic Growth Hormone (SPGR) on Somatic Chromosomes of *Allium cepa*

Shachi Tiwari and Sangeeta Dayal

Deapartment of Botany, KVSCOS
Swami Vivekanand Subharti University Meerut, U.P., India

ABSTRACT

One well-known synthetic growth hormone is Thidiazuron, which is followed by a broader variety of actions relating to dose response and plant regeneration. Thidiazuron (TDZ), a derivative of phenyl urea, is a potent regulator of plant development that exhibits auxin- and cytokinin-like properties across a range of culture conditions. Owing to its active role in plant cell and tissue culture, TDZ has gained importance recently and is also utilized as an elicitor. In a study looking at how TDZ affected Artemisia annua plant shoot regeneration and artemisinin production, it was shown that plants regenerated from root explants using 0.1 mg/L TDZ had twice as much artemisinin as control samples.One of the most widely consumed and farmed vegetable crops worldwide is the onion (Allium cepa L.). With its distinct flavors, onion bulbs are the third most important horticulture spice and have a high market value. The goal of the current study is to examine the harmful effects of Thidiazuron on Allium cepa somatic chromosomes. The test plant's root tips were treated with five concentrations—5%, 15%, 25%, 35%, and 45%—to ascertain the toxicity and mutagenesis effects on Allium cepa. It had been noticed there were number of abnormalities/aberrations observed like stickiness of chromosomes, un-orientation 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 Thidiazuron. These abnormalities may convert into induced mutation.

Abstract No. 105

Role of Women and Tribes in Social and Environmental Sustainability

Shazia and Arvind Kumar

Department of Geography, Dr. R.M.L. Avadh University, Ayodhya, U.P., India
Department of Geophysics), Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

The role of women and indigenous tribes in social and environmental sustainability is crucial and multifaceted. Both women and indigenous communities often have unique perspectives, knowledge, and practices that contribute significantly to sustainable development. Especially in a country like India, where women account for almost half of the total population, it is interesting to investigate their role in social and environmental sustainability. Likewise, the role of indigenous tribes is also very crucial to environmental sustainability, as they pay more attention to nature and are fully dependent on it for their existence. Therefore, keeping these points in mind, an attempt has been made to analyze the role of women and indigenous tribes in social and environmental sustainability. This work is based on information gathered from government reports, research articles, and data published by various government agencies. The findings reveal that women play a key role in community engagement and leadership, natural resource management, climate change resilience, biodiversity conservation, education and health, and entrepreneurship and innovation. Moreover, indigenous tribes play a crucial role in social and environmental sustainability by using their traditional ecological knowledge. They help in the conservation of sacred sites and are well versed in community-based natural resource management. They contribute to cultural diversity and resilience and often engage in environmental activism and advocacy by securing land rights and acting as stewards of their land. This paper also tries to bring attention to recognizing and respecting their contributions to the development of holistic and sustainable solutions to global challenges.

Abstract No. 106

Wetland And Water Conservation: Current Challenges

Pratibha Yadav and Shazia

Department of Geography
Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

Wetlands are areas where water covers the soil, or is present either at or near the surface of the soil all year or for varying periods of time during the year. Wetlands play a vital role in water conservation, providing a habitat for diverse species, carbon storage, and supporting traditional livelihoods. Despite their significance, wetlands worldwide are undergoing rapid decline, with 64% disappearing since 1900. In India, possessing 4% of global freshwater for 17% of the world's population, wetlands cover 4.63% of the country's geographical area. However, nearly one-third has been lost to urbanization, agriculture, and pollution over the past four decades. In this backdrop, an attempt has been made to highlight the scenario of water challenges in India and importance of wetlands in water conservation. Moreover, due emphasis has been given on challenges that wetlands are currently facing. The data and information used in this work has been gathered from published research papers, government sites and newspapers. The overall analysis reveals that, the loss of wetlands has far-reaching consequences, affecting access to fresh water for 1-2 billion people globally and causing a 76% decline in freshwater species populations between 1970 and 2010. Wetlands face threats from reclamation, degradation, pollution, hydrological alteration, and over-exploitation of natural resources. To address these challenges, an integrated approach to wetland management is essential, involving collaboration among academics, ecologists, watershed specialists, planners, and decision-makers. Moreover, managing wetlands requires effective planning, execution, and monitoring, particularly in the face of unplanned urbanization and a growing population. Initiating awareness programs to educate the public about the importance of wetlands and implementing constant monitoring for water quality are crucial steps toward safeguarding these ecosystems from further deterioration. This paper emphasizes the urgent need for comprehensive strategies and collaborative efforts to conserve India's wetlands and ensure the sustainable use of this invaluable natural resource.

Abstract No. 107

Application of AERMOD for Development of Air Dispersion Model

Saurabh Kumar, Brijesh Kumar Yadav, Aditi Baranwal
Naveen Patel and Vinod Kumar Chuadhary

Department of Environmental Sciences
Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

The effects of air pollution on air quality have become severe threat for humanity since three decades. In most of the cases, local emissions in various urban areas are the main reason for this arising problem. This problem has become multifaceted mainly due to its impact on human health, plant and environment and these effects are dynamic in nature. AERMOD is a steady Gaussian cloud air dispersion model developed by the US Environmental Protection Agency and the American Meteorological Society that incorporates planetary boundary layer concepts. Dust growth is determined by turbulence profiles that vary with height. AERMOD calculates the convective and mechanical mixing heights. Under unsteady state conditions, AERMOD dust displacement model due to random convective velocities can be prepared. AERMOD model can estimate the pollutant concentrations from point, line, and area sources. Sources can be individually modeled as rural or urban pollution sources. In this paper, application of AERMOD model for the development of dispersion model will be developed. There are different types of dispersion model available like as box model, Gaussian models, Lagrangian models, CFD models, and models which include aerosol dynamics. Application of Gaussian models for dispersion of air pollutants will be studied in this paper.

Abstract No. 108

Floral Waste Management: Problems and Solutions

Ayush Patel, Aditya Srivastava, Priyesh Pandey and Vipin Patel

Department of Electrical Engineering
IET, Dr. R.M.L. Avadh University, Ayodhya, U. P., India

ABSTRACT

In India, lot of flowers are used in millions of temples & other worship places, family functions and some other occasions. As a result a huge amount of floral waste is generated from these places which are damped into rivers or other garbage places. The demand for flowers is increasing day by day. Therefore, the use of fertilizers and pesticides in flower fields is increasing, the use of which is having harmful effects on aquatic life. The flower waste generated from such activities causes harmful effect on environment; therefore, its management has become an emerging issue. As flower waste contains enough nutrients, it can be used for a variety of purposes like bio-energy and bio-fuel production, compost preparation, eco-friendly incense sticks, soaps, rosewater and other by-products. To achieve sustainable energy demands, low-cost bio-energy can be generated from floral waste. Flower waste can be converted into different form of energy like bio gas, bio-hydrogen, bio-ethanol, bio-charcoal etc. This paper deals with a possible consequence that may arise as a result of improper flower waste disposal along with its possible utilization for low cost bio-energy production and other by-products using flower waste.

Abstract No. 109

Circular Economy And Waste Reduction Strategies

Gaurav and Shazia

Department of Geography
Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

This paper explores the importance of managing waste wisely to protect the environment and human health. Currently, there's a problem with how waste is handled globally. The work suggests a shift towards more unified waste management practices. The key solution proposed is adopting Circular Economy Principles, which include making durable and repairable products, promoting reuse, and designing for easy recycling. The Waste Hierarchy model guides waste management by prioritizing prevention, minimization, reuse, recycling, energy recovery, and responsible disposal. Extended Producer Responsibility (EPR) is suggested to make manufacturers responsible for the entire life of their products. Product-as-a-Service (PaaS) suggests offering products as services to encourage durability. Collaborative Consumption, or sharing goods, is recommended to reduce the need for new products. Digital technologies like the Internet of Things (IoT) and blockchain can improve waste management efficiency. This article also stresses the importance of educating people about the environmental impact of waste and promoting circular economy practices. Regulations and incentives are proposed to encourage sustainable practices. Innovation, research, and optimizing supply chains are emphasized to discover new materials, technologies, and minimize waste throughout a product's life. The overall study suggest that, adopting these strategies can help individuals, businesses, and governments contribute to a more sustainable and circular economy, reducing waste and its impact on Nature.

Abstract No. 110

Biogas Production from Vegetable Waste: A Review

Suraj Kumar, Vipin Kumar, Vipin Patel and Priyesh Pandey

Department of Electrical Engineering
I.E.T., Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

In our country, there are multiple vegetable markets where a large amount of waste is generated every day. This waste can be utilized for better purposes, such as biogas production through anaerobic digestion. To create an organic processing facility for biogas production, we must focus on creating a cost-effective & eco-friendly solution that reduces landfill waste, generates high-quality renewable fuel, and reduces carbon dioxide & methane emissions. We can achieve this by creating a biogas reactor that makes use of food waste collected from different vegetable markets. The anaerobic digestion of food waste produces biogas, which is a valuable energy resource consisting primarily of methane (CH4) and carbon dioxide (CO2). Biogas can be used as an energy source and has numerous applications. However, to properly utilize biogas, we need to have knowledge and information about its composition and quantity. In this paper, we analyze the methods used to produce biogas and methane from starch-rich and sugary materials. By implementing a sustainable waste management system that uses green technology like biogas production, we can reduce our environmental impact and create a more sustainable future.

Abstract No. 111

Efficacy of Fungal and Bacterial isolates against *Rhizoctioniasolani* causal agent of Black Scurf of Potato

Swarnima Tiwari and Anju Rani

Keral Verma Subharti College of Science
Swami Vivekan and Subharti University, Meerut, U.P., India

ABSTRACT

In temperate and subtropical climates, potatoes *(Solanumtuberosum)* are the principal vegetable crop. *Rhizoctioniasolani,* the causative agent of potato black scurf, has a significant impact on the potato crop. The illness poses a possible risk to India's plains' rapidly expanding seed potato crop. Black scurf is a significant global potato disease that lowers tuber quality and marketability. The disease causes 10–25% of the yield loss in India, but it can cause up to 50% of the yield loss, which can seriously harm potato harvests. Chemical pesticides now in use contaminate both soil and water, affecting humans, grazing animals, and beneficial soil microorganisms, all of which directly affect the ecosystem. The goal of the current study was to suppress the black scurf pathogen by the use of bio-agents or antagonistic microorganisms such as bacteria. The aforementioned phyto-pathogen was combated using three bacterial bio-agents: Pseudomonas isolates 1 and 2, Bacillus species, and two fungal species *Trichoderma* isolates 1 and 2. Minimum radial growth 28.9 mm and maximum growth inhibition 75.35 % were recorded in *Trichoderma* isolate 1 followed by 34.2 mm and 62.0 % in *Trichoderma* isolate 2.Pseudomonas isolate 1 recorded maximum radial growth 47.8 mm and minimum growth inhibition 41.78 % while Bacillus isolate recorded 22.9 mm and 70.43 % inhibition and Pseudomonas isolate 2 recorded 20.8 mm and 71.53% inhibition.

Abstract No. 132

Microbes and its Application in Bioremediation

Sadanand Maurya and Awadhesh Kumar Shukla

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

ABSTRACT

Microbes are ubiquitous in natural environments such as soil, air and water , as well as in animal and plant bodies. Due to industrialization, there is addition in a variety of hazardous substances into the environment. Bioremediation is the process of using microorganisms for the breakdown of environmental pollutants in an eco-friendly manner. There is a variety of microbes that reside on planet Earth like bacteria, algae, fungi, etc., and help in environmental cleaning. Bacteria reproduce at a fast rate andincrease their population in the natural environment. Some bacteria can remove chlorine from carcinogenic materials and it also degrades several organic, and inorganic compounds, digests pesticides, and ability to decolorize various xenobiotic dyes through inherent metabolism. Other microbes such as algae and fungi, are used for the degradation of various organic compounds. It is warranted to construct microbial strains with broad-spectrum catabolic potential for the decontamination of pollutants from both aquatic and terrestrial ecosystems.

Abstract No. 133

Harmonizing Sustainability: AComprehensive Analysis of Plastics in The Circular Economy And Their Impact on Global Trade

Bimal Jaiswal and Vaibhav Soni

Department of Applied Economics
Faculty of Commerce, University of Lucknow, U.P. India

ABSTRACT

This research paper explores the intricate dynamics of plastics within the context of the Circular Economy and their profound implications for global trade. Plastics have become integral to modern life, but their linear production and disposal have raised significant environmental concerns. The Circular Economy framework presents a promising alternative, emphasizing sustainable practices such as recycling and reusing to minimize waste. This paper examines the challenges and opportunitiesassociated with transitioning the plastics industry towards a Circular Economy model and assesses the impact of such a shift on international trade patterns. Through a comprehensive analysis, the study aims to provide insights into the feasibility and potential benefits of embracing circular practices in the plastics sector, addressing environmental concerns while considering the economic implications for nations engaged in global trade. The research employs a multidisciplinary approach, incorporating perspectives from environmental science, economics, and international relations. The findings contribute to ongoing discussions on sustainable practices in the global economy.

Abstract No. 134

Environmental Impact on Drug Resistance Bacteria

Jagdeesh Prasad, Jyoti Verma and Sanjay Kumar Kushwaha

Bhavdiya Institute of Pharmaceutical Sciences and Research
Sewar, Sohawal, Ayodhya, U. P. India

ABSTRACT

Antibiotic resistance is a global health challenge, involving the transfer of bacteria and genes between humans, animals, and the environment. Although multiple barriers exist in the environment that limit the flow of both bacteria and genes, pathogens repeatedly acquire new resistance parameters from other species, thereby reducing our ability to prevent and treat bacterial infections. Evolutionary events that result in the emergence of new resistance factors in pathogens are rare and challenging to predict, but they may be associated with vast outcomes. Transmission events of already widespread resistant strains are, on the other hand, common, quantifiable, and more predictable, but the consequences of each event are limited. Quantifying the pathways and identifying the drivers of and bottlenecks for environmental evolution and transmission of antibiotic resistance are key components to understanding and managing the resistance crisis as a whole. In this Review, we present our current understanding of the roles of the environment, including antibiotic pollution, resistance evolution, in transmission, and as a mere reflection of the regional antibiotic resistance situation in the clinic. We provide a perspective on current evidence, describe risk scenarios, discuss surveillance methods, assess potential drivers, and finally identify some actions to mitigate risks.

Abstract No. 135

Waste Valorization: Turning Challenges into Opportunities for a Sustainable Future

Manisha Sharma[1] and Arti Shah[2]

[1]Department of Zoology, J.D.B. Government Girls College, Kota, Rajasthan, India
[2]Department of Chemistry, J.D.B. Government Girls College, Kota, Rajasthan, India

ABSTRACT

This abstract explores the concept of waste valorization as a transformative approach to address challenges in waste management. It delves into innovative technologies and methodologies that aim to extract value from various waste streams, converting them into resources or energy. The presentation will cover advancements in bioconversion, pyrolysis, and other valorization processes, showcasing their potential to turn diverse waste types into valuable products. Attendees can anticipate insights into the economic, environmental, and social benefits of waste valorization, emphasizing its role in creating a more circular and sustainable economy.

Abstract No. 136

Study of Women Diet during Pregnancy and Its Effect on the Newborn Baby in the Context of Ayodhya District

Tazeen Fatima

Department of Home Science, Bhagwant University, Ajmer, Rajasthan, India

ABSTRACT

Most women in the Ayodhya do not meet the recommendations for healthful nutrition and weight before and during pregnancy. Women and providers often ask what a healthy diet for a pregnant woman should look like. The message should be “eat better, not more.” This can be achieved by basing diet on a variety of nutrient-dense, whole foods, including fruits, vegetables, legumes, whole grains, healthy fats with omega-3 fatty acids that include nuts and seeds, andfish, in place of poorer quality highly processed foods. Such a diet embodies nutritional density and is less likely to be accompanied by excessive energy intake than the standard American diet consisting of increased intakes of processed foods, fatty red meat, and sweetened foods and beverages. Women who report “prudent” or “health-conscious” eating patterns before and/or during pregnancy may have fewer pregnancy complications and adverse child health outcomes. Comprehensive nutritional supplementation (multiple micronutrients plus balanced protein energy) among women with inadequate nutrition has been associated with improved bir th outcomes, including decreased rates of low birth weight. A diet that severely restricts any macronutrient class should be avoided, specifically the ketogenic diet that lacks carbohydrates, the Paleodiet because of dairy restriction, and any diet characterized by excess saturated fats. User-friendly tools to facilitate a quick evaluation of dietary patterns with clear guidance on how to address dietary inadequacies and embedded support from trained healthcare providers are urgently needed. Recent evidence has shown that although excessive gestational weight gain predicts adverseperinatal outcomes among women with normal weight, the degree of pre-pregnancy obesitypredicts adverse perinatal outcomes to a greater degree than gestational weight gain among women with obesity. Furthermore, low body mass index and insufficient gestational weight gain are associated with poor perinatal outcomes. Observational data have shown that first-trimestergain is the strongest predictor of adverse outcomes. Interventions beginning in early pregnancy or preconception are needed to prevent downstream complications for mothers and their children. For neonates, human milk provides personalized nutrition and is associated with short-and long-term health benefits for infants and mothers. Eating a healthy diet is a way for lactating mothers to support optimal health for themselves and their infants. In this paper we are discussing about this issue.

Abstract No. 137

Antioxidative enzymes activities and reproductive yield of wheat plants (*Triticuma estivum* L., var- HD-2967) grown in degraded soil at different manganese supply

Rahul Verma and Amit Kumar Singh

Plant Nutrition and Stress Physiology Laboratory
University of Lucknow, Lucknow, U.P., India

ABSTRACT

The availability of essential mineral nutrients in sufficient amount is necessary for the normal growth and reproductive yield of plants. Among various essential elements, the availability of manganese in sufficient quantity is very important because Manganese plays an important role in the activation of more than 35 enzymes in the plants and it also plays significant role for the reproductive yield of the crop plants. In the degraded soil the presence of Manganese has been repor ted in poor quantity and some other physico-chemical parameters also remain poor. Qualitative and quantitative yield of different crops also depend upon the supply of Manganese sulphate. In this experiment, we supplied manganese sulphate in different concentration on wheat (*Triticum aestivum* L. var-HD-2967) plants, which played crucial role in enzymatic activities of antioxidative enzymes and in reproductive yield of these plants. The supply of manganese sulphate as- 00.0 (Nil) μM, 10.0 μM, 50.0 μM and100.0 μM, affected the enzymatic activities of wheat plants such as: catalase, peroxidase and ascorbate peroxidase and some non-enzymatic parameters are also impacted. The growth and reproductive yield of wheat plants also showed are variations from one level of manganese sulphate supply to another . The highest plant growth and optimum level of enzymatic activities were recorded at 10.0 μM supply of manganese sulphate. The maximum number of grain yield and reproductive output was also reported at 10.0 μM of manganese sulphate supply. The pigment concentration was also varied from one manganese level supply to another and the highest pigment concentration was found at 10.0 μM supply of Manganese. At higher level of Manganese sulphate i.e. at 100.0 μM, enzymatic activities were reported lower than the 10.0 μM supply of manganese sulphate and also resulted in poor reproductive yield, suggesting that the 10.0 μM supply of Manganese sulphate is optimum for the wheat variety HD-2967.

Abstract No. 138

Bioremediation Approaches for Environmental Restoration

Amita Srivastava and Shweta Maurya

Department of Zoology
Dayanand Girls' Post Graduate College, Civil Lines, Kanpur, U.P., India

ABSTRACT

Bioremediation, a sustainable and eco-friendly approach, capitalizes on the inherent capabilities of microorganisms to rehabilitate contaminated environments. The diverse bioremediation strategies that leverage nature potential to remediate pollutants, including hydrocarbons, heavy metals, and industrial chemicals. Microbial communities, encompassing bacteria, fungi, and algae, play pivotal roles in breaking down and detoxifying pollutants through enzymatic processes. The integration of genetic engineering and synthetic biology techniques empowers researchers to tailor microorganisms for enhanced pollutant degradation. Furthermore, the Collaborative interaction between nanotechnology and bioremediation is highlighted, demonstrating the utilization of nanomaterial's to enhance microbial functions and boost the effectiveness of remediation processes. Challenges such as substrate availability, environmental conditions, and regulatory considerations are addressed, providing insights into optimizing Bioremediation efficacy. The ecological implications of bioremediation and its potential integration into sustainable environmental management practices are discussed, emphasizing the importance of balancing technological advancements with environmental stewardship. Ingeneral, bioremediation stands out as a potent and flexible instrument, showcasing the potential of solutions inspired by nature to tackle present-day environmental issues.

Abstract No. 139

Bioremediation: An Eco-friendly Sustainable Technology for Environment Management

Vartika Pandey

Department of Environmental Science
Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

As we are familiar with the word Environmental Pollution which has been a major public health concern due to various harmful effect of pollutants to the human, animals and infact plants too. As Bioremediationis considered as one of the safer, cleaner and cost effective and Environmental friendly technology for decontaminating the places which are contaminated with wide range of pollutants . All these contamination arises mostly from the industrial and anthropogenic activities .The process of Bioremediation uses different microbes like algae, fungi, bacteria, which is used to treat/degradepollutants. And to limit the pollutants, this will be the eco-friendly sustainable method. A continuous search for the new biological forms is required to regulate increasing pollution and environmental problems faced by man residing in an area. As microorganism shows wide range of mechanisms, there are still few mechanisms which are not known, therefore bioremediation is still considered as a developing technology.

Abstract No. 140

Kinetin Positively Modulates Growth, Photosynthetic Efficiency, and improves glandular trichomes for Enhanced methyl chavicol Production in *Ocimum Basilicum*

Asif Hussain Hajam and Gausiya Bashri

Section of Environmental Botany and Plant Physiology,
Department of Botany, A.M.U., Aligarh, U.P., India

ABSTRACT

Kinetin (Kn) specifically is a synthetic form of cytokin in that has been widely studied for regulating plant growth and development. It plays a vital role in various plant processes besides controlling the key aspects of cell division, shoot and root development, nutrient uptake, and overall growth of plants. Considering the significance of Kn, and its potential applications, a study was conducted to observe the impact of Kn, on *Ocimum basilicum* commonly known as sweet basil growing under natural environmental conditions. In this study, we investigated the impact of various Kn concentrations (0, 0.5, 1, 2.5, 5, and 10 μM)on sweet basil, with a focus on growth, photosynthetic efficiency, and the production of methyl chavicol (MC) a key bioactive compound responsible for the characteristic aroma and therapeutic properties of sweet basil. In contrast to the control group, the foliar administration of Kn positively influenced overall growth, photosynthesis, and various physiological processes with 5 μM showing the best results. The results revealed that Kn positively influenced the overall growth parameters, including plant height, leaf area and biomass along with the attributes related to photosynthesis, such as total chlorophyll content, chlorophyll fluorescence, stomatal conductance, internal CO2 levels, and net photosynthetic rate. Notably, our study focused on the glandular trichomes, specialized str uctures on the basil leaves responsible for the biosynthesis and accumulation of secondary metabolites. Kn treatment also led to a remarkable increase in the density and size of glandular trichomes, indicating a potential mechanism for the augmented production of MC as compared to control plants.

5TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2023)
Theme: New Vistas in Waste Management and Sustainable Environment
29th & 30th December 2023 • Dr. RML Avadh University, Ayodhya (U.P.), India

Abstract No. 141

Sustainable Waste Management and Green Technology

Shashi Singh

Department of Home Science
K.S. Saket P.G. College, Ayodhya, U.P., India

ABSTRACT

Sustainable waste management and green technology are essential components of a circular economy, aiming to minimize waste generation, maximize resource recovery, and reduce environmental impact. These approaches are critical in addressing the challenges of increasing global waste generation and the depletion of natural resources. At the core of sustainable waste management is the concept of the 3Rs: Reduce, Reuse, and Recycle. By emphasizing these principles, communities and industries can minimize the amount of waste generated, extend the life of products and materials through reuse, and recycle materials to create new products, thus reducing the demand for virgin resources. Green technology plays a crucial role in sustainable waste management by providing innovative solutions for waste treatment, recycling, and energy recover y. For example, advanced recycling technologies, such as pyrolysis and gasification, can convert waste materials into valuable resources like biofuels or syngas, reducing the need for landfilling and incineration. Similarly, bio-based materials and biodegradable plastics offer alternatives to traditional petroleum-based products, reducing the environmental impact of packaging and single-use items. Waste-to-energy technologies are another example of green technology in waste management. These technologies conver t organic waste into energy through processes like anaerobic digestion or incineration with energy recovery. By harnessing the energy potential of waste, these technologies not only reduce the volume of waste going to landfills but also contribute to renewable energy generation, thereby mitigating greenhouse gas emissions. Governments and organizations around the world are increasingly adopting policies that incentivize sustainable practices and discourage wasteful behaviors. In conclusion, sustainable waste management and green technology are integral to building a more sustainable and circular economy. By adopting these principles and technologies, we can minimize waste, conserve resources, and reduce our environmental footprint, ultimately creating a more sustainable future for generations to come.

Abstract No. 142

Isolation, Screening and Feather Degradation by Bacteria

Km. Harsha, Mahima Chaurasia and Sanjeev Kumar Srivastava

Department of Environmental Sciences
Dr. R.M.LAvadh University, Ayodhya, U.P., India

ABSTRACT

The growing global population has exceeded 8.1 billion on 2023 according to the most recent United Nation estimate. Around 24 billion chicken per year are killed across the world to fulfill non-vegetarian food demand, but beside there is a need to reduce the gradual deterioration of environment. Chicken feather is the major by-product generated in millions of tonnes from the commercial poultry processing which is accumulating at higher rate. These wastes include a significant quantity of keratin, which may be used by keratinolytic microbes that create keratinase the research aimed to isolate and identify microorganisms that degradefeathers.Bacteria capable of breaking down feathers were obtained from decomposing keratinrich waste. During the first screening, some bacteria exhibited the largest clearing zone. These bacteria were chosen to be transferred to a basal feather medium. The organism was a gram-negative, pigment producing, endospore composing, rod shaped and indole and catalase positive bacteria. Most keratinases exhibit optimum activity within the pH range of 6 to 9 and at temperatures between 30 and 50°C. The highest levels of keratinolytic activity were found in *Bacillus subtilis*, *Bacillus pumilis*, and *Bacillus cereus* at pH levels ranging from 5 to 9 and temperatures ranging from 30 to 40 °C Thermotolerant microbial keratinases have been shown to have the highest level of activity between 40 and 70°C.

Abstract No. 143

Zero Waste Initiatives: A Holistic Approach to Minimize Environmental Footprint

Manisha Sharma[1] and Arti Shah[2]

[1]Department of Zoology, J.D.B. Government Girls College, Kota, Rajasthan, India
[2]Department of Chemistry, J.D.B. Government Girls College, Kota, Rajasthan, India

ABSTRACT

Zero waste is a goal that is ethical, economical, efficient and visionary, to guide people in changing their lifestyles and practices to emulate sustainable natural cycles, where all discarded materials are designed to become resources for others to use. This abstract delves into the principles and practices of zero waste initiatives as a holistic approach to minimize the environmental footprint of human activities. It explores the comprehensive strategies adopted by industries, municipalities, and individuals to achieve zero waste goals. The presentation will cover waste prevention, source reduction, and innovative recycling methods, emphasizing the shift towards a circular economy. Attendees can anticipate gaining insights into the challenges and successes of zero waste initiatives, along with their potential to create more resource-efficient and environmentally responsible societies.

Abstract No. 144

Structural and Electronic Properties Material using Density Functional Theory (DFT) Based Approach

Ashwini Kumar

Department of Physics and Electronics
Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

In this article, the Density functional theory (DFT) approach to analyse the behavior and properties of a many-body system like atoms, molecules and compounds is discussed. In this approach, we focus on the electronic density which is a function of three spatial coordinates to calculate the properties of the system, instead of using the wave functions. DFT first tries to minimize the energy of a system in ground state in a self consistent manner, and then, it successfully calculates the electronic structure of solid state systems. In DFT calculations, the real potential due to the ions is replaced by the pseudo potentials which simplifies the oscillations near the atomic core by reducing number of required plane wave basis vectors and simulates the exact behavior elsewhere in proximity. The pseudo potential used are different for different exchange correlation functional, and is specified in the pseudo potential file used for calculations. In case, a system had more than one type of atom, it is advisable to always choose the pseudo potentials with same exchange correlation. Further, a band structure calculation is performed at the end of the self-consistent field calculation to predict important optoelectronic parameters such as energy band gap and electron/hole effective masses. Quantum Espresso software is one useful simulation software that utilizes DFT theory and predicts the reliable results for the material's structural, electrical and electronic properties.

Abstract No. 145

Adsorption of Cd (II) from Wastewater Using Chemically modified Lemon Grass

Ambrish Kumar Srivastava and Ashutosh Tripathi

Department of Chemistry
K.S. Saket P.G. College, Ayodhya U.P. India

ABSTRACT

The performance of chemically modified lemon grass (CM-LG) adsorbent with NaOH (sodium hydroxide) has been studied. Adsorption experiments were performed with respect to the changes in initial pH of the solution, contact time, initial Cd (II) concentration, and CM-LG dosage. Kinetic data were fitted to the pseudo-second-order model. The maximum adsorption capacity calculated by Langmuir model was 18.33 mg/g. CM-LG was characterized by elemental analysis and Fourier transform infrared (FTIR) spectroscopy. The experimental results demonstrated that complexation is one of the major adsorption mechanisms for binding Cd (II) ions to sorbents.

Abstract No. 146

Synergizing Advanced Technologies for Early Detection, Monitoring and Restoration of Ecosystem after Forest Fires

Suraj Prakash Yadav, Mahima Chaurasia, Sanjeev Kumar Srivastava and Siddhartha Shukla

Department of Environmental Sciences
Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

In the face of escalating forest fire occurrences worldwide, there is an urgent need to develop integrated strategies that combine cutting-edge technologies for early detection and monitoring of forest fire along with effective ecosystem restoration measures. Simultaneously, it underscores the critical significance of ecosystem restoration in mitigating enduring ecological impacts. The first aspect of this approach delves into the utilization of state-of-the-art technologies such as satellite imagery, remote sensing, and artificial intelligence for early detection and real-time monitoring of forest fires. By integrating these technologies into a comprehensive monitoring system, authorities can significantly reduce response times and improve the accuracy of fire mapping, enabling more efficient allocation of resources and rapid deployment of firefighting efforts. The second facet emphasizes the pivotal role of ecosystem restoration in the aftermath of forest fires. Recognizing that these events leave lasting ecological scars, the integration of innovative restoration techniques, including native species reforestation and soil rehabilitation, is crucial for reinstating biodiversity, carbon sequestration, and overall ecosystem resilience. Employing emerging technologies like drone reforestation and precision agriculture can optimize the efficiency of restoration processes, ensuring a more sustainable and accelerated recovery of fire-affected landscapes. The present research work underscores the importance of a holistic and forward-looking approach that not only focuses on suppressing immediate threats but also addresses the long-term consequences of forest fires. This integrated strategy is paramount for safeguarding biodiversity, preserving ecosystem services, and ultimately building more robust ecosystems capable of withstanding the escalating challenges posed by climate change and increased fire frequencies.

Abstract No. 147

Isolation and characterization of Arsenate resistant bacteria from arsenic contaminated water of Uttar Pradesh

Praveen Kumar Maddheshiya[1] and Sarad Kumar Mishra[2]

[1]Department of Biotechnology, Siddharth University, Kapilvastu, Siddharth Nagar, U.P., India
[2]Department of Biotechnology, DDU Gorakhpur University, Gorakhpur, U.P., India

ABSTRACT

Arsenic, a ubiquitous element in the environment, poses significant challenges due to its sources, exposure pathways, and potential toxicity. This comprehensive Poster explores the diverse aspects of arsenic, ranging from its natural occurrence to anthropogenic sources. Various exposure routes, including water, air, and food, are examined, emphasizing the importance of understanding the mechanisms driving arsenic mobilization and distribution. The application of arsenic compounds in industry and agriculture further contributes to its prevalence, necessitating a careful examination of the potential risks associated with human exposure. The distribution of arsenic in ecosystems, influenced by geological and human activities, highlights the complexity of addressing this environmental concern. Toxicity on both environmental and human, is a critical focus, examining the adverse effects on ecosystems and the potential health hazards for individuals. Understanding the metabolism of arsenic compounds is crucial for unraveling their impact on living organisms and assessing long-ter m consequences. The isolation process of arsenic compounds involves intricate procedures, and this poster provides insights into the methodologies employed for their separation and identification. Morphological tests, biochemical assays, and culture tests are crucial tools in characterizing arsenic compounds, enabling a holistic understanding of their behavior in diverse environments. In conclusion, this abstract encapsulates the multifaceted nature of arsenic, shedding light on its sources, exposure pathways, applications, distribution patterns, and toxicity. The integration of various analytical techniques and methodologies enhances our ability to comprehend and address the challenges posed by arsenic in both environmental and human health contexts.

5TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2023)
Theme: New Vistas in Waste Management and Sustainable Environment
29th & 30th December 2023 • Dr. RML Avadh University, Ayodhya (U.P.), India

Abstract No. 148

Stability Evaluation of an Underground Cavern Using Seismic Source Parameter in the Himalayan region

Shashi Kant Sah[1], Vikalp Kumar[2], Arvind Kumar[1]

[1]Department of Geophysics, Dr. Rammanohar Lohia Avadh University, Ayodhya, U.P India
[2]Engineering Seismology Department,
National Institute of Rock Mechanics, Bengaluru, Karnataka, India

ABSTRACT

Coal and fossil fuel, a natural resource is being used for electricity production from in India from than a century but keeping the environment in view, society is shifting towards green energy like hydropower. The great Himalaya having the huge potential of hydropower plant and such powerplants are being constr ucted from last few decades rapidly consists of dam, head race tunnel and underground powerhouse structure. Stability of the underground powerhouse is significant as its life can be extended up to 100 years. Underground powerhouse of Tala Hydropower Plant, after its construction has been facing the issue of stability like convergence between the walls, failure of rockbolts, steel rib failure and other rockmass deformation challenges. Redistribution of stress produces micro-cracks at several locations and Main Central Thrust and Main boundary Fault are also applying forces on this underground powerhouse, which acts to decrease the life of this underground structure. So, 3D microseismic monitoring network was commissioned at this powerhouse. Microseismic event seismic source parameters in the Spatio-temporal domain evaluates its stability. Seismic displacement, transverse and longitundal energy ratio, energy vs moment provides the information for its stability evaluation and demarcates the defor mation zone. This can be utilized fur ther to provide the proper support system at the deformation zone to increase the powerhouse life. Daily and continuous real time monitoring will increase the life of such cavern/tunnel and may give us a forewarn if there is any expected rockmass failure in such structures. This can be used in the other underground structure to increase its life so that natural resources will be being optimized optimally for the development of the society.

Abstract No. 149

Replacement of Coarse Aggregate by Demolished Concrete

Anjaney Tiwari, Astha Tripathi, Amit Singh and Kanhaiya Lal Pandey

Department of Civil Engineering
I.E.T, Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

The concrete industry is a significant contributor to environmental degradation, primarily due to the massive amounts of waste generated during construction and demolition activities. The escalating volume of demolition waste in India and other developing nations poses a substantial environmental challenge, given the minimal recycling or reutilization of this waste. The disposal of such waste presents a formidable problem due to the extensive space it demands. The present paper addresses the present issue by focusing on the utilization of demolished concrete. In present work, coarse aggregate was replaced with demolished concrete in varying proportions of 25%, 50%, and 100% within the framework of M25 grade concrete. The formulated concrete mixes are meticulously examined and subjected to compressive strength testing and was then compared with the conventional concrete. This investigation, conducted over 7, 14, and 28 days, serves to assess the strength properties of the concrete in both scientific and environmental contexts.

Abstract No. 150

Examining the impact of heavy metals on environment and human health in the province of British Columbia (CA)

Parneet Kaur[1], Arvind Bajpai[2] and Rudra P. Singh[2] and Sanjeev Kr. Srivastav[2]

[1]Brampton, Ontario, Canada
[2]Deapt. of Environmental Sciences, Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

In recent years, there has been increased ecological and global concern associated with environmental conditions due to heavy metals such as arsenic, cadmium, chromium, lead, and mercur y due to their high level of toxicity degree. Since, human beings' exposure has rose significantly because of their rapid usage in several industrial, agricultural, domestic, and technological processes. Even though, the presence of heavy metals is found throughout the elements the earth's crust but majority of environmental contamination and human exposure is the outcome of activities such as mining and amalgamation operations, industrial processes and domestic and agricultural usage of metals and the associated compounds. “In 2014, a significant spill at the Mount Polley mine in Central British Columbia accounted for large releases of mercury, lead and cadmium to water”. Moreover, majority of harmful metals comes from industrial discharge onto sewers. Although, the toxicity depends on several factors such as dosage, route of exposure, and chemical structure, as well as the ethnicity, genetic makeup and nutritional status of the individual exposed. But the metallic elements are highly considered to cause intensive toxicity, that is also associated to cause multiple organ failure, even when exposed to smaller proportions. This paper will help focus on how to maneuverer the exposure of heavy metals while still relying on natural resources around us. Environment Canada has critically investigated the ways to preser ve the ground water by using lead free ammunition and using lead free fish tackle, but as individuals and society we have equal part to play.

Abstract No. 151

Sustainable and Innovative approach for soil stabilization

Mahi dubey, Prince Poddar, Manvendra Singh, Sauhadra Ojha

Department of Civil Engineering
I.E.T, Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

especially high rise structures, and the complexities of these constructions have highlighted the importance of the soil beneath the foundation. To get the greatest outcomes, several ways of stabilizing soil beneath the foundation have been used and refined over time. The most successful and long-term solution to these procedures is the use of waste material as a reinforcing agent for soil stabilization. The present study is based on the findings of an experimental study on the combined effect of human hair fibers (HHF) and corn cob ash (CCA) on increasing the strength and deformation characteristics of the black cotton soil. The outcomes of the experiment are encouraging in terms of determining the suitability of locally available waste materials such as HHF and CCA to replace conventional and commercial fibers. It is found that employing these waste products in soil stabilization is not only beneficial but also saves money on the treatment of the waste product. This also avoids concerns about proper dumping and disposal of one of the most abundant wastes i.e., human hair. In comparison to virgin clay, the CBR value is improved by 77 percent when the black cotton soil is reinforced with 7.5% CCA and 0.5% HHF. The positive outcomes of combining these two locally available waste materials, especially for CBR, can be used to improve the properties of untreated soil and be considered an economical and long-term

Abstract No. 152

Bio-potency of a 21 kDa Kunitz-type trypsin inhibitor from *Tamarindus indica* seeds on the developmental physiology of *H. armigera*

Vijay Kumar Shukla*, Farrukh Jamal, Prashant Kushwaha, Prabhash K. Pandey, Ranjan Singh, Ajad Patel and Sangram Singh

[1]Department of Biochemistry, Dr. R.M.L. Avadh University, Ayodhya, U.P., India.

ABSTRACT

A trypsin inhibitor purified from the seeds of *Tamarindus indica* by Sephadex G-75, DEAE-Sepharose and Trypsin-Sepharose CL-4B columns was studied for its antifeedant, larvicidal, pupicidal, growth inhibitory activities against Helicoverpaarmigera larvae. *Tamarindus* trypsin inhibitor (TTI) exhibited inhibitory activity towards total gut proteolytic enzymes of *H. armigera* (~87%) and bovine trypsin (~84%). Lethal doses which caused mortality and weight reduction by 50% were 1% w/w and 0.50% w/w, respectively. IC_{50} of TTI against *Helicoverpa* midgut proteases and bovine trypsin were ~2.10 μg/ml and 1.68 μg/ml respectively. In larval feeding studies the 21 kDa Kunitz-type protein was found to retard growth and development, prolonged the larval–pupal development durations along with adversely affecting the fertility and fecundity of *H. armigera*. In artificial diet at 0.5% w/w TTI, the efficiency of conversion of ingested food as well as of digested food, relative growth rate, growth index declined whereas approximate digestibility, metabolic cost, relative consumption rate, consumption index and total developmental period enhanced for *H. armigera* larvae. These results suggest that TTI has toxic and adverse effect on the developmental physiology of *H. armigera* and could be useful in controlling the pest *H. armigera*.

Abstract No. 153

Source apportionment and chemical characterization of particulate matter in ambient air of Ayodhya

Brijesh Kumar Yadav, Vinod Kumar Chaudhary

Department of Environmental Sciences
Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

Air pollution is one of the most studied environmental problems worldwide since it generates a continuous threat to people's health and quality of life. Particulate matter (PM) is among the primary air pollutants, and it is made up of a complex mixture of chemical and biological components. Depending on the aerodynamic diameter, particles are divided into coarse, fine, and ultrafine. Source apportionment study, a well-known approach to understand the types of polluting sources and their contribution to overall pollution, is an essential way for developing effective strategies to control pollutant's emissions. Up to now, very limited source apportionment as well as emission estimation studies have been conducted in India, especially highlighting key sources of particulate matters. Ayodhya because of its religious importance has gained enormous attention. Large numbers of development activities including road and building construction, uncontrolled burning activities, increase in motor vehicle traffic are becoming the main factor for polluting the quality of air. Hence, it becomes very important to assess the contributions of different pollution sources in Ayodhya to implement effective emission control strategies by policy makers. In the view of above background information, this study will be conducted to identify the potential sources of particulate matter through CMB and PMF model, applied on a large set of data. Chemical characterization of particulate matter will be carried out by using AAS and IC. The results of this study may be useful to identify most potential polluting sources with highest contributions in the ambient air of Ayodhya city.

Abstract No. 154

Insects -The Natural Recycling Agent

Reema Sonker

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

ABSTRACT

The process of decomposition is one of the most important natural events which regulate the functioning of ecosystems. Ecologically a decomposing dead body is a microhabitat for several organisms like bacteria, fungi, plants, and animals. Arthropods, especially insects, are the dominating creatures of this microhabitat. Arthropods act as primary or secondary decomposers and help in the fragmentation of complex organic molecules into inorganic elements. This is a complex process that results in the liberation of energy and mineralization of chemical nutrients. This decomposition phenomenon cannot proceed without insects as they eat excretory products of vertebrates, dead plants and animals including dead human bodies. Insects use dead remains for food, breeding and/or as a source for hosts or prey but one of the unnoticed functions of insects is that they are important recycling agents of organic matter. Without insects' help, nature can't help break down and dispose of wastes, dead animals and plants, and all these would accumulate in our surroundings and it would be messy indeed. Every stage of decomposition is associated with a particular group of insects which are adapted for a significant niche. The life strategies of these insects make them suitable habitats for the next stage of insects. Arthropods are important recycling agents that help in maintaining the food chain by nutrient recycling.

Abstract No. 155

Pyrolysis: Mixed Plastic Waste Recycling

Sunil Kumar Mishra

Department of Chemistry
M.L.K. P.G. College, Balarampur, U.P., India

ABSTRACT

Recent advancements in nonmetallic materials bring advantages including versatility, lightweight and low production cost. Therefore, plastics became essential in many sectors such as construction, medical applications, automotive, aerospace etc. However, this tremendous demand and dependency lead to its accumulation of waste imposing environmental pollution. Hence, a global effor t started under the name of circular economy to provide sustainable and efficient plastic waste treatment and avoid such issues. Pyrolysis is a thermo-chemical process to solve this issue and recover valuable energy and products such as oil and gas. In this process, mixed plastic waste is treated at a temperature of 450-7000C under no oxygen conditions. Pyrolysis of mixed plastic waste has gained importance due to certain advantages towards carbon footprint reduction and reducing greenhouse gases compared to combustion and gasification. The current study presents state of art techniques of pyrolysis and parameter tuning to control product selectivity and highlights the gaps in the technology.

Abstract No. 156

Application of Innovative Technologies for the Treatment of Distillery Effluents for Conservation of Water in Delhi-NCR

Pratibha Singh

Deptt. of Env. Science, Bhagwant University, Rajasthan, India

ABSTRACT

A distillery is a premise where distillation takes place, especially distillation of alcohol. Distillery industries in India pose a very serious threat to the environment because of the large volume of wastewater they generate which contains significant amount of recalcitrant compounds. Distiller y effluent leads to extensive soil and water pollution known as spent wash. Distillery spent wash has very high COD and BOD with low pH and dark brown color. One of the most critical issues with distillery spent wash is unwanted residual liquid waste generated during alcohol production and pollution caused by it. Removal of pollutants and color from effluent of distillery is becoming important from environment and aesthetic point of view. In spite of many imposed standards on effluent quality very often untreated or partially treated effluent finds access to watercourses. The distillery effluent with its characteristics unpleasant odor poses a very serious threat to the normal water quality in several regions around the world. The treatment of spent wash using various treatment technologies and reactor configurations has been widely explored. However, none of the work reports about the performance of most advanced hybrid configuration of reactors at various operating conditions for the treatment of spent wash. Therefore, the study has been undertaken to assess the performance of various innovative technologies for the treatment of distiller y effluents especially treatment of distiller y wastewater (spent wash). The main objective of this research is to explore the application of innovative technologies for the treatment of distillery effluents for conservation of water in Delhi-NCR. The proposed research objectives and approach is to determine physicochemical characteristics of distillery effluent (pH, BOD, COD, TDS, TSS etc.), to employ chemicals, adsorbents and nano-particles for physico-chemical treatment of distillery effluent, comparative analysis of various physic-chemical treatment methods. It will also explore to develop innovative biological and phyto-remediation treatment strategies for the treatment of distillery effluent, to develop sequential treatment strategies for effluent treatment in bioreactor and UASB reactor. Energy generation from distillery effluent by using microbial fuel cell & Electro-coagulation treatment of distillery effluent will be the part of the proposed work too as effluents from distilleries contains certain recalcitrant compounds. These techniques may be used for treating raw effluent from the distilleries leads to conserving water for various usage, can be further reused for agriculture or other purposes.

Abstract No. 157

Role of Various Civil Engineering Tools and Techniques in Shaping Sustainable Cities

Anshoo Singh, Alok Srivastava, Naveen Patel

Department of Civil Engineering
IET, Dr. R.M.L. Avadh, University, Ayodhya, U.P., India

ABSTRACT

Urbanization at a rapid pace strains the environment with pollution and depletion of natural resources. There has been a need for proper management of resources and sustainable development. In recent years role of civil engineering tools and techniques has emerged as a pivotal role in addressing these challenges. A historical perspective follows, tracing the evolution of civil engineering tools and techniques in response to environmental concerns. In recent years various tools related to Artificial intelligence, geotechnical engineering, environmental engineering, and construction materials for better sustainable development have played an important role. The present work explores the role of various tools and techniques that are being employed in the various developmental works and their importance in mitigating the environmental impact of urbanization. This paper emphasizes the crucial role of civil engineering in shaping sustainable urban development, urging a commitment to innovative solutions and a continuous learning process from historical experiences.

Abstract No. 158

Impact of Idol Immersion on Water Quality of River Gomti in District Sultanpur (U.P.) During Durga Pooja

Yashank Baranwal, Aniket Baranwal, Vinod, Fatima Siddiqui, Mukta Gaur, Anshika Baranwal

Department of Environmental Sciences,
KNIPSS, Sultanpur, Sultanpur, U.P., India

ABSTRACT

India is a country of festivals and is very rich in religious and cultural heritage. Durga Pooja is among one of them, which is celebrated with great enthusiasm and devotion in our district Sultanpur (U.P.). Here it starts on Dussehra and ends up with immersion of idols in river Gomti after Poornima. In this research, an attempt has been made to study the deterioration of water quality of river Gomti after the immersion of idol in Sultanpur city. Water samples were collected pre, during and post idol immersion periods from three different selected location during the festival month (26/10/2023 to 03/11/2023). All sample were analysed on the parameters of DO(mg/l), TDS (ppm) ,EC(μs), Alkalinity, Acidity, Hardness, pH and Free CO_2. The analysis recorded change in the water quality parameters during and after immersion of idols indicating a serious environmental issue of increasing water pollution causing adverse effect on aquatic ecosystem and life. We cannot stop these religious and cultural activities but can spread mass awareness among the society and people and thus can make efforts to reduce the water pollution caused by idol immersion.

Abstract No. 159

A Dream of Society with 0 (Zero) Waste and 0 (Zero) Pollution

Anshika Singh

Dr. Rammanohar Lohia Avadh University, Ayodhya (U.P.), India

ABSTRACT

Sustainable Development is one of the aspect that needs to be nurtured so that the coming generation are not prone to contamination and diseases. For this, taking mass awareness and governmental and non-governmental companies simultaneously to pave a way that involves change in the daily usage consumption and also in creating letter future. The mass awareness can be propagated through campaigns so that people move towards different way of policy of zero wastage. There is need to work on the level of manufacturing of the e-waste and non-biodegradable products that need to be reused and stopped as soon as possible. As waste and pollution are inter-related, say no to waste, therefore, less pollution.

Abstract No. 160

Assessing Climate Change Impacts on Ecological Balance and the Feasibility of Sustainable Dry Farming Practices in the Bundelkhand Region

Divakar

Department of Geography
University of Lucknow, Lucknow (U.P.), India

ABSTRACT

This research investigated the intricate relationship between climate change, ecological imbalance, and the potential for implementing sustainable dry farming practices in the Bundelkhand region of India. Bundelkhand has been experiencing adverse climate conditions, including changing precipitation patterns, rising temperatures, and increasing frequency of extreme weather events. These changes posed significant challenges to the region's ecological balance and agricultural productivity. The study is based on comprehensive assessment of the current ecological situations in Bundelkhand, considering factors such as physiographic conditions, soil health, water availability , and biodiversity. Climate change impacts on these factors are analysed by using historical data and climate projections. Additionally, the research also evaluated the scenario of socio-economic changes on local communities dependent on agriculture. The present study analysed the potential of dry farming as a sustainable agricultural practice in Bundelkhand. Dry farming techniques, including rainwater harvesting, soil moisture conservation, and drought-resistant crop varieties, is examined for their applicability in the region. The present study also used the traditional knowledge and practices of local farmers.

Abstract No. 161

Blockchain-Based Resnet Architecture for Plant Leaf Disease Detection in the Agriculture Sector

Akhilesh Kumar[1] and Lokendra Singh Umrao

Department of Computer Science and Engineering
IET, Dr. R.M.L. Avadh University, Ayodhya (U.P.), India

ABSTRACT

Early detection and treatment of crop diseases is the only method to improve crop production. By examining the leaves, deep learning models identify plant illnesses. The development of a residual neural network is used to identify illness in maize leaves. The leaves are gathered from the accessible information, and blockchain technology is used to create a decentralized detection architecture. A decentralized blockchain combined with a residual neural network allows for the best possible instance classification. In a Python simulator that uses the Keras package, the model is constructed with increased disease detection accuracy and a shorter training period. In comparison to the current convolutional neural network models, the simulation results demonstrate an enhanced rate of classification accuracy, precision, recall, and f-measure in identifying the leaf illness.

Abstract No. 162

Synthesis and Characterization of ZnO Nanoparticle doped CaTiO3 for Environment Friendly Biomedical Applications

Amar Bahadur Vermaa[1], Anil Kumar[1], Prashant Kumar Singh[2], Sindhu Singh[1]

[1]Material Synthesis Laboratory, Department of Physics and Electronics,
Dr. Ram Manohar Lohia Avadh University, Ayodhya 224001
[2]Department of Applied Science & Humanities,
I.E.T., Dr. Ram Manohar Lohia Avadh University, Ayodhya, U.P, India

ABSTRACT

In the current work, ZnO nanoparticles have been synthesized by the sol-gel route and CaTiO3 by the solid-state reaction method. ZnO doped CaTiO3 with different compositions has been synthesized by the solid-state reaction method. X-ray analysis carried out by using X-ray diffractometer reveals formation of single-phase solid solution of ZnO with CaTiO3 in synthesized compositions.

Abstract No. 163

Distribution and Health Risk Assessment of Heavy Metals in Surface Dust in Prayagraj Municipality

Saurabh Kumar Tripathi, Bipin Prajapati and U.K. Maheshwari

Department of Civil Engineering
Kamla Nehru Institute of Technology Sultanpur, U.P., India

ABSTRACT

The environment is getting contaminated due to unmanaged disposal of waste produced by rapid industrialization and urbanization to fulfil the needs of increasing population. Environmental pollutants can harm people's health through a series of complex transportby various exposure pathways. Heavy metals are continuously being dump into the environment which create serious problems to human health. In this study, the soil and dust samples were collected to know their distribution and concentration of various heavy metals like As, Cd, Cr, Cu, Ni, Pb, Zn, etc., and their health risk assessment had been determined. The health risk was assessed using hazard quotient and hazard index. The samples were collected from ten different locations including industrial, residential, highways and mixed use in Prayagraj, India. The dry and finely powdered soil samples were placed in a plastic container and packed by polypropylene thin film from both sides. Three measurements were performed, and detail descriptions were recorded for each soil samples. The assessment of health risk was analysed for three exposure pathways: ingestion, dermal contact and inhalation. The main exposure pathway of heavy metals to both children and adults is ingestion. The result shows that the heavy metal concentration is found below hazardous level for adults and at higher level for child below six years. The study will be beneficial for the municipality in terms of non-point source pollution control and management to provide the healthy environment to local people.

Abstract No. 164

Walnut Leaf Amendment: A Dual-Action Solution for Enhancing Okra (*Abelmoschus esculentus* L. Moen.) Yield and Suppressing Nematode Infestation

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

Walnut leaves contain compounds like juglone and 1,4-naphthoquinone which possess nematicidal properties. Walnut amendment to soil increases the availability of nutrients in the soil therefore, its potential as a nutritional supplement for agro-ecosystems needs to be explored. Current study sought to determine the crop yield improvement and nematicidal properties of Walnut on okra. The inoculation of M. javanica resulted in decreased growth and yield attributes of okra. Various concentrations of walnut leaves (0.5%, 1%, 1.5%, 2%, and 2.5%) were added to soil. The results revealed that 1.5% walnut leaves notably improved the growth and yield parameters of okra as compared to other treatments. Furthermore, the number of galls and egg masses were reduced at all the doses of walnut leaves. However, the most significant reduction in galls and egg masses was observed at 1.5% concentration.

Abstract No. 165

Enhancing Structural Performance Through Glass Fiber Reinforced Concrete (GFRC)

Gaurav Kumar, Prince, Shruti Singh, Amit Singh, Sauhardra Ojha, Kanhaiya Lal Pandey

Department of Civil Engineering, I.E.T,
Dr. Rammanohar Lohia Avadh University Ayodhya, U.P., India

ABSTRACT

Glass Fiber Reinforced Concrete (GFRC) stands as a promising composite material in structural engineering due to its unique properties and diverse applications. This paper provides an overview of GFRC, examining its composition, manufacturing process, and mechanical properties. The incorporation of glass fibers into concrete matrix alters its tensile strength, flexural behavior, durability, and weight-to-strength ratio, making it a compelling alternative to traditional concrete in various construction projects. The study delves into the influence of different factors such as fiber content, aspect ratio, and orientation on the mechanical characteristics of GFRC, highlighting optimization strategies for achieving superior performance. Furthermore, present work emphasizes on the environmentally sustainable aspects of GFRC, showcasing its potential to reduce material consumption and construction waste. The result had shown that utilization of GFRC besides providing the sustainable solutions for modern construction challenges, helps in improving the structural performance of concrete.

Abstract No. 166

Assessment of indoor air quality of modern buildings inside the university campus, Ayodhya, Uttar Pradesh

Gyan Deep Sharma[1] and Siddhartha Shukla[1]

Department of Environmental Sciences
Dr. R.M.L. Avadh University, Ayodhya, U.P, India

ABSTRACT

Globally people spend around 90% of their time indoors, mainly at home or in the workplace. In recent decades, indoor air quality has caused increasing concern due to adverse effects on human health. Assessing the different indoor air pollutants and characterizing the sources which are associated with air pollutants would be helpful in taking appropriate measures for their control and management. In the present study, we assessed the different indoor air pollutants at three different sites namely, site 1, site 2 and site 3 inside the university campus, Ayodhya for the period of one year. Result showed that each of the selected sites had diverse indoor environment and the concentrations of selected air pollutants such as PM1, PM2.5, PM10, CO2, CO, HCHO, TVOC, O3 showed variations among the different sites. Also, the observed values of some of the pollutants such as PM2.5, PM10, and CO2 are found not satisfactory as per standard limit prescribed by international regulatory bodies. Therefore, there is a necessity to develop regular monitoring of indoor air pollutants of the modern buildings to protect indoor environment as well as occupant health and work productivity.

Abstract No. 167

A Study on Status of Drinking Water in Morena District, Madhya Pradesh, India

Alka Varshney[1] and Dushyant Kumar Sharma[2]

[1]Department of Zoology, Govt. PG College, Morena, India
[2]Department of Zoology, Govt. Model Science College, Gwalior

ABSTRACT

Pure and hygienic water is the right of everyone. Unsanitary water is responsible for 80 per cent of all illness and is world's number one killer. The water, used for drinking and domestic purpose must be pure, free from contamination and harmful chemicals. When rainwater percolates in soil it becomes underground water. Underground water is believed to be the purest form of water but when water percolates it dissolves inorganic salts and different kinds of pollutants which may change the physico-chemical properties of water. Monitoring of drinking-water quality is very important as it may help in the prevention of large number of waterborne diseases. Morena is one of the fifty-two districts of Madhya Pradesh, located in the northern part of the state. A study was carried out to analyze the water quality of Morena district. The whole district was divided into 4 zones with 4 sites in each zone. The sites were selected as to cover the maximum area and to cover different water sources such as hand pump, PHE water supply (tap water), bore wells, tube wells, wells and small ponds, used for drinking purpose. Water samples were collected regularly and analyzed for various physico-chemical properties like temperature, color, pH, turbidity, electrical conductivity, TDS, Total Hardness, chloride, total alkalinity, Chlorine, Calcium, Magnesium, Iron, Nitrate, Fluoride, Sulphate, Manganese and microbial studies. The study revealed that almost all the parameters were under the standard range of drinking water. No specific harmful microbial contamination was detected at any place. Though values of some parameters (TDS and hardness) were higher in Ambahand Porsa tehsils but it were also under the permissible range.

Abstract No. 168

Harmonizing Sustainability: A Comprehensive Analysis of Plastics in the Circular Economy and Their Impact on Global Trade

Bimal Jaiswal[1], Vaibhav Soni[2]

[1]Department of Applied Economics, Faculty of Commerce, University of Lucknow, U.P, India
[2]Department of Applied Economics, Faculty of Commerce, University of Lucknow, U.P.

ABSTRACT

This research paper explores the intricate dynamics of plastics within the context of the Circular Economy and their profound implications for global trade. Plastics have become integral to modern life, but their linear production and disposal have raised significant environmental concerns. The Circular Economy framework presents a promising alternative, emphasizing sustainable practices such as recycling and reusing to minimize waste. This paper examines the challenges and opportunities associated with transitioning the plastics industry towards a Circular Economy model and assesses the impact of such a shift on international trade patterns. Through a comprehensive analysis, the study aims to provide insights into the feasibility and potential benefits of embracing circular practices in the plastics sector, addressing environmental concerns while considering the economic implications for nations engaged in global trade. The research employs a multidisciplinary approach, incorporating perspectives from environmental science, economics, and international relations. The findings contribute to ongoing discussions on sustainable practices in the global economy.

Abstract No. 169

Status of Biodiversity at Wetland Ecosystem of Parvati Arga Wetland (Ramsar Site)

Ajita Mishra and Siddhartha Shukla

Department of Environmental Sciences
Dr. Rammanohar Lohia Avadh University Ayodhya, U.P, India

ABSTRACT

Species are known to serve ecosystems in wetlands and protect the healthy environment for humans. Wetlands are the most important part of nature which provide a huge range of functions as a source of drinking water for households, erosion control, water purification, groundwater source, and detoxification. Irrespective of this, wetlands across the world are facing a lot of challenges like loss in total land, pollutants added by industrialization, ignorance of locals on the value of wetlands, and desertification which are indirectly degrading wetlands. Number of wetlands has increased significantly to 37 which are globally important since 1981 when the first site was identified as per Ramsar Convention in 1971.The government of India has made a lot of efforts to protect and conserve wetlands exactly from covering the same as per various environmental acts to devise individual policies and rules related to wetlands, which has been devised again and again. This study is based on the recent studies related to the status of biodiversity in Parvati Arga Wetland. The findings suggests that biodiversity of wetland conserves services as well as sustainable environment for conservation of species. Constant tracking of biodiversity of wetland is recommended as it might help conservation of species in the ecosystem.

Abstract No. 170

Role of Polypropylene Fiber in Demolished Concrete

Vipin Kumar Yadav and Prince Poddar

Department of Civil Engineering,
IET, Dr. Rammanohar Lohia Avadh University, Ayodhya, U.P, India

ABSTRACT

Polypropylene fiber plays a crucial role in enhancing the properties of demolished concrete, addressing various challenges associated with the deterioration of concrete structures. The present study explores the significant impact of polypropylene fibers in mitigating the adverse effects of concrete demolition. Demolished concrete often exhibits reduced strength and durability due to the presence of micro cracks and the loss of cohesion between aggregates. Polypropylene fibers, when incorporated into the concrete mix, act as a reinforcement material, effectively controlling cracking and enhancing the overall performance of the material. These fibers disperse uniformly throughout the concrete matrix, providing a three-dimensional network that restrains crack propagation and improves the ductility of the material. The tensile strength of PPF is 500 MPa. In this paper, conventional aggregate is replaced by recycled coarse aggregate as 20%, 40%, 60%, 80% and 100% and polypropylene fiber were used in a recycled aggregate by 0.5%, 1% and 2% by volume in the recycle aggregate concrete (RAC). The most effective result was obtained when RAC was used at 20% and polypropylene fiber at 2% as compressive strength of concrete was increased as compared with the conventional cube of M20 mix.

5TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2023)
Theme: New Vistas in Waste Management and Sustainable Environment
29th & 30th December 2023 • Dr. RML Avadh University, Ayodhya (U.P.), India

Abstract No. 171

Critical Factors Influencing the Quality of Environmental and Social Impact Assessment Study Report of Ethiopian Environmental Protection Authority

Leake Tesfahunegn Gebretsadik[1] and Rajeev Pandey

[1]Department of Environment and Climate Change Management
College of Urban Development and Engineering, Ethiopian Civil Service University, Ethiopia

ABSTRACT

Despite growing awareness of Environmental Impact Assessment (EIA), the quality of the reports is constantly declining. Hence, the study aims to assess the critical factors influencing the quality of environmental and social impact assessment reports (ESIA) in the Ethiopian Environmental Protection Authority (EEPA). To meet the intended objective, both quantitative and qualitative approaches that encompass environmental officers and consultants to fill the questionnaires and consulting firms' managers and environmental officials for interviews were conducted. Moreover, to rigorously achieve the objectives, ESIA reports and projects as case studies had reviewed. The findings of the research indicated that the majority of the reports submitted to the Authority were unsatisfactory wherein scientific tasks were poorly done. According to respondents the critical factors imposed environmental and social impact assessment reports to be unsatisfactory were mainly the proponent's attitude, team composition, and the role of practitioners, public involvement, decision-making, corrupt environmental impact assessment practice, and poor baseline data. In light of research findings, the research study strongly recommends that the Authority should strengthen environmental law enforcement to improve the quality of the reports appropriately to minimize the adverse environmental effects due to the project activities.

Abstract No. 172

Seismic Hazards Assessment of Ayodhya City

M. P. Singh and U.K. Maheshwari

[1]Department of Civil Engineering, KNIT, Sultanpur, U.P., India

ABSTRACT

Assessing the liquefaction potential of a region is paramount before undertaking ground improvement efforts, aiding in the seismic microzonation of the area. The current study focuses on evaluating the liquefaction resistance of the soil at various locations of Ayodhya City, India, utilizing deterministic approaches based on the Standard Penetration Test (SPT) N-Value. Field investigations were conducted at four distinct locations, involving SPT tests and systematic soil sample collection. A simplified method was employed to analyze the cyclic shear stress induced by four different earthquake loadings. The factor of safety against liquefaction was then determined at various depths at all the selected sites, utilizing both field and laborator y data. The findings reveal that all four locations exhibit high susceptibility to liquefaction when the Peak Ground Acceleration (PGA) value exceeds 0.18g.

Abstract No. 173

Green Synthesis, Characterization and Evaluation of Anti-inflammatory Activity of *Solanum sisymbriifolium* Fruit Extract Mediated Silver Nanoparticles

Richa Singh and Jyoti Vandana Mani

Department of Chemistry, Sam Higginbottom University of Agriculture Technology & Sciences (SHUATS), Prayagraj, U.P., India.

ABSTRACT

Biogenic/green synthesis of nanopar ticles has been found to be more attractive in ter ms of nontoxic, eco-friendly and economical alternative over the physical and chemical approaches for synthesizing metallic nanoparticles. The present study reports an in-situ biogenic synthesis of silver nanoparticles using Solanum sisymbriifoliu maqueous fruit extract. The aqueous fruit extract of S. sisymbriifolium played a significant role of reducing and capping agent to synthesize highly stable AgNPs at an ambient temperature, as suggested by FTIR spectroscopy reports. Eventually, the green synthesized AgNPs possessed surface plasmon resonance at nearly 435 nm measured through UV–Visible spectrophotometer. Further, the stability of silver colloids was monitored through dynamic light scattering (DLS) and the average of particles size distribution was found to be approx. 23 nm with spherical and polycrystalline nature, confirmed by high resolution transmission electron microscopy (HR-TEM). Also, the colloidal AgNPs and aqueous fruit extract are found to be rich source of antioxidants and promising in treating inflammatory disorders and associated complications as suggested by in vitro protein denaturation reports.

Abstract No. 174

Removal of Paracetamol from aqueous solution by using agro-waste derived Biochar

Aditi Baranwal, Vinod Kumar Chaudhary

Department of Environmental Sciences
Dr. R.M.L. Avadh University, Ayodhya, U.P., India.

ABSTRACT

Paracetamol, also known as acetaminophen, which is one of the most popular analgesics and antipyretics drug used across all over the world. Pharmaceutical drugs were once accepted as essential for humans' as well as animals' lives because they are used for their well being and illnesses. After their use, a large number of pharmaceuticals are discharged into water bodies daily and continuously from hospitals, households, and pharmaceutical production plants. Because of to its exceptional stability, solubility, and hydrophilicity, it has been identified as an emerging pollutant in drinking water, wastewater, and surface waters globally. According to the previous study and source it is found that in the effluents of European sewage treatment plants, raw hospital effluents, paracetamol has been detected. Elimination of this pollutant has become one of the greatest environmental concerns because of the impact they have on human health and on nature. There are various technologies and conventional treatments are available that can remove this categor y of pollutants but these method are not ecofreindly and cost effective. Moreover, synthesis, characterization and evaluation of new adsorbents have become one of the most promising fields to expand this study. The aim of this study is the collection and preparation of biochar from agricultural waste biomass and optimization of operating conditions at different pyrolysis temperature and to examine the potential of synthesized biochar as sorbent and optimize the process parameters for removal of paracetamol.

Abstract No. 175

Quantitative Estimation of Bacteria in The Air of Tulsipur

S. K. Srivastava[1] and Rajiv Ranjan[2]

[1]Department of Botany, Shri Lal Bahadur Shastri Degree College, Gonda (UP), India.
[2]Department of Botany, M.L.K. PG College, Balarampur (UP), India.

ABSTRACT

Our aerial environment is filled up with number of micro-organisms including fungus spores, pollen grains, viruses, bacteria, nematodes, algae, lichen, insect scales, protozoan cysts, mites, moss spores, fern spores and small epidermal hairs including dust particles. Dust often acts as "raft" carrying microbes. Bacteria comprise a heterogeneous group of organisms varying in size from 0–3 to 10–15 μm. Bacteria laden minute droplets are continuously thrown in air by rainsplash, breakers or sea air. Water droplets by sneezing or coughing are important source of airborn bacteria.

Present investigation on bacterial concentration of the atmosphere was carried out at Tulsipur (District Balrampur) by using pertidish exposure method for the period of one year from January-2022 to December-2022. Daily exposure of petridish containing Peptone Beef Agar medium was done to observe the accurate concentration of bacteria in the atmosphere. The data reveals that the highest concentration of bacteria was recorded in rainy season in the month of July-2022 (3106 Colonies). The lowest count was observed in the month of February-2022 (787 Colonies). This variation was due to seasonal variation in temperature, relative humidity and rain fall round the year.

Abstract No. 176

Understanding the Dynamics of Groundwater Resources in Prayagraj District, Uttar Pradesh

Ashutosh Mishra

[1]Department of Geography
Delhi School of Economics, University of Delhi, India.

ABSTRACT

Groundwater is a vital and renewable natural resource that plays a crucial role in the economy, environment, standard of living, and ensuring food security. In addition to serving as a crucial water source for both households and industries, it is also the largest and most efficient source of irrigation. The availability of groundwater is mostly determined by the annual groundwater recharge and extraction of groundwater. Therefore, in order to ensure sustainable management and regulation of groundwater, it is crucial to conduct periodic and precise assessment of its potential to find the right balance between extraction and recharge to prevent excessive exploitation and contamination of this vital resource. This study provides an assessment of the groundwater resources in Prayagraj district, Uttar Pradesh for the base year of 2021-22. The main aim is to identify areas within the district that are under water stress. The Ground Water resource of the study area is estimated by adopting the Ground Water Estimation methodology 2015 in a GIS framework. Within a vast expanse of 547,000 hectares, a remarkable 499,630 hectares emerge as areas of significant groundwater recharge potential. The Annual Extractable Ground Water Resources in the district is 128667.04ham and ground water extraction for all uses is 94514.51ham, making stage of ground water extraction 73.46% as a whole for the district. The findings of this assessment are intended to be a valuable resource for policymakers, water resource managers, and stakeholders involved in sustainable development planning.

Abstract No. 177

The influence of turmeric or curcumin extract on Non-Alcoholic Fatty Liver Disease (NAFLD)

Suchit Swaroop[1] and Isha Patel[2]

[1]Experimental& public health laboratory
Department of Zoology University of Lucknow, U.P, India
[2]Experimental & Public Health Laboratory
Department of Zoology University of Lucknow, U.P, India.

ABSTRACT

Non-alcoholic fatty liver disease (NAFLD) evolves through a series of stages, starting with the accumulation of fats and progressing to steatosis-induced hepatitis, fibrosis, cirrhosis, and, in certain instances, hepatocellular carcinoma. It was projected that 20%-30% of adults in Western countries and 5%-18% in Asia have NAFLD. The development and advancement of NAFLD are significantly influenced by insulin resistance and oxidative stress Many studies over the last few decades have concentrated on using natural substances as options to treat liver problems.

Turmeric, the rhizome of Curcuma longa L., is a member of the Zingiberaceae family. It is cultivated mostly in India and Southeast Asia. Active constituents of turmeric such as curcumin, demethoxycurcumin, bisdemethoxycurcumin, tetrahydrocurcumin, triethylcurcumin, turmerin, turmerones and turmeronol. Numerous studies have demonstrated that curcumin has strong anti-inflammator y and antioxidant proper ties as well as insulin sensitizing. The progression of non-alcoholic fatty liver disease (NAFLD) from simple steatosis to a more advanced form is significantly influenced by oxidative stress. Consequently, utilizing treatment agents with antioxidant effects could be beneficial in managing NAFLD.

Abstract No. 178

Bio-prospectors of waste from bio-diesel in fish feed

Revathi A[1], Harshavarthini M[2]., Husian Nottanalan[1] and Dharani M[3]

[1]Department of Fish Nutrition and Feed Technology, Fish Nutrition Biochemistry and Physiology Division, ICAR-Central Institute of Fisheries Education, Mumbai, Maharashtra, India
[2]Department of Fish Genetics and breeding, Fish Genetics and Biotechnology Division, ICAR Central Institute of Fisheries Education, Mumbai, Maharashtra, India
[3]Department of Post Harvest Technology, Fisheries Resources, Harvest and Post-Harvest Management Division, ICAR-Central Institute of Fisheries Education, Mumbai, Maharashtra, India

ABSTRACT

Biodiesel production in large quantities also generates a significant amount of residues or by- products or waste, which is responsible for environmental pollution due to land filling, incineration, and dumping of biodiesel processing waste into oceans, rivers, canals, and streams and cannot be used in the biodiesel generation process. Subsequently, new applications that need to treat and utilize these by-products have turned into an essential topic in the future to use those wastes. The waste produced from biodiesel production meals has feed value comparable to commercial feed ingredients. Solid waste by-products such as squeezed seed cakes, agricultural wastes, and spent earth are produced majorly. These kind of utilization can also reduce environmental pollution and increase the opportunities to generate additional income or reduce biodiesel production costs. For e.g., Oil cake/meal, which is produced from biodiesel production rich in protein and so can be used predominantly for feed applications in poultry, ruminants, fish, and swine industries. Additionally, the waste magnesium silicate is a mineral that can be utilized to clean biodiesel in a waterless procedure and can be added to animal feed.

Abstract No. 179

Ecological Balance and Environmental Sustainability: a conflict

Sonakshi Singh and Karuna Shanker Kanaujiya

[1]Department of Applied Economics, University of Lucknow, Lucknow, U.P, India.

ABSTRACT

The primary cause of the worldwide threat known as global warming is human-caused activity. Environmental sustainability is necessary in the face of faster economic expansion. The United Nations Sustainable Development Goals (UNSDGs), with a focus on ecological balance and mitigating climate change, serve as the inspiration for this study. Therefore, the current study examines the dynamic interaction between economic globalisation, access to technological innovation, conventional energy usage, and economic growth. Additionally, empirical findings demonstrate that rising economic activity and energy consumption derived from fossil fuels both negatively impact environmental sustainability. The quest for environmental sustainability presents a seemingly daunting paradox: maintaining ecological balance in the face of human demands for development and resource utilization. This study try delves into the nuanced tension between these two concepts, exploring how human activities that drive economic growth and improve societal well-being can often disrupt the delicate equilibrium of natural ecosystems. We also focused that the multifaceted nature of this conflict, highlighting how resource extraction, pollution, and habitat alteration disrupt established ecological relationships and threaten biodiversity. There are conflicting conclusions regarding the effects of globalisation. For example, while environmental quality is worse in the short term due to economic globalisation, it is improved in the long run as a result of increased global connectivity. Remarkably, considering its significant impact on enhancing the environment, renewable energy is viewed as the solution to environmental sustainability. From a policy perspective, a paradigm change towards clean technology and renewable energy is required to lessen the impact of climate change-related problems.

Abstract No. 180

Biodiversity Conservation and Sustainable Urbanization

Vijaypal Chaudhary, Tejpal Dahiya, Vikas Gupta, Vikas Kumar Tiwari, Manoj Yadav and Suneel Verma[1]

College of Fisheries Science, CCSHAU, Hisar, India

ABSTRACT

Biodiversity Conservation and Sustainable Urbanization: With the growing urban areas, it is becoming increasingly important to protect the environment and biodiversity in cities. The many facets of maintaining biological diversity and promoting environmental sustainability in urban settings are examined in this abstract. Urban planning and policy design need to change to accommodate the complex relationship between human occupancy and ecological balance in a world that is rapidly urbanizing and where cities are centers of innovation and progress. A comprehensive strategy that incorporates ecological resilience, green infrastructure, community involvement, and cutting-edge technical solutions is needed to meet this challenge. This abstract explores the complex network of tactics—from wildlife cor ridors and urban green spaces to community-driven projects and sustainable resource management—that are intended to lessen the negative effects of urbanization on biodiversity. This abstract indicates to inspire cooperative action among policymakers, urban planners, environmentalists, and citizens to create sustainable and peaceful urban environments for future generations by clarifying the critical role that cities play as catalysts for biodiversity conservation and environmental stewardship. The urgent need to protect biodiversity and maintain the environment is becoming more and more apparent within the concrete jungles that characterize modern cities. This abstract begins an investigation of the critical function that cities play in protecting biodiversity and promoting environmental sustainability. The urban environment, which is frequently associated with growth and advancement, poses a paradoxical problem: how to balance human growth with the preservation of various ecosystems and natural resources. Abstract No. 159

5TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2023)
Theme: New Vistas in Waste Management and Sustainable Environment
29th & 30th December 2023 • Dr. RML Avadh University, Ayodhya (U.P.), India

Abstract No. 181

Sustainable Fisheries and Aquaculture Development in Haryana: A Comprehensive Approach

Vikas Kumar Tiwari[1], Rachna Gulati[1], Vishal Soni[2], Anjali Srivastava[3], Ambrish Singh[1] and Vijaypal Chaudhary[1]

[1]Dept. of Aquaculture, College of Fisheries Science, CCSHAU, Hisar Haryana, India
[2]Dept. of Aquatic Animal Health Management,
College of Fisheries Science, CCSHAU, Hisar, Haryana, India
[3]Dept. of Human Development and Family Studies,
School of Home Science, BBAU, Lucknow, U.P., India
[4]Dept. of Fisheries Resource Management,
College of Fisheries, ANDUA&T, Ayodhya, U.P., India

ABSTRACT

The state of Haryana is endowed with diverse aquatic resources, offering significant potential for fisheries and fish production. To complement these natural resources, cultivating potential food and ornamental fish species could prove to be a valuable strategy. The current juncture calls for collaborative efforts from educational, scientific, governmental bodies, and various stakeholders to formulate a region-specific framework for fisheries development in Haryana. In essence, enhancing fish production in Haryana necessitates a combination of strategies and effective collaborations, promising improved economic and livelihood opportunities for the region. India, as the world's third-largest fish producer, attributes over 65% of its fish production to Inland Fisheries and Aquaculture. This sector significantly contributes to the livelihoods of more than 28 million Indians, particularly benefiting underserved and disadvantaged communities. In the years2021 and 2022, the fisheries industry generated $7.76 billion from exports. The flagship program, "Pradhan Mantri Matsya Sampada Yojana (PMMSY)," spearheaded by the Department of Fisheries, Ministry of Fisheries, Animal Husbandry, and Dairy, aims to usher in a Blue Revolution through the sustainable and responsible development of India's fisheries sector. Leading research, education, and extension institutes such as the Central Marine Fisheries Research Institute (CMFRI), the Central Inland Fisheries Research Institute (CIFRI), the Central Institute of Freshwater Aquaculture (CIFA), and the National Bureau of Fish Genetic Resources (NBFGR) are actively collaborating to enhance the Blue Revolution in India and promote the sustainable growth of Indian fisheries and aquaculture.

5TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2023)
Theme: New Vistas in Waste Management and Sustainable Environment
29th & 30th December 2023 • Dr. RML Avadh University, Ayodhya (U.P.), India

Abstract No. 182

Assessment of bacterial biodiversity in fish cultured in Gram Panchayat Pond system at Hisar, Haryana

Vishal Soni[1], Rachna Gulati[1], Vikas Kumar Tiwari[2] and Manoj Yadav[3]

[1]Departments of Aquatic Animal Health Management, College of Fisheries Science,
Chaudhary Charan Singh Haryana Agricultural University, Hisar (Haryana), India
[2]Departments of Aquaculture, College of Fisheries Science,
Chaudhary Charan Singh Haryana Agricultural University, Hisar (Haryana), India
[3]Departments of Fish Processing Technology, College of Fisheries Science,
Chaudhary Charan Singh Haryana Agricultural University, Hisar (Haryana), India

ABSTRACT

The fisheries sector is continuously expanding in the state of Haryana with more and more farmers and entrepreneurs are experimenting with high value fishes in different culture systems. Fish farming under Gram Panchayat Pond is witnessing disease incidence in different fish species. The aim of the study was to record bacterial biodiversity in fish cultured in Gram Panchayt Pond at Hisar. During monthly survey, diseased fish were collected from the fish farms under aseptic conditions during 2023 to isolate bacterial isolates. Red lesion on ventral side of body region recorded in fish, *Labeo rohita* cultured in Gram Panchayat Pond . The bacteria from affected portion were inoculated on culture media. Bacterial colonies were selected on the basis of different morphological characteristics. These were picked from the Nutrient Agar, Mannitol salt agar medium and were streaked on pre prepared respective plates to obtain purified culture of isolates. Total 3 bacteria were isolated from gill, ventral region of skin and intestine region of *L rohita*. Among these, Staphylococcus species was found in all the collected samples, however, the bacterial species was absent in water samples collected from the same pond. The result of this study strongly suggested the urgent need to improve the quality control systems in Gram Panchayat Pond.

5TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2023)
Theme: New Vistas in Waste Management and Sustainable Environment
29th & 30th December 2023 • Dr. RML Avadh University, Ayodhya (U.P.), India

Abstract No. 183

Rooftop Rainwater Harvesting: Issues and Challenges

Ankit Maurya[1]*, Kanhaiya Lal Pandey[1]

[1]Department of Civil Engineering
IET, Dr. R.M.L. Avadh University, Ayodhya, U.P, India

ABSTRACT

Issues and challenges related to rooftop rainwater harvesting system have been discussed to highlight present knowledge. Issues such as benefit of RWH system, design considerations such as optimum tank size, efficiency of RWH system, water quality related issues and available technologies for disinfection and filtration of rainwater, economic considerations, social challenges and effect of climate change have been discussed. Before designing a RWH system, it is important to know all these considerations so as to arrive at a RWH solution which is optimal, meets the quality requirements and is economical viable.

Abstract No. 184

Wastewater Treatment and Reuse: A Review of its Applications and Health Implications

Parul Saini[1], H.C. Singh[2] and Sadhana[1]

[1]Department of Extension Education and Communication Management,
Chandra Shekhar Azad University of Agriculture and Technology, Kanpur, U.P, India
[2]Department of Agriculture Extension Educations,
Chandra Shekhar Azad University of Agriculture and Technology, Kanpur, U.P, India

ABSTRACT

Water scarcity is one of the world's biggest issues, with millions of people lacking access to safe drinking water. In several nations, untreated wastewater is frequently used for agriculture. This is one of the world's most critical environmental and public health challenges. Instead of using untreated wastewater, treated wastewater has been found to be a more practical and environmentally favorable solution. Furthermore, environmental toxicity from solid waste exposure is one of the most serious health hazards. As a result, in order to address the issues connected with the use of untreated wastewater, we propose in this review a multidisciplinar y strategy to dealing with wastewater as a possible resource for agricultural use. We provide a model that demonstrates efficient ways for wastewater treatment and solid waste utilization in fertilizers. The study also highlights the linked health concerns for farmers who operate in wastewater-irrigated fields, as well as the detrimental impacts of untreated wastewater. The consumption of crops irrigated with wastewater has significant health repercussions, which are also examined in this review paper. This research also demonstrates that our existing understanding of wastewater treatment and application in agriculture, when combined with developments in treatment methods, offers enormous future potential.

Abstract No. 185

Sustainable Development of Aquatic Resources

Dilip Kumar Jha

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

ABSTRACT

More than one-sixth of the world's population does not have access to safe water supplies. The potential conflicts from this disparity are frightening. The sustainable development of aquatic resources is a critical imperative for maintaining the health of ecosystems, supporting livelihoods, securing the global food supply and fostering economic growth. Water is a finite resource, and its management requires a comprehensive and integrated approach. An ecosystem-based management framework advocates for responsible and efficient water resource management, incorporating strategies such as integrated water resource management (IWRM) to optimize water use across sectors. The importance of conservation and restoration efforts for aquatic ecosystems, emphasizing the role of protected areas, sustainable fisheries practices, and habitat restoration in preserving biodiversity. The demand for water resources is continuing to increase. This increase is being driven not only by a growing world population but also by the aspirations of that population for an ever increasing standard of living. Addressing climate change impacts on aquatic environments is crucial, necessitating adaptive measures and resilient infrastructure. Community engagement, education, and capacity building emerge as vital components, ensuring the involvement of local communities in sustainable aquatic resource management. Technological innovation, data-driven monitoring, and public-private partnerships are highlighted as means to enhance efficiency and effectiveness in the sustainable development of aquatic resources. Legal frameworks and international cooperation are acknowledged as essential for ensuring equitable access to aquatic resources and preventing transboundary disputes. In summary, this abstract emphasizes a comprehensive and collaborative approach for achieving the sustainable development of aquatic resources, recognizing the interconnectedness of environmental, social, and economic dimensions in this endeavour.

5TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2023)
Theme: New Vistas in Waste Management and Sustainable Environment
29th & 30th December 2023 • Dr. RML Avadh University, Ayodhya (U.P.), India

Abstract No. 186

Gene Drive as a Conservation Genomic tool for the near threatened species: Atlantic salmon

Harshavarthini M.[1] , Revathi A.[2], Dhanalakshmi M.[3], Shubra Singh[1], Dharani M.[4] and Shivkumar[2]

[1]Department of Fish Genetics and breeding, Fish Genetics and Biotechnology Division,
ICAR-Central Institute of Fisheries Education, Mumbai, Maharashtra, India
[2]Department of Fish Nutrition and Feed Technology,
Fish Nutrition Biochemistry and Physiology Division,
ICAR-Central Institute of Fisheries Education, Mumbai, Maharashtra, India
[3]Department of Fisheries Resource Management, Fisheries Resources,
Harvest and Post-Harvest Management Division,
ICAR-Central Institute of Fisheries Education, Mumbai, Maharashtra, India
[4]Department of Post Harvest Technology, Fisheries Resources,
Harvest and Post-Harvest Management Division,
ICAR-Central Institute of Fisheries Education, Mumbai, Maharashtra, India

ABSTRACT

The Atlantic salmon (Salmo salar) has been moved from Least Concern to Near Threatened on the IUCN Red List of Threatened Species, due to a concerning 23% decline in its global population between 2006 and 2020. This decline highlights the need for urgent conservation measures to protect this important aquatic species. Rising water temperatures and changes in ocean currents impact all stages of the Atlantic salmon life cycle, from affecting the development of young fish to reducing prey availability and allowing invasive species to expand their range. Escaped farmed salmon can interbreed with wild populations, potentially weakening their genetic diversity and ability to adapt to changing environmental conditions. Control measures should be taken to conserve its population size and to improve its Conservation status. Gene drive is a system of biased inheritance in which the ability of a genetic element to pass from a parent to its offspring through sexual reproduction is enhanced. Thus, the result of a gene drive is the preferential increase of a specific genotype, the genetic makeup of an organism that determines a specific phenotype (trait), from one generation to the next, and potentially throughout the population. Rescue drive can be employed in Atlantic salmon to increase its adaptive potential to climate change and anthropogenic events by targeting fitness traits with CRISPR-CAS9 based gene drive allele. This interdisciplinary method by employing genetics, genome editing technique with conservation biology will have potential to conserve the focal species.

Abstract No. 187

India's leading efforts to mitigate climate crisis

Rashmi Singh and Shefali Singh

Department of Botany, K. N. Govt. P. G. College, Gyanpur, Bhadohi, U.P, India

ABSTRACT

The G20 presidency offers India the opportunity to shape the climate and energy transition agenda at a global level. The journey of India's presidency in G-20 starts with the theme of "VasudhaivaKutumbakam," or "One Earth, One Family, One Future," which focusses the importance of adopting ecological responsibility and mindful choices, both in individual lifestyles and national development. Through this, India aims to pave the way for a more sustainable, cleaner, greener, and healthier future. As a result, India as an emerging economy, ranks first among all G20 members in terms of overall climate performance. According to the analysis, the India scored a 0.76 in Climate Action Performance Index, which measures the climate change action taken up by any country , wherein 1 is the maximum score. Some of the factors that helped to achieve this target are significantly low per capita contributions to carbon and GHG emissions, very limited share in legacy emissions relative to its population needs, least rate of per capita energy use, significant efforts towards, not only preserving, but also expanding its climate-regulating land cover by 6% compared its 1992 levels.

India also leads in climate policies among G-20 Countries. In India's climate related policies,one of the main focus is on electric vehicles. Electric transportation in India is set to expand significantly in the near future. The country aims to achieve 30% electrification of its entire vehicle fleet by 2030. The National Green Hydrogen Mission envisions India as a global centre for the manufacture, use, and export of green hydrogen.

Abstract No. 188

Carbon Footprint as Climate Change Disclosure: Opportunities for promoting sustainable development

Mahima Chaurasia

Department of Environmental Sciences, Dr. R.M.L Avadh University, Ayodhya, U.P, India

ABSTRACT

A nation's environmental woes are a intricate blend of development, resources, and lifestyle. In India, fast growth of population, poverty, urbanization, industrialization and several other related factors are very much responsible for the fast degradation of the environment. Environmental problems have become very serious in many parts of the country, and hence cannot be ignored. Global climate change is the greatest concern now a days, thus many companies and organizations are estimating the carbon footprint to assess their own contribution to the global temperature risings. The SDGs serve as a roadmap, guiding humanity towards a sustainable future. The idea is based on social, economic and environmental dimensions. In the world of higher education, the concept of sustainability on campus is known as the green campus. Carbon footprint is one of the assessments of green campus. Carbon footprint refers as calculation of the total CO2 emissions indirectly or directly caused by an activity or accumulated through the product life cycle. Carbon dioxide is most significant contributing component to GHG, which is around 30%, followed by CH4 and N2O. The amount of GHG is denoted by carbon dioxide equivalent (CO2- eq) or Global Warming Potential (GWP) which is a combination of a large GHG impact based on radiation power and the length of time GHG in the atmosphere. carbon emissions play a critical role in global climate change by causing imbalance in rainfall changes, carbon cycle, and a shift in earth's energy balance towards warming. Large carbon footprints denote high level of natural resources reduction, therefore individual approaches to control the activities that causes impact on the environment, are primary measures to combat the problem. By wearing a green tapestry of recycling, public transport, water wisdom, pollution control, supply chain transparency, and responsible offsetting, we can stitch together a future with dramatically reduced emissions. The aim of this study is to discuss the mounting of public interest and awareness in environment protection and the aspiration for ecofriendly utilization like requirement for carbon labels on goods and products. The various methods for calculating the individual's primary carbon footprint over which it has direct control or secondary carbon footprint those are associated with consumption of product and services are significant factors to mitigate this trouble.

5TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2023)
Theme: New Vistas in Waste Management and Sustainable Environment
29th & 30th December 2023 • Dr. RML Avadh University, Ayodhya (U.P.), India

Abstract No. 189

Production of Diverse Varieties of Amylolytic Starters In the North Bengal region For Sustainable Livelihood of Ethnic Tribes and their Microbiology

Shankar Prasad Sha and Sumit Prasad Sah

Food Microbiology Laboratory, Department of Botany,
Kurseong College, Dow Hill Road, Kurseong, Darjeeling, West Bengal, India

ABSTRACT

Fermentation is an integral part of ethnic people of North Bengal for the preservation of raw substrate from spoilage as well as to preserve the viable forms of microbial consortia for the desired food development. Ethnic communities prepare different types of fermented foods, alcoholic beverages and amylolytic starters by using their traditional knowledge. These fermented foods they consume and sell for their sustainable livelihood. There are different types of fermented foods and alcoholic beverage in North Bengal region prepared by these ethnic population from the ancient times. There are various types of alcoholic starters in the North Bengal region, prepared by using glutinous rice as raw substrate and old starter culture which contains the microbial inocula for the fermentation and final product development. These amylolytic starters contains yeasts, molds and lactic acid bacteria their microbial consortia and dominance of yeasts and molds have been observed. All eight district of North Bengal contains different types of alcoholic starters with different microbial diversity. The molds plays an important role in the breakdown of polysccharides to disaccharides and yeasts plays an important role in the fermentation of monosachharides thereby producing alcohol and carbon di-oxide as final products and so the name alcoholic fermentation. Marcha, dabai, chot, and ranugoti, are traditionally prepared dried amylolytic starters used to produce various ethnic alcoholic beverages in this region. In the present study the phenotypic characterization gives the metabolic fingerprints of yeasts present in all alcoholic starters of North Bengal samples which showed major dominance of (yeasts). Scanning electron microscope (SEM) has been performed to reveal the surface structures of yeast isolates. The alcohol content of the fermented product ranges between from 6-6.5 %, and the alcohol tolerance is up to 17 % (v/v), pH ranges between 3.9 to 4.0. The present study reveals the microbial diversity among diverse variety of all eight types of alcoholic starters from eight districts of North Bengal as well traditional production process of alcoholic starters in all eight districts and how it promote sustainable livelihood of ethnic people in this region.

5TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2023)
Theme: New Vistas in Waste Management and Sustainable Environment
29th & 30th December 2023 • Dr. RML Avadh University, Ayodhya (U.P.), India

Abstract No. 190

Anthropogenic Pollutants and Strategies for their Bioremediation

Geeta Yadav[1] and Prabhat Kumar Srivastava[2]

[1]K.N.G.P.G College Gyanpur, Bhadohi, U.P., India
[2]K.S. Saket P.G. College Ayodhya, U.P, India

ABSTRACT

Environmental pollution is a big challenge for the very existence of living beings on the earth. The major cause of both organic and inorganic pollutants in the soil and water are the anthropogenic sources (mining, smelting of heavy metal-based ores, rock weathering, incineration of fossil fuel, release of industrial waste, heavy metal-based pesticides, herbicides, and fertilizers). They cause deterioration of the soil health. Increasing concentrations of such pollutants in the soil and water can be accumulated in the foodstuffs. It variably and invariably affects the growth, pigment concentration and productivity of the crop plants. Heavy metals (HMs) enhance the oxidative stress in plants affecting metabolic activities. It results in a reduction of growth and biomass production of the plants resulting in reduced productivity. For the better growth of plants, and crop productivity and to save human beings from these heavy metal hazards it is necessary to reduce the concentration of heavy metal by physical, chemical or biological means. The traditional conventional methods for remediation i.e. physical and chemical methods are very costly. So far, in this regard, the remediation by different plants is an alternative way which is termed as phytoremediation. It is a green technology that uses plants having hyperaccumulator activities to degrade pollutants from soil, water and the environment. It is a well efficient, cheap and adaptable strategy.

Five types of phytoremediation are applied- phytodegradation, phytofiltration, phytoextraction, phytostabilization and phytovolatilization. Plants were classified to be tolerant or hyperaccumulators to HMs when they show rapid growth, high biomass and are capable of extracting and accumulating high amounts of HMs in their shoots, without signs of toxicity when grown in contaminated soils. Therefore, this is a useful way for the remediation of HMs from soil and water. So, the plants that work as hyper-accumulators need more attention. There is some limitation for their efficiency so it needs to be overcome by transgenic species. To solve this problem we will discuss some innovative ideas for improving phytoremediation by foreign genes in non-tolerant plants, nanoparticles (NPs) addition and phytoremediation assisted with phytohormones.

Abstract No. 191

Study of Bridge Bearing: Suitability and Sustainability Analysis

Kanhaiya Lal Pandey and Rakesh Varma

Department of Civil Engineering, COE, SRMU Lucknow, Uttar Pradesh, India

ABSTRACT

This study delves into the critical examination of bridge bearings, focusing on their suitability and sustainability within the realm of civil infrastructure. Through comprehensive analyses, we assess the compatibility of various bridge bearings with diverse structural configurations. Our investigation encompasses factors such as load-bearing capacity, durability, and maintenance requirements. Moreover, a keen emphasis was placed on sustainability considerations, addressing environmental impact and long-term economic viability. By synthesizing these facets, our study aims to contribute valuable insights for enhancing the resilience and sustainability of bridge infrastructures worldwide. Suitability was checked by Designing Elastomeric and POT PTFE bearing for different Span as per IRC.

Abstract No. 192

Role of Tribal Rural Women in Managing Family, Community and Sustainable Environment

Shashi Yadav, Suman Prasad Maurya, Arti and Anuradha

Department of Human Development and Family Studies
College of Community Science, Acharya Narendra Dev University of Agriculture and Technology Kumarganj, Ayodhya, U.P, India

ABSTRACT

Sustainable development depends on an equitable 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 often manage household and pursue multiple task like producing agricultural crops, tending animals, processing and preparing food, collecting fuel and water, engaging in trade and marketing, caring of all family members and raising of children. Being aware of this and taking it into account in development planning and action is known today as practicing a 'gender perspective'. Generally speaking, there have been a number of improvements to women's lives in the past twenty years. For example, female life expectancy is increasing; more girls are going to school; more women are in the paid workforce; and, many countries have introduced laws to protect women's rights. Literacy, education, understanding of rights and duties, involvement in economic activities, improved health care, equitable access to productive resources, and a greater quality of life are all components of empowerment. Women give greater priority to protection of and improving the capacity of nature, maintaining farming land, and caring for nature and environment future.

Abstract No. 193

Preliminary Phytochemical, Isolation, Characterization, Antioxidant, and Antimicrobial Activity Investigation of Achyranthes Asperula

Ajay Kumar Shukla

Institute of Pharmacy
Dr. R.M.L. Avadh University, Ayodhya, U.P, India

ABSTRACT

The current study was designed to assess the preliminary phytochemical, isolation, characterization, antioxidant, and antimicrobial activity investigation of Achyranthes aspera Linn methanol extract (AAME) whole part. Methods: The priliminary, phytochemical analysis, isolation of bioactive compound, antioxidant activity of AMME were determined. Antioxidant activity was estimated using qualitative test methods, Thin Layer Chromatography (TLC), column chromatography , in-vitro 2,2-diphenyl-1-picr ylhydrazyl (DPPH) and Fourier Transform Infrared Spectroscopy (FTIR) method. The characterization of bioactive compound was characterized by using FTIR study. The outcomes demonstrated that AAME found as most potential antioxidant activity was nearest to standard ascorbic acid. The Antioxidant efficacy of AAME against bacterial strains was found to be near to standard drug. This study suggests that the AAME from whole part has strong antioxidant, and it could be a significant source of natural antioxidant and antimicrobial for topical formulation.

Abstract No. 194

Citrous fruit peel for water purification

Jitendra Kumar

Department of Chemistry
M.L.K. (P.G.) College Balarampur, UP, India

ABSTRACT

Water pollution is a growing concer n for many countries including India. Thus, developing a cost-effective and sustainable technology for water purification is imperative to provide pure water to the large population. Agrowastes are widely available agricultural by-product which has less economic value and are generally used for cattle feed or as an energy resource by burning. These agrowaste have been explored as adsorbents for the purification of water. Various agrowaste that have been explored are different plant leaves, fruit peels, rice husk, coconut coir, sugarcane bagasse, etc. In this regard, citrus fruit peels have been extensively explored for the mitigation of a range of metal ions and organic pollutants present in contaminated water. Citrus fruits are cultivated throughout the world and many industries use them for manufacturing of various commercially available eatable products. In these productions, the fruit peel is generally discarded which acts as a secondary pollutant. Researchers have focused their attention on utilizing these fruit peels for developing adsorbent materials. The advantage is two-fold; firstly, it provides cheaper materials as the discarded peels have zero economic value and secondly, it solves the issue of the generation of secondar y pollutants. This review focuses on the recent development of the use of citrous fruit peels for the adsorption of various pollutants.

Abstract No. 195

Rehabilitation of Existing Elevated Storage Water Tank

Monu, and Anupam Verma

Department of Civil Engineering
KNIT, Sultanpur, U.P., India

ABSTRACT

This paper presents a live case study of an existing, over 40-year-old overhead water tank, resting on sandy silt soil, which has a capacity of 40,000 liter. We did a distressing analysis to identify the structural cracks that were found during the overhead tank survey in the main parts of the water tank, like the superstructure, staging, and on the ground of the water tank. This study consists of a structural survey of a water tank; Geophysical tests like the SPT Test were carried out to identify the soil up to 10.0 m near the water tank. Additionally, non-destructive tests and soil physical property tests were carried out to find out the strength of the superstructure, staging, foundation and soil condition. The cracks on the water tank are basically due to aging and prolong exposure to environmental. So a forensic geotechnical investigation helps us understand the distress that was found in the water tank and what went wrong behind the crack development on the tank. Leakage of water from supply lines was also identified, which fluctuates the groundwater table. This study tells about the detailed distress evaluation and repairs to the cracks of the tank to enhance the life span of the water tank.

Abstract No. 196

Vienna Convention and The Montreal Protocol: Healing of ozone layer

Vandana Gupta

Department of Law
Dr Rammanohar Lohia Avadh University, Ayodhya, UP, India

ABSTRACT

Ozone is a pungent slightly bluish gas composed of three oxygens atoms[O3], 90% of naturally occurring ozone resides in the stratosphere, the por tion of the atmosphere 10-50km [6 or 30miles] above the Ear th, commonly known the ozone layer. In 1985, The Vienna Convention was a dramatic step forward to protect the ozone layer. It did not feature controls but rather focused on research, cooperation and monitoring [Hajost&Koehlan 1990]. By the discovery of the Antarctic ozone hole, just two years later in 1987, the Montreal Protocol on substances that deplete the ozone layer did make the leap to include controls measures for CFCs and halons. The Montreal Protocol has had great success. Particularly as it is one of the first international agreements.The people become aware of a hole in the ozone layer over Antarctica and damage to the protective layer of atmosphere around the world. The protocol has three Assessment Panel- the scientific assessment panel, the Technology and Economic Assessment and the Environmental Effects Assessment Panel which provide the necessary expertise to investigate and review the latest scientific developments. The Scientific Assessment Panel examined the potential effects on ozone of the international addition of aerosols into the stratosphere (SAI).

Abstract No. 197

Emerging Challenges and Strategies of E-Waste Management in Uttar Pradesh

Aditi Srivastva

Department of Environmental Sciences
Dr. R.M.L. Avadh University, Ayodhya, UP, India

ABSTRACT

The management of electronic waste (e-waste) poses significant challenges in Uttar Pradesh, India, requiring immediate attention and strategic solutions. This review paper explores the emerging challenges and outlines strategic interventions in the context of e-waste management specific to Uttar Pradesh. The challenges encompass a range of issues, including inadequate infrastructure for proper disposal and recycling, environmental contamination, health hazards, lack of effective legislation, and limited public awareness. These challenges contribute to the accumulation of hazardous e-waste and its improper handling within the region. To address these challenges, strategic approaches are proposed, emphasizing the need for robust infrastructure development, stringent regulatory frameworks, awareness campaigns, and stakeholder collaboration. The implementation of comprehensive strategies will be pivotal in fostering sustainable e-waste management practices,mitigating environmental risks, and safeguarding public health in Uttar Pradesh.

5TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2023)
Theme: New Vistas in Waste Management and Sustainable Environment
29th & 30th December 2023 • Dr. RML Avadh University, Ayodhya (U.P.), India

Abstract No. 198

An overview on: Climate Change and Waste Management Strategies for Sustainable Development

Kirti Vardhan Pandey[1], S R Mishra[1], A N Mishra[1], A K Singh[1], Manvendra Sharma[1], Rajesh Kumar Agrahari[1], Yash Vardhan Pandey[2]

[1]Department of Agricultural Meteorology,
Acharya Narendra Deva University of Agriculture and Technology, Kumarganj, Ayodhya, UP,
[2]Department of Seed Science and Technology and GPB Acharya Narendra Deva University of Agriculture and Technology, Kumarganj, Ayodhya, UP, India

ABSTRACT

Climate change and waste management pose critical challenges for contemporary societies, impacting the environment, human health, and sustainable development. This abstract explores their interconnection, emphasizing the necessity for integrated strategies. Greenhouse gas emissions, particularly carbon dioxide and methane, contribute to global warming and its consequences in the context of climate change. Simultaneously, improper waste management exacerbates environmental degradation and adds to climate change, with inefficient disposal and excessive non-biodegradable waste generation. Recognizing the intricate relationship, the abstract advocates a comprehensive approach. The proposed integrated framework promotes sustainable waste management practices reducing the ecological footprint and contributing to climate change mitigation. Strategies like waste-to-energy conversion, recycling, and composting minimize greenhouse gas release from landfills while promoting resource efficiency. Circular economy principles, emphasizing product reuse and recycling, can substantially reduce environmental impacts associated with manufacturing and disposal. Community engagement and education are pivotal, with public awareness campaigns fostering behavioural changes, responsible consumption, waste reduction, and increased recycling. Aligning climate action with waste management practices enables communities to achieve sustainability and resilience. In conclusion, addressing climate change and waste management in isolation may prove inadequate. This abstract underscore the importance of an integrated approach, combining climate change mitigation and waste management strategies for sustainable development. The proposed holistic framework serves as a roadmap for policymakers, businesses, and communities to collaborate for a healthier planet for present and future generations as global societies confront these challenges.hazardous e-waste and its improper handling within the region. To address these challenges, strategic approaches are proposed, emphasizing the need for robust infrastructure development, stringent regulatory frameworks, awareness campaigns, and stakeholder collaboration. The implementation of comprehensive strategies will be pivotal in fostering sustainable e-waste management practices,mitigating environmental risks, and safeguarding public health in Uttar Pradesh.

Abstract No. 199

Assessment on tannery effluent chromium absorbance using different saw dust

Anoop Kumar Mishra, Siddhartha Shukla

Department of Environmental Sciences
Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

The tannery industry effluents are the major source for the Cr(VI) production in wastewater streams. The present work deals with the determination of Cr (VI) removal capacity from synthetically prepared industrial effluent and from tannery industries using sawdust which is a low cost adsorbent. In the present study, batch experiments are carried out for an initial Cr(VI) concentration ranging from 10 – 50 mg/ l. Experimental results demonstrate that the sawdust adsorbent has a significant capacity for adsorption of Cr(VI) from wastewater streams. The effect of various parameters such as pH, temperature, adsorbent concentration, and adsorbate concentration are investigated. The maximum adsorption of Cr(VI) on sawdust is obtained at pH 6 and 270c. In present study also clear that the more absorbance in 50ppm concentration of tannery effluent at 50gm of saw dust .in this work use to uv spectroscopy and1,5-diphenylcarbazide.

5TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2023)
Theme: New Vistas in Waste Management and Sustainable Environment
29th & 30th December 2023 • Dr. RML Avadh University, Ayodhya (U.P.), India

Abstract No. 200

Biodiversity Perspective of Food, Health and Society

Amit Kumar Awasthi

[1]Department of Zoology, D.S.N.P.G. College, Unnao, U.P, India.

ABSTRACT

Biodiversity consists of all life present on Earth. It refers to the biological disparity in all its forms, including genetic combination of plants and animals to cultural variety. Biodiversity is very important for the function that helps for the existence of life on Earth. In the absence of this enormous range of plants, animals and microorganisms, no one can imagine the existence of healthy ecosystems on which we are dependable to provide us the fresh air we breathe and the food we eat and people also value nature of itself. Even small insects and bacteria that we cannot see through naked eyes are of great importance. There are uncountable ways that humans depend upon biodiversity from which some are, for food and nutrition, health or medicines, many benefits our society get from biodiversity. Pollinators such as birds, bees and other insects are the reason of vast crop production in the world. Without these pollinators we would not have many types of fruits like apples, cherries, blueberries, almonds and many other foods we eat. There are many medicines and important organic molecule and compounds are found from the plants like rubber, gum, latex, morphine etc. At the same time when biodiversity is providing vast resources to society, society is the main cause of the loss of biodiversity as increasing population putting pressure for more production of food, need of place to live which is decreasing forest and agricultural lands speedily. Overexploitation due to overfishing, overhunting and overharvesting for food, medicines and timber causing great destruction to the biodiversity by triggering climate change, poor air quality, natural hazards like soil erosion etc and undrinkable water. We need to take some serious measures to stop continuous destruction of biodiversity.

5TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2023)
Theme: New Vistas in Waste Management and Sustainable Environment
29th & 30th December 2023 • Dr. RML Avadh University, Ayodhya (U.P.), India

Abstract No. 201

Significance of Biodiversity Conservation

Abha Varshney

[1]Department of Geography, Govt KRG Autonomous College, Gwalior, U.P., India.

ABSTRACT

All living individuals are entangled among themselves in the one way or the other. Biodiversity ensures that living beings can thrive on the earth. Biodiversity loss is more than just the extinction of rare species as it directly or indirectly affects humans as well. Loss of biodiversity disrupts the essential mechanisms needed for food production, health maintenance, and climate regulation. Major causes of biodiversity loss occur due to habitat destruction and fragmentation of habitats, introduction of alien species, over exploitation etc. Habitat destruction is an unavoidable byproduct of development. Conservation of biodiversity is essential for the survival of humanity. The genetic diversity of plants and animals ensures the sustainable utilization of life support systems on earth. Biodiversity conservation serves as an insurance policy for the future. Biodiversity conservation is of two types- *in situ* and *ex situ* conservation. Conserving the animals and plants in their natural habitats is known as *in situ* conservation and it includes the establishment of national parks, wildlife sanctuaries and biosphere reserves, protected forests etc. Conserving biodiversity outside the areas where animals and plants naturally occur is known as *ex situ* conservation like gene bank, seed bank, cryopreservation, zoological parks, botanical gardens. R eintroduction of an animal or plant into the habitat from where it has disappeared is another form of *ex situ* conservation. *Leiopelmaarchey*i, *Falco punctatus, Pteropusrodricensis, Prolemursimus, Calidris pygmaea, Cedruslibani, Chelonia mydas, Cycluralewisi, Ailuropoda melanoleuca, Foudia rubra Canis simensis* are some examples of conservational success stories in which various conservational measures like protection of habitat, captive breeding, reintroduction of species proved to be successful in the increase in number of species.

Abstract No. 202

Environment and Biodiversity Conservation

Prvesh Kumar

Department of Zoology
Feroze Gandhi College, Raebareli, U. P., India

ABSTRACT

Environment can be defined as a sum total of all the living and non-living elements and their effects that influence human life. While all living or biotic elements are animals, plants, forests, fisheries, and birds, non-living or abiotic elements include water, land, sunlight, rocks, and air. The term biodiversity was coined by W.G. Rosen (1985). Biological diversity means the variability among living organisms from all sources including, interalia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems. Conservation of biodiversity means protection, upliftment and scientific management of biodiversity to maintain its optimum level and to derive sustainable benefits for present and future stratefies. The narrowly utilitarian arguments for conserving biodiversity are obvious; humans derive countless direct economic benefits from nature food (cereals, pulses, fruits), firewood, fibre, construction material, industrial products (tannins, lubricants, dyes, resins, perfumes) and products of medicinal importance. More than 25 per cent of the drugs currently sold in the market worldwide are derived from plants and 25,000 species of plants contribute to the traditional medicines used by native peoples around the world. Nobody knows how many more medicinally useful plants there are in tropical rain forests waiting to be explored. With increasing resources put into 'bioprospecting' (exploring molecular, genetic and species-level diversity for products of economic importance), nations endowed with rich biodiversity can expect to reap enormous benefits. Human have been directly or indirectly dependent on biodiversity for sustenance to a considerable extent. However, increasing population pressure and development activities have led to a large-scale depletion of the natural resources. There is an urgent need not only to manage and conser ve the biotic wealth but also restore the degraded ecosystems. Conservation of biodiversity and genetic resources is essential for food security, medicinal benefits and ecological balance in nature. Conservation of biodiversity can be achieved by the following two methods: 1- In-situ Conservation 2- Ex-situ Conservation.

Abstract No. 203

Blockchain and Machine Learning Based Health Care Management Systems

Awadhesh Kumar Maurya and Lokendra Singh Umrao

Department of Computer Science and Engineering, I.E.T.,
Dr. R.M.L. Avadh University, Ayodhya (U. P.), India

ABSTRACT

Lately, the coordination of blockchain and machine learning advancements has shown tremendous potential to upset medical services the executives frameworks. This paper presents a thorough audit of the synergistic use of blockchain and machine learning in medical care, zeroing in on their applications, advantages, and difficulties. Security, privacy, and interoperability are just a few of the key issues in healthcare data management that blockchain technology addresses because of its decentralized and tamper-resistant nature. By laying out a straightforward and permanent record, blockchain guarantees the respectability and detectability of clinical records, empowering secure information sharing across medical services suppliers while keeping up with patient privacy. Moreover, the fuse of machine learning calculations engages medical care the executives frameworks to extricate significant bits of knowledge from huge datasets, upgrading symptomatic exactness, treatment adequacy, and patient results. machine learning methods, like prescient demonstrating also, picture examination, help in early sickness identification, customized therapy arranging, and advancing asset portion.

Abstract No. 204

Circular Economy and Waste Reduction Strategies: Chia Wraps

Shirin Shiffra J.

Electronics and Communication Engineering Department,
PSG College of Technology, Coimbatore, India.

ABSTRACT

Addressing the pressing issue of plastic waste proliferation during marathons, this proposal introduces a groundbreaking sustainable hydration solution, leveraging chia seeds and biodegradable rice paper packaging. Our innovative approach aims to alleviate the reliance on single-use plastic bottles by harnessing the hydrating potential of gel water extracted from chia seeds encapsulated within eco-friendly rice paper.To ensure the holistic viability and environmental sustainability of our proposed solution, a meticulous Environmental Impact Assessment spanning the entire life cycle of chia seed cultivation and rice paper production will be conducted. This assessment endeavours to ascertain the eco-friendliness of our alternative, covering cultivation, processing, distribution, utilization, and disposal phases.Simultaneously, an exhaustive Cost-Benefit Analysis will be undertaken, meticulously evaluating initial investments, production expenses, market feasibility, and potential revenue vis-à-vis conventional hydration methods prevalent during marathon events. This analysis aims to showcase the economic viability and long-term sustainability of our proposed solution.With paramount importance placed on Waste Disposal and Biodegradability aspects, we will ensure that the rice paper packaging aligns with biodegradability standards and doesn't pose environmental hazards akin to traditional plastics. Health and Safety Considerations will be thoroughly addressed to guarantee the safety of participants, meticulously evaluating potential health risks or allergic reactions associated with chia seeds or rice paper consumption. An in-depth Social Acceptance and Feasibility study will be conducted, engaging athletes, organizers, and participants through surveys and feedback mechanisms. This study aims to gauge the enthusiastic embrace of this sustainable hydration approach, ensuring alignment with the preferences and readiness of stakeholders. Further, a meticulously outlined Scaling and Implementation Strategy will facilitate the up scaling of chia seed and rice paper production, catering to the demand of larger-scale events. Logistics and supply chain management will be intricately detailed to ensure seamless implementation. Lastly, fostering Collaboration and Partnerships with governmental bodies, sports associations, and environmental organizations will be our priority to garner robust support and promote this sustainable hydration solution. Our objective is to collectively drive waste reduction strategies within the framework of a circular economy.

Abstract No. 205

Application of GIS in Ground Water Resources Management of Ayodhya District, Uttar Pradesh, India

Amit Singh, Vinod Kumar Chaudhary

Department of Environmental Sciences, Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

Groundwater is considered as most vital resource for the development of any nation as it is used in various activities including drinking, irrigation, and industrial. In recent years, various anthropogenic activities such as mining, industrial expansion, agriculture and rapid urbanization caused deterioration of groundwater quality. In present work, assessment of groundwater quality using water quality index approach in Ayodhya district, Uttar Pradesh, India, where groundwater is the main source of drinking water. Groundwater samples were collected from different hand pumps the winter and summer season of year 2022 and 2023. The collected samples were analyzed for pH, EC, TDS, K^{+}, Cl^{-}, F^{-}, NO^{3-}, Ca^{2+}, Na^{+}, Mg^{2+}, HCO^{3-} and SO^{4}. The samples were collected for the major cation and anion present in the water sample. The Magensium, sodium, bicarbonate and sulphate are the most dominant cation and anion among all. The water quality index (WQI) of groundwater samples at majority of location were found in excellent zone. With the help of these values, the locations from where the samples were collected will be shown with the help of GIS.

Abstract No. 206

The Study of Physico Chemical Property of Ujjaini River in District Amethi U.P.

Anurag Tripathi

Department of Chemistry, Dr. RML Avadh University, Ayodhya, U.P, India.

ABSTRACT

The water quality from the river has considerable importance for the reason that these water resources are generally used for the multiple matters such as agriculture, domestic and drinking water supplies. According to world health organization (2002) improper water hygiene and sanitation result in 1.7 million deaths and 54.32 million disability adjusted life year (Days) lost each year globally. River water pollution are mainly concentrated in industrialization agriculture activities, natural factors, insufficient water supply and sewerage treatment facilities. First industry is the main cause of water pollution. Arsenic, cadmium, and chromium are vital pollutants discharge in waste water and the industrial sector is a significant contributor to harmful pollutants. The paper also consists of potential and extant of various component which pollute the water. Finally effect of water pollution has been shown in nutshell.

Abstract No. 207

A Scientific Perspective on The Interplay Between Nutrition and Reproductive Health

Eshita Pandey

Department of Zoology, Dayanand Girls PG College, Kanpur, India.

ABSTRACT

There is an intricate relationship between dietary patterns and reproductive health. Nutrition plays an important impact on fertility, pregnancy and overall reproductive wellbeing of all organisms. Reproductive health not only involves fertility and pregnancy but also post-natal outcomes.

It is important for all organisms to maintain the relationship between micronutrients, macronutrients and other bio active compounds which can be derived from a balanced diet. Fertility is controlled by adequate availability of micronutrients as well as macro nutrients Micronutrients important for reproductive health include folic acid, which is central for preventing neural tube defects in developing embryo and also promotes sperm health. Vitamin D, another micronutrient is linked to fertility and is essential for the synthesis of sex hormones. It also supports embryo implantation. Iron is also an important micronutrient whose deficiency leads to irregularities in the menstrual cycle and is a key factor in maintaining the health of mother and the foetus during pregnancy. The role of macronutrients in reproductive health cannot be undermined. They include proteins, which are essential for production of reproductive hormones, fats like Omega 3 fatty acids which are important in influencing the structure and function of cell membranes and carbohydrates which impact fertility by preventing insulin resistance and maintenance of blood sugar level throughout pregnancy. Reproductive wellbeing is also influenced by the presence of antioxidants such as Vitamin C and E which can reduce oxidative stress in the reproductive cells. Similarly trace elements like selenium and zinc promote healthy sperms. So, to optimize fertility and promote overall reproductive wellbeing, it is important to understand the relationship between nutrition and reproductive health.

Abstract No. 208

Characterization and Measurement of Pollution Level of Ground Water in the context of Ecological Evaluation of Some Plant

Rajeev Kumar Tripathi and Vivek Kumar Agrahari

P.G. Department of Botany,
Raja Harpal Singh Snatkotar Mahavidyalaya, Singramau, Jaunpur, U.P., India.

ABSTRACT

Water is foremost and legitimate friend of living beings without water life cannot be imagine. The water quality for agriculture, domestic, industrial and commercial purpose. The properties of water such as physical as well as chemical play important role. The deciding the water quality the parameter shows major external effects. The positional and periodic estimation at different site of Karakhion Industrial area of Varanasi district has been done. The physical parameters are compared and there monitoring suggested where whenever alarming me.

Abstract No. 209

Estimation of Fluoride concentration in ground water resource of Raebareli District

Shishir Kumar Kaushal, Siddhartha Shukla

Department of Environmental Sciences
Dr. R.M.L. Avadh University, Ayodhya, U.P., India.

ABSTRACT

Excessive fluoride consumption poses a significant health concern, primarily due to its adverse effects on human health, particularly in relation to soft tissue lesions. Recent research highlights fluoride's potential role as an endocrine disruptor, specifically in disrupting thyroid function. Human exposure primarily occurs through drinking water, prompting global regulatory bodies, such as the World Health Organization, to establish a standard limit of 1.5 mg/L for fluoride in drinking water. This limit is upheld by various countries, including Australia, Canada, India, and the European Union. Notably, the United States allows a maximum contaminant level of 4.0 mg/L, while China maintains a more stringent limit of 1.0 mg/L. In the current study, water samples were collected from diverse locations in Lalganj Tehsil, Raebareli District, to assess fluoride concentrations in groundwater. Alarmingly, the analysis revealed that the collected groundwater samples from multiple selected locations exceeded the permissible limit of 1.5 mg/L, emphasizing the urgent need for mitigation measures to address elevated fluoride levels and safeguard public health in the region.

Abstract No. 210

Global Warming and Climate Change: The Greatest Threat

Sunil K. Srivastava, Veer Pratap Singh and Mohammad Akmal

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

ABSTRACT

Global warming and climate change is emerging as the most serious problem for the plant ecosystem and human society as a whole in the near future. Anthropogenic activities increased in the last decade have added to the concentration of the green house gases in the atmosphere. The important green house gases are CO2, CH4, N2O, O3 and CFC. Deforestation excessive consumption of fossil and petroleum-based fuels, vehicular pollution etc. are some of the activities of humans that have led to increase in the green house gases in the atmosphere. The effects or impacts of climate change may be ecological, physical, social or economic. Evidence of observed climate change includes the instrumental temperature record, rising sea levels and decrease snow cover in the Northern Hemisphere. It is predicted that future climate change will include further global warming, sea level rise and a probable increase in the frequency of some extreme weather events. Several polices have been implemented to minimize the effect of global warming but without much better results. In the present dissertation effect of temperature on soil moisture, porosity, permeability feature and structure has been studied. Some remedial measures have also been suggested to get out of this risk.

Abstract No. 211

Understanding the Dynamics of Groundwater Resources in Prayagraj District, Uttar Pradesh

Ashutosh Mishra

Department of Geography
Delhi School of Economics, University of Delhi, India

ABSTRACT

Groundwater is a vital and renewable natural resource that plays a crucial role in the economy, environment, standard of living, and ensuring food security. In addition to serving as a crucial water source for both households and industries, it is also the largest and most efficient source of irrigation. The availability of groundwater is mostly determined by the annual groundwater recharge and extraction of groundwater. Therefore, in order to ensure sustainable management and regulation of groundwater, it is crucial to conduct periodic and precise assessment of its potential to find the right balance between extraction and recharge to prevent excessive exploitation and contamination of this vital resource. This study provides an assessment of the groundwater resources in Prayagraj district, Uttar Pradesh for the base year of 2021-22. The main aim is to identify areas within the district that are under water stress. The Ground Water resource of the study area is estimated by adopting the Ground Water Estimation methodology 2015 in a GIS framework. Within a vast expanse of 547,000 hectares, a remarkable 499,630 hectares emerge as areas of significant groundwater recharge potential. The Annual Extractable Ground Water Resources in the district is 128667.04ham and ground water extraction for all uses is 94514.51ham, making stage of ground water extraction 73.46% as a whole for the district. The findings of this assessment are intended to be a valuable resource for policymakers, water resource managers, and stakeholders involved in sustainable development planning.

Abstract No. 212

Irrigation of crops with raw sewage: Hazard assessment of effluent, soil and vegetables

Ankita P., Sakshi S., Supriya P. and Ansil S

Department of Environmental Sciences, Dr. R.M.L. Avadh University, Ayodhya, India.

ABSTRACT

Untreated sewage effluent containing heavy metals are applied to raise crops, mostlyvegetables. Thus these metals enter the human food chain and could cause health hazards.Therefore, a study was conducted to evaluate metals contamination in effluents, soils andplants being irrigated with such effluents. Effluent samples were collected fortnightly duringsummer and winter to evaluate irrigation quality and metal contamination. Similarly, vegetablesviz. spinach, eggplant, pumpkin okra and bitter gourd were sampled from each field to evaluatemetal concentration in roots, shoots and fruits. Effluent samples collected from drains werefound unfit for irrigation with respect to EC, SAR and RSC. The Fe concentrations weremaximum while that of Cd minimum. The EC and SAR of few soil samples were above thecritical limits in 0-15 cm depth. The Fe contents were the highest and Cd the lowest in AB-DTPAextractable (plant-available) forms. The AB-DTPA extractable metals decreased with increasingsoil depth. Almost all the metal ions were found above the safe limits in edible parts of abovementioned vegetables. Hence, untreated effluent irrigation will not only make the soilunproductive but also have adverse effects on human health through introducing toxic metalsinto the food chain.

Abstract No. 213

Pathogens in Fish and the Important by products of Fish

Mansi Patel

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

ABSTRACT

Fish consumption is increasing worldwide per capita, as fish is an important part of the human diet. However, the swift growth of industry and agriculture might contaminate aquatic habitats that are generated artificially as well as those that occur naturally. This could have an effect on fish health and raise concerns about the safety of fish that is consumed by humans. Microbial examination of fish offer further information regarding the hygienic state of ecosystems, including lakes, rivers, ponds, and fish farms. Pathogenic bacteria or alteration to native microflora in the water environment could be important indicators of possible contamination. The aim of this investigation was to identify and evaluate the principal bacterial genera and species linked to aquatic environments that result in human foodborne illnesses including *Listeria monocytogenes, Yersinia spp*., pathogenic *Salmonella serovars*, and *Clostridium botulinum*.

Abstract No. 214

Biodiversity's Crucial Role in Fostering a Sustainable Environment

Mansi Soni

Department of Environmental Sciences
Dr. R.M.L. Avadh University Ayodhya, U.P., India

ABSTRACT

The exploration of human-environmental dynamics has evolved into a thriving discipline within sustainability science. This paradigm acknowledges the inherent connection between the prosperity of human society and the health of natural ecosystems. A cornerstone in ensuring the enduring sustainability of natural resources, spanning from forests and water bodies to agro-ecosystems, is the utilization of traditional knowledge. This knowledge reservoir extends seamlessly across a landscape continuum, encompassing households, farms, villages, commons, and wilderness. This abstract delves into recent advancements in local knowledge research, probing how such insights can effectively tackle the contemporary challenges, particularly in the arena of biodiversity conservation. The global community grapples with an unprecedented dilemma characterized by the depletion of natural resources and the waning of ecosystem services, attributable to the myriad threats stemming from rapid growth and consumerism. Furthermore, the viability of critical ecological processes and life support systems within human-dominated ecosystems faces jeopardy across varying scales. The evident human dominion over the Earth manifests in conspicuous global alterations, biodiversity extinctions, and disruptions to ecosystem functions. Ecological predicaments, exacerbated by disparate access to resources, yield detrimental consequences for human well-being and pose substantial threats to the livelihood security of the world's most impoverished populations.

5TH INTERNATIONAL CONFERENCE ON
ENVIRONMENT AND SOCIETY (ICES 2023)
Theme: New Vistas in Waste Management and Sustainable Environment
29th & 30th December 2023 • Dr. RML Avadh University, Ayodhya (U.P.), India

Abstract No. 215

Neem (*Azadirachta indica* A. Juss.) Seed Cake as Nitrification Inhibitor and Rich Source of Organic Manure

Narendra Kumar Shukla[1], N.B. Shakya[1], Vishwadeep Shukla[1]and Bhawna Yadav[1]

Department of Botany, D.A.V. College, Kanpur, U.P., India

ABSTRACT

Neem (*Azadirachta indica* A.Juss.) tree is an attractive evergreen native to the Indian sub-continent, but cultivated to throughout South-East Asia. Nitrogen in any nitrogenous fertilizer, whether contained in the form of ammonium, amide or organic form, is ultimately converted to nitrate in the soil by the activity of soil micro organisms usually Nitrosomonas species which oxidise ammonium to nitrite and *Nitrobactor* species which oxidise nitrite to nitrate. Inhibition or retardation of nitrification of applied ammonium and amide nitrogen can thus reduce these losses and increase the efficiency of applied nitrogen. Neem seed cake not only acts as an organic nitrogenous manure but also a nitrification inhibitor. This property have efficient use of the nitrogenous fertilizers. Comparative data of neem cake coated urea and sulphur-coated urea, a standard slow-release nitrogen fertilizer and neem cake coated urea is as effective as sulphur coated urea in respect of grain yield as well as nitrogen increase the apparent recovery and of nitrogen, as determined by the different methods. The neem seed cake is a potential source of organic manure. It is rich in many plant nutrients i.e. N, 2-3 percent P, 1 percent and K, 1.4 percent and simultaneously pose problems of storage and disposal. In the present study of energy conservation, the possibility to use neem cake as a source of organic fertilizer needs a serious consideration and also helps in to reduce soil pollution or erosion.

Abstract No. 216

Reutilization of Discarded Waste Biomass for Formulation Development and their application in Textile Industry

Neelu Kambo

Department of Chemistry
Uttar Pradesh Textile Technology Institute Kanpur, U.P., India.

ABSTRACT

There has been an increased exploitation of organic residues from various sectors of agriculture and industries over the past few decades. Crop residues such as bark, husk, bagasse, and fruit peel, seeds are utilized as a potential raw material in bio-processes as they provide an excellent substratum for the growth of micro-organism supplying the essential nutrients to them. The new technologies and materials necessary for the development of antibacterial fabrics have been of great interest to researchers in recent years. This study focuses on the investigation of natural waste product such as Mango kernel based nano emulsion for dyeing of cotton and cotton blended fabric samples. 100% cotton and polyester/cotton fabrics have been dyed with two different concentrations (5% and 10%) of mango kernel (MK) extract-based nano emulsion (NE). Antibacterial activity of dyed samples has been tested against the *Staphylococcus aureus* (Gram-positive) and *Escherichia coli* (Gram-negative) bacteria. Among all the fabric samples, the 100% cotton fabric dyed with 10% mango kernel nano emulsion (MK-NE) registers the highest antibacterial activity of 70 and 61% against *S. aureus* and *E. coli*, respectively. However, the antibacterial effectiveness remained substantial at 40 and 34%, respectively, even after 25 home laundry washes. The test specimens have been further tested for their color strength, ultra-violet protection factor (UPF), tensile, and tear strength properties to evaluate the change in their physical properties.

Abstract No. 217

Water and wastewater treatment Analysis

Nishchal Kumar Sharma

Department of Environmental Sciences
Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

Nowadays many water resources are polluted by anthropogenic sources including household and agriculture waste and industrial process. Public concern over the environment impact of wastewater pollution has increase. From large cities is often pumped directly into rivers or seas without treatment, leading to pollution and posing a threat to the health of ecosystems and people. A major environmental challenge for wastewater treatment is the disposal of excess sludge produced during the process. The aim of which is to eliminate and reduce contamination or non- desirable. Waste water is treated as it passes through the soil by filtration, adsorption, ion exchange, precipitation, microbial action, plant uptake. We analysis to remove contaminants from wastewater such as halogenated hydrocarbon compound, heavy metals, dyes, pesticides, and herbicides, which represent the main pollutants in wastewater. Waste water can be used to improve the scare supply off fresh water and hold off future investment in water treatment plants.

Abstract No. 218

Inventory of Heteropteran Fauna of Some Areas Within and Around Ahmednagar City

Pande GS and Inamdar NS

Department of Zoology, Ahmednagar College, Ahmednagar, Maharashtra, India

ABSTRACT

Hemiptera is one of the megaorders of insects and well-known pests of crops. Ahmednagar city is a historically and geographically important area in the state of Maharashtra. There are number of habitats suitable for survival and growth of bugs. It is the largest district in the state of Maharashtra. The present study provides a preliminary account of diversity of heteropteran bugs in some areas in and around Ahmednagar city, Maharashtra, India. Results obtained show that the heteropteran fauna of the study area are represented by 68 species and 47 genera. These bugs represent 13 families of Heteroptera: Pentatomidae (22 taxa), Coreidae (09), Lygaeidae (07), Reduviidae (05 taxa), Dinidoridae (05 taxa), Miridae (05), Pyrrhocoridae (04), followed by Scutellaridae (03), Alydidae (03), Tessarotomidae (02), Cydnidae (01), Rhophalidae (01), Plataspidae (01). The family Pentatomidae is the most diverse of all followed by Reduviidae (22 taxa).The results obtained will enrich data on the faunal resources of Maharashtra state. It will also help to for mulate pest control strategies for the heteropteran pests of the study area.

Abstract No. 219

Studies on the dielectric and optical properties of cholesteryl benzoate liquid crystalline material (CBLC)

Pravesh Kumar Vishwakarma[1], Sindhu Singh[1], Anoop K. Srivastava[2] and Anil Kumar[1]

[1]Liquid Crystal Laboratory, Department of Physics and Electronics, Dr. Rammanohar Lohia Avadh University, Ayodhya, U. P, India
[2]Department of Applied Science and Humanities, I.E.T. Dr. Rammanohar Lohia Avadh University, Ayodhya, U.P, India

ABSTRACT

The properties of liquid crystal, such as optical and dielectric, make them special candidates for flat-panel display devices, bi-stable reflective displays, high-definition spatial light modulators, thermal and strain sensors, tunable lenses, etc. Cholesteryl benzoate is a thermotropic liquid crystalline material that was the first to exhibit a chiral nematic phase (cholesteric phase). The phase transition behaviour of samples was studied using a polarizing optical microscope under the crossed position of the polarizer and analyzer. During cooling from the isotropic phase to the cholesteric phase, a blue-violet coloration is observed upon solidification of the liquid crystalline material in a planar liquid crystal cell. The dielectric data was recorded from 185 °C to 120 °C in the frequency range of 1 Hz to 40 MHZ.

Abstract No. 220

Quantitative Estimation of Bacteria in The Air of Tulsipur

S. K. Srivastava[1] and Rajiv Ranjan[2]

[1]Department of Botany, Shri Lal Bahadur Shastri Degree College, Gonda, U. P, India
[2]Department of Botany, M.L.K. PG College, Balarampur, U.P, India

ABSTRACT

Our aerial environment is filled up with number of micro-organisms including fungus spores, pollen grains, viruses, bacteria, nematodes, algae, lichen, insect scales, protozoan cysts, mites, moss spores, fern spores and small epidermal hairs including dust particles. Dust often acts as "raft" carrying microbes. Bacteria comprise a heterogeneous group of organisms varying in size from 0–3 to 10–15 μm. Bacteria laden minute droplets are continuously thrown in air by rainsplash, breakers or sea air. Water droplets by sneezing or coughing are important source of airborn bacteria. Present investigation on bacterial concentration of the atmosphere was carried out at Tulsipur (District Balrampur) by using pertidish exposure method for the period of one year from January-2022 to December-2022. Daily exposure of petridish containing Peptone Beef Agar medium was done to observe the accurate concentration of bacteria in the atmosphere. The data reveals that the highest concentration of bacteria was recorded in rainy season in the month of July-2022 (3106 Colonies). The lowest count was observed in the month of February-2022 (787 Colonies). This variation was due to seasonal variation in temperature, relative humidity and rain fall round the year.

Abstract No. 221

Nutrition And Its Effect on Growth, Immunity and Reproductive System

Rahul Awasthi and Eshita Pandey

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

ABSTRACT

The importance of food for life has been emphasised in lots of studies and has been a doctrine since Bhagavad Gita. It is observed that food biodiversity is proportional to human health. Food not only provides nutritional value but its quantity and quality can seriously influence the health of any organism. The importance of malnutrition, controlled diet, fasting and intermittent fasting has remarkable impact on growth, immune system as well as the reproductive system apart from overall health. Various studies done on animals including biological assays and metabolic studies have shown influences due to changes in diet and food preferences. Food can also impact the regular physiological processes and cause visible alterations. Some studies done on animals, especially albino rat have also established that the diet patterns, fasting, especially intermittent fasting with controlled diet can produce effects on various blood parameters, urine and faeces composition. This have further established the importance of quality and quantity of nutrients in the body. Comparative changes in the quantity of hormones especially reproductive hormones in males as well as females and immunoglobulins have also been observed through tests and studies. Further these findings have been substantiated by statistical test and analysis.

Abstract No. 222

Bio-Based Materials & Their Environmental Impact

Renu Goel

Department of Zoology, PPN PG College, Kanpur, U. P, India

ABSTRACT

Imagine buildings that breathe, sequester carbon, and reduce pollution—that's the promise of new bio-based construction materials. Derived from renewable resources like plants, fungi, and bacteria, these materials are revolutionizing the construction industry with their positive environmental impact. For India, these are second generation of bio-based materials, first being bricks, clay and limestone. Many bio-based materials store carbon, offsetting emissions from buildings. Wood, for example, absorbs CO2 throughout its growth. Production of bio-based materials often requires less energy and resources compared to traditional concrete or steel. Plants and fungi can be readily regrown, unlike minerals and fossil fuels used in conventional materials. Bio-based materials emit fewer harmful volatile organic compounds (VOCs), creating healthier living and working environments. Some bio-based materials can be composted or recycled at their end of life, minimizing landfill waste. Some of the popular new bio-based materials used are Timbe, Bamboo, Mycelium, Straw Bales, Hemp. However, these materials and practices come with their own set of challenges like durability, cost, availability and scalability. Ultimately, promoting responsible forestry, using fertilizers efficiently, and choosing bio-based materials with low environmental footprints are crucial to maximizing their positive impact on the environment, including the ozone layer.

Abstract No. 223

Comparative analysis of some physicochemical parameters of different sites of GOMATI and SARAYU river

Anuj Kumar Srivasatava

Department of Chemistry, K.N.I.P.S.S. Sultanpur, U. P, India

ABSTRACT

Uttar Pradesh state in India blessed with different types of holy river for sustaining of life. Life of the river and their surrounding depends on these rivers but now in these days the rivers are getting polluted due to industrialisation and urbanization. Here the study was carried out by taking some physicochemical parameters at six-six site of Gomati river and Sarayu river in month of November 2023. The selected parameters are pH, dissolve oxygen, chloride, fluoride, nitrate, sulphate, carbonate, hardness as calcium carbonate, alkalinity some heavy metals (Fe, Pb, Zn, Hg). During the study period it was found that some physicochemical parameters are within the range of permissible limit (IS 10500:2012) some are not, which are responsible for some harmful effect for aquatic life as well as life depending on these two rivers. This study also helps to reduce the contamination on given sample sites.

Abstract No. 224

Recent Challenges in Wildlife Conservation in India

Shani Pal

Department of Environmental Science,
Dr. R.M.L. Avadh University, Ayodhya, U. P, India

ABSTRACT

The state of the globe now makes Wildlife a focus of our attention. Wildlife conservation serves as platform for significant awareness, action and biodiversity destruction serves as reflection about problems that have an impact on the biodiversity of our planet. In just the previous few decades, we have witnessed the extinction of a great number of animal and plant species. Thus, it is crucial to educate people about the need of maintaining their environment and the richness of the species that make up their niche, whether they are animal or plant species. The current topic highlights the steps taken by Indian Government to protect some endangered species of animals and medicinal plants. There are not enough financial and technical resources available in the region to manage biodiversity and natural resources effectively. The wild plant and animal species as well as their habitats are protected through the practices of wildlife conservation. We implement wildlife protection to species that are in danger of extinction due to natural or manmade causes. Contamination, environmental change and unreasonable laws are few examples. These may possibly lead to extreme hunting and huge number of wild animals in captivity. The present review put light on the action that might be taken to protect wildlife by us.

Abstract No. 225

Exploring The Impactof Food Diversity on Health and The Immune System

Shikha Verma and Eshita Pandey

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

ABSTRACT

Food diversity has always influenced the human health and has serious impacts on endocrinology, reproductive health and the immune system. If the food choices are diversified so that the resultant diet is broadened and nutrient consumption is enhanced, then the physiology is enhanced as well as per research. Studies have shown that dietary components, which include phytochemicals, dietary fibres as well as bio active compounds produce evident results on hormonal equilibrium and prevention of endocrine related diseases. Studies have shown that food can be a great influence in enhancing fertility, preventing reproductive disorders and promotion of maternal wellbeing. Researchers have also proved that a diverse diet rich in minerals, antioxidants and anti-inflammatory compounds produce a beneficial effect on the immune system. It not only provides resistance towards infections but also lowers the occurrence of autoimmune illness. An intricate correlation has been established between food diversity and gut flora by investigations. So, it can be substantially recognized that the variety of food consumed can have a positive influence on the endocrinology and immune system of all organisms which can lead to improved quality of health in all fauna.

Abstract No. 226

Natural Resources, Human and Society

Shubham Yadav

Department of Environmental Science
Dr. R.M.L. Avadh University Ayodhya, U.P., India

ABSTRACT

Food diversity has always influenced the human health and has serious The term Natural Resources refers to the functional utility that societies derive from the environment and is widely used in human geography. Resources when used as a raw material satisfy the needs and comforts of human beings. The relationship between natural resources, humanity, and society is a complex interweaving of mutual dependence and influence. Natural resources, encompassing air, water, soil, minerals, and biodiversity, constitute the fundamental elements sustaining life on Earth. Their availability, distribution, and quality profoundly impact human societies, shaping cultures, economies, and civilizations throughout history. However, the exploitation of natural resources often leads to environmental degradation, challenging the delicate balance between human needs andecological sustainability. The uneven distribution and access to resources further exacerbate social inequalities and geopolitical tensions, highlighting the intricate link between resources and societal dynamics. Sustainable practices, conservation efforts, renewable energy sources, and equitable resource allocation are critical components in fostering a harmonious relationship between natural resources and human society. sustainable resource management, equitable distribution, and community engagement. Striking a balance between resource utilization and preservation is crucial for fostering a harmonious relationship between natural resources and human society, ensuring a sustainable future for all.

Abstract No. 227

Sustainable Development of Natural Resource

Shivani Yadav

Department of Environmental Science
Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

As we known that the natural resources are ver y limited in nature. The use of natural resources means the direct consumption of resources and environmental protection. The productive technological process uses resources for the satisfaction of needs of product and services. The uncontrolled exploitation shown a negative impact on the environment so it is very necessary to find approach of their sustainable use.Sustainable development means to meet the needs of the present without compromising the ability of future to meet their own needs.The real generation positively support the degradation and sometimes decreasing of natural resources because of past generation. The future generation will support not only the positive cost of environment degradation, but also the cost of storage into the environment of atmospheric pollutants and toxic heavy metals, of losing the tropical forest and biodiversity. For this reason, it is very necessary that the policy of the sustainable development of the society included the right criteria that will allow to sustainable development. Thus, we contribute to preserving the environment and balance of natural resources.

Abstract No. 228

Antifungal and nematicidal activity of walnut based biosynthesized ZnO nanoparticles against root-rot fungus *Macrophominaphaseolina* and Root-knot nematode, *Meloidogyne arenaria In vitro*

Mir Akhtar Hussain, Ghazala Parveen

Section of Plant Pathology and Nematology,
Department of Botany, Aligarh Muslim University, Aligarh, UP, India

ABSTRACT

The inhibitory activity of walnut based ZnO nanoparticles at different concentrations against root-rot fungus, *Macrophominaphaseolina* and Root-knot nematode, *Meloidogyne arenaria* was evaluated *in vitro* at temperature 25 ± 3 °C. The ZnO NPs were biosynthesized from walnut leaves and characterized using analytical methods including UV-Vis, FT-IR, SEM-EDX and XRD. The characterization methods confirmed the formation of ZnO NPs. Fungus grown on Potato dextrose agar was treated with walnut based ZnONP's at concentrations 10mgL^{-1}, 20mgL^{-1}, 40mgL^{-1}, 80mgL^{-1}and 100mgL^{-1}respectively. Also, second stage juveniles (J2) of *M. arenaria,* suspended in double distilled water were also treated with walnut based ZnO NPs at the same above given concentrations. It was observed that ZnO nanoparticles inhibit the growth of fungi and caused mortality of nematode juveniles at all concentrations. The degree of fungal growth inhibition percentage and percent mortality of nematode juveniles increased with increasing the concentration of nanoparticles. The NP concentration of 10mgL^{-1} and 20mgL^{-1} showed least antifungal and nematicidal activity. However, a strong and significant antifungal and nematicidal activity was observed at concentrations 80mgL^{-1} and 100mgL^{-1}. Meanwhile, after observing the treated and non-treated (control) fungal mycelia and nematode juveniles under Scanning electron microscope (SEM), it was observed that treatment of ZnO NPs caused damage to the fungal mycelia and also caused damage to the nematode cuticle while untreated samples did not show any such inferences. Hence, this study confirmed a strong antifungal and nematicidal activity of walnut leaves embedded into ZnO nanoparticles. Furthermore, the GC-MS analysis of walnut leaves explored some of the secondary metabolites including Juglone (Neptha-quinone) which has been studied previously by various researchers as a potential nematicide. Therefore, this study can be explored further in field experiments to form noval, sustainable and eco-friendly formulations against root-rot fungus *M. phaseolina* and *M. arenaria* infecting different crops.

Abstract No. 229

Utilizing aquatic macrophytes for the removal of inorganic contaminants from industrial effluent

Vishal Singh Chaudhari and Siddharth Shukla

Department of Environmental Science,
Dr. Rammanohar Lohia Avadh University, Ayodhya, (UP), India

ABSTRACT

Water contamination from toxic pollutants occurs due to the discharge of wastewater from municipal, industrial, landfill sites, etc. This global issue significantly impacts the health of humans, wildlife, and plant life in receiving water bodies. Over the past few decades, factors such as rapid population growth, fluctuations in productivity and consumption rates, and extensive resource exploitation due to industrialisation and technological advancement became the major contributors to water pollution. Despite the application of control and prevention technologies in various industrial and municipal sources, and the availability of diverse wastewater treatment methods to restore and maintain water quality, a substantial amount of harmful agents continues to be released into the environment. Phytoremediation is an economical and eco-friendly technology that makes the use of plant systems to remove and detoxify pollutants from the environment. The efficiency of the decontamination or remediation function of aquatic macrophytes depends on several factors like water physico-chemistry, plant physiology, plant genotype, sediment geochemistry and nature of contaminant or pollutant. Also, water remediation by macrophytes can be significantly improved by appropriate selection of plant species which is built on the type of substances to be removed, topography , microclimate, hydrological conditions, accumulation capacities of the plant species etc. The present work will provide an insight in phytoremediation of inorganic pollutants and factors affecting their removal.

Abstract No. 230

Water conservation current challenges

Bhoomika Pandey

Department of Environmental Science
Dr. R.M.L. Avadh University, Ayodhya, U.P., India

ABSTRACT

All living beings need water to live. We need water for drinking, cooking etc. This is precious resource every drop of water is precious but we continue to waste it like is a free natural commodity. 98% water of this planet is salty and is not fit for human consumption. Out of the 2% of fresh water resource. 1% is locked up in form of ice in various regions around the world. Hence, only 1% of total water reserve are available for our domestic and industrial use. Water can be saved in agriculture by “drip irrigation”.

India has 16% of the world's population and only 4% of the world's water resource which are depleting rapidly. The demand for water is expected to grow from 40 billion cubic mt. (bcm) cur rently to around 220 bcm in 2025. Water is one of the most important inputs essential for crops . Both it is shortage and excess affects without water we can not survive so we need conserve the water. There are numerous method to reduce such losses and to improve soil moisture. These are mulching , cropping, contour forming etc. The most important step in the direction of finding solution to issue of water and environmental conservation it to change people's attitude and habits.

Abstract No. 231

Alteration In Reproductive Health of Mammals Due to Malathion

Zeba Afroz and Eshita Pandey

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

ABSTRACT

In agricultural field use of pesticides is common these days because they help control pests including insects in the field and residential areas. They regulate the population of insects such as fruit fly, mosquitoes, ants, aphids, mites and wasps etc. There are several insecticides which are being used nowadays and Malathion is one of the them. Although it has low toxic effect on mammals including humans but it causes numerous alterations in physiology depending upon the quantity of their exposure. Malathion is a pesticide which is used to protect crops, herbs and grains. It belongs to organophosphate group of insecticide. Malathion kills insects by destructing their nervous system. It is also used in public recreation, health care and in various office premises as a pest controller. It alters many physiological functions especially in synapse and gonadal tissues. It is found to affect the activity of testicular enzymes such as acid phosphatase and alkaline phosphatase. It affects both enzymes antagonistically i.e. the activity of alkaline phosphatase decreases whereas the activity of acid phosphatase increases. Malathion also affects the gonadal hormones and suppress the levels of testosterone. It causes fluctuation in the testicular composition by decreasing the contents of sialic acid and glycogen in the testis of male rats. It has been found to increases the level of cholesterol in testis. Malathion produces free radicals and this shows adverse effect on sex hormones of female rats. It also effects oogenesis process. The progesterone hormone level decreases once the female rats are exposed by Malathion. Thus, it can be established that Malathion leaves toxic effect on the reproductive health of the rats including male and female rats.

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]**

Shri Ram Mandir, Ayodhya