LiFE
Lifestyle for Environment
An India-led global mass movement to nudge individual and community action to protect and preserve the environment

जबलपुर अंतरराष्ट्रीय संगोष्ठी

LiFE
Lifestyle for Environment
An India-led global mass movement to nudge individual and community action to protect and preserve the environment

6st International Conference on

ENVIRONMENT AND SOCIETY
(6th ICES)

Theme: Indiscriminate Anthropogenic Impact: A Trans-disciplinary Approach to Environmental and Social Sustainability

HYBRID MODE (BOTH PHYSICAL AND ONLINE)

10th & 11th May 2025

Abstracts and Souvenir

Mahakaushal University, Jabalpur (M.P.)
https://mku.ac.in/

Shri Guru Teg Bahadur Khalsa College, Jabalpur (M.P.)
https://sgtbkhalsajbp.org/

The Global University, Itanagar (Arunachal Pradesh)
https://www.tgu.ac.in

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

ICAR-Directorate of Weed Research, Jabalpur
https://dwr.icar.gov.in/

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

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

LiFE Lifestyle for Environment

An India-led global mass movement to nudge individual and community action to protect and preserve the environment

जबलपुर अंतरराष्ट्रीय संगोष्ठी

LiFE Lifestyle for Environment

An India-led global mass movement to nudge individual and community action to protect and preserve the environment

6st International Conference on

ENVIRONMENT AND SOCIETY (6th ICES)

Theme: Indiscriminate Anthropogenic Impact: A Trans-disciplinary Approach to Environmental and Social Sustainability

HYBRID MODE (BOTH PHYSICAL AND ONLINE)

10th & 11th May 2025

Abstracts and Souvenir

Mahakaushal University, Jabalpur (M.P.)
https://mku.ac.in/

Shri Guru Teg Bahadur Khalsa College, Jabalpur (M.P.)
https://sgtbkhalsajbp.org/

The Global University, Itanagar (Arunachal Pradesh)
https://www.tgu.ac.in

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

ICAR-Directorate of Weed Research, Jabalpur
https://dwr.icar.gov.in/

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

महाकौशल विश्वविद्यालय
ऐंठाखेड़ा, चरगवां मुकनवारा रोड, पो.– तिलवारा
जबलपुर, मध्यप्रदेश, भारत
पिनकोड:– 482003
दूरभाष:– +91-9981350102
+91-9981360102
ईमेल:– info@mku.ac.in
वेब-साइट:– www.mku.ac.in

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

Ref- MKU/ Chanc./2025/115 **Date- 11/03/2025**

Message

It is with great pride and enthusiasm that I extend my warmest welcome to all esteemed delegates, researchers, academicians, and professionals participating in the 6th International Conference on Environment and Society at Mahakaushal University on March 29 and 30, 2025. This year's theme, ***Indiscriminate Anthropogenic Impact: A Trans-Disciplinary Approach to Environmental and Social Sustainability***, underscores the urgency of addressing human-induced environmental challenges through a collaborative and interdisciplinary approach. This prestigious event serves as a platform for scholars and experts from around the world to exchange knowledge, share innovative ideas, and collaborate on pressing environmental challenges that impact society. As we gather to discuss sustainable solutions, climate resilience, and environmental stewardship, we reaffirm our commitment to creating a greener, more sustainable future.

At Mahakaushal University, we believe that academic research and interdisciplinary collaboration play a crucial role in addressing global environmental concerns. This conference is an opportunity to engage in meaningful discussions, foster partnerships, and explore transformative approaches that will shape the future of environmental sustainability.
I extend my heartfelt appreciation to the organizing committee, distinguished speakers, and all participants for their dedication and contributions. May this conference be a source of inspiration and impactful learning for all.

Wishing you a successful and enriching conference.

Best Regards,
Dr. Anil Tiwari
Mahakaushal University, Jabalpur

महाकौशल विश्वविद्यालय
ऐंठाखेड़ा, चरगवां मुकनवारा रोड, पो.– तिलवारा
जबलपुर, मध्यप्रदेश, भारत
पिनकोडः– 482003
दूरभाषः– +91-9981350102
+91-9981360102
ईमेलः– info@mku.ac.in
वेब-साइटः– www.mku.ac.in

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

Ref- MKU/VC/2025/125 **Date – 10/03/2025**

Message

It is with immense pride and enthusiasm that I welcome all distinguished delegates, researchers, academicians, and professionals to the 6th International Conference on Environment and Society at Mahakaushal University, taking place on March 29 and 30, 2025. This year's theme, *Indiscriminate Anthropogenic Impact: A Trans-Disciplinary Approach to Environmental and Social Sustainability*, highlights the urgency of addressing human-induced environmental challenges through collaborative and interdisciplinary efforts.

In an era where environmental concerns are at the forefront of global discourse, it is imperative to adopt a holistic approach that integrates scientific research, policy frameworks, and societal engagement. This conference provides a platform for experts from diverse fields to come together, share groundbreaking research, and develop innovative strategies to promote sustainability. Through meaningful dialogue and knowledge-sharing, we can contribute to shaping policies and practices that ensure harmony between human progress and environmental preservation.

I extend my sincere gratitude to the organizing committee, eminent speakers, and all participants for their invaluable contributions. May this conference be a source of inspiration, collaboration, and impactful learning.

Wishing you all a successful and enriching conference.

Rcm

Best Regards,
Dr. R. C. Mishra
Mahakaushal University, Jabalpur

महाकौशल विश्वविद्यालय
ऐंठाखेड़ा, चरगवां मुकनवारा रोड, पो.– तिलवारा
जबलपुर, मध्यप्रदेश, भारत
पिनकोडः– 482003
दूरभाषः– +91-9981350102
+91-9981360102
ईमेलः– info@mku.ac.in
वेब-साइटः– www.mku.ac.in

MKU
MAHAKAUSHAL UNIVERSITY
JABALPUR | MADHYA PRADESH | INDIA

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

Ref- MKU/REG/2025/338 **Date – 28/02/2025**

Message

It is with great pleasure that I extend my warm welcome to all distinguished delegates, researchers, academicians, and professionals attending the 6th International Conference on Environment and Society at Mahakaushal University on March 29 and 30, 2025. This year's theme, ***Indiscriminate Anthropogenic Impact: A Trans-Disciplinary Approach to Environmental and Social Sustainability***, highlights the pressing need to address human-induced environmental challenges through a multidisciplinary approach.

In today's world, where environmental sustainability is a global priority, this conference serves as a crucial platform for knowledge exchange, research collaboration, and innovative discussions. By bringing together experts from diverse disciplines, we aim to foster new ideas and solutions that will contribute to a more sustainable and environmentally conscious society.

I extend my sincere appreciation to the organizing committee, keynote speakers, and all participants for their invaluable contributions to making this event a success. May this conference be an enlightening and fruitful experience for all.

Wishing you all a successful and impactful conference.

Best Regards
28/02/2025
Dr A H Saraswat
Registrar
Mahakaushal University, Jabalpur

The Global University, Itanagar (Arunachal Pradesh)
Naharlagun Model Vill, Itanagar - 791110, Arunachal Pradesh, India
Tel.: +91-7042550366, 0360-2277560
https://www.tgu.ac.in/

Dr. Vibhuti Jha
Vice Chancellor

Date: 09.05.2025

Message

It is my pleasure to welcome you to the 6th International Conference on Environment and Society (6th ICES), themed “Indiscriminate Anthropogenic Impact: A Trans-disciplinary Approach to Environmental and Social Sustainability on May 10 and 11, 2025 at Mahakaushal University, Jabalpur in Hybrid Mode, a premier gathering of scholars, researchers, and experts in agriculture, biotechnology, environmental science and nanotechnology. This conference provides a unique opportunity for intellectual exchange, collaboration, and knowledge sharing. I am confident that the deliberations and discussions during the conference will contribute significantly to the advancement of agriculture and foster meaningful connections among participants.

I extend my best wishes for a successful and enriching conference." Or, if you'd like a shorter version: "Welcome to ENVIRONMENT AND SCIENCE 6TH ICES multidisciplinary Conference 2025 I'm delighted to see experts and scholars come together to share knowledge and shape the future of all discipline. I wish the conference all success."

(Dr. Vibhuti Jha)

आजादी का अमृत महोत्सव

भाकृअनुप – खरपतवार अनुसंधान निदेशालय
महाराजपुर, अधारताल, जबलपुर 482004 (म.प्र.)
ICAR - Directorate of Weed Research
Maharajpur, Adhartal, Jabalpur 482004 (M.P.)

डॉ. जे.एस. मिश्र, निदेशक
Dr. J.S. Mishra, Director

Message

It is my pleasure to know that the 6th International Conference on Environment and Society on the theme **"Indiscriminate Anthropogenic Impact: A Trans-disciplinary approach to Environmental and Social sustainability"** is being organized by the Global Environment & Social Association (GESA), New Delhi during 10-11 May, 2025 at Mahakaushal University, Jabalpur (Madhya Pradesh).

Indiscriminate anthropogenic activities in agriculture, such as, burning of crop residues, deforestation, indiscriminate use of inorganic fertilizers and agro-chemicals, over exploitation of natural resources, such as soil, water, etc., intensive farming and improper waste disposal can lead to significant adverse impact on environment including soil degradation, water pollution and losses of bio-diversity. These activities negatively impact ecosystems services, soil health, water quality and ultimately affecting the food and environmental security.

I hope that the deliberations during the conference will lead to practical and implementable recommendations, which will be useful for farmers, policymakers and other stakeholders. I congratulate the organizers and convey my best wishes for success of the Conference.

(J.S. Mishra)
16.4.2025

Dated the 16 April, 2025

Phone : +91-761-2353138
Fax : +91-761-2353129
Facebook : https://www.facebook.com/Icar-Dwr-Jabalpur
Email : Director.Weed@icar.gov.in
Website : https://dwr.icar.gov.in
Twitter : https://twitter.com/Dwricar

ੴ ਸਤਿਗੁਰ ਪ੍ਰਸਾਦਿ
SRI GURU TEGH BAHADUR KHALSA COLLEGE
(An ISO:9001:2015 Certified Minority Institution)
Mahanadda, Nagpur Road, JABALPUR 482001
(Affiliated To Rani Durgawati Vishwavidyalaya Jabalpur and
Recongnized by M.P.Government, BCI, and NCTE, New Delhi)

Date: 07-04-25

Message

It is a matter of great pleasure that Global Environment and Social Association (GESA), New Delhi in association with Mahakaushal University (Jabalpur), Sri Guru Tegh Bahadur Khalsa College (Jabalpur), The Global University, Itanagar (A.P.), The American University, (USA) and ICAR Direcorate of Weed Research, Jabalpur is organizing 6th International Conference on **"Environment and Society"** from **10th to 11th May 2025**. The theme of the conference is **"Indiscriminate Anthropogenic Impact: A Trans-Disciplinary Approach to Environmental and Social Sustainability."**

This conference serves as an excellent platform for spreading awareness about the potential of natural resources and their significance in the development of various products for sustainable growth. Furthermore, it will provide an opportunity for participants and speakers from across the world to interact and share their knowledge. Through this conference, participants will be encouraged to engage in research on green technology, which will be beneficial for both the environment and the global economy.

I extend my best wishes for the grand success of the conference.

Dr. R. S. Chandok
Principal

Telephones : 2427251,4004369 (College), 9425604024 **Website-**www.sgtbkhalsajbp.org
E-mail id-sgtbkhalsacollegeoffice@gmail.com.

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

Message

It is a matter of great pride and privilege that Glocal Environment and Social Association (GESA) New Delhi is going to organise 6th International Conference on Environment and Society (6th ICES), themed "Indiscriminate Anthropogenic Impact: A Trans-disciplinary Approach to Environmental and Social Sustainability on May 10 and 11 ,2025 at Mahakaushal University ,Jabalpur in Hybrid Mode. This conference is, in fact, being jointly organised by Sri Guru Tegh Bahadur Khalsa College, Jabalpur, The Global University, Itanagar (AP), Directorate of Weed Research, Jabalpur (ICAR-DWR), The American University, USA. This conference aims to bring together researchers, academicians, policymakers, and industry experts to discuss sustainable solutions that bridge the gap between environmental science and social development. By fostering collaboration across disciplines, the conference seeks to promote innovative strategies that ensure a balance between human progress and environmental conservation, ultimately paving the way for a sustainable and resilient future.

As the Convener, I am delighted to present this abstract book, which showcases a diverse range of perspectives and thought-provoking research contributions. Each abstract is a testament to the dedication and intellect of the authors who strive to make a meaningful impact through their work.

I extend my sincere gratitude to all participants, contributors, and supporting institutions for their invaluable role in making this conference a success. I hope this compilation serves not only as a record of academic endeavour but also as a source of inspiration for future collaborations and actions toward sustainable development.

With best regards,

Yours Sincerely

(Prof. Sunita Arya)
Secretary, GESA

Mobile: 8299707543 • E-mail: president.gesa@gmail.com
14E/4A Jawahar Lal Nehru Road Prayagraj 211002

Dr. Sadguru Prakash
M.Sc., Ph.D. D.Sc. (Honoris causa)
FGAS, FBPS, FGESA, FABRF, FNAS, FIAZ, FGIR, FZSI
Department of Zoology,
M.L.K. P.G. College, Balrampur, U.P.

Message

Anthropogenic activities such as industrialization, urbanization, deforestation, habitat destruction, and the overexploitation of natural resources have led to significant biodiversity loss, resource depletion, and environmental pollution. These impacts have placed an unprecedented strain on Earth's ecological balance. Importantly, the consequences of human actions are not limited to a single domain; rather, they represent a complex, multifaceted challenge that demands a transdisciplinary approach to sustainability. Notably, these issues often emerge at the local level but gradually escalate into global concerns. So, in order to enhance the mass awareness about this global issue, Glocal Environment and Social Association (GESA), New Delhi in association with Mahakaushal University (Jabalpur), Sri Guru Tegh Bahadur Khalsa College (Jabalpur), The Global University, Itanagar (A.P.), The American University, (USA) and ICAR Direcorate of Weed Research, Jabalpur is organizing 6th International Conference on "Environment and Society" under the compelling theme: *"Indiscriminate Anthropogenic Impact: A Trans-Disciplinary Approach to Environmental and Social Sustainability."* from 10th to 11th May 2025. In the face of escalating environmental challenges and deepening social inequalities, the need for integrative, cross-disciplinary dialogue has never been more urgent.

Our conference aims to bring together scholars, researchers, practitioners, and policymakers from diverse disciplines and geographies to critically engage with the complex and intertwined nature of human-environment interactions. By fostering conversations that transcend traditional academic boundaries, we hope to inspire innovative solutions and sustainable practices that respond to the multifaceted crises we face today.

I extend my heartfelt thanks to all participants, speakers, and contributors for your enthusiasm and commitment. Your presence and insights are what make this platform truly dynamic and impactful. Let us use this opportunity not only to share knowledge but to build meaningful collaborations for a more sustainable and equitable future.

Warm regards,

(Dr. Sadguru Prakash)
Convener, 6th ICES, 2024

महाकौशल विश्वविद्यालय
ऐंठाखेड़ा, चरगवां मुकनवारा रोड, पो.– तिलवारा
जबलपुर, मध्यप्रदेश, भारत
पिनकोड:– 482003
दूरभाष:– +91-9981350102
+91-9981360102
ईमेल:– info@mku.ac.in
वेब-साइट:– www.mku.ac.in

MKU
MAHAKAUSHAL UNIVERSITY
JABALPUR | MADHYA PRADESH | INDIA

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

Ref- MKU/AG/2025/ 70

Date – 13/04/2025

Message

It gives me immense pleasure to welcome all distinguished delegates, researchers, academicians, and students to the **6th ICES International Conference** on the theme: **"Indiscriminate Anthropogenic Impact – A Transdisciplinary Approach to Environmental and Social Sustainability"**, scheduled to be held on **10th and 11th May** at **Mahakaushal University, Jabalpur (M.P.), India**.

In the face of mounting environmental challenges and socio-economic transformations, this conference provides a much-needed platform for critical dialogue, exchange of innovative ideas, and collaborative efforts across disciplines. The chosen theme resonates deeply with our current global scenario, where human interventions have significantly altered ecological and social systems. A transdisciplinary approach is essential to understand, mitigate, and sustainably manage these impacts.

As the Organising Secretary, I am proud to be part of this initiative that brings together experts from various domains including environmental science, agriculture, social sciences, technology, and policy. I am confident that this conference will foster meaningful discussions, ignite new collaborations, and inspire actionable strategies toward a more sustainable future.

I warmly invite you to participate and contribute to this academic fest and help us in building a resilient and sustainable world.

Dr. Nimisha Tiwari
Organising Secretary,
6th ICES International Conference
Head, Department of Agriculture
Mahakaushal University, Jabalpur (M.P.)

ABOUT THE ICES

Glocal Environment & Social Association (GESA) came into existence on 16/12/2018 in a formal meeting held at Prayagraj, the confluence city of three holy rivers namely the Ganga, the Yamuna and the mythical Saraswati. Its annual session is organized in the form of an international conference on "Environment and Society (ICES)", preferably in the month of December every year. Here, is the summary of ICES held:

S.No.	Theme	Dates (mode)	Venue	In Association with
1st ICES	Socio-economic Challenges of Agriculture, Biodiversity & Environment	22 & 23 Dec. 2019 (Physical	Harcourt Butler Technical University (HBTU) Kanpur	DG PG College Kanpur, Indian Thinkers' Society (ITS) Kanpur and Asian Biological Research Foundation (ABRF) Prayagraj
2nd ICES	Socio-economic and Environmental Issues: Challenges and Future Prospects in Current Pandemic Situation	26, 27 & 28 Dec. 2020 (Online)	Online	Maharishi Markandeshwar (Deemed to be University), Mullana Ambala (HR), Govt. KRG PG (Auto.) College, Gwalior (M.P.), K.J. Somaiya College of Arts, Commerce & Science, Kopargaon, Ahmednagar (MS), National Environmental Science Academy (NESA), New Delhi and Asian Biological Research Foundation (ABRF), Prayagraj (U.P.).
3rd ICES	Interdisciplinary Approach in Education, Environment, Spirituality & Technology	23, 24 & 25 Dec. 2021 (Hybrid)	Nehru Gram Bharati University (NGBU) Jamunipur, Prayagraj	-----
4th ICES	Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability	23 & 24 Dec. 2022 (Hybrid)	Jiwaji University, Gwalior	National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India, Govt. KRG PG (Autonomous) College, Gwalior (M.P.), Govt. P.G. (Autonomous) College, Datia (M.P.), Nepal Aquaculture Society, Kathmandu and ABRF, Prayagraj
5th ICES	Recent Advancement in Disaster Management, Agriculture and Environmental Sustainability	29 & 30 Dec. 2023 (Hybrid)	Dr. RML Avadh University, Ayodhya	The American University, USA and Department of Environment, Forest and Climate Change, Govt. of Uttar Pradesh.

6th ICES	Indiscriminate Anthropogenic Impact: A Trans-disciplinary Approach to Environmental and Social Sustainability	10 & 11 May 2025 (Hybrid)	Mahakaushal University, Jabalpur	Sri Guru Tegh Bahadur Khalsa College, Jabalpur (M.P.), The Global University, Itanagar (Arunachal Pradesh), ICAR-DWR (Directorate of Weed Research), Jabalpur (M.P.), The American University, USA

ABOUT THE 6th ICES

Indiscriminate Anthropogenic Impact: A Trans-disciplinary Approach to Environmental and Social Sustainability

The Anthropocene epoch, defined by the significant and often detrimental influence of human activities on the planet, has led to widespread environmental degradation and social disruption. Anthropogenic activities, ranging from industrialization and urbanization to deforestation and overexploitation of natural resources, have created an unprecedented strain on Earth's ecological balance.

Climate change, driven by excessive carbon emissions from fossil fuel combustion, has led to rising global temperatures, extreme weather events, and disruptions to agricultural patterns. Similarly, land-use changes, such as deforestation for agriculture and infrastructure development, have resulted in habitat destruction, biodiversity loss, resource depletion and pollution have profoundly affected both natural ecosystems and human societies. Air and water pollution disproportionately affect impoverished populations, leading to health crises, forced displacement, and loss of livelihoods.

The indiscriminate anthropogenic impact is not confined to a single discipline; rather, it is a multifaceted issue requiring a trans-disciplinary approach to sustainability. This essay explores how an integrative framework, encompassing environmental science, social sciences, economics, technology, ethics, and policy-making, can help to mitigate the negative consequences or adverse effects of human actions while fostering or promoting resilience and sustainability. Environmental science and technology play a crucial role in assessing, mitigating, and adapting to anthropogenic impacts.

Climate modelling, remote sensing, and big data analytics help scientists predict environmental changes and inform policy decisions. Renewable energy technologies, such as solar, wind, and bioenergy, offer sustainable alternatives to fossil fuels, reducing greenhouse gas emissions and mitigating climate change. The conference on 'Indiscriminate Anthropogenic Impact: A Trans-disciplinary Approach to Environmental and Social Sustainability' endeavours to explore and illuminate the multifaceted landscape of waste management, unveiling innovative strategies, technologies, and policies that promise to shape a more sustainable future.

The challenge is immense, but with collective effort, interdisciplinary collaboration, and a commitment to justice and equity, a more resilient and sustainable future is possible. The main aim of the present conference is a step forward in this direction to bridge the gap and provide a platform for interaction and deliberations among scientists, researchers, academicians and policy makers from different parts of the globe as trans-disciplinary approach has a number of advantages for mankind. Sub themes of 6th ICES are as under:

1. **Impact of Climate Change on Agriculture**
2. **Climate Change and Waste Management**
3. **Biodiversity, Water and Wildlife management**
4. **Climate change scenario and Ozone layer healing**
5. **Waste management and Socio-economic impact**
6. **Bioremediation and Environmental monitoring**
7. **Advances in energy conservation and storage**
8. **Renewable energies**
9. **Innovation in weed control, agricultural intensification and environmental health**
10. **Biodiversity and Ecosystem Services**
11. **Impact of Globalization on Social Sustainability including Economic disparities, Labour exploitation, Cultural erosion and Environmental impact**
12. **Advances in Fishery and Veterinary Sciences**
13. **Sustainable Development of Natural Resources**
14. **Impact of green technology on the economy and ecology**
15. **Biodiversity perspectives of Food, Health and Society**
16. **Role of Women and Tribes in Social and Environmental Sustainability**
17. **Any other relevant topics related with main theme**

These subthemes can encourage diverse discussions and provide comprehensive insights into the intersection of agricultural & aquaculture practices, globalization, and social sustainability.

CONFERENCE AWARDS

The Organizing Committee will confer 15 awards to participants during the 6th ICES:

1. Best Oral Presentation Award (1st, 2nd, 3rd and 2 consolation)
2. Best Poster Presentation Award (1st, 2nd, 3rd and 2 consolation)
3. Best Online Presentation Award (1st, 2nd, 3rd and 2 consolation)

GESA SPECIAL AWARDS

1. RKV Lifetime Achievement Award

The Founder President of GESA, Mr. Ram Kumar Verma was born in Faizabad (now Ayodhya), who walked this earth as a beacon, not merely to exist but to awaken the people. A brilliant scholar, a sage, a steward of the earth; he was an educationist of rare insight, an environmentalist ahead of his time, a social thinker with the courage to question, and a reformer who wove ideals into action. Above all, he was a teacher in the truest sense and brought not only knowledge, but awareness particularly in rural areas. He stood against the rusted chains of caste, against the silence of stigma, against the shadow of untouchability and blind orthodoxy.

Mr. Verma's life stood as a paragon of the virtues he so passionately espoused: Punctuality, Diligence, Dedication, Devotion, and Amiability were not mere attributes, but the very fabric of his being, qualities which, to this day, continue to inspire reverence and emulation. In his vision, all were equal, all were worthy, all were human and he lived that truth undaunted, unshaken and unwavering.

Now, he is no more and left us forever on December 26, 2024, leaving behind a legacy of uncommon stature and immeasurable impact. Although, he is no longer among us, his legacy stands tall, like a tree whose shade shelters generations; his stalwart stature itself will regularly enthused as torch-bearer for upliftment of the people.

In eternal homage, GESA decided to commence RKV Lifetime Achievement Award since this year. This highest honour of GESA will be bestowed to those who mirror his spirit, those who serve Society, Humanity, and Nature with distinction, integrity, and love. This sacred recognition shall be offered amid the radiant gathering of national and international dignitaries during GESA's annual International Conference on Environment and Society (ICES). The honoree shall receive a framed testament of honor, a memento wrought with care, an angvastram, symbol of purity and respect along with a potted plant, symbol of ecological balance and clean environment.

As per unanimous recommendation of high power award search committee, the name finalized for RKV Lifetime Achievement Award of this year is of Prof. D.R. Singh Hon'ble Vice Chancellor, Bihar Agriculture University, Sabour, Bhagalpur. Prof. Singh fully deserves for this highest award as his commendable and meaningful contribution in the field of Society, Humanity and Nature speaks very high.

Prof. D. R. Singh
Honoree of 1st RKV Lifetime Achievement Award

GESA SPECIAL AWARDS

2. Birendra Singh Memorial Glocal Award for Social Services

Mr. Birendra Singh, by Profession was an Architect and Environmentalist-cum-Social worker, from Allahabad (now Prayagraj). He was Founder Treasurer of GESA. While world-wide disastrous COVID-19 incidence period, widely known as 'LOCKDOWN', for up-keeping of the humanity, he was continuously extending door-to-door social services among the victims of the COVID positive patients and taking care as leader as much as possible and distributing food packets, medicines and needful items. He was detected COVID positive, admitted in MLN Medical College, Prayagraj for treatment and lost the battle as a real 'Hero', on 05.05.2020 (first reported death case due to COVID from Allahabad).

To commemorate his commendable role/services for Cleanliness, Environment and Society, the Executive Council of GESA initiated to remember him in the form of an Award 'Birendra Singh Memorial Glocal Award for Social Services' in 2021. The Recipients of this award till now are:

1. **Prof. M.D.R. Gupta**, Principal, Govt. PG College, Bhadohi (U.P.) [3rd ICES 2021; Nehru Gram Bharti Deemed to be University, Jamunipur, Prayagraj]
2. **Dr. Sheo Kumar**, Scientist 'F' (Additional Director), Botanical Survey of India, CRC, Allahabad (U.P.) [4th ICES 2022; Jiwaji University, Gwalior]
3. **Prof. Bechan Sharma**, Dean, Faculty of Science, University of Allahabad, Prayagraj (U.P.) [5th ICES 2023; Dr RML Avadh University, Ayodhya]
4. **Dr. D.K. Sharma**, Civil Surgeon & Medical Specialist (Retd.), District Hospital, Gwalior (M.P.) [6th ICES 2024; Mahakaushal University, Jabalpur].

ABOUT THE ORGANIZERS

Mahakaushal University (MKU), Jabalpur (M.P.)

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

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

Sri Guru Tegh Bahadur Khalsa College, Jabalpur (M.P.)

Sri Guru Tegh Bahadur Khalsa College was established in the year 1979 to serve the ever growing educational needs of the students. The college is affiliated to RDVV, Jabalpur and approved by M.P. Higher Education Bhopal, NCTE, New Delhi and BCI, New Delhi. The college is ISO certified 9001:2015, registered under 2(f) and 12b. It is a minority institution with 44years of educational excellence. Here students belonging to all casts and religions are motivated to become good learners.

Sri Guru Tegh Bahadur Khalsa College is inspired by the motto “Education is not the learning of facts but the training of minds to think” and our objective is to provide friendly, informative and supportive environment for students, which help them in developing enhanced competitive skills. The college has made remarkable progress over the years. Today, it is one of the distinguished institutes of Sanskardhani that offers 30 different courses including graduation courses in science, commerce, arts and education and postgraduate courses in science, commerce and arts.

Sri Guru Tegh Bahadur Khalsa College is dedicated for youth to excel in academics along with development of scientific approach with new innovations for effective methods of education and to create milestones. We aim at providing foundation of healthy domain of surroundings for all round development of our students.

The Global University, Itanagar (Arunachal Pradesh)

At The Global University, we are proud to be a beacon of academic excellence, innovation, and community engagement. University was widely recognized as one of the prominent educational institutions of the state of Arunachal Pradesh. Since 2024, University is a leading group known amongst the top education institutions in India. Our university has been at the forefront of shaping minds, fostering creativity, and empowering individuals to make a positive impact on the world.

The Global University, Established with the aim of delivering excellent education and actively participating in social responsibility, our University strives to make a positive impact. The Act envisions the University to found, conserve, oversee, and enhance campuses.

University started to expand progressively in all the fields of education namely, LAW , Medical, Science, Engineering, Management, Design and many more. The University is dedicated to providing students with high-quality, values-driven, and future-focused programs developed by academic experts and professionals. The program strives to nurture individuals into professionals and entrepreneurs.

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 UNIVERSALLY ACCEPTED 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.

ICAR-DWR (Directorate of Weed Research), Jabalpur (M.P.)

It was in 1978 the Weed Research Programme was strengthened through All India Coordinated Research Programme on Weed Control by the ICAR in collaboration with the

United States Department of Agriculture. Initially, six centres were started at different state agricultural universities (SAU) for a period of six years. Later seven more centres in II phase and nine more centres in III phase were added during 1982-83 and 1985-86 respectively for a period of five years each. The programme was continued with plan funds of ICAR. The research programme tackled problems of weed management for which facilities were not available at different centres. The National Research Centre for Weed Science (NRCWS) came into existence in 1989. NRCWS was further upgraded by the Council as Directorate of Weed Science Research (DWSR). The Directorate was upgraded to its present status in 2009 and was known as 'Directorate of Weed Science Research (DWSR)'. The Directorate was renamed as 'Directorate of Weed Research (DWR)' in 2014. Its mission is to provide scientific research and technology in weed management for maximizing the economic, environmental and societal benefits for the people of India.

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 will confer following categories of awards and honours through search and nominations to its members during this 6th annual session:

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. Those who have received GESA awards in the year 2023 are not eligible to apply. For detailed guidelines, please log on to website: **http://www.gesa.org.in** [Email id: **officegesa1@gmail.com**].

❖❖❖❖❖

ORGANIZING COMMITTEE

Chief Patron

Dr. Anil Tiwari
Hon'ble Chancellor, Mahakaushal University (MKU), Jabalpur (M.P), India

Special Patrons

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

Dr. J.S. Mishra
Director, ICAR-Directorate of Weed Research (DWR), Jabalpur (M.P.), India

Patrons

Dr. R.C. Mishra
Vice Chancellor, Mahakaushal University, Jabalpur (M.P.), India

Dr. Vibhuti Jha
Vice Chancellor, The Global University, Itanagar (Arunachal Pradesh), India

Dr. R.S. Chandok
Principal, Sri Guru Tegh Bahadur Khalsa College, Jabalpur (M.P.), India

Chairpersons

Dr. A. Arunachalam
Director, ICAR-Central Agroforestry Research Institute, Jhansi (U.P.)

Prof. Bechan Sharma
Dean, Faculty of Science, University of Allahabad, Prayagraj (U.P.)

Prof. Surendra Singh
Department of Biological Science, RDVV, Jabalpur (M.P.)

Prof. Vineeta Shukla
Department of Zoology, Mahrishi Dayanand University, Rohtak (Haryana)

Prof. M.D. Ram Gupta
Regional Higher Education Officer, Kanpur (U.P.)

Prof. Parth Sarthi Pandey
Central Institute of Hindi, Regional Centre, Shillong (Meghalaya)

Prof. Madhu Laxmi Sharma
Department of, Botany, Govt. KRG PG (Auto.) College, Gwalior (M.P.)

Dr. G.K. Chandok
Principal, Sri Guru Ramdas Khalsa College, Jabalpur (M.P.)

Dr. A.K. Pandey
Principal Scientist, ICAR-NBFGR Lucknow (U.P.)

Co-Chairpersons

Dr. M. Alam
Pro-Chancellor, Mahakaushal University, Jabalpur (M.P.), India

Dr. A.H. Saraswat
Registrar, Mahakaushal University, Jabalpur (M.P.), India

Dr. Vinod Kumar Chaudhary
Head, Department of Environmental Sciences, Avadh University, Ayodhya (U.P.)

Conveners

Prof. Sunita Arya (Kanpur)
Dr. Sadguru Prakash (Balrampur)
Dr Amit Yadav (Itanagar)

Co-Conveners

Mrs. Shikha Parashar (Jabalpur)
Dr. Harshita Shukla (Jabalpur)
Dr. Arjun Shukla (Jabalpur)
Dr. Amit Pal (Jhansi)
Dr. Ranjit Singh (Unnao)
Dr. Amita Srivastava (Kanpur)
Dr. Pankaj Singh (Prayagraj)

Organizing Secretaries

Dr. Nimisha Tiwari (Jabalpur)
Dr. Saurabh Gupta (Jabalpur)
Dr. A.N. Shukla (New Delhi)

Joint-Organizing Secretaries

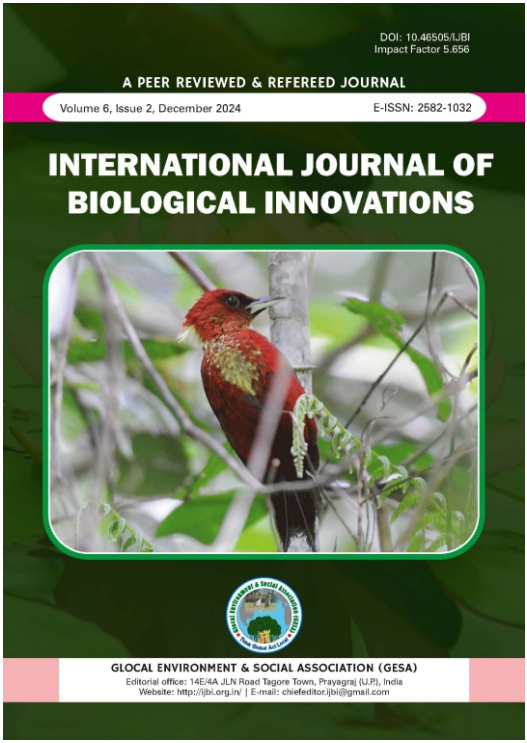
Dr. Praveen Manker (Jabalpur)
Dr. Ajay Mishra (Jabalpur)
Dr. Wahied K. Balwan (Doda)
Dr. Aparna Pareek (Jaipur)
Dr. Eshita Pandey (Kanpur)
Mr. Prabhakar Singh (Prayagraj)
Dr. Kaushal Tripathi (Jabalpur)
Dr. Sushil K. Upadhyay (Ambala)
Dr. Naveen Patel (Ayodhya)

Local Advisory Board

Dr. Savita Tiwari, Dr. Nikhil Ranjan Jha, Mr. Manish Shukla, Dr. Alka Mishra, Ms. Najma Khatoon, Dr. Anjali Pandey, Mr. Bhawani Singh, Mrs. Neeru Dubey, Mr. Shailesh Dwivedi, Mr. Aman Shukla, Mr. Avadesh Yadav, Mrs. Rupali Mishra, Mr. K.K Sharma, Mr. Yugank Khare, Dr. Bhaskar Jyoti, Dr. P. C. Gupta, Dr. Swati Agarwal, Dr. Shipra Mishra, Dr. Rajesh Tiwari, Dr. Kiran Sachdeva, Dr. Mukesh Singh, Mrs. Prajakta Joshi, Dr. Vishal Mishra, Ms. Ayushi Pandey, Ms. Nisha Yadav, Mr. Shreyansh Pandey.

International / National Advisory Board

Prof. Recie B. Bonaos (Philippines), Dr. Abul Kalam (Saudi Arabia), Dr. Usman U. Zango (Nigeria), Dr. Subhasish Saha (Czech Republic), Prof. Mark Benecke and Dr. Ulrich Berk (Germany), Prof. Anil K. Anal (Thailand), Prof. S.N. Labh, Prof. D.K. Jha, Dr. O.P. Singh, Dr. Prabha Chitrakar and Dr. Archana Prasad (Nepal), Dr. B. K. Chakraborty and Md. Hashibur Rahman (Bangladesh), 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, Prof. B.B. Patnaik, Prof. Bibha Chetia Borah, Prof. Shri Prakash, Prof. Ajit K. Saxena, Prof. B.S. Yadav, Prof. Ajit T. Kalse, Dr. Pratibha Gupta, Dr. Giridhar Parvatam, Dr. Anu P. Vankara, Prof. S.K. Chaturvedi, Prof. R.C. Tripathi, Prof. Kishor Arora, Dr. Meera Srivastava, Dr . Alok Sagar Gautam, Prof. M.A. Khalid, Dr. Rachana Gangwar, Dr. Kalpana Singh, Dr. Ravi S. Verma, Dr. Pradeep Kumar, Dr. Awanish, Singh, Dr. M.P. Singh, Dr. Bharat Singh, Dr. R.S. Tomar, Dr. Sandeep Arya, Dr. S.P. Mishra, Dr. Seema M. Singh, Dr. Prerna Mitra , Dr. R.P. Singh and Dr. H.M. Pal.



International Journal of Biological Innovations (IJBI)

The IJBI is an official publication of the Glocal Environment & Social Association (GESA). The IJBI is a peer-reviewed, refereed, multi- indexed, open access and online journal, published **FREE OF COST** twice in a year i.e. June and December. It aims to disseminate the scientific research, recent biological innovations and to provide the most complete as well as reliable source of information on current developments in the field. The IJBI plays an important role in global academia by encouraging research, fostering knowledge and promoting new dimensions/developments in the areas related to biological sciences.

The IJBI is a fully open access journal for which author/user need not to pay any fee. Once published, articles will be immediately and permanently available for readers to read, download and share free of cost. The IJBI publishes original/ quality research articles, reviews and short communications pertaining to all fields of Biological Sciences (Botany and Zoology) including Environmental Science, Agriculture, Veterinary Science, Molecular Biology, Biotechnology, Biochemistry, Bioinformatics, Microbiology, Immunology and so on. Author (s) can submit articles through the online submission process. Email: chiefeditor.ijbi@gmail.com **(Website: https://ijbi.org.in/index.php).**

Currently, 7th volume of IJBI is in progress. Till date it has around **1700 Google Scholar Citations** (https://scholar.google.com/ citations?user=SmiqFZMAAAAJ&hl=en) **with 20 h-index and 52 i10-index**.

Mahakaushal University, Jabalpur (M.P.)
https://mku.ac.in/

Shri Guru Teg Bahadur Khalsa College, Jabalpur (M.P.)
https://sgtbkhalsajbp.org/

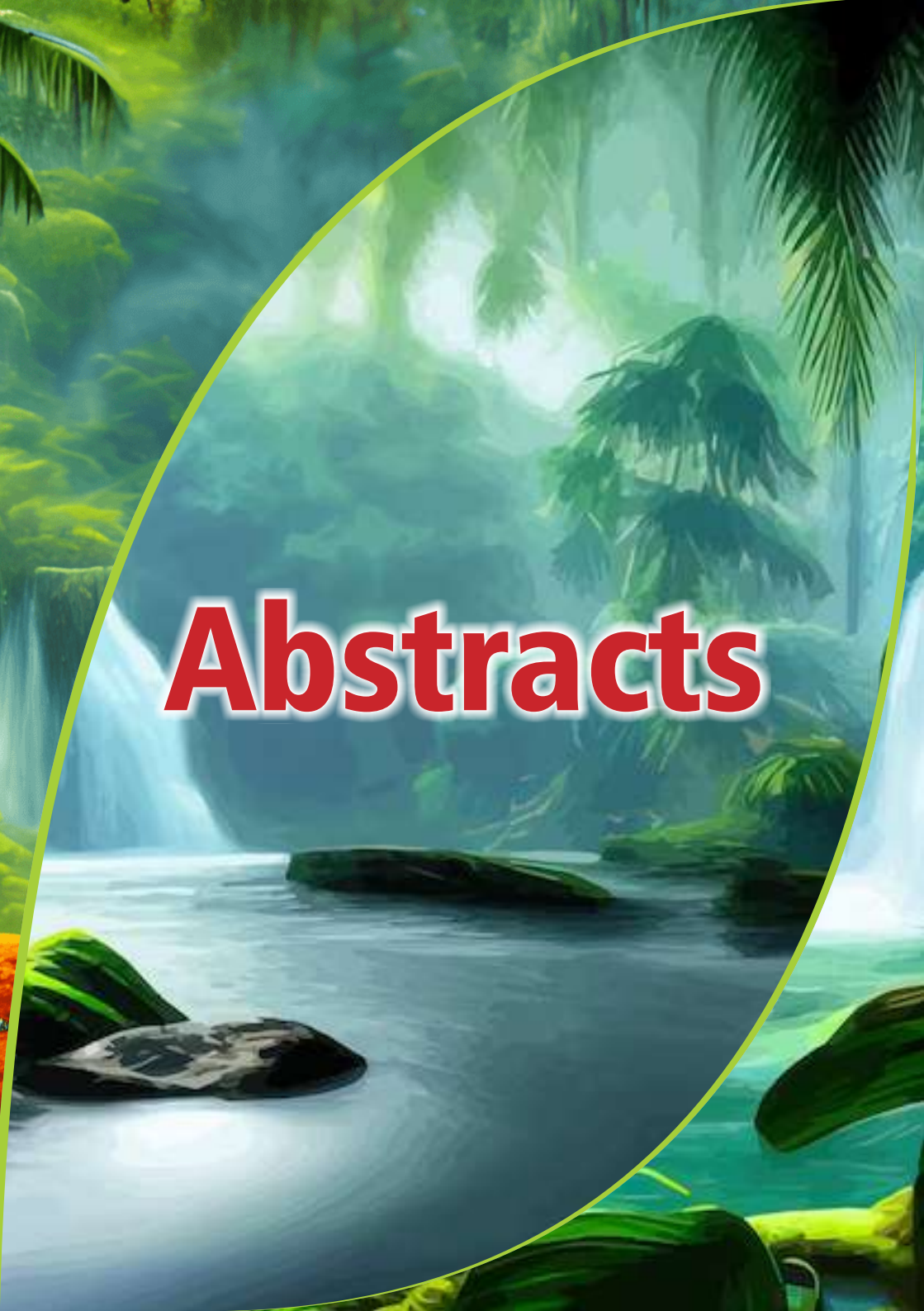
The Global University, Itanagar (Arunachal Pradesh)
https://www.tgu.ac.in

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

ICAR-Directorate of Weed Research, Jabalpur
https://dwr.icar.gov.in/

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

Welcome


Abstracts

Index

Abstract No. 1

IMPACT OF CLIMATE CHANGE ON AGRICULTURE

Aparna Sharma and Sanskala Patel

Institute of Agricultural Sciences
Rani DurgavatiVishwavidyalaya, Jabalpur (M.P.), India

ABSTRACT

Climate change is one of the most pressing global challenges, significantly affecting agriculture, which is essential for food security and economic stability. Rising global temperatures, unpredictable rainfall patterns, increased frequency of extreme weather events, and shifting growing seasons are disrupting farming practices worldwide. These climatic changes negatively impact crop yields, soil health, water availability, and pest dynamics, threatening agricultural productivity and rural livelihoods. One of the major consequences of climate change is rising temperatures, which disrupt the physiological processes of crops. Heat stress reduces photosynthesis, shortens growing periods, and lowers yields for staple crops like wheat, rice, and maize. Altered precipitation patterns lead to irregular water supply, causing droughts in some regions and flooding in others, thereby affecting irrigation systems and exacerbating water scarcity. Additionally, increased carbon dioxide levels and temperature fluctuations create favorable conditions for pests and plant diseases, further reducing food production efficiency. Extreme weather events such as hurricanes, heatwaves, and prolonged droughts are becoming more frequent, causing severe damage to crop, infrastructure, and farm incomes. Soil degradation due to excessive rainfall, erosion, and desertification further threatens arable land. Livestock farming also suffers as heat stress reduces animal productivity and increases disease susceptibility. To combat these challenges, climate-smart agricultural practices such as drought-resistant crops, precision farming, improved irrigation techniques, and sustainable soil management are being developed. Policymakers and researchers emphasize global mitigation efforts, including reducing greenhouse gas emissions, promoting afforestation, and adopting eco-friendly farming practices. International cooperation and investment in agricultural resilience programs are crucial to safeguarding food security and ensuring sustainable agricultural production in the face of climate change.

Abstract No. 2

ENVIRONMENTAL SHIFT IMPACT ON FISH AND FISHERIES

B. Bharatha Lakshmi

Department of Zoology, Andhra University, Visakhapatnam

ABSTRACT

Environmental shifts driven by climate change, pollution and human activities pose significant challenges to fish and fisheries globally. Rising temperatures, ocean acidification, habitat loss, changes in salinity, and deoxygenation disrupt aquatic ecosystems altering fish physiology, growth, breeding and reproduction. These changes lead to shifts in species distribution, diversity, migration patterns and the emergence of invasive species, impacting biodiversity and ecosystem stability. Fisheries face declining stocks, unpredictable yields, and socio-economic challenges, particularly for small-scale fishers. Environmental pollution is especially pronounced in point source areas such as mining, foundries, smelters, and other metal-based industrial operations. Toxic heavy metals from industrial effluents contaminate aquatic habitats and bioaccumulate in fish tissues creating favorable conditions for parasites and pathogens. These contaminants impair fish growth and increase disease incidence, while interfering with reproduction and breeding success by reducing fertility and survival rates. Consequently, the nutritive value of the fish declines rendering them unsafe for human consumption. Sustainable practices such as habitat conservation and climate-resilient aquaculture are critical for mitigating these impacts. The abstract highlights the need for adaptive management and collaborative efforts to ensure the resilience of fish populations and fisheries amidst environmental shifts.

Abstract No. 3

CONSERVATION OF FORESTS AND FAUNAL DIVERSITY BY USING GPS AND GIS SYSTEMS

Anil Khole

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

ABSTRACT

The integration of Global Positioning System (GPS) and satellite technology has revolutionized conservation efforts in forest ecosystems and wildlife management. These technologies enable precise tracking and monitoring of animal movements, habitat usage, and changes in forest cover. By utilizing satellite imagery and GPS data, conservationists can detect illegal activities such as poaching and deforestation in real-time, allowing for timely intervention. Additionally, these tools facilitate the creation of detailed maps and models that aid in the planning and implementation of conservation strategies. The combination of GPS and satellite technology enhances the effectiveness of conservation programs, ensuring the protection and Sustainability of forest ecosystems and the diverse species that inhabit them. In recent years, the importance of conserving forests and wildlife has garnered significant attention due to the rapid decline of biodiversity and habitats. Geographic Information Systems (GIS) and Global Positioning Systems (GPS) have emerged as powerful tools in this endeavour. These technologies offer innovative solutions to monitor, manage, and protect natural resources effectively.

Abstract No. 4

SUSTAINABLE RESOURCE MANAGEMENT: A PATHWAY TO A GREENER FUTURE

Esha Yadav

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

ABSTRACT

Natural resources are limited and uncontrolled exploitation can have negative effects on the environment. It is necessary to find the approach to their sustainable use. Sustainable development is the framework for defining strategies of continuous state and social progress, without harm to the environment and natural resources essential for human activities in the future. Sustainable use of natural resources is directly related to environmental protection. Natural resource management is complex and challenging in our rapidly growing society. As the demand for resources rises, it becomes increasingly important to effectively manage their quality and quantity to maintain our planet's ecological balance and sustainability. The field of natural resource management is extensive, enclosing a wide range of practices and strategies aimed at protecting and conserving our finite resources. Accelerated technological development improves the quality of life in all spheres of human activity, but in parallel, it creates the possibility of greater environmental degradation. Therefore, it is necessary, within the goals of the development policy of the society, to include the correct criteria that will contribute to sustainable development. Thus, we contribute to preserving the environment and the balance of natural ecosystems. It involves careful planning and management to ensure that resources are used efficiently and responsibly, and technology can help. Technology has revolutionized natural resource management in many ways. It has enabled better monitoring, analysis, and data collection that support sustainable decision-making. Remote sensing, GPS, and geographic information system mapping are examples of technological tools used in natural resource management. These technologies can help optimize the use of natural resources, minimize resource waste, and anticipate environmental changes. These technological advancements have paved the way for fundamental natural resource management practices. Here we discuss the strategies, challenges and future directions of

Abstract No. 5

APPLICATION OF NANOTECHNOLOGY IN ENVIRONMENTAL SCIENCE

Sadguru Prakash

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

ABSTRACT

The rising global population is driving an increase in energy and material consumption, leading to environmental challenges. These challenges include higher production of solid waste, increased air pollution from vehicles and industrial plants, and contamination of both surface and groundwater. Nanotechnology offers potential solutions to mitigate these environmental issues through both direct and indirect applications. Direct applications involve using nanomaterials to detect, prevent, and remove pollutants, while indirect applications focus on improving industrial design processes and developing environmentally friendly products. Due to their small size and large surface area, nanoparticles exhibit enhanced reactivity, which provides numerous benefits and practical uses. Nanotechnology offers innovative solutions for environmental remediation through methods such as nano-adsorbents, nano-filtration, nano-photocatalysts, magnetic nanoparticles, and nanosensors. These advanced techniques are used to treat water and wastewater, improve air quality, and detect pollutants. With its ability to eliminate and control environmental contaminants, as well as prevent their spread, nanotechnology is regarded as a green technology and a powerful tool for promoting sustainable development. However, these properties also pose potential risks to worker safety and environmental health, because of prolonged suspended of nanoparticles in the air, accumulation in ecosystems, easy absorption by living organisms, and potential damage to various organs.

Abstract No. 6

ROLE OF WOMEN AND TRIBES IN SOCIAL AND ENVIRONMENTAL SUSTAINABILITY

Subham Singh

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

ABSTRACT

Women and indigenous communities play a pivotal role in advancing social and environmental sustainability through their traditional knowledge, sustainable practices, and community-driven approaches. Their contributions to natural resource management, biodiversity conservation, and climate resilience are essential for maintaining ecological balance and fostering sustainable development. Women, particularly in rural and tribal settings, are actively engaged in sustainable agriculture, water conservation, and ecosystem protection, ensuring food security and environmental stability. Similarly, indigenous communities uphold traditional ecological knowledge, practicing sustainable forestry, medicinal plant cultivation, and responsible resource utilization, thereby contributing to environmental conservation. Despite their significant contributions, women and indigenous populations often face systematic marginalization, limited access to decision-making processes, and socio-economic challenges that hinder their full participation in sustainability efforts. Recognizing and integrating their knowledge into contemporary environmental policies and governance structures can enhance conservation outcomes and promote equitable resource management. This paper examines the critical role of women and indigenous communities in environmental sustainability, explores the challenges they encounter, and emphasizes the need for inclusive policies that acknowledge and strengthen their contributions to achieving long-term ecological and social balance.

Abstract No. 7

SUSTAINABLE FARMING AND SDGS: INDIA'S ROADMAP TO A RESILIENT FUTURE

Imon Das

Department of Agricultural Economics,
Institute of Agricultural Sciences, Banaras Hindu University, Varanasi, (U.P.), India

ABSTRACT

Sustainable development aims to balance economic growth, environmental conservation, and social well-being to meet present needs without compromising future generations. The adoption of the 17 Sustainable Development Goals (SDGs) in 2015 has provided a global roadmap for sustainability. India has shown notable progress in achieving these goals, with its overall SDG score improving from 57 in 2018 to 71 in 2023-24, particularly in poverty reduction, economic growth, climate action, and land conservation. Agriculture plays a pivotal role in sustainability, influencing food security, rural livelihoods, and environmental health. Sustainable farming practices such as organic and natural farming have demonstrated their potential to enhance productivity while preserving natural resources. Case studies from Indian farmers highlight the economic and ecological benefits of reducing chemical inputs and adopting eco-friendly techniques. To promote sustainable agriculture, the Indian government has introduced several key schemes, including the National Mission for Sustainable Agriculture (NMSA), Paramparagat Krishi Vikas Yojana (PKVY) for organic farming, National Food Security Mission (NFSM) for agricultural development etc. Additionally, the Pradhan Mantri Krishi Sinchai Yojana (PMKSY) supports water conservation and efficient irrigation. These initiatives, along with climate-resilient farming and public-private partnerships, have significantly contributed to sustainability efforts. Strengthening these initiatives through technological innovation, financial support, and inclusive policies is crucial for achieving long-term sustainability.

Abstract No. 8

BIOENERGY FOR A SUSTAINABLE FUTURE: UNLOCKING INDIA'S BIOMASS POTENTIAL

Vishnu Prabhakar Srivastava

Department of Chemistry
University of Allahabad, Prayagraj (U.P.) , India

ABSTRACT

As the world transitions towards sustainable energy solutions, bioenergy has emerged as a viable alternative to fossil fuels, particularly for resource-rich countries like India. With an extensive agricultural landscape, India generates substantial biomass that remains underutilized. This lecture explores the role of biomass in India's energy transition, highlighting its potential to reduce carbon emissions, enhance energy security, and contribute to rural development. Biomass-based energy sources, including biogas, bioethanol, biodiesel, and biomass pellets, offer renewable and carbon-neutral solutions for power generation, heating, and transportation. Recent advancements in biomass conversion technologies, such as gasification, pyrolysis, and plasma gasification, have further strengthened the feasibility of bioenergy in India. The co-firing of biomass pellets in coal-fired power plants has also demonstrated significant potential in reducing dependency on conventional fossil fuels. A critical aspect of bioenergy development lies in feedstock optimization. Agricultural residues, forestry by-products, and organic waste, including sugarcane bagasse, rice husk, and wheat straw, represent abundant raw materials that can be converted into high-value biofuels. For instance, ethanol derived from sugarcane bagasse could play a crucial role in India's Ethanol Blending Programme, which aims for 20% ethanol blending with petrol by 2025. Such initiatives not only curb greenhouse gas emissions but also offer economic incentives to farmers by creating demand for agricultural residues. Despite its vast potential, bioenergy adoption faces challenges such as feedstock availability, high moisture content, and storage constraints. Pelletization and torrefaction have emerged as effective solutions to improve biomass energy density and handling efficiency. Furthermore, supportive policies and investments in advanced bioenergy infrastructure are vital for scaling up biomass utilization and ensuring long-term sustainability. This lecture will provide an in-depth discussion on India's bioenergy roadmap, exploring technological advancements, policy interventions, and investment opportunities necessary to unlock its full potential. By leveraging bioenergy, India can significantly contribute to global climate action while fostering economic growth and

Abstract No. 9

PRODUCTION AND MANAGEMENT CHALLENGES OF AQUATIC RESOURCES IN BANGLADESH

Binay Kumar Chakraborty

Mudeel, Mud Crab, Aquaculture and Management Center &
Department of Fisheries, Bangladesh & Bangladesh Agricultural University

ABSTRACT

A study was conducted to get an accurate picture of the catch and catch composition of fish population, using a semi-structured questionnaire and primary data was collected by focus group discussion (FGD), local ecological knowledge (LEK) and direct interviews with the fishers', hatchery owner and fish farmer. Primary data of pesticide and heavy metals was collected by direct interviews with the individual respondent from FIQC Laboratories of Department of Fisheries and BCSIR Laboratories. Secondary data were collected mainly from the Department of Fisheries (DoF) and internet sites. The total fish production was increased about six times more (0.754 mil.mt to 4.915mil.mt) during the last 39 years and regression type was polynomial and the equation was $y= 0.0022x^2 + 0.025x + 0.6405$($R^2$=0.9972). The fisheries sector contributes 2.08% to the national GDP, 22.83% to the agricultural GDP and more than 1.05 % to the total export earnings. Fish alone provides a per capita fish consumption of 62.58 g/day, and about 11% of the population engages in this sector for their livelihoods. The decline of wetland biodiversity has significantly reduced inland capture and marine fisheries stocks. Natural and anthropogenic causes like climate change, pollution, industrialization, over exploitation, pesticides, and heavy metal toxicants threaten the survival of terrestrial, aerial, and aquatic life. Insecticides cause growth decline, reproductive disorders, spinal deformities, neurological disorders, and genetic defects in fish. The toxicity of these contaminants makes them severe poisons for all living organisms. So, A sustainable technology is being developed for aquaculture and open water management to limit resource depletion and improve production.

Abstract No. 10

MORPHO-METRIC VARIATIONS IN *HALDINA CORDIFOLIA* (ROXB.) RIDSDALE-AN IMPORTANT SPECIES IN DECIDUOUS FOREST

Nikhil Verma, Fatima Shirin and Kaushal Tripathi

ICFRE-Tropical Forest Research Institute, Jabalpur (M.P.), India

ABSTRACT

Haldina cordifolia commonly known as haldu due to yellowish colour of its wood belongs to Rubiaceae family. It is a big size tree species whose maximum height was recorded up to 30 meters with maximum diameter of 350 centimetres. This tree species among other species in the forest can be easily identified due to its peculiar branching pattern and heart shaped leaves. It possesses high timber quality suitable for flooring, panelling, railway carriages and construction works. Paste of stem bark and leaves are used for curing deep wounds, jaundice, stomachache and swelling in stomach. Stem bark is used for the treatment of malarial fever, abdominal disorders, inflammation, wound and ulcer. It is distributed throughout India, Burma, Sri Lanka, Bangladesh, Nepal, Thailand, South China, Bhutan, Vietnam, Myanmar and Malaysia. During the survey, occurrence of the tree species was reported in the plains as well as in the hills up to the elevation of 1100 meters in the states of Chhattisgarh, Madhya Pradesh and Maharashtra. In these states, CPTs of the species were selected based on the health and growth parameters of the individual tree. It was observed that the species possesses wide variations in terms of height; clear bole length, crown diameter and girth at breast height (GBH). Trees with long clear bole, more GBH, narrow crown and fewer branching were selected as CPTs. A total of 30 CPTs were selected across these three states and seeds of the same were collected to further propagate and to evaluate their genetic worthiness through establishment of multilocation trials.

Keywords: *Haldina*, Medicinal value, GBH, Deciduous forest.

Abstract No. 11

ENVIRONMENTAL ETHICS

Sukriti Ghosh

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

ABSTRACT

As environment affect human health and wellbeing, therefore there are many ethical issues with the environment. Things like water and air pollution, the depletion of natural resources, loss of biodiversity, destruction of ecosystems, and global climate change are all part of the environmental ethics debate. Everybody should find a way to reduce the pollution in the hope that eventually, someday it will be eliminated. Environmental ethics is the ethical relationship between people and the environment in which we live. There are many ethical issues and decisions that people make, within the respect of the environment.

Abstract No. 12

EVALUATION OF GROUNDWATER QUALITY AND SUITABILITY FOR DRINKING, AGRICULTURAL, AND INDUSTRIAL USES IN THE MIRZAPUR DISTRICT OF UTTAR PRADESH, INDIA

Piyush Tripathi and Pawan Kumar Jha

Centre for Environmental Studies
University of Allahabad, Prayagraj (U.P.), India

ABSTRACT

A total of 50water samples were collected from the Mirzapur district of Uttar Pradesh and analysed for the physicochemical parameters to determine their suitability for drinking, agricultural, and industrial uses. Groundwater was alkaline. The EC values ranged from 494 to 1280 µS $cm^{-1}$and TDS varied from 305 to 850 mg l^{-1} in the Mirzapur district. The Na^{+} and HCO_3^{-}were the dominant cation and anion in the Mirzapur district, respectively. The groundwater water suitability for drinking water was determined by using the Water Quality Index (WQI) value, which was in the range of 67- 169 during the study period. Based on the WQI value, the Mirzapur district's groundwater quality class ranges from good to poor for drinking. The agricultural suitability of the Mirzapur districtwas determined by using the Sodium Absorption Ratio (SAR), Na %, Potential Salinity (PS), and Residual sodium bicarbonate (RSBC). The values of these different indices indicated the suitability of the groundwater for irrigation purposes. The industrial suitability of the Mirzapur district groundwater was determined by using the Langelier Saturation Index (LSI) and Ryznar stability index (RSI). Both LSI and RSI values indicated that water samples were unsuitable for industrial use due to their corrosive and scale-forming nature.

Abstract No. 13

IMPACT OF ECONOMIC GLOBLISATION ON SUSTAINABLE DEVELOPMENT

Pankaj Singh[1] and Brajesh Srivastava[2]

[1]Department of Economics
Mahamaya Govt. Degree College, Dhanupur, Prayagraj (U.P.), India
[2]Department of Economics
Kashi Naresh Govt. P.G. College, Gyanpur, Bhadohi (U.P.), India

ABSTRACT

Economic globalization is a process that is inexorable and flexible. It is inexorable because the conditions internal and external to the country that promote economic globalization are ubiquitous and unstoppable. It is flexible because the country is given sufficient discretion to accept and reject, favor or block, and actively adapt to economic globalization in accordance with its own situation and development strategy. Economic globalization is not a single phenomenon, but the process of multiple phenomena such as economic, political, military, and cultural integration. In different historical periods, the main form of economic globalization is not the same in different countries and regions. Therefore, it is difficult to clearly define economic globalization, let alone measure the degree of economic globalization. Economic globalization is the result of the development of human society, and also the inevitable trend of the development of human society. The development of human society is the process of the constant expansion and enrichment of human needs, and it is also the process of the continuous transformation and expansion of the scope of human activities. After entering the modern age, the internal logic and main dynamics of social development are "industrialization, urbanization, marketization, and globalization". These four developmental trends are knot and constantly promote and affect each other. Especially, they become increasingly powerful in the era of internationalization. The process of integration and interaction between human economic, social, and political systems, as a result of the increase in the degree of integration between them, has divided the national boundaries with increasingly blurred boundaries. Today, economic globalization is a highly developed and interacting economic, social, political, and cultural phenomenon.

Abstract No. 14

ANTIBACTERIAL PROPERTIES OF SELECTED PLANTS USED TRADITIONALLY BY THE RURALS OF BANDA DISTRICT

Archana Khare

Department of Botany
Pt. J.L.N. College Banda (U.P.), India

ABSTRACT

India is the home to many tribal groups and ranks seventh among the world's biodiversity hotspots. Original people developed a vast body of knowledge about the plants and their applications through comprehending the surrounding environment to satisfy their requirements. Recent research on conventional medicine has made it possible to identify other plants that produce drugs. Therefore, it is crucial to gather data, provide documentation, and conduct research on ethnomedicine. The aim of is to study the antibacterial properties of selected plants used traditionally by the rurals of Banda district.

Abstract No. 15

ROLE OF E-COMMERCE AND DIGITAL PLATFORMS IN PROMOTING GREEN PRODUCTS

S. K. S. Yadav and Avika Baliyan

Faculty of Commerce and Business Administration
Meerut College, Meerut (U.P.), India

ABSTRACT

The integration of e-commerce and digital marketing has significantly enhanced the promotion of green products. This poster examines how digital platforms influence consumer behavior towards sustainable purchases, the strategies employed by businesses, and the resulting market trends. Key findings indicate a positive correlation between digital marketing efforts and increased consumer awareness and adoption of green products.

Abstract No. 16

ECOTOXICOLOGICAL ASSESSMENT THROUGH BIOMONITORING: EVALUATING PHYSICO-CHEMICAL AND BIOLOGICAL VARIATIONS IN AQUATIC SYSTEMS OF KANPUR (U.P.)

Vishal Kumar and Saras

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

ABSTRACT

Assessing ecological health has become essential in environmental research, providing a comprehensive approach to evaluating water quality. It involves monitoring biological responses to changes in physical and chemical parameters, helping to determine the overall environmental status. The collection of biological and chemical data in both laboratory and field settings plays a crucial role in understanding ecological and physico-chemical dynamics. Although biological markers and ecological indicators serve as early-warning tools for detecting environmental stressors, their applications have certain limitations. Therefore, selecting the most precise and suitable biological marker is crucial for ecotoxicological studies and environmental assessments. Various methodologies are employed to collect and analyze biological indicator data across different physico-chemical parameters. In aquatic ecosystems, plankton communities serve as effective ecological indicators. Phytoplankton, occurring in unicellular, colonial, and filamentous forms, and zooplankton, including protozoans, rotifers, and arthropods, exhibit diversity and population dynamics that are strongly influenced by limnological variations. Seasonal fluctuations in parameters such as temperature, pH, alkalinity, calcium, magnesium, dissolved oxygen (DO), and dissolved organic matter (DOM) directly impact water quality, thereby affecting biological populations. Among these, dissolved oxygen plays a critical role in species diversity and population dynamics.

Abstract No. 17

FLORAL DIVERSITY OF OPENCAST MINING AND THEIR ADJACENT AREAS OF BUNDELKHAND REGION OF UTTAR PRADESH, INDIA

Priyanka Singh and Amit Pal

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

ABSTRACT

Opencast mining, a very important economic activity in many countries especially developing world today including India, causes significant environmental degradation in and around the vicinity of mining areas. In the current investigation an attempt has been made to identify the floristic composition in and around of two selected opencast granite mines each of Jhansi and Lalitpur district belonging to Bundelkhand region of Uttar Pradesh, India. Present study revealed that there are a total of 96 species belonging to 39 different families from which maximum plant species found from Fabaceae family i.e. 16 species followed by Poaceae (07spp); Rutaceae (06spp) and so on. The existing species which are growing in such fragile environment and some are having dust scavenging nature may useful for greenbelt in mining areas to combat the air pollution.

Abstract No. 18

STUDY OF WATER PARAMETERS AND AQUATIC INSECTS DIVERSITY OF ANHI TAAL OF VILLAGE RAHI, DISTRICT RAEBARELI, U.P.

Daisy Rani

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

ABSTRACT

Aquatic ecosystem particularly small water bodies like ponds serves as critical habitat for various organisms. The majority of insect species live in fresh water environments, they are found in water less than three four feets. They play an important role in keeping fresh water ecosystem. They directly influence the primary productivity and decomposition of aquatic environment. The aim of this study was to know the aquatic insects diversity and its correlations with water parameters of Anhi taal which is located in village Rahi just nine kilometers away from city Raebareli. Sampling was done monthly at two sites of taal during one year period. Insect's samples were collected by using nets and by handpicking methods. Water sample were also collected at the time of sampling of aquatic insects. Water parameters like temperature and pH were taken at the time of sample collection and for DO water sample were fixed at the site and further analysis was done in laboratory. Analysis of aquatic insect's community shows various orders including Diptera, Coeloptera, Hemiptera and Odonata. Seasonal variations of aquatic insects were observed peck densities were found during warmer months. Analysis between abundance of aquatic insects and water parameters indicated significant relationship. The findings show the importance of monitoring water parameters in relation to aquatic insect studies to assess the ecological status of Anhi taal of Raebareli district

Abstract No. 19

TRANSBOUNDARY WATER QUALITY ASSESSMENT AND PHYTOREMEDIATION POTENTIAL: A STUDY ON PHYTODIVERSITY IN THE INDO-NEPAL BORDER REGION

Zaheen Hasan

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

ABSTRACT

Water pollution is a growing concern in transboundary rivers, particularly in regions where industrial, agricultural, and domestic activities contribute to declining water quality. The Gandak River, a significant waterbody shared between India (Bettiah, Bihar) and Nepal (Nawalparasi), is increasingly affected by contaminants such as heavy metals, nitrates, phosphates, and organic pollutants. This study aims to assess water quality parameters and evaluate the potential of phytoremediation as a sustainable solution for pollution control. Field sampling was conducted at selected locations to analyze pH, dissolved oxygen (DO), biological oxygen demand (BOD), chemical oxygen demand (COD), and heavy metal concentrations. The study also examines the role of native aquatic plant species, including Water Hyacinth (Eichhornia crassipes) and Duckweed (Lemna minor), in absorbing and reducing contaminants. Additionally, a phytodiversity survey was conducted to understand the impact of pollution on riparian vegetation. Results highlight significant variations in water quality, with certain areas showing high pollutant concentrations, particularly near agricultural runoff zones and industrial discharge points. The presence of bioaccumulative plant species suggests their effectiveness in reducing toxicity levels, reinforcing phytoremediation as a viable ecological restoration method. Given the transboundary nature of the river, this study emphasizes the importance of joint conservation efforts between India and Nepal for long-term sustainable water management and ecosystem health.

Abstract No. 20

ROLE OF EARTHWORM IN MAINTAIN ENVIRONMENTAL QUALITY

Mahjabi Khan

Department of Zoloogy
D.S.N.PG College, Unnao (U.P.), India

ABSTRACT

A soil quality assessment is properties by an assessment off different para metre in line to get an integrated opinion of an ecosystem to play role of soil at the place investigation. The capacity of soil to functions with in ecological boundaries to sustain biological production, to maintain environmental qualities and regulate plant and animal help for good quality of earth soil. Heavy metals contaminated water flow by an environment contained PH value, mineral organic substance and xenobiotic Toxicologically save and sustain biodiversity of soil not making differences of properties have anthropogenic de graduation Soil health on the other hand is monitored to detect illness that is a deviation of a soil condition from an ideal healthy zone. This view an untouched peel bog is a help this while of poor quality the peel bog is a losing help and is gaining quality it is become drained and fertilized.

Abstract No. 21

WASTE MANAGEMENT AND SOCIO-ECONOMIC IMPACTS

Shyam Narayan Shukla

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

ABSTRACT

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

Abstract No. 22

STUDY THE IMPACT OF MUTUALISM BETWEEN TRIBALS AND FOREST UNDER JOINT FOREST MANAGEMENT IN CHITRAKOOT RANGE OF SATNA DISTRICT

Vipin Kumar Pate L. and Mahendra Kumar Tiwari

Department of Environmental Science
AKS University, Satna (M.P.), India

ABSTRACT

The present study explores the impact of mutualism between tribals and forests under the Joint Forest Management (JFM) program in the Chitrakoot range of Satna district, Madhya Pradesh. JFM is a collaborative initiative between local tribal communities and the Forest Department, aimed at sustainable forest conservation and improving the socio-economic conditions of the tribal population. This research investigates how the symbiotic relationship between tribals and forests contributes to biodiversity conservation, resource management, and livelihood enhancement. Data were gathered through field surveys, structured interviews, and focus group discussions with key stakeholders, including tribal villagers and forest officials. The study reveals that mutualism under JFM has led to the regeneration of degraded forest lands, increased tribal participation in afforestation efforts, and equitable sharing of forest produce benefits. The active involvement of tribal communities in decision-making processes fosters a sense of ownership and accountability toward forest conservation. The findings underscore the importance of traditional ecological knowledge and community-based practices in promoting sustainable development and environmental protection. Challenges such as conflicts of interest, insufficient incentives, and gaps in policy implementation were also identified. The paper concludes with recommendations for strengthening participatory governance, capacity building, and socio-economic incentives to ensure the long-term success of mutualism-driven forest management.

Abstract No. 23

A SURVEY OF DIVERSITY OF AMPHIBIAN FAUNA FROM LENTIC AND LOTIC AQUATIC ENVIRONMENTS OF PARBHANI DIST. (M.S.), INDIA

Madhukar U. Alse[1] and Anil M. Khole[2]

[1]Swami Ramanand Teerth Marathwada University, Nanded (M.S.), India
[2]Department of Zoology, B. Raghunath College, Parbhani (M.S.), India

ABSTRACT

India is home to 454 species, including the some critically endangered frog species, hosting amphibians found nowhere else. Surveys and conservation efforts of amphibian fauna are crucial for understanding and preserving these unique and vulnerable creatures. Amphibians, which include frogs, toads, salamanders, and newts, play vital roles in ecosystems as both predators and prey, and as indicators of environmental health. Unfortunately, amphibians are among the most threatened groups of animals due to factors such as habitat destruction, pollution, climate change, and disease. Amphibians are facing unprecedented threats worldwide, making surveys and conservation efforts more critical than ever. The undertaken survey helps to gather essential data on species distribution, population trends, and habitat requirements. This information is vital for developing effective conservation strategies, including habitat protection, restoration, and management. During a twelve months survey from the lentic and lotic aquatic environments 2 amphibian species (*Hoplobatrachus crassus & Polypedates leucomystax*) were identified. The undertaken survey aims at conservation to mitigate threats, such as habitat loss, pollution, invasive species, and climate change, to ensure the survival of amphibian populations from the study area. Moreover, amphibians are valuable bioindicators, providing early warning signs of environmental degradation and pollution. Their permeable skin makes them particularly sensitive to changes in the environment, which can impact their health and survival. By studying amphibians, researchers can gain insights into the broader health of ecosystems and the impacts of environmental changes. In conclusion, the importance of surveying and conserving amphibian fauna cannot be overstated. These efforts are essential for protecting biodiversity, maintaining healthy ecosystems, and understanding the impacts of environmental changes.

Abstract No. 24

STUDY OF PHYSICO-CHEMICAL AND HEAVY METAL CHARACTERIZATION OF RIVER WATER OF URLA INDUSTRIAL ZONES OF RAIPUR (C.G.)

Videshwari Chandrakar, Prabhat Singh Chauhan and Mahendra Kumar Tiwari

Department of Environmental Science, AKS University, Satna (M.P.), India

ABSTRACT

Industrialization has significantly impacted water quality, leading to environmental concerns worldwide. The present study aims to assess the physico-chemical characteristics and heavy metal contamination in river water flowing through the Urla industrial zone of Raipur, Chhattisgarh. Water samples were collected from different locations along the river to evaluate pollution levels and potential health risks. Various physico-chemical parameters, including pH, electrical conductivity (EC), total dissolved solids (TDS), dissolved oxygen (DO), biochemical oxygen demand (BOD), chemical oxygen demand (COD), and major ions, were analyzed using standard methods. Additionally, heavy metal concentrations of lead (Pb), cadmium (Cd), chromium (Cr), nickel (Ni), and zinc (Zn) were determined using atomic absorption spectrophotometry (AAS). The results revealed significant variations in water quality parameters, with several exceeding permissible limits set by regulatory agencies such as the Bureau of Indian Standards (BIS) and the World Health Organization (WHO). Elevated levels of BOD and COD indicate organic pollution, while high concentrations of heavy metals suggest contamination from industrial effluents and improper waste disposal practices. Correlation analysis between dif ferent parameters was performed to understand the interdependencies influencing water quality. The presence of toxic heavy metals poses potential risks to aquatic life and human health, emphasizing the need for stringent monitoring and effective wastewater treatment measures. This study highlights the deteriorating water quality in the Urla industrial zone and calls for sustainable pollution control strategies to mitigate environmental degradation. The findings underscore the importance of regular water quality assessments and regulatory enforcement to ensure the protection of natural water bodies.

Abstract No. 25

STUDY THE IMPACT OF COAL MINING ACTIVITIES ON WATER QUALITY OF DHANPURI DISTRICT ANUPPUR M.P.

Anil Kumar Mittal and Mahendra Kumar Tiwari

Department of Environmental Science
AKS University, Satna (M.P.), India

ABSTRACT

The present study evaluates the impact of coal mining activities on the water quality of the Dhanpuri region District Anuppur Madhya Pradesh, a significant coal-producing area with widespread mining operations. Coal mining plays a crucial role in energy production but often leads to severe environmental degradation, particularly water pollution. This research investigates the physicochemical parameters of water bodies in and around mining sites, including pH, turbidity, total dissolved solids (TDS), heavy metals, and biochemical oxygen demand (BOD). Water samples were collected from multiple locations over a defined period to assess spatial and temporal variations in water quality. The results indicate that the water bodies near mining sites show elevated levels of TDS, heavy metals like iron and manganese, and high turbidity, often surpassing the permissible limits set by CPCB water quality standards. Acid mine drainage and surface runoff from mining areas were identified as the primary sources of contamination. Seasonal variations demonstrated higher pollution levels during the monsoon due to increased runoff and leaching of pollutants. The study underscores the urgent need for effective water pollution control measures, such as proper waste management, water treatment facilities, and regular monitoring, to mitigate the adverse environmental and health impacts on the local population. This research provides valuable insights for policymakers and environmental managers to develop sustainable strategies for balancing coal production with environmental conservation in the Dhanpuri region.

Abstract No. 26

A STUDY OF MACROINVERTEBRATES DIVERSITY IN SIDDHEWADI AND MORNA TANK SOUTH WESTERN PART OF MAHARASHTRA INDIA

Mujawar Ummekousar[1] and Abdar Mohan[2]

[1]Rayat Institute of Research and Development Satara (RIRD), (M.S.), India
[2]Department of Zoology Krantisinh Nana Patil College Walwa, (M.S.), India

ABSTRACT

The South-western part of Maharashtra includes the Sangli, Satara, and Kolhapur districts. These three districts are agriculturally well-developed due to fertile land, huge water resources such as the river Krishna and its tributaries. Several minor irrigation tanks which were specially built for irrigation and drinking purposes. The Siddhewadi and Morna MI tanks are major water resources to the Tasgoan and Shirala tehsil community, therefore,to study the present water quality status through fresh water macroinvertebrates and its diversity of the above water bodies, the present work was done in Morna and Siddhewadi tank during August 2022 to July 2023. The total 1500 macroinvertebrate individuals were observed. The total 39 macroinvertebrate species were reported. The macroinvertebrate species belonged to 7 orders and 19 families. Biological Monitoring Working Party Score (BMWPS) of 39 species of macroinvertebrates were studied, it indicates that 21 are sensitive and 18 are tolerant species.

Abstract No. 27

ASSESSMENT OF PHYSICO-CHEMICAL PROPERTIES OF GROUNDWATER IN INDUSTRIAL AREAS OF KANPUR CITY

Komal Yadav and Saras

Department of Zoology
D.A-V. College, Kanpur (U.P.), India

ABSTRACT

The Kanpur Nagar District is situated in the Indo-Gangetic Plain, where groundwater is primarily stored in formations composed of silt, gravel, and sands of varying grades. The quality of groundwater is influenced by numerous hydrological, physical, chemical, and biological factors. Generally, groundwater contains higher concentrations of dissolved substances than surface water due to prolonged interaction with geological materials. However, rapid industrialization in the region has led to significant groundwater contamination, with industrial effluents introducing heavy metals and toxic chemicals into the water system. For drinking purposes, water should be free from toxic elements, harmful organisms, and excessive minerals that may pose health risks. While certain heavy metals, such as cobalt and copper, are essential in trace amounts for human health, excessive concentrations can lead to physiological disorders. In recent years, groundwater contamination by heavy metals has become a significant environmental concern due to their toxicity and tendency to accumulate. Unlike most pollutants, heavy metals are not biodegradable and circulate globally through natural water systems. Consequently, assessing their concentration levels and identifying their chemical forms is a key focus of environmental research. In Kanpur Nagar, groundwater exists in both unconfined (phreatic) and confined conditions at different depths. The sedimentary composition of subsurface granular zones varies significantly between the district's northern and southern regions. Despite these variations, the groundwater in Kanpur Nagar is typically colorless, odorless, and slightly alkaline.

Abstract No. 28

IMPACT OF DIAZINON ON GLYCOGEN, GLUCOSE, AND LACTIC ACID LEVELS IN GRASSHOPPERS (*OXYA CHINENSIS*)

Ashok Kumar

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

ABSTRACT

This study examines the impact of diazinon, an organophosphate pesticide, on the carbohydrate metabolism of grasshoppers (*Oxya chinensis*). Exposure to sublethal doses of diazinon led to significant alterations in critical metabolic pathways, such as glycogen synthesis and glucose metabolism. The grasshoppers were treated with 15% and 60% of the LD50 (0.16 µg/insect and 0.64 µg/insect, respectively) and analyzed after 24 and 96 hours of exposure. Carbohydrate metabolism was assessed in various tissues, including the coxal muscles, thoracic muscles, and ganglia. The results showed a notable decrease in glycogen content, suggesting impaired glycogen storage or utilization. Simultaneously, levels of glucose and lactic acid were elevated, indicating possible shifts towards anaerobic metabolism and increased glucose utilization. These findings highlight the metabolic disturbances caused by diazinon exposure, which could have broader implications for the health and energy balance of grasshoppers exposed to this pesticide in their natural environment

Abstract No. 29

IMPACT OF MICROPLASTIC POLLUTION ON AQUATIC ANIMALS: INGESTION, TOXICITY, AND REPRODUCTIVE DISRUPTION

Dilip Kumar Yadav

Department of Zoology
Siddharth University. Kapilvastu, Siddharthnagar (U.P.), India

ABSTRACT

Microplastic (less than 5 mm in diameter) are found in water, air, soil, and various living organisms, affecting terrestrial and aquatic environments, and are regarded as a global issue due to their toxicity effects on fish and humans. Microplastic pollution has emerged as a significant threat to aquatic animals including fishes. Fish is the main source of animal protein, which is necessary for the growth of human body. Studies indicate that over 80% of marine species ingest microplastics, with an estimated 8 million tons entering oceans annually. Due to the abundance of MPs in environment, exposure may occur via consumption, inhalation, and skin contact. Research shows that ingestion of microplastics can lead to digestive issues, with 58% of marine species exhibiting gut damage. Additionally, toxic chemicals adsorbed by microplastics, such as heavy metals, can accumulate in organisms, causing reproductive and metabolic disruptions. A study on fish populations revealed a 30% decrease in reproductive success due to microplastic contamination. These findings highlight the urgent need for mitigation efforts to protect aquatic ecosystems and biodiversity.

Abstract No. 30

EFFECT OF SUBLETHAL CONCENTRATION OF DETERGENTS ON SERUM BIOCHEMICAL CONSTITUENTS OF FRESHWATER FISH, *MYSTUS VITTATUS* (BLOCH)

Kamlesh Rani[1] and Sadguru Prakash[2]

[1]Department of Zoology
SPM Govt. P.G. College, Phaphamau, Prayagraj (U.P.), India
[2]Department of Zoology
M.L.K.P.G. College, Balrampur (U.P.), India

ABSTRACT

The 96 hours median lethal concentration (LC_{50}) of Tide detergent for *Mystus vittatus* by using probit analysis software (SPSS version 26) at 95% confidence limit was 17.981 mg/L. The present investigation has been carried out to investigate the effect of sublethal concentrations (4.5 mg/L or 1/4th and 9.0 mg/L or 1/2th of 96h LC_{50}) of detergent Tide on the serum biochemical constituents of *Mystus vittatus* after exposure to 7, 14, 21 and 28 days. The present study shows that serum metabolites such as glucose and total protein bin were significantly decreased while, triglyceride was significantly increased. From the result of one way ANOVA analysis it was observed that the sublethal lethal concentrations were highly influenced the serum biochemical contents of fishes. The Post hoc test (Tukey) revealed that the serum glucose, serum total protein and serum triglyceride contents were altered with both sublethal concentrations of detergents and period of exposure. Thus, the result of this investigation gives an overview of the manipulation of fish, *Mystus vittatus* as a biomarker of chemical pollution through alternation in biochemical parameters.

Abstract No. 31

ANOMALIES IN HEMATOLOGICAL PARAMETERS OF A FRESHWATER FISH, *MYSTUS VITTATUS* (BLOCH) EXPOSED UNDER PAPER MILL EFFLUENT

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

[1]Department of Zoology
B.D. Kanya Mahavidalya, Balugani, Agra (U.P.), India
[2]Department of Zoology
K.S. Saket, P.G. College, Ayodhya (U.P.), India

ABSTRACT

With increasing competition for limited freshwater resources, industrial pollution remains a major global challenge. Fish populations are particularly vulnerable, as aquatic environments directly receive pollutants from nearly all anthropogenic activities. The present study investigated the effect of different sublethal concentrations (control i.e. 0 %, 0.8223 i.e. 2.5% or 1/10 and 1.6446 i.e. 5.0 % or 1/5th) of paper mill effluent selected on the basis of 96 hours LC50 test (8.223%), on certain blood parameters in *Mystus vittatus* was evaluated after exposure for 10, 20 & 30 days. The hematological parameters studied include total erythrocytes count, total leucocytes count, hemoglobin concentration, packed cell volume, mean corpuscles volume, mean corpuscular hemoglobin and mean corpuscular hemoglobin concentration. Except mean corpuscular hemoglobin concentration, all haematological indices were showed decreasing trend as concentration of effluent and duration of exposure increased.

Abstract No. 32

ACUTE TOXICITY AND ETHOLOGICAL RESPONSES OF *CHANNA PUNCTATA* (BLOCH) EXPOSED TO SUGAR FACTORY EFFLUENT

Shishir Tripathi and Farrukh Jamal

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

ABSTRACT

Toxicity tests are experiments designed to predict the concentrations or doses of toxicant and its duration of exposure required to produce an effect. Toxicity is species-specific because individuals have different levels of response to the same dose of a toxic substance. This paper deals with the acute toxicity of Sugar factory effluent on freshwater fish, *Channa punctata* (Bloch), at different concentration and duration of exposure on the mortality and ethological alterations. The LC_{50} for 24, 48, 72 and 96 hours of sugar factory effluent for *Channa punctata* were 12.418%, 10.976%, 8.631% and 7.549% (v/v), respectively. The result also revealed that mortality rate depends upon concentrations of effluent and duration of exposure. The effluent exposed test fish showed alterations in behavioural responses. The behavioural changes of *Channa punctatus* during the experimental period was found to depend on both duration of exposure and concentration of the ef fluent. The mortality rate was found to be directly proportional to the concentration of effluent. Thus, the present study revealed that fish, *Channa punctata* are sensitive to sugar factory effluent and can be used as biological indicators.

Abstract No. 33

IMPACT OF SUBLETHAL CONCENTRATIONS OF DETERGENT ON THE HAEMATOLOGY OF A FRESHWATER FISH, *CHANNA PUNCTATA* (BLOCH)

Shweta Upadhyay and Dharmendra Singh

Department of Zoology
S.P. P.G. College, Shohratgarh, Siddharthnagar (U.P.), India

ABSTRACT

Indiscriminate use of synthetic detergents causes water pollution. The use of enormous amounts of synthetic detergent is causing foam in the water, reducing the air-water interaction and causing destruction in aquatic ecosystem. A detergent not only effect on the chemical speciation of water bodies or the metabolic rhythm of biota but also accelerates eutrophication and death of aquatic organisms. Detergents may be entered in to the food chain of aquatic animals including fishes and absorbed through the gills or skin or through the alimentary canal along with food. So, the current investigation was undertaken to analyze the effect of sub lethal concentrations of 'Ghari' detergent on the haematology of *Channa punctatus*. 96 hours LC_{50} of 'Ghari' detergent for a freshwater fish, *Channa punctatus* was 20.121 mg/L. Dose dependent hematological anomalies were observed in experimental fish, *Channa punctatus* treated with the 'Ghari' detergents for the period of 10, 20 and 30 days. Hematological parameters such as red blood cell (RBC) count, hemoglobin content (Hb%), and PCV (%) were decreased significantly whereas white blood cell (WBC) count increased significantly in detergent exposed fishes. Along these parameters some other haematological indices also altered significantly in detergent exposed fishes.

Abstract No. 34

FORENSIC STUDY AND EFFECT OF SEASONAL VARIATION ON DISTRIBUTION OF DIATOMS IN RIVER GOMTI AT JAUNPUR, U.P.

Veer Pratap Singh, Dharmesh Srivastava, Manoj Shukla and Shruti Vishwakarma

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

ABSTRACT

Forensic diatomology is a rapidly progressing domain that involves the examination of microscopic algae known as diatoms for forensic purposes. Diatoms are microscopic, single-celled, eukaryotic algae that exist in diverse aquatic environments such as rivers, lakes, ponds and oceans. They are characterized by their rigid cell wall made up of silica, which is a unique morphological characters making them useful for forensic investigations. Diatoms are regarded as valuable evidence to correlate the cause of death between drowing or dumping and also for site characterization. They are microscopic unicellular organism, general habitat in aquatic condition having siliceous cell membrane and they photosynthesize chlorophyll pigments. The present study 36 water samples were collected from different sites of Gomti River at Jaunpur district from December, to March on the basis of these examinations, 36 genera are identified from nine(9) sites in which some genera were common at each sites and some genera were present at specific sites of Gomti River. The data would be valuable for the site characterization by comparison of Diatoms between the water sample of drowing site and the viscera of corpse recovered.

Abstract No. 35

PATHOGENIC FUNGI ON SOME IMPORTANT ETHANO-MEDICINAL PLANTS FROM BALRAMPUR FOREST DIVISION (U.P.) INDIA

Shalini Gupta[1], Rajiv Ranjan[1], Kiran Gupta[2] and Ajay Kumar[1]

[1]Department of Botany
M.L.K. (P.G.) College, Balrampur (U.P.), India
[2]Department of Botany
Siddharth University, Kapilvastu, Siddharth Nagar (U.P.), India

ABSTRACT

The fungi which cause disease are known as Pathogenic fungi. Pathogenic fungi are fungi that cause disease in humans or other organisms. Although fungi are eukaryotic, many pathogenic fungi are microorganisms. Approximately 300 fungi are known to be pathogenic to humans; their study is called & quot; medical mycology & quot;. In 2022 the World Health Organization (WHO) published a list of fungal pathogens which should be a priority for public health action. Markedly more fungi are known to be pathogenic to plant life than those of the animal kingdom. The study of fungi and other organisms pathogenic to plants is called plant pathology. Balrampur Forest divivion is the part of North Tarai Region of U.P. is next only to Eastern and Western ghats, as one of the hottest spots for Biodiversity in general and the diversity of fungal organism inhabiting plant leaves in particular offers an ideal opportunity for the morpho-taxonomic exploration of fungal organism in general and pathogenic fungi in particular. Keeping this in mind the authors surveyed with fifty ethanomedicinal Angiospermic host plants representing fifty genera and thirty families being parasitized by forty five fungal species representing thirty-fungal genera.

Abstract No. 36

WOOD ANATOMY OF COMMERCIAL TIMBER YIELDING PLANTS OF THE FAMILY FABACEAE FROM THE BALRAMPUR DISTRICT IN THE TERAI REGION OF UTTAR PRADESH, INDIA

Dharmesh Srivastava[1], Rajiv Ranjan[1] and Mahesh Prasad[2]

[1]Postgraduate Department of Botany
M.L.K. P.G. College, Balrampur (U.P.), India
[2]Birbal Sahni Institute of Palaeoscience, Lucknow (U.P.), India

ABSTRACT

Balrampur occupy an area of about 3719sq km. lying all along Indo- Nepal border of Terai region. The well known Suhelwa Wild Life Sanctuary (27° 30'1" N to 27° 55' 42" N and 81° 55' 36" E to 82° 48' 33" E) is located in this area and flourished by a dense forest of about 45000 hectares. It accompanied with a number of commercial timber yielding plants. The whole forest is of deciduous type predominated by Sal (*Shorea robusta*) forest. Two field trips were undertaken in the different forest like Bankatwa, Nandmahra, Seria Naka, Jarwa, Rampur Mansurva Chauki, and Bhabar areas Suhelwa Wild Life forest, Kuwana forest and Rajapur Bharia forest etc in order to collect study material (Wood/ timber samples) from various timber yielding plants belonging to the family Fabaceae. 14 tree plant taxa viz., *Pongamia pinnata* (L.) Pierre (Karenj), *Tamirandus indicus* Linn. (Imli), *Erythrina subrosa* Roxb. (Nasut), *Albizia lebbeck* (Linn.) Benth. (Sirsa), *Pterocarpus marsupium* Roxb. (Balamkhira), *Acacia neolitica* Linn. (Babul), *Delonix regia* (Hook.) Raf. (Gulmohar), *Pithocelobium dulce* (Roxb.) Benth. (Jungle jalebi), and *Acacia Catechu* (L.f.) Wild. (Katha), *Dalbergia sissoo* Roxb. ex DC. (Shissham), *Sarac asoca* (Roxb.) Willd. (Ashok), *Cassia fistula* Linn. (Amaltas), *Parkia speciosa* Hassk. (Petai), *Butea monosperma* (Lam.) Taub. (Plash), of family Fabaceae were recovered from the study area. Wood anatomies of the entire above mentioned tree plants has been studied in detail and analyze the anatomical features. The analysis shows some interesting pattern of distribution of vessels, parenchyma and rays. In most of them the vessels are diffuse porous having medium to large in size with vestured pits. The Xylem parenchyma is usually aliform to confluent and banded. Sometimes the growth rings are also represented by 1-4 cells thick of parenchymatous cells. The xylem rays are 1-3 seriate in most of the cases and homogeneous in nature. Heterogeneous rays are also seen in some taxa where the rays are 3 or more cells in thickness. The fibres are mostly libriform without fibre pits. The gum canals are not seen in any of the studied taxa. Balrampur District is very rich in timber yielding plant resources. The local villagers depend on timber forest products for their regular income and needs. The present contribution helps in understanding of the socio-economic importance of the commercial timber yielding plants in the study area. Most of them are used for house construction, furniture, agricultural implements, musical instruments, fuels and packing cases etc.

Abstract No. 37

FOSSIL WOOD, *SHOREOXYLON ORNATUM* (TRIVEDI AND AHUJA) BANDE AND PRAKASH FROM UPPER MIOCENE SEDIMENT OF SARKAGHAT AREA IN THE HIMALAYAN FOOT HILLS OF HIMACHAL PRADESH AND ITS PALAEOCLIMATIC AND BIOGEOGRAPHIC IMPLICATIONS

Arvind Kumar Verma[1], Rajiv Ranjan[1] and Mahesh Prasad[2]

[1]Postgraduate Department of Botany
M.L.K. P.G. College, Balrampur (U.P.), India
[2]Birbal Sahni Institute of Palaeoscience, Lucknow (U.P.), India

ABSTRACT

The Siwalik sediments exposed between the Himalayan Frontal Thrust (HFT) in the south and Main Boundary thrust (MBT) in the north contains post collisonal fluvial mollase sediments by erosion of the rising Himalaya ranging in age from 18.3 Ma to 0.22 Ma (Ranga Rao, 1972; Johnson *et al*, 1985)). The fossil locality (N 31° 44' 26" E 76° 43'33") lies along the National Highway 70 very near to Sarkaghat area of Mandi District, Himachal Pradesh . A petrified fossil wood collected for the first time from Middle Siwalik (Upper Miocene) sediments exposed in Nalad Khad, Sarkaghat area, Mandi District of Himachal Pradesh has been identified with the extant taxa, *Shorea siamensis* (Kurz) Miq. of family, Dipterocarpceae. The wood is charactersed by presence of normal, vertical gum canals in concentric rings, vasicentric tracheids, mostly solitary and small to large sized vessels, diffuse and diffuse-in aggregate apotracheal parenchyma, heterocellular xylem rays and thick-walled fibres. The comparable extant species is phytogeographically important as presently distributed in the tropical evergreen to moist deciduous forests of south-east Asian region. This finding suggests that tropical humid climate with high precipitation prevailed in the area during Upper Miocene. Occurrence of the genus *Shorea* Roxb. with some other dipterocarpaceous and fabaceous taxa suggests a tropical vegetation under the high temperature and humidity throughout the year during Upper Miocene. The fossil records of the genus *Shorea* Roxb. indicate that it was widespread on the entire Indian subcontinent from the Early Eocene onwards up to the Plio – Pleistocene.

Abstract No. 38

EFFECTS OF BIOCHAR AND FLY ASH ON *EISENIA FETIDA* IN CONTAMINATED SOIL

Vineeta Shukla

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

ABSTRACT

Phenolic molecules are soluble in methanol, and the methanolic section demonstrated fairly good lipid peroxidation inhibitory and antioxidant activity. Without any disturbance in the earthworm's defense system, it could balance produced reactive oxidative stress and the defense mechanism when an organism's body is exposed to various chemicals or stressful conditions. The enhanced level of ROS may cause severe damage to cells like oxidation of proteins, inhibition of enzymes, disintegrations of the body wall, etc. Hence, we can say the defense mechanism can neutralize stress. To withstand the increased ROS, the worms are provided with a capable defense mechanism consisting of CAT, POD, APX, and many more enzymes to counteract the free radicles. These enzymes indicate the toxicity induced using pesticides even at sublethal doses. Scavenging free radicles by these enzymes ultimately protect the organism. Fly ash and biochar are two organic replacements for destressing by providing a protective mechanism. Here, chlorpyriphos-induced oxidative stress was determined by a noticeable change in the antioxidant enzyme activity. TAC and TPC value are irreversibly interconnected, and a de

Abstract No. 39

IMPACT OF ANTHROPOGENIC ACTIVITIES ON BIODIVERSITY AND BIOECOLOGY OF ICHTHYOPARASITIC HELMINTHES: A REVIEW

Sushil Kumar Upadhyay

Department of Bio-Sciences and Technology, MMEC
Maharishi Markandeshwar (Deemed to be University), Mullana-Ambala (HR), India

ABSTRACT

Anthropogenic activities, including industrialization, urbanization, deforestation, pollution, and climate change, have significantly altered aquatic ecosystems, impacting the biodiversity and bioecology of ichthyoparasitic helminths in fish populations. These human-induced environmental changes have disrupted the natural balance of host-parasite relationships, influencing the prevalence, intensity, and diversity of helminth parasites in fish. Pollution, especially from industrial and agricultural effluents, has been shown to alter water quality, affecting fish immunity and increasing their susceptibility to parasitic infections. Similarly, habitat destruction, overfishing, and the introduction of non-native species have further amplified the stress on aquatic fauna, ultimately influencing helminth diversity. Climate change, particularly changes in water temperature and pH, has also shifted parasite distribution patterns, influencing parasite life cycles, transmission rates, and host susceptibility. This research aims to review and discuss the diverse impacts of anthropogenic activities on the biodiversity and bioecology of ichthyoparasitic helminths, providing insights into the ecological implications and potential conservation strategies to mitigate these impacts. Understanding these complex interactions is essential for promoting biodiversity conservation, sustainable fisheries, ecosystem health in aquatic environments and human health.

Abstract No. 40

ROLE OF TRIBAL WOMEN IN SOCIAL AND ENVIRONMENTAL SUSTAINABILITY

Seema Srivastava

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

ABSTRACT

Tribal women, with their deep-rooted connection to natural resources and their traditional knowledge and skills, play a crucial role in advancing sustainable development and conserving the environment. However, their contributions often remain underrepresented in mainstream environmental discourse. To maximize their potential as agents of change, it is essential to empower them by providing access to knowledge, resources, and decision-making roles. Similarly, indigenous communities have long occupied and safeguarded ecologically vital regions. Their traditional knowledge systems offer invaluable insights into biodiversity conservation and sustainable land management. Respecting their rights to land and self-determination is crucial in fostering partnerships that prioritize tribal wisdom and cultural diversity in sustainability initiatives. Recognizing and amplifying the voices and leadership of indigenous tribes and women is key to building more inclusive and resilient pathways toward a sustainable future. Therefore, it is imperative to implement inclusive environmental policies that acknowledge and support the vital role of tribal women in preserving natural resources.

Abstract No. 41

RENEWABLE ENERGY RESOURCES AND BIODIVERSITY CONSERVATION

Nidhi Gupta

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

ABSTRACT

Renewable energy sources and biodiversity conservation environmental sustainability is the progress of meeting needs without harming the ecosystems that provide them. Strategies for environmental sustainability include: Preserving biodiversity, Reusing and recycling, and Relying on renewable energy sources. Renewable energy sources can help protect the environment from fossil fuel emissions. Positive impacts of renewable energy sources include: significantly reduced carbon emissions, cleaner air and water, job creation, decreased reliance on foreign energy sources, and potential for lower energy costs; while negative impacts can include high initial setup costs, potential disruption to wildlife habitats depending on the source (like wind farms affecting birds), intermittent energy production due to weather dependence, and sometimes a carbon footprint associated with manufacturing and installation processes. Conservation of Energy can be done by using power more efficiently. Energy conservation measures are used everywhere to reduce consumption. This had a positive effect on the quality of the environment. Renewable energy such a wind water and sunlight should be used.

Abstract No. 42

IMPACT OF DROUGHT ON AGRICULTURE QUALITY OF FIELD PEA (*PISUM SATIVUM* L.) AND ROLE OF CHITOSAN TO MITIGATE RELEVANT EFFECT CAUSE BY STRESS

Prachi Garg, Neelam Pathak and Shivi Srivastava

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

ABSTRACT

Climate change is a significant threat to global agriculture. Rising temperatures, altered precipitation patterns, and increased frequency of extreme weather events such as droughts and floods are directly influencing the crop production systems. In recent researches, Drought is a major environmental stressor that significantly impacts agricultural productivity, particularly in rain-fed regions. Field pea (*Pisum sativum*), an important legume crop known for its high nutritional value, is highly sensitive to water stress, making it vulnerable to drought conditions. The impact of drought on field pea agriculture manifests through reduced germination, stunted growth, impaired flowering, and poor pod set, ultimately leading to lower yields. Drought stress during critical growth stages can cause smaller, lower-quality seeds, affecting both market value and nutritional content, including protein levels. Furthermore, drought conditions can increase susceptibility to pests and diseases, exacerbating crop losses. This abstract review the potential impacts of climate change on field pea production, exploring the physiological and biochemical changes in responses to drought stress. The application of chitosan, an ecofriendly mitigant, is also discusses to minimize the negative effects of water stress on this vital crop.

Abstract No. 43

ANTIQUITY OF HUMAN SETTLEMENT AND PLANT-BASED SUBSISTENCE ECONOMY AT UREN, BIHAR, INDIA

Ruchita Yadav[1,2], Alka Srivastava[1], Gautami Bhattacharya[3] and Anil Kumar Pokharia[2]

[1]Department of Botany, D.G.(P.G.) College, Kanpur (U.P.), India
[2]Birbal Sahni Institute of Palaeosciences, Lucknow (U.P.), India
[3]Excavation Branch III, ASI, Patna (Bihar), India

ABSTRACT

The Ganga plain, one of largest alluvial tracts of the country, is densely inhabited fertile terrain and has been constantly under human settlement right from the advent of sedentism. In the history and archaeology of India, the Ganga plain has a pronounced position. It houses numerous archaeological sites and is important for archaeobotanical studies. Carbonized remains from archaeological sites can provide clues that are crucial for understanding the climate and society relationship during Dark Ages. A number of ancient habitational settlements from Neolithic onwards have come to light in the alluvial plains of Lower Ganga Plain (Bihar). The food economy of the Neolithic-Chalcolithic settlers includes cereals, pulses, oil and fibre yielding crops recorded from Indus/Harappan sites in north-western India. The eastward migration of wheat, barley, lentil, field-pea, chick-pea, grass-pea, linseed, safflower etc., suggests the direct or indirect contacts of Neolithic-Chalcolithic farmers in Bihar with the cultures in north-western India (Indus region). The information on plant economy from the Lower Ganga Plain during Iron Age to Historic times is meagre. In order to understand subsistence pattern, from Iron Age onwards systematic excavations at Uren (lat. 25°10'3"N; long. 86°13'11"E), 30 km south-west of Lakhisarai, District in Bihar were carried out. The excavation revealed continuous occupation from Black and Red Ware to Medieval period. The multi-culture site is having deposits of (Period I) BRW-associated non–metallic rural settlement, (Period II) BRW-associated rural settlement with Iron, (Period III) NBPW, (Period IV) Kushana (Period), (Period V) Gupta, (Period, VI) Early Medieval (post Gupta and Pala) based on ceramic assemblage and radiocarbon dating. To examine subsistence patterns, cropping systems, and climate change over three millennia., carbonized seeds were collected by water-floatation technique in parallel to excavation. The archaeobotanical evidence indicate the cultivation of cereals, pulses, oil seeds, fibre crops, and vegetable crops, representing both summer and winter seasons. Crop rotation practices were also observed, reflecting efforts to maximize agricultural productivity. A diverse assemblage of crop remains, weeds, and wild taxa highlights the advanced agricultural practices in the Lower Ganga Plain over the last three millennia. Further, the individual site level study will allow for broader synthesis in near future to understand culture-climate-subsistence relationship.

Abstract No. 44

ASSESSMENT OF THE POINT SOURCE OF AIR POLLUTION IN AYODHYA USING DISPERSION MODEL

Saurabh Kumar and Vinod Kumar Chaudhary

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

ABSTRACT

In the context of rapid urbanization and industrialization, the air pollution analysis and monitoring are crucial for the management of sustainably growth of city and economy. Ayodhya is a developing city in India where on many developments' infrastructure project initiative. This study investigates the emission of air pollutant from point source such paper mill, and sugar factory in Ayodhya. The American Meteorological Society/Environmental Protection Agency (USEPA) Regulatory Model (AERMOD) was adopted to predict the atmospheric dispersion of air pollutants emission around the source. The air pollutant such as particulate matter, sulphur dioxide and nitrogen dioxide estimate at selective experimental sites around the point source (M1, M2 etc.) and meteorological data like as temperature, wind speed, wind direction, rainfall and relative humidity are collected from automatic weather station in Avadh University campus, Ayodhya as well stack emission data such as stack height, diameter, emission rate etc. are gathered from respective industries. Using these data applied in AERMOD tool and generates the dispersion model of respective point source. Finally, analyses these dispersion models with the respective of local weather condition, pollution source and local geographical terrain. This study has implication in industrial air pollution emission for the assessment of dispersion of air pollutants in nearby local area.

Abstract No. 45

SCREENING AND MOLECULAR IDENTIFICATION OF L-ASPARAGINASE PRODUCING BACTERIA WITH ANSB GENE FROM SEWAGE WATER SAMPLE OF BHOPAL REGION

Shreya Tiwari[1], Rakesh Mehta[2], Ragini Gothalwal[3], Laxmikant Pandey[4] and Ratnakar Mishra[5]

[1]Department of Biotechnology, Barkatullah University Bhopal, Bhopal
[2]Department of Botany and Biotechnology, Govt. MGM College Itarsi
[3]Department of Biotechnology Barkatullah University Bhopal (M.P.), India
[4]Department of Biotechnology St. Aloysius College Jabalpur (M.P.), India
[5]SanjeevAgrawal Global Education Bhopal (M.P.), India

ABSTRACT

Enzymes are vital biocatalysts facilitating biochemical reactions in organisms, playing pivotal roles in both biological systems and numerous industrial applications. This study focuses on the isolation and screening of asparaginase-producing bacteria from sewage water samples in Bhopal City. A modified M9 media, supplemented with asparagine and phenol red, was used to isolate asparaginase-producing bacteria. Out of the ten samples, seven exhibited asparaginase activity. Two bacterial strains, identified as *Bacillus tropicus*(S-1) and *Priestiaveravalensis*(S-2), were found to harbor the ansBgene. Sequence analysis revealed a 96.52% and 95.09% resemblance to *Bacillus tropicus* MCCC 1A01406 and *Priestiaveravalensis* strain SGD-V-76, respectively. These findings highlight the potential of these bacterial strains in producing L-asparaginase, emphasizing their significance in pharmaceutical applications, particularly in cancer treatment.

Abstract No. 46

IDENTIFICATION AND BIOCHEMICAL CHARACTERIZATION OF CHLORPYRIFOS RESISTANT BACTERIAL STRAINS FOR CHLORPYRIFOS BIOREMEDIATION

Avanish Prajapati[1], Rajesh Kumar Sharma[1] and Birinchi Kumar Sarma[2]

[1]Laboratory of Ecotoxicology, Department of Botany
Banaras Hindu University, Varanasi (U.P.), India
[2]Department of Mycology and Plant Pathology
Institute of Agriculture Science, Banaras Hindu University, Varanasi (U.P.), India

ABSTRACT

In intensive farming, pesticides play an imperative role in protecting the crops against pathogens such as fungi, bacteria, nematodes etc., and insect pests i.e. cabbage butterfly, dimond back moth, flea beetle, caterpillar, painted bug etc., which results yields lossas well as lowers the crop quality. The present study aims to assess the current status of pesticide use associated impacts on ecosystems as well as to identify and characterize chlorpyrifos resistant bacterial isolates for sustainable management of chlorpyrifos in agriculture. Data regarding uses, processing, safety measures and usage frequency were collected from the farmers using a semi-structured questionnaire. Soil was collected from contaminated sites for the analysis of pesticides and isolation of chlorpyrifos resistant bacteria. The results of questionnaire survey showed that pesticides in the study areas are as chlorpyrifos, cypermethrin,fipronil, acephate, abamectin etc. are most frequently used by the marginal farmers of the study areas. Nineteen bacteria named as IS-1-19 were isolated from contaminated soil in mineral salt media, supplemented with 50 mg L^{-1}chlorpyrifos. They were screened out against the chlorpyrifos concentration ranging from 0-2000 mg L^{-1} to assess their tolerance for chlorpyrifos. The results showed that out of nineteen, only five bacterial isolates i.e. IS-2,IS-5,IS-9,IS-12,IS-19 have a tolerance level up to 2000 mg L^{-1}. 16s rRNA gene analysis showed that isolates, IS-2,IS-5,IS-9,IS-12,IS-19 were *Staphylococcus hominis*, *Myroidesprofundi*, *Burkholderiacepacia*, *Pseudomonas plecoglossicida*, *Burkholderia* sp. respectively. All the bacterial strains were found gram negative except *Staphylococcus hominis.* Whereas all are catalase positive. Compatibility test showed that they were compatible with each other. The present findings will be used for developing an ecofriendly bacterial consortium that would degrade chlorpyrifos residue in soil-plant system and promote sustainable agriculture and prevent its entry in food chain.

Abstract No. 47

ENHANCING SILK PRODUCTION: EXPLORING THE INFLUENCE OF VITAMIN E ON THE REPRODUCTIVE PERFORMANCE OF *BOMBYX MORIL*

Amita Srivastava and Shweta Maurya

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

ABSTRACT

The reproductive performance of *Bombyx mori* silkworms is crucial in sericulture, directly impacting silk production and quality. Antioxidants like Vitamin E are known to enhance physiological functions by reducing oxidative stress and supporting cellular health. This study examines the effects of Vitamin E supplementation on the reproductive performance of Bombyxmori. Silkworms were divided into control and treatment groups, with the latter receiving different concentrations of Vitamin E in their diet. Key reproductive parameters, including fecundity, egg hatchability, and larval survival rate were evaluated. The results showed a notable increase in fertility, egg viability, and overall reproductive efficiency in Vitamin E-treated silkworms compared to the control group. This outcome can be the effect of tocopherol, which helps to increase fecundity and fertility. These findings highlight the potential of Vitamin E supplementation could improve reproductive success, benefiting large-scale sericulture by enhancing silk production. Further research is needed to determine the optimal dosage for maximum effectiveness.

Abstract No. 48

ROLE OF WOMEN AND TRIBES IN SOCIAL AND ENVIRONMENTAL SUSTAINABILITY

Priti Singh

Department of Botany
S.N Sen BVP.G. College, Kanpur (U.P.), India

ABSTRACT

For ages, women have played an important role in promoting the use of indigenous techniques. The role of women, especially tribal females, has always been pivotal in advancing social and environmental sustainability. This research explores the contributions of tribal women in fostering sustainable practices, along with ethno-botanical practices that align with both ecological preservation and social equity. In Southern India, women are often the primary caretakers of natural resources and household managers. They play a crucial role in sustainable agriculture and biodiversity management, drawing on knowledge gained from traditional practices and rituals. As stakeholders of future indigenous knowledge, their deep-rooted expertise is reflected in their day-to-day activities. Their leadership in community-based initiatives significantly influences sustainable development. Similarly, indigenous tribes, with their traditional ecological knowledge and resilience, contribute to sustainability through agricultural land use, forest conservation, and climate adaptation strategies. This study examines and highlights the involvement of women and tribes in decision-making processes, resource management, and policy-making. Their influence can shape favorable conditions for balanced ecological health and social justice. The need of the hour is to empower and recognize these groups to achieve long-term sustainable goals.

Abstract No. 49

LIMNOLOGICAL STUDY OF AMKOI DAM TEHSIL NAGOD, DISTRICT SATNA (M.P.)

Ravish Kumar Dwivedi and Mahendra Kumar Tiwari

Department of Environmental Science
AKS University, Satna (M.P.), India

ABSTRACT

Amkoi Dam is located in the Nagod tehsil of Satna district, Madhya Pradesh. It is a freshwater perennial dam and serves as an important resource for the local community while maintaining regional biodiversity. However, its ecological integrity has been compromised due to human activities and natural factors. The primary objective of this study is to focus on key water quality parameters, biological components, and environmental factors affecting the overall health of the ecosystem. It also aims to identify sources of pollution and determine the status of aquatic life in relation to these environmental conditions. This study provides a comprehensive understanding of the dam's aquatic ecosystem.The study monitored key water quality indicators, including temperature, pH, Total Suspended Solids (TSS), Total Dissolved Solids (TDS), Dissolved Oxygen (DO), Chemical Oxygen Demand (COD), Biological Oxygen Demand (BOD), turbidity, and nutrient levels. Samples were collected from selected sites across the dam, taking seasonal variations in water quality into account. The biological study focused on the diversity and abundance of phytoplankton and zooplankton, which are important indicators of the trophic status of the ecosystem. Phytoplankton populations showed strong responses to varying nutrient levels, while the diversity of zooplankton suggested a relatively stable ecosystem, albeit with some seasonal stress. The study also investigated the presence and diversity of macroinvertebrates. The study found elevated nutrient levels, especially during the rainy season, which led to eutrophication, promoting algal blooms and reducing water clarity. Agricultural runoff and organic pollution from the surrounding catchment area were identified as significant contributors to this issue. These factors pose a threat to both water quality and biodiversity. This limnological study of Amkoi Dam will be helpful in the proper planning and management of dam water for purposes such as drinking, irrigation, and fish culture. It offers valuable insights into maintaining the ecological balance and ensuring sustainable use of this important water resource.

Abstract No. 50

VALUE ADDITION BY SHGS IN JUTE DIVERSIFIED PRODUCTS (JDPS) IN NORTH 24 PARGANAS DISTRICT OF WEST BENGAL

Ipsita Sen

Department of Agricultural Economics
Institute of Agricultural Sciences, Banaras Hindu University, Varanasi (U.P.), India

ABSTRACT

Jute Diversified Products (JDPs) include items such as handbags, handicrafts, decorative fabrics, and jewelry, which contain at least 50% jute by weight. Over the last decade, the export share of JDPs has steadily increased, reflecting their growing demand in both domestic and international markets. This study, based on primary data collection, focuses on SHGs in North 24 Parganas, a prominent hub for jute product manufacturing. Using a snowball sampling technique, nine SHGs comprising 120 members were selected for the analysis. The research employs value chain mapping to assess the contributions of various actors, including input suppliers, SHGs, retailers, and consumers, in the JDP sector. Findings indicate that SHGs significantly contribute to value addition through raw material processing, pattern-making, designing, packaging, and marketing, ultimately improving members' financial well-being. Notably, engagement in JDP production has enabled rural women to transition from negligible or no income to earning a livelihood through it. The study highlights that the increasing global awareness of sustainable and eco-friendly products, especially in developed markets such as the USA, Canada, Australia, and Japan, presents promising opportunities for the Indian jute industry. Government interventions such as the National Jute Development Program (NJDP), which includes schemes for resource centers, raw material banks, retail outlets, and market promotion, further support the sector's growth. Overall, this research underscores the pivotal role of SHGs in fostering economic empowerment, social sustainability, and environmental conservation through JDP production. By strengthening institutional support, improving skill-based training, and expanding market linkages, the jute sector can contribute significantly to sustainable development in India.

Abstract No. 51

IMPACT OF PESTICIDE-CONTAMINATED AGRICULTURAL SOIL ON THE ANATOMICAL AND DEVELOPMENTAL ASPECTS OF EARTHWORM

Himanshu Sharma[1], Nisha Vashishta[2], Pooja Suman[2], Anita Thakur[1], and Yasha Yadav[1],

[1]Department of Zoology
Hansraj College, University of Delhi (Delhi) India
[2]Department of Zoology
Miranda House, University of Delhi (Delhi) India

ABSTRACT

The agricultural sector heavily depends upon the pesticide to rise the yielding of crop products for managing the food demand because of global rise in human population. The over usage of pesticides contaminates the soil which imparts total effect on environment. This contaminated soil adversely affect earthworm survival and cocoon production. Bioremediation along with bio augmentation improvises the pesticide contaminated agricultural soil and make it suitable for crop production. Earthworm are used for bioaugmentation that are affected by the lower concentration of pesticides. These contaminants damage the reproductive capability and life span of earthworms. This study highlights the effect of sublethal toxicity from DDVP (dichlorvos) and AlP (Aluminium phosphide) on Eiseniafetida. Study indicates a considerable reduction in cocoon production in the pesticide treated soil, but the bioaugmentation with cowdung marginally increased cocoon production. Thus, the bioaugmentation with cowdung is essential when employing earthworms for bioremediation in pesticide contaminated soil.

Abstract No. 52

GREEN HYDROGEN: A KEY DRIVER FOR INDIA'S ENERGY INDEPENDENCE AND DECARBONIZATION

Garima

Department of Chemistry
D. D. U. Government Degree College, Saidabad, Pragyagraj (U.P.), India

ABSTRACT

India has set ambitious energy goals, targeting energy independence by 2047 and net-zero emissions by 2070. Green Hydrogen is pivotal in achieving these objectives by providing a clean, renewable, and sustainable energy alternative. Produced through electrolysis using solar, wind, and hydropower, Green Hydrogen is an emission-free fuel that can replace fossil fuels in various sectors. Biomass gasification offers an additional pathway for sustainable hydrogen production, further enhancing its viability. The demand for Green Hydrogen is rising due to its ability to decarbonize industries such as steel, ammonia, and methanol production, which currently rely on fossil fuels. It is also crucial in transportation, particularly for fuel cell electric vehicles (FCEVs) and heavy transport such as shipping and aviation. Additionally, Green Hydrogen plays a key role in energy storage, ensuring grid stability and renewable energy integration. India's National Green Hydrogen Mission, with an outlay of Rs. 19,744 crores, aims to produce 5 MMT of Green Hydrogen annually. This initiative supports hydrogen infrastructure, cost reduction, and integration into energy systems. However, challenges such as high production costs and efficiency improvements require urgent research. Hydrogen hybridization with renewable energy systems can address intermittency and enhance efficiency. Pathways like energy-to-gas, energy-to-fuel, and energy-to-feedstock are being explored to scale up hydrogen adoption. With ongoing advancements, Green Hydrogen can drive India's transition to a self-reliant and sustainable energy future. In conclusion, Green Hydrogen is essential for decarbonization and energy security. By leveraging its applications in industry, transport, and power generation, India can reduce fossil fuel dependence and establish itself as a global leader in the hydrogen economy.

Abstract No. 53

PIT COMPOSTING IN CHITRAKOOT, MADHYA PRADESH: A SUSTAINABLE APPROACH TO WASTE MANAGEMENT AND CLIMATE CHANGE MITIGATION

Yoshita Ray

Department of Energy& Environment
Faculty of Science & Environment MGCGV Chitrakoot, Satna (M.P), India

ABSTRACT

Municipal solid waste management is becoming a serious problem in many large cities around the world. The amount of waste generated is increasing causing environmental damage and increasing environmental risks. The objective of this study Chitrakoot, Madhya Pradesh implements pit composting for effective organic waste management. In Chitrakoot Madhya Pradesh a total of 13 pits are used for composting. The Nagar Palika Parishad Chitrakoot operates a composting facility where each pit measures 15 feet in length, 5 feet in width, and 2 feet in depth. Pit composting is a traditional and low-cost method of decomposing organic waste by burying it in a pit. Firstly, compost was produced with pH 7.7. dark brown color and moisture content (35%), N (1.02%), P (0.7), K (0.4) organic matter (44%) and organic carbon (25%) were measured by standard methods. Result was with WHO and U.S.EPA recommendations showing suitable condition. Also, it was indicated that pit method better for maintain nitrogen, organic C and organic matter. Over time natural microbial activity breaks down the waste into nutrient-rich compost which can be used to improve soil fertility. Pit composting is a simple low-cost and effective method that significantly reduces greenhouse gas emissions, improves soil health, and supports sustainable waste management. After decomposition the organic material turns into dark, crumbly compost. Dig out and use it for farming, gardening or soil enrichment. A simple low-maintenance method requiring no special equipment. It reduces landfill waste enriches soil with nutrients and requires minimal supervision once covered.

Abstract No. 54

ANALYSIS OF AMBIENT AIR PARTICULATE MATTER AND ITS EFFECT ON ROADSIDE *TRESSSPECIES CALOTROPIS* PROCERA AND SARACA ASOCA GROWING ALONG REWA CITY (M.P.)

Shrishti Singh and Atul Tiwari

Department of Environmental Biology
APS University, Rewa (M.P.), India

ABSTRACT

This study was undertaken to assess the removal of ambient air particulate matter of roadside trees *Neolamarckia cadamba* and *Cascabela thevetia* Growing Along Rewa city. The roadside plants play a significant role in assimilation and accumulation of pollutants and act as efficient interceptors of airborne pollutants. Particulate matters affects the photosynthesis, respiration, transpiration and allows the penetration of phytotoxic gaseous pollutants. This research was conducted during June 2023 to July 2024 on both these plant species in the region of Rewa city. Air quality monitoring at 6 selected sites of Rewa city have been carried out viz; Sirmour square (S1), PTS Square (S2), New Bus Stand (S3) Old Bus Stand (S4) and Prakash Square (S5) along with control site APS University Campus (S6) of Rewa city. It was found that maximum particulate matter accumulation occurred during winter followed by summer and minimum in Rainy season in both tree species. *Neolamarckia cadamba* showed more particulate matter accumulation on leaves in comparison to *Cascabela thevetia.* Particulate matter accumulation in different plant species not only depends upon the sources and amount of pollutants in the environment but also depends on morphological characters of plants like leaf size and surface, texture, hair, wax, length of petiole, weather condition and wind direction. Thus, Roadside trees work as natural air filters.

Abstract No. 55

BALANCING GROWTH AND PRESERVATION: STRATEGIES FOR THE SUSTAINABLE DEVELOPMENT OF NATURAL RESOURCES

Mohammad Akmal and Rajiv Ranjan

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

ABSTRACT

Sustainable development of natural resources is a vital framework that aims to balance human development with environmental preservation, ensuring that natural resources are used efficiently and responsibly to meet current needs without compromising future generations. It addresses the challenges of resource depletion, environmental degradation, and socio-economic inequalities by integrating environmental, social, and economic considerations into decision-making processes. The sustainable management of resources—such as water, minerals, forests, and fossil fuels—requires a shift from traditional, extractive practices to innovative, conservation-oriented strategies that prioritize renewable resources, efficiency, and resilience. Key principles of sustainable development include reducing consumption and waste, transitioning to renewable ener gy sources, implementing efficient production techniques, and fostering the restoration and preservation of ecosystems. It also involves promoting social equity by ensuring that local communities, particularly those directly dependent on natural resources, are engaged in resource management and benefit from sustainable practices. Furthermore, sustainable development encourages the adoption of circular economy models, where products are reused, refurbished, and recycled, reducing the demand for raw materials and minimizing environmental impact. Ultimately, the sustainable development of natural resources requires coordinated global efforts, policy reforms, technological innovations, and a commitment to environmental stewardship. By pursuing these goals, societies can mitigate the adverse effects of resource depletion and climate change, support economic stability, and ensure the well-being of future generations. Embracing sustainability is not just an environmental necessity but also a pathway to long-term economic and social prosperity.

Abstract No. 56

N-ACETYL-L-CYSTEINE MEDIATED AMELIORATION OF CADMIUM INDUCED CYTOTOXICITY IN ANTRAL FOLLICLES OF GOAT (CAPRA HIRCUS)

Jitender Kumar Bhardwaj and Prerna Bikal

Reproductive Physiology Laboratory
Department of Zoology, Kurukshetra University, Kurukshetra (H.R.), India

ABSTRACT

Cadmium (Cd) is one of the potent environmental toxicant with no known beneficial role in the human body. Human and animals are usually exposed to such toxicant through contaminated food, water, smoking and occupational activities. Due to its long biological half-life Cd gets accumulated over time in various body organs such as brain, liver, kidney as well as the reproductive organs. Ovaries has been demonstrated to be a primary target organ to Cd.N-Acetyl-L-Cysteine (NAC), a dietary antioxidant, having proven preventive effects against many illnesses. Nevertheless, its application in preventing ovarian toxicity caused by Cd is still unknown. Therefore, the current work has been designed to evaluate the cytotoxic effects of Cadmium chloride at dosage of 1, 10 and 100 µM along with ameliorative effects of the antioxidant compound, NAC (1mM, 5mM, 10mM) in caprine ovary for 24 and 48 hours' duration. The findings of the study showed that Cd-treated follicles had histological changes as well as a number of apoptotic characteristics, including vacuolization, pyknotic nuclei, marginated chromatin, and empty spaces. EB/AO differential staining demonstrated increased apoptotic granulosacells with increase in Cd concentration in time and dose dependent manner.Decreased anti-oxidant enzymatic activity and elevated MDA levels (TBARS assay) were additional indicators of increased oxidative stress following Cd exposure. Nevertheless, NAC co-supplementation significantly alleviated Cd-induced oxidative toxicity as proved by increased cellular viability, lesser histological lesions, and increased FRAP activity in ovarian tissue. The levels of SOD, CAT and GST were elevated significantly ($p< 0.05$) in $CdCl_2$ + NAC group, meanwhile MDA levels were significantly ($p< 0.05$) declined as compared to the only Cd treated groups. Thus, the findings of this study indicate that Cd being an ovarian toxicant adversely affects female reproductive system, however the application of NAC can mitigate Cd-induced reproductive toxicity by ameliorating the ovarian oxidative stress and improving the antioxidant status.

Abstract No. 57

HEMATOLOGICAL CHANGES IN *LABEO ROHITA* INDUCED BY HEAVY METAL TOXICITY

Sangeeta Pal and Ashish Vishwakarma

Department of Zoology
PK University Shivpuri (M.P.), India

ABSTRACT

Various industries generate a wide range of waste materials, including heavy metal waste. These heavy metals enter water systems through industrial effluents, sewage disposal, soil leaching, and rainfall. Many industries discharge their untreated waste directly into freshwater bodies like rivers, reservoirs, and ponds. When these heavy metals accumulate in water, they can be harmful or even deadly to aquatic organisms, especially if exposure lasts for a long time. Freshwater fish are particularly vulnerable because they cannot escape polluted environments. Since aquatic organisms are highly sensitive to environmental changes, they serve as indicators of pollution levels. This study focuses on the short-term and long-term effects of mercuric chloride exposure on Labeorohita (a freshwater fish species). Bioassay experiments were conducted under controlled conditions following standard safety procedures. This study investigates the effects of the heavy metal pollutant, mercuric chloride, on hematological alterations in the freshwater fish *Labeo rohita*. Exposure to sub-lethal concentrations of mercuric chloride, both in the short term and long term, caused significant changes. The results indicated a decrease in parameters such as RBC, WBC, and hemoglobin (Hb) during short-term exposure, whereas WBC levels increased during long-term exposure.

Abstract No. 58

INNOVATIVE UTILIZATION ND MANAGEMENT OF ERI-CULTURE WASTE FOR SUSTAINABLE DEVELOPMENT

Sunita Arya and Revati Sharma

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

ABSTRACT

Enhancing the environmental and financial advantages of sericulture now heavily depends on the creative use and sustainable management of Eri culture waste. With an emphasis on optimizing their potential and reducing their negative ef fects on the environment, Present work have emphasis on different uses and management strategies for Eri culture by-products. Eri culture, which is mostly used in Northeast India, generates a lot of waste, including protein waste (Fibroin and Sericin), pupae, plant waste, and silkworm excrement. Due to Environmental risks associated with traditional disposal techniques, sustainable alternatives are essential. In present investigation, we find out novel uses, including the utilization of Eri pupae as a nutritious treat, a high-protein animal feed, and a useful component in the cosmetics sector. Furthermore, leftover cocoons are recycled to make eco-friendly crafts and artwork.it as found that Vermicomposting, which creates organic manure that, improves soil fertility and promotes sustainable agriculture, is another use for sericulture waste. In addition to lowering waste, these methods help rural communities make more money, which raises living standards. According to our research, incorporating these cutting-edge techniques can greatly lower environmental pollution, advance sustainable growth, and support the circular economy. This research highlights the potential of Eri culture waste in a variety of industries and stresses the significance of implementing eco-friendly waste management techniques.

Abstract No. 59

PHARMACOLOGY'S ROLE IN ECOLOGICAL AND SOCIAL RESILIENCE: A STUDY OF THE DRUG-ECOLOGY NEXUS

Kaushal Kumar and Aastha Shakya

Department of Pharmacy
MJP Rohilkhand University, Bareilly (U.P.), India

ABSTRACT

In an era marked by accelerating environmental degradation and intensifying social challenges, the role of pharmacology has expanded beyond its traditional boundaries of treating human disease. It now plays a critical role in shaping ecological sustainability and social resilience. This study delves into the intricate drug-ecology nexus, exploring how various pharmaceutical practices—from drug discovery and production to consumption and eventual disposal—can unintentionally contribute to ecological imbalances and deepen existing social vulnerabilities. Modern therapeutics, though vital for combating illnesses, often lead to the release of pharmaceutical residues into natural ecosystems through human excretion, improper disposal, and industrial waste. These substances can disrupt aquatic and terrestrial biodiversity, alter microbial communities, and accelerate the development of antimicrobial resistance, posing a significant threat to both environmental and public health. Furthermore, these ecological impacts are disproportionately felt by marginalized communities, where limited access to quality healthcare and environmental safeguards exacerbates existing inequalities. As a result, social vulnerabilities increase, creating a feedback loop between environmental harm and social disparity. To address these intertwined issues, the study adopts a trans-disciplinary framework that integrates knowledge from pharmacology, environmental toxicology, sociology, and sustainability science. It evaluates the long-term consequences of pharmaceutical practices and explores emerging solutions such as green chemistry, biodegradable drug formulations, and eco-pharmacovigilance. These sustainable innovations aim to reduce the environmental footprint of drugs while promoting equitable health outcomes. Ultimately, the research advocates for a paradigm shift toward a more integrated, ecologically conscious, and socially inclusive approach to pharmacology—one that supports both human health and the wellbeing of the planet.

Abstract No. 60

ACUTE ORAL TOXICITY STUDY OF "POLYHERBAL FORMULATION (*ROSMARINUSO FFICINALS*, ASHWAGHANDHA & AMLA) IN SPRAGUE DAWLEY RATS"

***Shivaraj Y.[1] and Rajesh R.[2]**

*[1]Department of Zoology, L.V.D College Raichur
[2]Chromed Biosciences Pvt. Ltd. A Multi-Division Contract Research Organization, KIADB Industrial Area, Hirehalli, Tumakuru-572 168, Karnataka, India.

ABSTRACT

Today in this present globe many part of the continents the use of herbal medicinal products and supplements has increased tremendously over the past three decades with not less than 80% of people worldwide trusting on them for some part of primary healthcare. The study was focused to evaluate the acute oral toxicity of polyherbal formulations (PHFs) and the developed polyherbal formulation includes three herbs viz. the roots of Withania*s omnifera* (Ashwagandha), *leaves of* R. *officinalis* (Rosemary) and fruit of Emblica *officinalis* (Amla) detect the effect of this polyherbal formulation on higher mammals. The raw materials were standardized according to the WHO guidelines and the three holistic extracts were mixed in 1:1:1 ratio for further study by bio-guided method and also in combination to control and curing or managing of different diseases. However, to confirm the drug's safety and efficacy in the appropriate dosages we used healthy nulliparous and non-pregnant female Sprague Dawleyrats (Rattus *norvegicus*) with average body weight of 160 g -180 g and age between 8–12 weeks were used throught the experiments in the present study administered a single dose of 2000mg/kg of body weight by oral gavage in female Sprague Dawley rats the observation period of 14 days. The rats were maintained under standard laboratory conditions (room temperature of 22.1 to 24.6°C with optimal air cycle changes 12-15 per hour and relative humidity of 48-61 % with 12 hours light &dark cycle).The animals were fed with laboratory animal feed and UV sterilized drinking water was provided *ad-libitum* throughout the experimental period. Hence the present study is designed to test the acute (limit dose) toxicity of two herbal extracts of rosemary leaf and ashwagandha and amla root in Sprague Dawley rats following the OECD guidelines 423, which would help in suggesting the minimum safety level of herbal extracts.

Abstract No. 61

INTEGRATIVE APPROACHES TO BIOREMEDIATION AND ENVIRONMENTAL MONITORING: ADVANCES, CHALLENGES, AND FUTURE DIRECTIONS

Vineeta Rawat[1] and Sunita Rawat[2]

[1]Department of Zoology
Siddharth University, Kapilvastu, Siddharth Nagar (U.P.), India
[2]Department of Zoology
Government Degree College, Gosaikheda, Unnao (U.P.), India

ABSTRACT

The intensification of environmental pollution poses significant threats to ecosystems and public health globally, necessitating efficient and sustainable remediation strategies. Bioremediation has emerged as an eco-friendly and cost-effective method utilizing biological agents such as microorganisms, plants, and enzymes to degrade, transform, or immobilize environmental pollutants. Concurrently, environmental monitoring is essential to accurately assess pollution levels, remediation efficiency, and ecological recovery. Recent advancements have emphasized integrating bioremediation techniques with sophisticated environmental monitoring technologies to enhance overall effectiveness and accuracy. This review critically examines contemporary developments in bioremediation methods, including microbial remediation, phytoremediation, nanobioremediation, and genetically engineered organisms. Additionally, the review discusses significant technological innovations in environmental monitoring, such as biosensors, remote sensing, GIS-based mapping, and Internet of Things (IoT)-enabled devices. The integration of these advanced monitoring techniques with bioremediation approaches offers considerable potential for real-time analysis, rapid response, and sustainable environmental management. Despite promising advancements, several challenges remain, including microbial adaptability, technological limitations, economic constraints, regulatory barriers, and ecological risks. Addressing these challenges requires interdisciplinary collaboration, enhanced policy frameworks, and innovative biotechnological solutions. The review further identifies critical research gaps and highlights future directions emphasizing genetic engineering, artificial intelligence-driven monitoring, and integrative frameworks. By exploring these integrative approaches comprehensively, this article aims to provide valuable insights into developing robust, sustainable strategies for global environmental protection and pollution mitigation.

Abstract No. 62

BUTTERFLY DIVERSITY IN KANPUR: INFLUENCE OF *LANTANA CAMARA* AS A NECTAR SOURCE

Neetu Pandey and Saras

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

ABSTRACT

Important pollinators and bio-indicators of ecological health are butterflies. The diversity of butterflies in Kanpur is investigated in this study , with special attention to the invasive species *Lantana camara*. Several butterfly species used *Lantana camara* as a nectar source, according to field surveys carried out in different green areas. Several families were identified in the study: the Nymphalidae (*Danauschrysippus*, *Danausgenutia*, *Tirumalalimniace*, *Euploea core*, *Junonialemonias*, *Junoniaorithya*), the Pieridae (*Delias eucharis*, *Catopsiliapomona*, *Catopsiliapyranthe*), the Papilionidae (*Papiliopolytes*, *Papiliodemoleus*, *Pachlioptaaristolochiae*), and the Lycaenidae (*Zizinaotis*, *Lampidesboeticus*). Despite worries about its invasiveness, the results show that *Lantana camara* contributes to the health of butterfly populations because of its plentiful nectar. Although the plant is a good forage resource for butterflies, its effects on native plants call for cautious ecological management. . The study highlights the necessity of well-rounded conservation approaches that promote butterfly variety and slow the spread of invasive species.

Abstract No. 63

ROLE OF MELATONIN IN MITIGATING HIGH-TEMPERATURE STRESS IN *SOLANUM LYCOPERSICUM* L.

Barket Hussain

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

ABSTRACT

High-temperature (HT) stress poses a significant challenge to tomato plants, adversely affecting growth and productivity. This study explores the innovative application of melatonin (MT) to enhance the resilience of *Solanum lycopersicum* L. under HT stress. Tomato plants were subjected to various treatments, including a control group at 25°C and elevated temperatures of 30°C, 35°C, or 40°C, at 30 days after transplant (DAT), and the plants were given 50 µM MT at 40 DAT. The elevated temperatures reduced chlorophyll content, impaired photosynthetic efficiency, diminished cell viability, stunted plant growth, and compromised fruit quality. Additionally, root morphology and stomatal physiology were negatively affected, leading to increased oxidative stress characterised by elevated reactive oxygen species (ROS), malondialdehyde (MDA), and electrolyte leakage. Conversely, the application of MT (50 µM) positively influenced plant performance by enhancing chlorophyll levels, improving photosynthetic efficiency, and increasing the activities of key antioxidant enzymes, such as catalase (CAT), peroxidase (POX), and superoxide dismutase (SOD). Remarkably, MT significantly minimised the detrimental effects of HT stress, with low levels of ROS and MDA, improved stomatal morphology, and enhanced overall plant growth and fruit quality. These results reveal the potential role of MT as a strategic tool for enhancing HT tolerance in tomato plants, providing valuable insights for improving crop resilience amid the challenges posed by climate change.

Abstract No. 64

SUSTAINABLE MANAGEMENT OF AGRICULTURAL WASTE: STRATEGIES FOR POLLUTION REDUCTION AND RENEWABLE ENERGY PRODUCTION

Sumana Balo[1], Rohit Kumar Choudhury[2], Krisanu Golui[3], and Varanasi Adarsh[4]

[1]Department of Soil Science and Agricultural Chemistry
GIET University, Rayagada (Odisha), India
[2]Department of Agricultural Chemistry and Soil Science
Bidhan Chandra KrishiViswavidyalaya, Nadia (West Bengal), India
[3]Department of Soil Science, CCS Haryana Agricultural University, Hisar (HR) India
[4]School of Agriculture, GIET University Rayagada (Odisha), India

ABSTRACT

Agricultural waste-derived pollutants cause significant environmental challenges, necessitating eco-friendly solutions for mitigation. Bioremediation, an effective and sustainable strategy, utilizes microorganisms such as bacteria and fungi to degrade and transform these pollutants into less harmful or beneficial compounds. Microbial degradation and phytoremediation play a crucial role in reducing the environmental footprint of agricultural waste. In addition to bioremediation, the conversion of agricultural waste into biofuels, including biogas, biodiesel, and bioethanol, offers a renewable energy solution. Processes such as anaerobic digestion, fermentation, and pyrolysis facilitate the transformation of organic waste into sustainable energy sources, thereby contributing to circular economy principles. The integration of bioremediation with biofuel production presents a promising approach to maximize resource utilization while minimizing waste generation. Utilizing bioremediation residues as feedstocks for biofuel production enhances sustainability by combining interaction between waste management and energy generation. However, several challenges, such as optimizing process efficiency, scalability, and economic feasibility, remain to be addressed. Further research is required to enhance microbial degradation pathways, improve biofuel yields, and develop innovative technologies for large-scale applications. Additionally, supportive policies and financial incentives are essential to promote the adoption of sustainable agricultural waste management practices. This review explores the intricate interactions between agricultural waste, environmental pollutants, and biofuel production, emphasizing the potential of integrated bioremediation and biofuel strategies in promoting a more resilient and sustainable agricultural system.

Abstract No. 65

ASSESSMENT OF AMBIENT AIR QUALITY DYNAMICS: SEASONAL, MONTHLY, AND DIURNAL PATTERNS IN AYODHYA CITY, (U.P)

Brijesh Kumar Yadav and Vinod Kumar Chaudhary

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

ABSTRACT

One of the largest risks to human health in cities is air pollution. Around 4.2 million premature deaths were reported globally in 2016 as a result of poor air quality (WHO, 2016). The environment, human health, and the standard of living in Indian cities are all seriously threatened by air pollution as an outcome of the country's rapid urbanization. Air quality is a critical indicator of environmental health, directly influencing public well-being and ecosystem stability. This study investigates the air quality dynamics of Ayodhya City by analyzing seasonal, monthly, and diurnal variations in key air pollutants, including PM10, NOX, and SOX. Using data from manual monitoring stations, statistical tools, and visualization techniques, the research identifies patterns and trends across different time scales. The findings reveal significant seasonal fluctuations, with higher pollutant concentrations during winter due to temperature inversions and lower dispersion rates. Monthly trends highlight peaks corresponding to specific anthropogenic activities and meteorological events. The morning and evening peaks in diurnal patterns are caused by industrial activities and traffic pollutants. This study provides crucial insights into the temporal behavior of air pollutants, offering a foundation for evidence-based policy recommendations and effective air quality management strategies for Ayodhya City.

Abstract No. 66

SEAWEED DIVERSITY FROM PETHKILLA, ALAVA, AND VAYANGANI COAST OF RATNAGIRI DISTRICT, MAHARASHTRA

Aarti Damle and Madhura Mukadam

Department of Zoology
Gogate Jogalekar College, Ratnagiri (MS) India

ABSTRACT

Seaweeds are a diverse group of marine macroalgae that play a critical role in coastal ecosystems, contributing to biodiversity, providing habitat and food for marine organisms, and offering numerous ecological, nutritional, and medicinal benefits. The present study investigated the diversity of seaweeds across three coastal sites—Pethkilla, Alava, and Vayangani—along the west coast of Ratnagiri, Maharashtra. Random sampling was conducted along the intertidal rocky shore during the lowest tides each month from October 2022 to May 2023. A study on the diversity of seaweeds along the Ratnagiri coastline, conducted during the post-monsoon and pre-monsoon seasons, highlights the abundance of species from the classes Chlorophyta, Phaeophyta, and Rhodophyta. In terms of abundance, the highest number of species were observed in Chlorophyceae, followed by Rhodophyceae and Phaeophyceae. The occurrence and distribution of seaweeds varied across different locations and seasons, with the highest diversity observed during the post-monsoon season, likely influenced by factors such as environmental conditions, water parameters, nutrient availability, and species adaptations. Climate change and anthropogenic activities are significantly impacting the diversity of seaweeds. Considering their ecological and economic value, it is vital to conserve seaweed species to ensure their survival and protect the biodiversity of the Ratnagiri coastline.

Abstract No. 67

BIODIVERSITY AND ECOSYSTEM SERVICES

Vittam Prabha Gautam

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

ABSTRACT

Biodiversity, encompassing the variety of life forms on Earth, is fundamental to the stability and functionality of ecosystems. It plays a pivotal role in maintaining ecological balance by supporting essential processes such as nutrient cycling, pollination, climate regulation, andwater purification. However, anthropogenic activities, habitat destruction, climate change, and invasive species threaten biodiversity, leading to ecosystem degradation. Ecosystem services, classified into provisioning, regulating, supporting, and cultural services, are directly linked to biodiversity. Provisioning services include food, medicine, and raw materials, while regulating services involve climate control, water filtration, and disease management. Supporting services, such as soil formation and nutrient cycling, ensure long termecosystem sustainability, whereas cultural services contribute to recreation, spiritual enrichment, and aesthetic value. The loss of biodiversity disrupts these services, resulting in reduced agricultural productivity, increased vulnerability to natural disasters, and compromised human well-being.Conservation strategies such as habitat restoration, sustainable land-use practices, and protected area management are essential to mitigate biodiversity loss. Additionally, integrating biodiversity considerations into economic policies, promoting sustainable resource consumption, and enhancing community participation in conservation efforts can strengthen ecosystem resilience. Scientific advancements, including biotechnological interventions and ecological monitoring, further aid in preserving biodiversity. To ensure long-term ecological sustainability, a multidisciplinary approach involving policymakers, researchers, and local communities is crucial. Biodiversity conservation is notonly a scientific and environmental concern but also a socio-economic imperative that underpins human survival and global sustainability. Future efforts must emphasizebiodiversity-friendly policies, awareness campaigns, and technological innovations to balance development with conservation. A robust commitment to preserving biodiversity will secure ecosystem services, fostering a

Abstract No. 68

EXPLORING THE THERAPEUTIC POTENTIAL OF CASSIA FISTULA L.: A SUSTAINABLE APPROACH TO ENHANCING FISH HEALTH IN AQUACULTURE

S. Rani, S. Singh, S. Adhikari, S. Singh, A. Ahmed, Janvi, R. Devera and K. V. Rani

Zoology Department
Kalindi College, University of Delhi, Delhi (India)

ABSTRACT

The increasing preference for traditional medicine within developing countries, predominantly among Asian communities, emphasizes the need of sustainable healthcare solutions. Cassia fistula L., commonly known as the golden shower tree, has been recognized for its extensive applications in both ornamental and medicinal contexts. The plant extract exhibited antibacterial activity against few of the pathogenic bacteria. In present study the antioxidant potential of plant fruit pulp extracts was measured using DPPH and FRAP Assay. Presence of total phenols and flavonoids were calculated in the extracts. GC-MS was used to determine the chemical composition of plant's methanol extract. The compound profiling through GC-MS analysis revealed presence of compounds such as Melamine, Phenol,3,5-di-tert-butyl-, Pyranone, Pentanoic acid, Stearatic acid Thymohydroquinone dimethyl ether, Nitro-isobutyl glycerol, Palmitate, Muco-inositol, Isopentacosaneetc in considerable amount, which are reported to have varied biological properties like anti-microbial, anti-oxidant, anti-inflammatory and cancer preventive properties. Phytotherapeutics, particularly those derived from C. fistula, have garnered attention in aquaculture research for their ef ficacy in stress mitigation and enhancing fish health, demonstrating a promising avenue for the sustainable management of aquaculture systems. The findings indicate that C. fistula could serve as a powerful therapeutic agent, offering a low-risk alternative to modern medicine.

Abstract No. 69

THREATS TO AVIAN DIVERSITY: CONSERVATION STRATEGIES FOR A SUSTAINABLE FUTURE

Manju Bhaskar and Manvi Bajpai

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

ABSTRACT

Birds are diverse and beautiful and play an essential role in ecosystems. They are important bioindicators for environmental conditions because they provide services like pollination, scavenging, seed dispersal, and pest control. The Ganga, a diversified sanctuary, helps maintain bird diversity and ecosystem service. Kanpur and its surrounding areas are rich in avian habitats, supporting a diverse range of bird species, and cultural values for migratory and resident waterbird species. Four ecological sites, Brahmavrat Ghat, Atal Ghat, Ganga Ghat (Permat), and Siddhnath Ghat, were surveyed for bird species. The Gangetic area of Kanpur revealed 44 bird species, including 29 identified at Brahmavrat Ghat, 26 at Atal Ghat, 12 at Ganga Ghat, and 11 at Siddhnath Ghat. Avian species face threats to survival due to habitat deterioration, climate change, pollution, overexploitation, and disease outbreaks. Deforestation, urbanization, and industrial development disrupt ecosystems, while pollution from the Ganges River threatens bird populations. Kanpur is implementing comprehensive conservation strategies to protect bird species, including the Kanpur Bird Sanctuary, eco-friendly practices, eco-friendly tours, educational programs, and breeding programs. GIS models enhance bird population dynamics, habitat management, and movements, promoting conservation strategies through population assessments, threat analyses, habitat restoration, and sustainable land-use practices through government collaboration.

Abstract No. 70

EVALUATION OF WASTE COMPOSITION AND SUSTAINABLE MANAGEMENT APPROACHES FOR MINIMIZING LANDFILL RELIANCE IN KAIKALURU, ANDHRA PRADESH

Gathala Rachel Paul[1] and Pallem Srikanth[2]

[1]Department of Zoology
Andhra University, Visakhapatnam (A.P.), India
[2]Department of Environmental Sciences
Andhra University, Visakhapatnam, (A.P.), India

ABSTRACT

Landfills are a major source of environmental pollution, contributing to air, soil, and water contamination, posing significant health risks due to disease outbreaks. This study aims to minimize waste generation at its source to enhance quality and promote sustainability. The research was conducted in Kaikaluru, Eluru district, Andhra Pradesh, focusing on waste characterization, source reduction, and waste management strategies. The study involved waste classification (biodegradable and non-biodegradable) and the identification of major waste contributors, including households, industries, and commercial establishments. Additionally, it evaluated waste minimization practices, such as composting, recycling, and incineration, while emphasizing the need for public awareness programs to encourage sustainable waste management. Policy recommendations were also proposed to improve landfill management and reduce waste generation at the source. Waste composition analysis indicated organic waste accounted for 75-80% of total waste, primarily from households and agricultural residues. Non- biodegradable waste (plastics, metals, glass) contributed 10-15%,while hazardous waste (electronic and medical waste) comprised 5-10%. The existing waste collection system was found to be partially effective, with irregular collection schedules leading to waste accumulation in open areas. Only 30% of households practiced waste segregation, highlighting the need for public awareness campaigns and strict policy enforcement. The study underscores that effective waste characterization and source reduction strategies can significantly reduce landfill dependency in Kaikaluru. The integration of improved collection mechanisms, enhanced recycling efforts, and community-driven waste management programs can lead to sustainable waste disposal. Future research should focus on advanced waste treatment technologies and assessing the long-term environmental impacts of current waste management practices.

Abstract No. 71

FINGER MILLETS: VIABLE ALTERNATIVE FOR SUSTAINABILITY AND FOOD SECURITY

Hosita Gupta[1] and Sugandha Tiwari[2]

[1]Department of Botany
H.N.B. Government P.G. College, Naini, Prayagraj (U.P.), India
[2]Department of Botany
Dayanand Girls P.G. College, Kanpur (U.P.), India

ABSTRACT

Finger millet (*Eleusine coracana*) is increasingly recognized as a key crop for enhancing food security and promoting sustainability, particularly in regions affected by drought and climate change. Finger millet (*Eleusine coracana*) is widely cultivated in various parts of India, particularly in regions with semi-arid and dry climates. Due to its exceptional resilience, high nutritional content, and adaptability to poor soils, finger millet offers a valuable solution to the challenges faced by smallholder farmers. This paper explores the multifaceted role of finger millet in addressing food security by focusing on its potential to alleviate nutritional deficiencies, maintain agro-biodiversity, and support sustainable agricultural practices. We highlight its suitability for cultivation in marginal areas, where it requires minimal water and inputs compared to other crops, making it an ideal choice for resource-constrained environments. The paper also examines finger millet's resistance to pests and diseases, which enhances its resilience in diverse agricultural settings. In addition to its ecological advantages, we explore the economic opportunities associated with finger millet production, emphasizing its potential to improve rural livelihoods through increased income and local food security. By integrating finger millet into diversified farming systems, we argue that it can contribute significantly to achieving global sustainability goals, particularly in combating hunger, improving nutrition, and promoting resilient agricultural systems. This paper emphasizes the importance of promoting finger millet as a low-cost, nutritious, and climate-resilient crop that can help ensure food security for vulnerable populations worldwide.

Abstract No. 72

IMPACT OF GREEN TECHNOLOGY ON THE ECONOMY AND ECOLOGY

Amit Kumar Awasthi

Department of Zoology
D.S.N P.G College, Unnao (U.P.), India

ABSTRACT

The economy and ecology have been significantly impacted by the emergence of green technology, which refers to creative solutions designed to reduce environmental impact and promote sustainability. Green technologies offer a practical way to solve environmental deterioration and promote economic growth as resource depletion increases and climate change speeds up. Green technology plays a important role in shaping a sustainable future by addressing environmental challenges while advancing economic growth. Environmentally speaking, green technologies like sustainable agriculture, renewable energy, and eco-efficient manufacturing lower carbon footprints, preserve natural resources, and lessen pollution, all of which have a impact on protecting the environment. Economically speaking, the green technology industry creates jobs, encourages investment, and expands markets for sustainable goods and services. Clean tech advances, which provide long term economic resilience by shifting economies to low-carbon models and improving energy security, are becoming more and more important to governments and the private sector globally. Green technology adoption is not without its difficulties, though, such as high upfront costs, technological obstacles, and the requirement for substantial infrastructural and legislative assistance. Despite these challenges, the economy and green technologies work together to imply a revolutionary potential that addresses the pressing ecological issues of our day while providing chances for substantial growth.

Abstract No. 73

IMPACT OF PLANT POLLINATOR INTERACTION, BIODIVERSITY AND HONEY QUALITY ON AGRICULTURE AND HEALTHCARE

Sneh Trivedi and Alka Srivastava

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

ABSTRACT

Food systems, human health, and the general well-being of society all are significantly influenced by biodiversity. Food resources' quality and availability are directly impacted by the complex interactions among ecosystems, flora, and fauna. These include pollinators, like honeybees, which boost agricultural productivity and aid in plant reproduction, therefore making a substantial contribution to biodiversity. Melissopalynology, the study of pollen in honey, provides important information about the nutritional qualities of honey, ecosystem health, and bee foraging habits. An effective method for evaluating biodiversity is melissopalynological analysis, which detects pollen spectra in honey samples. In addition to helping identify the botanical origin of honey, this method aids in tracking environmental changes such as habitat loss and changes in land use. The diversity of pollen grains in honey is an important indicator of ecological stability because it shows the foraging habits of bees and the availability of floral resources. Its nutritional and therapeutic qualities are further enhanced by the fact that honey made from a variety of plant sources frequently contains more bioactive components. Pollination services are not the only way that biodiversity and human health are related, but also varied diet that includes a variety of foods generated from plants improves health outcomes by supplying vital nutrients and antioxidants. Numerous studies in both traditional and modern medicine have examined the antibacterial, anti-inflammatory, and antioxidant qualities of honey. Promoting sustainable farming methods and preserving pollinator habitats are essential to improve human health and food security. To sum up, biodiversity conservation is essential for ecological equilibrium, human well-being, and the sustainability of food systems. A distinct viewpoint on plant-pollinator relationships, ecosystem health, and the quality of honey as a natural food source is provided by melissopalynology. Integrating biodiversity conservation with sustainable farming methods strengthens food systems and ensures a sustainable future for the

Abstract No. 74

ELECTRONIC WASTE AND THEIR SOCIO-ECONOMIC IMPACT-A CASE STUDY OF HARYANA, INDIA

Anu Yadav

Department of Management and Commerce
School of Management and Liberal Studies
TheNorthCap University, Gurugram (H.R.), India

ABSTRACT

The electronic and electrical industrial sector is exponentially growing throughout the globe, and sometimes, these wastes are being disposed of and discarded with a faster rate in comparison to the past era due to technology advancements. As the application of electronic devices is increasing due to the digitalization of the world (IT sector, medical, domestic, etc.), a heap of discarded e-waste is also being generated. According to World Health Organization electronic waste (e-waste) is one of the fastest-growing types of solid waste worldwide. In 2022, less than a quarter of the global e-waste produced was formally recycled, despite the fact that these waste streams contain valuable, limited resources that could be recovered through proper recycling. According to Central Pollution Control Board (CPCB) Haryana is the top leading state in collection of e-waste in India. In this study Information Technology (IT) sector in Gurugram, Haryana has been used as a case study to understand the socio-economic impact of e-waste. A sample of 200 employees from IT sector was chosen and a survey was conducted. These 200 people were interviewed through an online questionnaire based on five-point Likert scale and the responses were recorded. Further the analysis was done using smart-PLS. The implication of this study describes the economic impact and social impact of e- waste of companies of IT sector. The companies which are very well aware of the formal recycling of e-waste have positive economic impact as compared to those which are less aware. Similarly the social impact is positively correlated to the formal recycling of e- waste.

Abstract No. 75

BIODIVERSITY AND TRADITIONAL HEALTH SYSTEM

Simpal Patil

Department of Botany
R. S. Government P. G. Girls College Chhindwara (M.P.), India

ABSTRACT

People depend on biodiversity in their daily lives. Human health ultimately depends upon ecosystem products and services such as water, food and fuel sources which are requisite for good human health and productive livelihood. Biodiversity loss can have significant direct human health impact. Biodiversity plays a crucial role in human nutrition through its influence on worlds food production, as it ensures the sustainable productivity of soils and provides the genetic resources for all crops, livestock, and marine species harvested for food. There is growing concern about the health consequences of biodiversity loss. It changes affect ecosystem functioning and significant disruptions of ecosystem. Loss in biodiversity may limit discovery of potential treatments for many diseases and health problems.

Abstract No. 76

EFFECT OF CLIMATE CHANCE ON BIODIVERSITY

Vilas Patil

Department of Life Science
Indira Gandhi National Open University, New Delhi, India

ABSTRACT

Climate change and its interactions with human modifications with human modification of the biosphere will result in major changes in species and ecosystem distributions, dynamics, and interactions. Halting deforestation and appropriately implementing reforestation could make important contributions to climate mitigation and protection of biodiversity. The resilience of biodiversity to climate change can be enhanced by reducing non climatic stresses in combination with conservation, restoration and sustainable management strategies. Conservation and management strategies that maintain and restore biodiversity can be expected to reduce some of the negative impacts from the climate change. Options to increase the adaptive capacity of species and ecosystems in the face of accelerating climate change include reducing non climate stresses, such as pollution, over exploitation, habitat loss and fragmentation and invasive alien species.

Abstract No. 77

INFLUENCE OF FLOWER INDUCERS ON FLOWERING, YIELD AND FRUIT QUALITY OF MANGO (*MANGIFERA INDICA* L.) CV. AMRAPALI PLANTED UNDER HIGH DENSITY

Laxmipriya Swain[1], Subash Ch. Swain[1], Deepa Samant[3] and Mahesh R Patil[4]

[1]Department of Fruit Science and Horticulture Technology, Odisha University of Agriculture and Technology, Bhubaneswar, (Odisha) India
[2]Central Horticulture Experiment Station (ICAR-IIHR), Bhubaneswar (Odisha) India
[3]Department of Agricultural Statistics
Mahatma PhuleKrishiVidyapeeth, Rahuri, Ahmednagar (MS), India

ABSTRACT

The cultivation of mango cv. Amrapali has been found maximum in Odisha due to its aroma, keeping quality and adaptability to the local climate. However, its productivity is found comparatively low in Odisha. The productivity can be increased by increasing the flowering intensity and subsequently yield. Among the various flower inducer suggested, paclobutrazol is considered as one of the important plant growth retardants which restricts vegetative growth and induce flowering in many fruit species including mango. For floral induction temperatures below 15°C is essential. Decrease in temperature below 20^0C is common in sub-tropical regions but seldom occurs in many tropical ones. So, an alternative strategy for optimum flower initiation under tropical condition is essentially required for increasing the productivity of plant. Among different strategies evolved to induce flowering in mango crop as a substitute to environment signals, potassium nitrate (KNO_3) application is effective not only in flower induction but also in early and off-season flower induction in mango (Burondkar*et al*., 2013).To study the effect of flower inducers like paclobutrazol and potassium nitrate on mango cv. Amrapali under higher densities system of planting an experiment was carried out at Horticultural Research Station, OUAT, Bhubaneswar during 2018-19 and 2019-20**.** The experiment was laid out in a Factorial Randomized Block Design with 12 treatment combinations and 3 replications. The treatment combinations consist of two levels of spacings (2.0 x 2.0 m and 4.0 x 4.0 m) and 6 levels of chemical treatments (Paclobutrazol @0.25, 0.50 and 0.75 g a.i. per meter of canopy spread and KNO_3@ 2% and 4% and a control with water application). The results from the experiment revealed that plants spaced at 4.0 x 4.0 m and treated with paclobutrazol 0.50 g a.i. recorded maximum flowering intensity (83.52%), hermaphrodite flower percentage (17.53%), fruit set at pea bud stage (6.70%) and yield (11.93 kg/tree). Whereas, highest panicle length and breadth were recorded in plants spaced at 4.0 x 4.0 m and treated with KNO_3@ 4%. Fuit quality parameters i.e. maximum total soluble solids, TSS: Acid ratio and reducing sugar, total sugar and lower titratable acidity were recorded in plants spaced at 4.0 x 4.0 m. Flower inducing chemicals had no significant influence on fruit quality parameters of mango cv. Amrapali under study.

Abstract No. 78

RISK ASSESSMENT OF HEAVY METALS IN MEGHADRIGEDDA RESERVOIR WATER AND SEDIMENT: IMPLICATIONS FOR PUBLIC HEALTH AND LOCAL COMMUNITIES IN VISAKHAPATNAM

Upmaka Yamini and Gudivada Mani

Department of Zoology
Andhra University, Visakhapatnam (A.P.), India

ABSTRACT

The contamination of freshwater resources by heavy metals presents a serious environmental and public health risk, particularly in rapidly urbanizing areas like Visakhapatnam. This study assesses the risk posed by heavy metals in the MeghadriGedda Reservoir, an important water source for local communities and industries. Concentrations of heavy metals including Lead, Arsenic, Mercury, Cadmium, Nickel, and chromium were measured in water samples and sediment samples collected from the reservoir. The data were compared to national and international water quality standards, and a health risk assessment was conducted using hazard quotient (HQ) and cancer risk (CR) models. Literature on the MeghadriGedda Reservoir highlights concerns regarding pollution from industrial runoff and urban waste, contributing to elevated levels of certain metals. The results indicate that while concentrations of metals are within safe limits, particularly chromium and nickel, exceed permissible levels and may pose significant health risks to local populations. Elevated chromium levels were concern due to its potential carcinogenic effects, while nickel cause chronic health risks. This study underscores risk assessment of the water and sediment quality to protect public health. It recommends improving waste management practices and increasing community awareness about potential dangers of heavy metal exposure.

Abstract No. 79

TEMPLE FLORAL WASTE: MANAGEMENT AND UTILISATION

Sangeeta Shrivastava

Sri Guru Tegh Bahadur Khalsa College Jabalpur

ABSTRACT

In India, religion plays a vital role in people's lives and is deeply embedded in traditional practices. Devotees offer flowers, fruits, and sweets as a part of their worship rituals. Once their religious purpose is fulfilled, these flowers, along with other waste, are often thrown away or dumped into water bodies like rivers, seas, and oceans, contributing to environmental concerns significant amount of floral waste, along with plant leaves, coconut husks, milk, and curd, accumulate over time. These offerings are often collected in large quantities and eventually disposed of, primarily in water bodies, leading to environmental concerns. Every day, devotees offer flowers in temples, but many remain unused and ultimately turn into waste. India, known for its numerous festivals and year-round celebrations, generates a significant amount of solid waste. However, this type of waste is often overlooked and needs proper attention. Commonly offered flowers in temples include marigold, rose, jasmine, hyacinth, hibiscus, and more. Instead of being discarded, floral waste can be efficiently managed and repurposed into valuable products. Sustainable methods such as vermicomposting, dye extraction, essential oil retrieval, Holi colour production, and biogas generation can be implemented. Since flowers contain beneficial secondary metabolites, they can be further utilized in essential oil production and food additives. Additionally, handmade paper can be produced using discarded flowers. This review highlights the significance of reusing floral waste to address energy challenges and reduce environmental pollution.

Abstract No. 80

SMALL SIZE RAIN WATER HOLDING STRUCTURE: KEY FACTOR IN RESTORATION OF ENVIRONMENTS AND ENRICH BIODIVERSITY

Varun Kumar Kushwaha

Department of Botany
Govt. Naveen Girls College, Baikunthpur, Dist – Korea (Chhattisgarh), India

ABSTRACT

Small size rain water holding structures like half-moon shaped bunds and continuous contour trenches (CCT) can rejuvenate ecosystem and enhance biodiversity of an area. Half-moon shaped bunds in Tanzania is playing important role to greenify desert lands. These structures holds rain water and allow it to soak on lands to increase underground water level. It helps in retaining of moisture in soil for longer period. It facilitates growth of grasses, herbaceous plants and subsequently larger shrubs and trees. Paani Foundation in Maharashtra promoting rectangular shaped small rain water holding structures called continuous contour trenches (CCT). It provides training to the villagers about rain water conservation strategies. They organize competitions among villages to make CCTs on slopes of plateaus and barren lands. Villagers participate in this competition and do hard work together. They already made billions liters of rain water holding capacity. It's result is increased underground water levels, more vegetation, more happiness. Hiwarebajar village of Maharashtra and Lapodia village of Rajasthan are examples of a good water shed management system. Its prosperity starts with rain water conservation. They made various rain water storing structures and irrigation systems. Now they have sufficient water for drinking and agriculture. Rain water conservation can transform a poor village into a prosperous village.

Abstract No. 81

EFFECT OF ENVIRONMENTAL POLLUTION ON HUMAN HEALTH AND PREVENTION THROUGH PHYSICAL EXERCISE AND SPORTS

Pawan Kumar Pachori

Department of Physical Education and Yoga
Kulbhaskar Asharam P. G. College Prayagraj (U.P.), India

ABSTRACT

In the present geographical and climatic structure, the surrounding is being polluted extensively due to environmental pollution and it is having a very negative effect on the health of humans along with flora and fauna. We know that environmental pollution is mainly water pollution. Air pollution, noise pollution, pollution in food items, adulterated food items. The side effects of the chemicals used in making food items, fast food and many other acid and alkali related elements are added in preserved food which have very adverse effects on human body Apart from this, the synthetic adulterated food items are also developing various types of dangerous diseases in humans. The present work focuses on adverse effects of environmental pollution on humans. Furthermore, it will also discuss in detail how human body can be protected from environmental pollution through activities like sports, exercise, yoga etc.

Abstract No. 82

INVESTIGATING THE PARACETAMOL ADSORPTION FROM AQUEOUS SOLUTION USING BIOGENIC BIOADSORBENT: KINETICS AND ISOTHERM STUDY

Aditi Baranwal and Vinod Kumar Chaudhary

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

ABSTRACT

Pharmaceutically active compounds (PhACs) are frequently detected emerging pollutants in water resources worldwide that provoke pernicious influences on human health and the ecosystem. Pharmaceuticals compounds encompass a wide range of substances present in various categories of antibiotics, disinfectants, illegal drugs, cosmetic products like body lotions as well as both prescribed and non-prescribed medications. Paracetamol has emerged as one of the most frequent pharmaceuticals that found in natural waters and even in drinking water. Due to its high consumption and frequent occurrence in environment and drinking water has raised a concern about their potential effects on environment and human health therefore requires treatment prior to its discharge. The techniques commonly used are; nanofiltration, reverse osmosis, photocatalysis, ozonation, and oxidation. However, among various treatment technologies, adsorption is regarded as one of the most ef ficient technique for eliminating organic contaminants because of its cost-effectiveness, simpler design, and easy to operate. The substantial waste produced by the agricultural activities, food waste, forest residue and wood industries presents a promising opportunity for creating low-cost adsorbents. Therefore, in the present study, novel Iron infused cauliflower bio-adsorbent prepared from the locally available waste biomass by carbonization at a temperature of 500 °C is utilized to remediate paracetamol present in water. This study precisely analyses the sorption potential of Iron infused cauliflower bio-adsorbent by varying the numerous batch experimentation parameters. The adsorption isotherm, kinetic, thermodynamic study was performed to understand the behavior and mechanism of the Iron infused cauliflower bioadsorbent in Paracetamol adsorption.

Abstract No. 83

ASSESSMENT OF WATER QUALITY AND FISH DIVERSITY OF BELAN RIVER, PRAYAGRAJ

Diksha Tiwari[1], Amitabh Chandra Dwivedi[2] and Absar Alam[1]

[1]Department of Zoology
Nehru Gram Bharati (Deemed to be University), Prayagraj (U.P.), India
[2]ICAR-Central Inland Fisheries Research Institute, Prayagraj (U.P.), India

ABSTRACT

The present study evaluates the water quality and fish diversity of the Belan River in Prayagraj, aiming to understand the ecological health of this vital water body. Fish samples were collected quarterly during March,2022-February,2024 from river Belan with the help of local fishermen. Various physicochemical parameters such as pH, dissolved oxygen (DO), biochemical oxygen demand (BOD), chemical oxygen demand (COD), turbidity, and nutrient levels (nitrates and phosphates) were analyzed to assess water quality. The results indicate fluctuations in water quality due to anthropogenic activities, seasonal variations, and agricultural runoff. In parallel, a survey of fish diversity was conducted using standard sampling methods. The study recorded a variety of fish species, including members of the Cyprinidae, Siluridae, and Bagridae families, reflecting the river's biodiversity status. However, certain species exhibited declining populations, suggesting habitat degradation and pollution-related stress. The findings highlight the need for conservation measures, sustainable fishing practices, and pollution control to preserve the Belan River's aquatic ecosystem.

Abstract No. 84

THE HISTO-MORPHOLOGICAL STUDIES OF THE MALE REPRODUCTIVE SYSTEM OF DAMSELFLY *CERIAGRION COROMANDELIANUM*, FABRICIUS, 1978.

Nilesh R. Thaokar[1], R. J. Andrew[2] and Nagesh Dhore[1]

[1]Gramgeeta Mahavidyalaya, Chimur (Maharashtra), India
[2]Hislop College, Nagpur (Maharashtra), India

ABSTRACT

Present studies revealhisto-morphology of male reproductive system of *Ceriagrion coromandelianum*, Fabricius, 1978. Adult male consist pair of testis, vasa differentia and sperm sac. Testes are cylindrical, translucent body located ventrolaterally from seventh and eighth segment. Each testis opens into thin vas deference which joins in the center forming sperm sac. Sperm sac opens ventrally through a pre-exit chamber on ninth segment which in turn opens to the outside through a short ejaculatory duct. Testis surface is surrounded by a dense network of tracheoles and fat bodies. The lobules are filled with germ cells representing only one stage of spermatogenesis. The lumen of the duct contains spermatozoa in a group.

Abstract No. 85

EFFECT OF BIOREGULATORS ON MORPHO-PHYSIOLOGICAL TRAITS, QUALITY AND YIELD OF MUNG BEAN

Mansi Patel

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

ABSTRACT

The present study was carried out in the agricultural field of Balarampur district (U.P.) during season of kharif 2024. The selected crop was Mung bean (Vignaradiata L.), commonly known as green gram or moong is a significant leguminous crop. The experiment consists of 11 treatments in randomized block design with two replications. E1 (control), E2 (IAA@ 20ppm), E3 (IAA@ 40ppm), E4 (MH@150ppm), E5 (MH@275ppm), E6 (GA3@20ppm), E7 (GA3@40ppm), E8 (TIBA@20ppm), E9 (TIBA@40ppm), E10 (Kinetin@5ppm) & E11 (Kinetin@10ppm) and R1 and R2 respectively. Both Kinetin and GA3 treatments consistently outperformed controls across all parameters, indicating their potential to improve plant development and yield. Kinetin also significantly increased the amount of protein and chlorophyll in seeds, indicating their potential to improve seed quality. Overall, GA3 treatments generally promoted better plant height, leaf area, and dry matter production, while Kinetin treatments performed in growth rates and water retention.

Abstract No. 86

ETHNOMEDICAL APPLICATIONS OF SELAGINELLA BRYOPTERIS, A REVIVAL HERB

Rachna Pandey

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

ABSTRACT

The lithophyte Selaginella bryopteris, also referred to as SANJEEVANI, is a legendary herb with amazing healing and resurrection powers. With its exceptional ability to withstand water stress, this plant is a marvel of nature. Selaginella bryopteris is a pteridophyte with lithophyte habitat. This paper provides a brief overview of the plant's resuscitation, including its distribution, traits, ingredients, and ethnomedical use. With a few exceptions, the majority of the characters compare this species to the legendary "Sanjeevani booti." Additionally, its application in the fields of pharmacology, genetic engineering, and medicine is examined. More investigation is needed to find more related plant species that may be used to create medication formulations to treat chronic illnesses and create designed plants that can withstand drought.

Abstract No. 87

A SURVEY REPORT ON THE SPIDER (ARACHNIDA: ARANEAE) OF JABALPUR DIVISION (MADHYA PRADESH)

Preeti Khare[1] and Arjun Shukla[2]

[1]Department of Zoology
Govt. Science College, Jabalpur (M.P.), India
[2]Department of Zoology
Govt. MH College of Home Science & Science, Jabalpur (M.P.), India

ABSTRACT

Ecological study still relies heavily on an understanding of the quantity, diversity, and composition of species within an ecosystem. Early naturalists were fascinated by the patterns of geographical and temporal variation in variety, and ecologists are still today. Only 15% of species have had their ranges formally defined, however measuring biological diversity within a system enables the discovery of new species and their distributions. It is this fundamental comprehension of the species that make up a system that enables us to pose more challenging ecological queries. The preliminary report on the spider fauna of Madhya Pradesh, India, provides the basis for the present article. Faunistic surveys were undertaken during 2019-2021 and a total of 97 individuals Arachnida (Araneae) belonging to recorded 18 Species, 15 Genera under 08 families from various localities in and around the Jabalpur division whereby the Araneidae family has a greater population than the other spider families. Shannon-Weiner diversity index of the study site is 2.643032269 showing high diversity which is inversely proportional to Simpson Index value that is 0.084281008.

Abstract No. 88

MORINGA OLEIFERA : A REVIEW ON NUTRITIVE IMPORTANCE AND ITS MEDICINAL APPLICATION

Rajni Nigam

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

ABSTRACT

Moringa oleifera is native to India and flourishes in tropical and subtropical climates around the world. It is also known as the 'drumstick tree' or 'horseradish tree'. Moringa can resist both severe drought and mild frost, and is hence widely cultivated around the world. With its great nutrient content, every component of the tree can be used for nutritional or economic purposes. The leaves are high in minerals, vitamins, and other important compounds. Extracts from the leaves are used to treat malnutrition and supplement breastfeeding in lactating moms. It has antioxidant, anticancer, anti-inflammatory, antidiabetic, and antibacterial properties. M. oleifera seed, a natural coagulant, is widely utilized in wastewater treatment. This research provides scientific insights on the usage of moringa as a remedy for diabetes and cancer, as well as moringa fortification in commercial products. This review investigates the usage of moringa for medical purposes across disciplines, as well as the cultivation, nutrition, commerce, and noteworthy pharmacological qualities of this "Miracle Tree".

Abstract No. 89

IMPLICATION OF WQI AND BENTHIC MACRO INVERTEBRATES BASED INDICES FOR POLLUTION ASSESSMENT OF RIVER NARMADA IN JABALPUR REGION

Arjun Shukla

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

ABSTRACT

Water is the most important natural resource in the world, has the unique property of dissolving & carrying in suspension a huge variety of chemical and hence water can easily become contaminated. Traditionally physico chemical analysis of water will help to know the water quality at the time of sample collection. The benthic macroinvertebrates fauna of river is most suitable biological parameter of water quality. The present research has been focused on Narmada river basin and specifically in three selected sampling sites in Jabalpur region : Bargi Dam, Gwarighat and Bhedaghat. Total 24 sampling have been done in the duration of 2 years (2017-2019). Samples were collected as per standard sampling technique during morning between 8-9 am and evening 5-6 pm. Samples were collected from different methods for physico-chemical analysis (Temperature, pH, Turbidity, Conductivity, BOD, DO, COD, TDS, Total Hardness and Chloride) as well as biological monitoring. Biological samples were identified using keys and books by ZSI. Indices were calculated namely WQI for abiotic factor and saprobic index, HBI, B-IBI for biotic factors. In the present study highest value in Gwarighat while minimum in other stations. WQI value was found to be 64.106 and 59.674 in Ist and IInd year respectively in all seasons at all sampling sites. WQI value was decreased in IInd year which shows water in 1st year was of poor quality than IInd year study. A total of 758 individuals of 55 families belong to 18 orders and 4 phylum. Further abundance status of identified families was categorized under four categories, very rare, rare, common and very common and those were 20%, 20%, 47% and 13% respectively. To compared 4 biotic indices used to evaluate water quality via., benthic macro-invertebrates in order to determine health of river Narmada. The saprobic index, B-IBI and EPT% revealed the fair water quality. The calculation results for Hilsenhoff biotic index revealed very poor to good biological condition of water, in all the study Sites, slightly divergent from least disturbed condition.

Abstract No. 90

TREATMENT AND CONTROL OF COMMON FISH DISEASES : AN OVERVIEW

Neetu Soni

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

ABSTRACT

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

Abstract No. 91

FUNGAL INFECTION INCIDENCE IN CERTAIN ECONOMIC IMPORTANT FISH IN JABALPUR PONDS

Namrata Shrivastava

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

ABSTRACT

Fish farming has grown to be a significant global industry. Fish health problems have increased along with the expansion of fish culture. The most prevalent fish diseases in pond fishes are bacterial hemorrhagic septicemia, lernaeasis, saprolegniasis, and anoxia. Since fungal spores are present in all fish ponds and cause issues for stressed fish, fungal infections—also known as mycoses—are among the most prevalent illnesses affecting temperate fish. An otherwise healthy fish population may experience a rise in fungal diseases as a result of poor water quality. Only a small percentage of fungal infections impact a fish's internal organs; the majority infiltrate exterior tissues. The ability of Aquatic fungi to cause disease in fish is well known. Potentially all fresh water fishes and incubating eggs are susceptible to fungal infection. The fungal sp. of fishes are Aspergillus sp., Aspergillus fumigate, Aspergillus niger, Aspergillus nidulans, Alternaria tenuis, Saprolegnia ferax, Allomyces anomalus, Rhizopus sp, Saprolegnia parasitica, Achlya prolifera, Neurospora sp. Penicillium sp. and Aspergillus fungal sp. these are most common infection causing fungi.

Abstract No. 92

RAUWOLFIA SERPENTINA'S APPLICATION IN HYPERTENSIVE PATIENTS

Vijaya Shrivastava Kaushal

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

ABSTRACT

For many years, Ayurveda has utilized the root of Sarpgandha, a flowering plant species in the Apocynaceae family, to cure a wide range of illnesses that initially seem to have little in common. These include hypertension, eclampsia, hysteria, sleeplessness, epilepsy, and insanity. In retrospect, though, these disparate illnesses might share a similar denominator if they were all symptomatically alleviated by a sedative or "relaxing" medication like Rauwolfia. Its root became well-known in the 1950s due to its ability to lower blood pressure. Its root contains an alkaloid that is thought to have pharmacological anti-hypertensive properties. Serpine was therefore first isolated with the intention of improving and predicting its effectiveness in the treatment of hypertension. Ayurveda believes in use of whole herb because of apparent benefits over the extract. The whole herb has many components which can : (1) Help in biotransformation into pharmacoactive forms (2) Enhance bioavailability (3) Reduce the possible side ef fects (4) Help in smooth excretion and (5) Prevent development of possible drug resistance. These hypothesis is proved to be true in case of Sarpagandha as Reserpine has reported many ADRs and also human population have developed drug resistance resulting in discontinuation of Reserpine in hypertension management whereas Sarpagandha root is still in wide use.

Abstract No. 93

FIRST REPORT OF ZYGOPTERA AND ANISOPTERA (ODONATA : INSECTA) NEAR JOHILLA RIVER AT UMARIA DISTRICT (M.P.)

Arjun Shukla and Shivanjali Tiwari

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

ABSTRACT

Odonates are potential biocontrol agents for many invertebrates, and biodiversity conservation and protection is a national and international agenda that is responsible for the long-term development of a region or country. The first report of Odonates from the Johilla River in Umaria District has been investigated. During the study 35 species of Odonata Belonging to 06 families of 02 Suborder were observed. Out of 35 species recorded, 17 species belonged to family Libellulidae (48%) making it the most specious and dominant family. Second most abundant family was Coenagrionidae (29%) which consisted of 10 species. This was followed by family Lestidae 03 Species (08%), Aeshnidae and Gomphidae both with 2 species (6%) each, Platycnemidiae with 1 species (3%). Shannon's Index of odonata H=3.210710732 and Simpson C=0.049064332 was determined. For the first time, a comprehensive catalogue of odonates recorded from the Umaria district's Johila river area is presented. More research is needed to examine sources and a much wider geographic area.

Abstract No. 94

SYSTEMATIC STUDIES AND STATUS OF BUTTERFLY FAUNA (LEPIDOPTERA : RHOPALOCERA) OF BARGI DAM CATCHMENT AREA AT JABALPUR DIVISION, M.P.

Shraddha Khapre

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

ABSTRACT

Every organism is important in the ecosystem, so it is necessary to know about biodiversity. Biodiversity or Biological diversity is the term given to the Variety and Variability of Life on Earth and the natural patterns it forms. The word biodiversity is now very widely used not only by the Scientific community, but also the General public, Environmental groups, Conservationists, Industrialists and Economists. The butterfly attracts most of the people and is associated with beauty and nature. So it is the most studied and Popular group. Butterflies a "Flagship taxa" in biodiversity inventories belongs to the most conspicuously recognizable insect order Lepidoptera. Bargi Dam Catchment area Bargi to Chutka on both sides, covering three districts of Madhya Pradesh State i.e. Jabalpur, Mandla and Seoni. The present paper is based on the Butterfly fauna of Bargi Dam Catchment Area at Jabalpur Division. Faunistic surveys were undertaken during March 2023- February 2025 and recorded 77 species under 05 families from various localities in and around, of which the members of family Nymphalidae is outnumbering the other butterfly families. Moreover, the study revealed 13 butterfly species newly recorded in the Central Indian landscape and 01 New to India. Thus resulting in significant range extensions. This study is aimed towards contributing to the plan of biodiversity restoration in the studied region and development of management strategies so as to ensure sustenance of butterflies and ecosystem services derived from them.

Abstract No. 95

INVESTIGATING THE ANTIOXIDANT POTENTIAL OF BROCCOLI AND CAULIFLOWER STEMS THROUGH GLUTATHIONE PEROXIDASE ACTIVITY ANALYSIS

Rashmi Singrore

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

ABSTRACT

This study explores the antioxidant properties of broccoli and cauliflower stems, specifically examining the activity of glutathione peroxidase (GPx). The findings reveal that both broccoli and cauliflower stems possess substantial GPx activity, with broccoli stems demonstrating higher activity. These results underscore the potential of broccoli and cauliflower stems as a rich source of antioxidants, contributing to the health benefits associated with consuming these vegetables. This research highlights the value of broccoli and cauliflower stems as a functional food ingredient, offering new insights into their antioxidant properties.

Abstract No. 96

IMPACT OF PROBIOTIC SOY SUPPLEMENTATION ON SILKWORM GROWTH AND DEVELOPMENT

Ritu Ramrani Achharya

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

ABSTRACT

Silkworm growth and silk production are heavily influenced by diet and gut microbiota, both of which are crucial for cocoon formation and high-quality silk production. This study investigates the effects of probiotic soy supplementation on silkworm growth, larval development, and cocoon production. Silkworms were divided into two groups: a control group and a probiotic soy-supplemented group. The control group was fed fresh mulberry leaves sprayed with distilled water, while the experimental group received mulberry leaves sprayed with different concentrations of soy from the 3rd to the 5th instar. Silk yield was measured, and biochemical assays were conducted to evaluate digestive enzyme activity. Statistical analysis using one-way ANOVA was performed to determine significant differences between the groups. The results indicated that probiotic soy supplementation significantly enhanced larval weight, feed efficiency, and silk production compared to the control group. These improvements were likely due to increased intestinal digestive enzyme activity and better nutrient assimilation. These findings suggest that probiotic soy can serve as an effective dietary supplement to optimize sericulture practices and enhance silk quality.

Abstract No. 97

THE ROLE OF TRADITIONAL INDIAN EMBROIDERY IN WOMEN'S EMPOWERMENT AND ARTISAN COMMUNITIES

Manju Barkhane

Govt. M. H. College of Home Science and
Science for Women Jabalpur (Madhya Pradesh), India

ABSTRACT

Traditional Indian embroidery is an ancient and rich art form that not only plays a significant role in Indian culture but also serves as a vital tool for women's empowerment and the development of artisan communities. This research paper analyzes the role of traditional Indian embroidery in women's empowerment and artisan community development, and explores its contributions to their economic, social, and cultural well-being. Our research reveals that traditional Indian embroidery has played a crucial role in providing women with economic independence, improving their social status, and promoting their creativity. Additionally, this art form serves as a vital source of income and a means of preserving cultural heritage for artisan communities. This research paper recommends policies and programs that promote the importance of traditional Indian embroidery and its contributions to women's empowerment and artisan community development. By preserving and promoting this traditional art form, we can empower women, support artisan communities, and preserve India's rich cultural heritage.

Abstract No. 98

RECOGNIZING AND QUANTIFYING SOCIAL SUSTAINABILITY: A REVIEW

Vibha Shripal

Department of Food and Nutrition
Govt. M.H. College of Home Science and Science for Women, Jabalpur (M.P.)

ABSTRACT

Sustainability is frequently thought of as an effort to strike a balance between conflicting social, environmental, and economic concerns. Government policies have been shifting toward a multifaceted strategy that incorporates cooperative partnerships and community capacity building in an effort to reduce poverty and social exclusion. A recent trend in the conversation about sustainable development is social sustainability. As environmental concerns and technical solutions have dominated urban development, it has evolved over time in reaction to the lack of progress in addressing social challenges in cities, including inequality, displacement, liveability, and the growing demand for affordable housing. In the UK and abroad, there is an increasing interest in comprehending and quantifying the social effects of urban development and regeneration. a little but expanding group of developers, architects, planners, housing groups, and local government representatives who support a more "social" method of city design, building, and administration. As part of a growing policy discourse on the sustainability and resilience of cities, governments, public agencies, policy makers, NGOs, and corporations are increasingly using the concept of social sustainability to frame decisions about housing, urban development, and regeneration. This reflects a global interest in social sustainability.

Abstract No. 99

DIVERSITY AND ABUNDANCE OF ZOOPLANKTON IN RIVER NARMADA AT JABALPUR REGION (M.P.)

Neelima Painkra

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

ABSTRACT

The paper deals with the zooplankton composition, variation and diversity indices in river Narmada at Jabalpur region. Zooplankton diversity is one of the most important ecological parameters in water quality assessment and good indicator of the changes in water quality. Zooplankton formed important quantitative component of net plankton of the four parts; Protozoa dominantly contributed to their abundance while Copepoda> Rotifera> Cladocera> Ostracoda were sub-dominant groups. Samples were collected during August 2021 to January 2024 to calculate diversity of Zooplankton in two sampling stations in Jabalpur namely Gwarighat and Bhedaghat. A total of 2012 organism of 27 species were found in sampling stations. Among these, Copepods comprise of 7 species, Rotifera of 8 species, Cladocera of 4 species, 7 Protozoan species and 1 Ostracoda species. The Shannon's Index of Zooplankton was determined (H = -0.839586) that indicate a good variation. The study aims to conserve the zooplanktons which are declining day by day.

Abstract No. 100

SUSTAINABLE WASTE MANAGEMENT: A STRATEGIC APPROACH FOR CLIMATE CHANGE MITIGATION

Namita Gupta[1], Vartika Gupta[2] and Vinod Kumar Chaudhary[1]

[1]Department of Environmental Science
Dr. RML Avadh University, Ayodhya (U.P.), India
[2]Central Pollution Control Board, Shahdara, Delhi, India

ABSTRACT

The rapid rise in global waste generation particularly in lower -income countries, presents severe environmental and public health risks. Despite existing policies, challenges persist due to complex social dynamics and stakeholder interdependencies. Sustainable waste management is critical for mitigating climate change by reducing greenhouse gas emissions and environmental degradation. Conventional disposal methods such as land filling and uncontrolled incineration contribute significantly to methane emissions, air pollution and carbon release, exacerbating climate-related challenges. This study examines sustainable waste management strategies including recycling, composting, waste-to-energy technologies and circular economy models, as effective solutions for reducing waste accumulation, lowering carbon footprints, conserving resources and promoting environmental sustainability. It underscores the necessity of policy interventions, technological advancements and public participation in establishing resilient and sustainable waste management systems. An integrated framework combining regulatory policies, scientific innovation and community participation is essential to address the dual challenge of waste management and climate change. The adoption of sustainable practices will significantly reduce global emissions and contribute to a cleaner and healthier planet.

Abstract No. 101

IMPLEMENTATION OF GREEN INITIATIVES AND ENERGY CONSERVATION PRACTICES

R. Latha

Department of Physiology
SVMCH & RC, Ariyur, Puducherry

ABSTRACT

The present study is conducted to adopt solid waste management program to separate recyclable waste and dispose all waste in non-polluting and responsible manner. To adopt energy and water conservation measures. To establish campus renewable energy sources like roof-top solar power plants. To initiate green belt development in the campus and to ensure rain water harvesting and water conservation to provide independent water supply. The bore well facility in the campus caters to water needs of campus. Quantity of groundwater extracted is 500000 L/ day. The natural pond in the campus enables it to be energy and environment conserved area which was lauded by the then honorable Governor Lt. Kiran Bedi during her visit to the campus. Reverse Osmosis (RO) facility in the campus enables the availability of clean and fresh potable water for day-to-day consumption and usage of the people. On-site sewage systems recycle the wastewater by recharging ground water with appropriately treated effluent and using for gardening and plantation purposes.

Abstract No. 102

REMOVAL OF HEXAVALENT CHROMIUM FROM AQUEOUS SOLUTION USING AGROWASTE DERIVED BIOADSORBENT

Akanksha Yadav, Naveen Patel, Vinod Kumar Chaudhary

Department of Environmental Sciences
Dr. RML Avadh University, Ayodhya (UP), India.

ABSTRACT

In recent decades, the presence of wastewater containing heavy metals has emerged as a global issue. The release of such wastewater into aquatic environments and drinking water resources creates significant challenges for both human health and the ecosystem. Among the various heavy metals, hexavalent chromium (Cr (VI)) is identified as a particularly hazardous contaminant, widely used in industrial processes including pharmaceuticals, electroplating, metallurgy, tanning and battery manufacturing etc. Various treatment methods such as ion- exchange, chemical precipitation, membrane filtration, electrochemical treatments etc. can be utilized for the removal Cr (VI) from water. Among these treatment techniques, adsorption because of its simpler and convenient design, easy to operate, cost-effectiveness, higher efficiency and availability of wide range of adsorbents, makes it as one of the important and prominent method for removal of Cr (VI). Therefore, in the present study, novel iron activated banana peel bio-adsorbent prepared from the locally available waste biomass by carbonization at a temperature of 500 °C is utilized to remediate chromium ions present in water. This study precisely analyses the sorption potential of Fe-BP bio-adsorbent by varying the numerous batch experimentation parameters including; the amount of bioadsorbent dose utilized, initial concentration of chromium to be remediated, contact time between adsorbent and adsorbate, initial pH of the adsorbate solution, initial temperature, and impact of presence of similar charge ions in the adsorbate solution. The adsorption isotherm, kinetic, thermodynamic study was performed to understand the behavior and mechanism of the Fe-BC bioadsorbent in chromium adsorption. The experimental study was further supported by the multivariate statistical analysis methods, such as Analysis of Variance (ANOVA) and RSM to describe the various complex process related with the adsorption. Moreover, the study also utilizes the AI and ML model to optimize the process parameters besides the experimental study.

Abstract No. 103

A SYSTEMATIC STUDY ON THE PHYSICOCHEMICAL PARAMETERS AND ZOOPLANKTON DIVERSITY WITH RESPECT TO SEASONAL VARIATION IN KHANWARI POND OF DISTRICT KAUSHAMBI (U.P.)

Shri Prakash[1], Anurag Tripathi[1] and Abha Tripathi[2]

[1]Department of Zoology
Kulbhaskar Ashram P.G.College, Prayagraj (U.P.), India.
[2]Department of Chemistry
Kulbhaskar Ashram P.G. College, Prayagraj (U.P.), India.

ABSTRACT

Planktons are the integral component of aquatic food chain. Zooplanktons are microscopic organisms and contribute significantly to the productivity of fresh water ecosystem. Zooplanktons perform second trophic level in energy flow, respectively and switch over to detritus matter contributing to aquatic animal food matter . In the present investigation we have assessed the zooplankton species richness to predict their species diversity in the Khanwari pond of Kaushambi district. In addition, physicochemical parameters of the minor lake were also analyzed and samples from different transects were collected and studied. The physicochemical parameters taken in the present study were water temperature, turbidity, pH, dissolved oxygen, salinity, TDS, chlorides, hardness, BOD, and plant nutrients like phosphates, nitrates, and some other organic and inorganic contents. Total 45 species of zooplanktons were identified, which belonged to rotifers, copepods, cladocera, and ostracoda. Plankton population is showing positive significance with respect to physicochemical parameters mentioned earlier, whereas these are showing negative significance with rainfall and salinity. Seasonal variations in the plankton diversity were observed. The physicochemical parameters of Khanwari pond were suitable for the growth of aquatic animals, plants and pisciculture practices.

Abstract No. 104

WEED SUPPRESSION POTENTIAL OF COVER CROPS IN MODERN AGRICULTURE

Santosh Singh

Department of Agronomy
Government Degree College, Jakhhini, Varanasi (U.P.), India.

ABSTRACT

Weed management is a major challenge in modern agriculture, with rising herbicide resistance and environmental concerns driving the need for sustainable alternatives. Cover crops offer a natural and eco-friendly solution by effectively suppressing weeds through physical, chemical, and biological mechanisms. Their dense canopy reduces sunlight penetration, limiting weed germination, while their extensive root systems compete for water and nutrients, depriving weeds of essential resources. Additionally, certain cover crops release allelopathic compounds that inhibit weed seed germination and growth. Research indicates that cover cropping can reduce weed biomass by 40–70% and decrease the soil weed seedbank over time. Besides weed suppression, cover crops enhance soil health by preventing erosion, improving organic matter content, and promoting beneficial microbial activity. Their inclusion in crop rotations reduces the reliance on chemical herbicides, thereby lowering the risk of herbicide resistance and minimizing environmental contamination. The effectiveness of cover crops depends on factors such as species selection, seeding density, and termination timing. While they offer significant benefits, challenges such as potential crop-weed competition, management costs, and the need for proper integration strategies must be addressed. Overall, cover crops provide a sustainable and environmentally friendly weed control strategy. Their ability to suppress weeds while enhancing soil health makes them a vital component of modern, conservation-oriented agricultural practices, promoting long-term farm productivity and sustainability.

Abstract No. 105

IMPACT OF CLIMATE CHANGE ON MORINGA (*MORINGA OLEIFERA*) CULTIVATION IN MADHYA PRADESH: CHALLENGES AND ADAPTATION STRATEGIES

R.C. Mishra and Nimisha Tiwari

Mahakaushal University, Jabalpur (M.P.), India.

ABSTRACT

Moringa (*Moringa oleifera*), often referred to as the 'miracle tree,' is a climate-resilient crop known for its high nutritional value and adaptability to harsh environmental conditions. In the Madhya Pradesh region, climate change poses significant challenges to its growth, productivity, and biochemical composition. Rising temperatures, erratic rainfall, and prolonged drought conditions impact moringa'sphenological development, reducing leaf biomass and seed yield. However, its deep root system and drought tolerance make it a promising crop for climate-smart agriculture. This study evaluates the effects of changing climatic conditions on moringa cultivation in Madhya Pradesh, analyzing physiological responses, soil moisture dynamics, and yield performance under varying environmental stressors. The findings highlight the potential of moringa as a sustainable crop option, emphasizing the need for adaptive agronomic practices such as optimized irrigation scheduling, organic soil amendments, and genotype selection for enhanced resilience. Promoting moringa cultivation under climate-smart strategies can contribute to food security, nutritional enhancement, and sustainable agriculture in the region.

Abstract No. 106

POPULATION DENSITY OF APHID (*MACROSIPHUM ROSAE*) AND LADYBIRD BEETLE (*COCCINELLA SEPTEMPUNCTATA*) ON ROSE CULTIVARS

Riya Sachan and Sunita Arya

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

ABSTRACT

Aphids are a common pest of roses in many regions of India, with the highest levels of infestation typically occurring in areas with warm, humid climates. Some rose cultivars are more susceptible to aphid infestations than others. Aphids have natural predators like ladybugs, lacewings, and parasitic wasps, which can help control their populations. The present study was carried out to find out the population density of aphids (*Macrosiphum rosae*) and its associated natural enemy, the ladybird beetle (*Coccinella septempunctata*) on three cultivars. A field experiment was carried out in a randomized complete block design with three replications. Three rose cultivars namely Rosa indica, Rosa chinensis and Rosa hybrida were tested in the experiment. Population of aphid (Macrosiphum rosae) and ladybird beetle (*Coccinella septempunctata*) was recorded at weekly intervals throughout the growing season and it was observed that the density of *Macrosiphum rosae* was highest on Rosa hybrida (5.48 aphid per leaf) and lowest on Rosa chinensis (3.97 aphid per leaf). Similarly the population of lady bird beetle (*Coccinella septempunctata*) was recorded highest on Rosa hybrida (4.3 per plant) and the west population was recorded on Rosa chinensis (3.53 per plant). The population of *M. rosae* and *Coccinella septempunctata* was found to intermediate on Rosa indica (4.6 aphids per leaf and 3.91 ladybird beetle per plant) as compared to Rosa hybrida and Rosa chinensis varieties of rose crops. Based upon our observation under the prevailing climatic condition of the Rosa chinensis variety was ideal for cultivation due to low aphid (*Macrosiphum rosae*) infestation as compared with Rosa hybrid and Rosa Indica variety of rose crop.

Abstract No. 107

IMPACT OF CLIMATE CHANGE IN FARMING

Yogesh Chandra Patel

Department of Agriculture
Government Degree College, Jakhhini, Varanasi (U.P.), India.

ABSTRACT

Climate change has emerged as a significant global challenge, profoundly affecting agricultural systems worldwide. Gradient increase in temperatures, irregular rainfall patterns, extreme weather scenario, which includes various soils pose severe threats to crop productivity, soil health, and water availability. The impact varies regionally, with some areas experiencing prolonged droughts and others facing excessive rainfall, leading to reduced yields and food insecurity. Additionally, climate-driven stress factors affect livestock production and fisheries, further threatening global food supply chains. Apart from yield reduction these changes lead to shifts in cropping patterns, increased pest and disease outbreaks, and loss of biodiversity. The effects are particularly severe in tropical and subtropical regions, where farmers with small land holding are highly affected to climate-induced risks. Furthermore, livestock production and fisheries are also adversely af fected due to heat stress, changing feed availability, and ocean acidification. Mitigation strategies, including climate-resilient crop varieties, improved water management techniques. Agroforestry, and precision farming, are crucial for mitigating these adverse effects. Governments and research institutions are focusing on policy interventions, technological innovations, and sustainable agricultural practices to enhance resilience against climate change. From last decade, climate change in major obstacle in food security scenario worldwide. Mitigation efforts like carbon sequestration, conservation agriculture, and reduced greenhouse gas emissions from agricultural activities are vital against this scenario.

Abstract No. 108

CONSERVATION STATUS OF ICHTHYOFAUNA OF KANHA TAAL, A WETLAND OF UTRAULA, DISTRICT BALRAMPUR, U.P. INDIA

Haidar Ali

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

ABSTRACT

An attempt was made to study the conservation status of the fishes naturally occurring in Kanha Taal, a naturally occurring wetland, situated near Utraula of Balrampur district of Uttar Pradesh. The study was conducted during April, 2024 to March 2025. During exploration, a total of 36 species of fishes belonging to 24 genera, 17 families and 8 orders were identified. The family Cyprinidae were dominated followed by Bagridae; Ophiocephalidae; Siluridae; Schileidae, Clariidae, Gobiidae, Notopteridae and Mastacembeleidae; Saccobranchidae, Chacidae, Ophiocephalidae, Gobiidae, Anabantidae, Nandidae, Osphronemidae, Ambassidae, Clupeidae, Eugraulidae, Belonidae and Tetradontidae. As per latest version of IUCN Red List, out of 36 species of fishes identified, 3 species comes under EN (endangered), 4 species come under NT (near threatened), 23 under LC (least concern) and 6 species are NE (not evaluated) so far. The fishes under threat due to anthropogenic activities such as overfishing and pollution hence authors strongly recommend practical conservation action plan to prevent the species from extinction.

Abstract No. 109

NANOTECHNOLOGY-DRIVEN BIOREMEDIATION: A NEW FRONTIER IN ENVIRONMENTAL CLEANUP

Harshita Shukla

Department of Biotechnology
Sri Guru Tegh Bahadur Khalsa College, Jabalpur (M.P.), India

ABSTRACT

The increasing prevalence of environmental pollution, especially from industrial activities, has led to the urgent need for sustainable remediation strategies. Traditional methods of cleaning contaminated environments, such as physical and chemical treatments, often pose significant drawbacks, including high costs, environmental disruption, and incomplete removal of pollutants. In recent years, nanotechnology has emerged as a promising solution for enhancing bioremediation, providing a more efficient and eco-friendly approach to environmental cleanup. Nanotechnology-driven bioremediation leverages the unique properties of nanoparticles, including their high surface area, reactivity, and ability to interact at the molecular level with pollutants. Nanomaterials such as metal nanoparticles, carbon-based nanomaterials, and nanocomposites have shown significant potential in enhancing the degradation, detoxification, and removal of a wide range of contaminants, including heavy metals, organic pollutants, and petroleum hydrocarbons. These nanomaterials can interact with microbial communities involved in bioremediation, improving microbial metabolism, and facilitating the breakdown of complex pollutants. Nanoparticles can also serve as carriers for nutrients, enzymes, or bioactive agents, enhancing microbial activity and accelerating the bioremediation process. Ongoing research is focused on understanding the interactions between nanoparticles, microorganisms, and the environment to optimize their use in real-world applications. This paper explores the role of nanotechnology in bioremediation, highlighting its potential to revolutionize environmental cleanup, reduce the ecological footprint of traditional methods, and pave the way for sustainable remediation strategies.

Abstract No. 110

IMPACT OF CLIMATE CHANGE ON AGRICULTURE: CHALLENGES AND ADAPTION STRATEGIES

Sanskala Patel and Aparna Sharma

Institute of Agricultural Sciences
Rani Durgavati University, Jabalpur (M.P.), India

ABSTRACT

Indian agriculture is highly sensitive to the risks due to weather and climate change - especially to drought, because 2/3rd of the agricultural land in India is rainfed and even the irrigated system is dependent on monsoon rain. Flood is also a major problem in many parts of the country, especially in eastern part. In addition, frost in north-west, heat waves in central and northern parts and cyclone in eastern coast also cause havoc. In recent years, the frequency of these climatic extremes are getting more due to the increased atmospheric temperature, resulting in increased risks with substantial loss of agricultural production. Climate change can affect agriculture through their direct impacts and indirect impacts. Crops with the C3 photosynthetic pathway benefit from fertilization increase in atmospheric CO2, which accelerates their growth and yield. Increase in temperature can reduce crop duration, increase crop respiration rates, alter photosynthesis process, affect the survival and distributions of pest populations and thus developing new equilibrium between crops and pests, hastens nutrient mineralization in soils, decrease fertilizer use efficiencies, and increase in evapo-transpiration. Climate change also has considerable indirect impacts on agricultural land use in India through changes in irrigation water availability, frequency and intensity of inter- and intra-seasonal droughts and floods, changes in soil organic matter, soil erosion, changes in pest profiles, reduction in cultivable areas due to coastal submergence, and energy availability. The major challenges faced by the agriculture sector due to climate change are-Unpredictable change in pest and disease load due to change in climatic condition. Water availability as result of changing rainfall patterns, alteration in stream flow and increase in crop water demand. Deterioration of water quality due to sea water intrusion, transport of salts from the deeper soil layers as a result of over exploitation of aquifers and faulty irrigation practices. Increased frequency and intensity of extreme weather events such as droughts, floods and cyclones would affect the production. Heat stress due to higher temperature at critical stage of the crop growth. We have found in some studies, how can reduce the impact of climate change on agriculture in many ways-Incorporate climate-smart farming methods, Livestock producers can get help in recovering methane, a potent greenhouse gas, from biogas created when manure decomposes, reduce runoff, and boost crop resistance.

Abstract No. 111

ASSESSMENT OF GROUNDWATER CONTAMINATION THREATS AROUND MSW DUMPSITES: A CASE STUDY

Amit Kumar Yadav and Esha Yadav

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

ABSTRACT

The environment and public health are seriously threatened by groundwater contamination from municipal solid waste (MSW) dumpsites, especially in metropolitan and peri-urban areas. This study employs a case study methodology to investigate the levels of groundwater pollution in the vicinity of an MSW dumpsite. To examine how leachate percolation affects water quality, physicochemical analysis, heavy metal evaluations, and groundwater sampling are used. Additionally, contamination risk zones are identified using hydrogeological data and Geographic Information System (GIS) mapping. The study identifies the main contaminants, their concentrations, and possible hazards to sources of drinking water. The findings underscore the urgent need for leachate treatment technologies, groundwater protection measures, and sustainable waste management. This study offers insightful information about reducing the threats of groundwater contamination through creative remediation techniques and regulatory modifications.

Abstract No. 112

EFFECTS OF COMBINED APPLICATION OF PHOSPHORUS (P) AND ZINC (ZN) ON GROWTH AND PHYSIOLOGICAL CHARACTERISTICS OF *CARISSA CARANDAS*, *SYZYGIUM CUMINI* AND *SWIETENIA MAHOGANI* SEEDLINGS

Shradha Shripal, Kaushal Tripathi, Preeti Shukla and Nikhil Verma

ICFRE-Tropical Forest Research Institute, Jabalpur (M.P.), India

ABSTRACT

Balancing nutrient application is crucial for plant growth. However, excessive fertilizer use especially imbalanced application of macronutrients such as phosphate (P) can hinder plant uptake of micronutrient. Balanced P and Zinc (Zn) are vital for seedling growth and quality of *Carissa carandas*, *Syzygium cumini*, and *Swietenia mahagoni*. These plant seedlings are highly sensitive to deficiencies in these nutrients therefore this study was conducted in January 2025 employed a FYM experiment to investigate the effect of varying P and Zn level on the growth phenotype, photosynthetic capacity, antioxidant enzyme and soluble protein in the selected plant seedlings. The result indicates that combined P and Zn fertilization at various levels exerts either syner gistic or antagonistic ef fect on the growth nutrients absorption and utilization of *Carissa carandus*, *Syzium cumini* and *Swietenia mahagoni* seedlings. Compared to low, medium levels of P, and a combination of high P (4 m mol L^{-1}) with an adequate amount of Zn (0.5 µmol·L^{-1} and, 5 µmol·L^{-1}) significantly enhanced plant growth, root system development and number of leaves in *Carissa carandus* and *Swietenia mahagoni*, whereas, high level of P with Zn drastically affect the growth and physiology of *Syzium cumini*. Physiological indicators under HP with LZn and MZn conditions revealed significant increases in antioxidant enzyme activity, leaf water retention, photosynthetic pigment, and the content of soluble protein, compared to the control in the seedling of *Carissa carandus* and *Swietenia mahogani*, However an increase in P with Zn application led to a declining trend in these parameters in *Syzygium cumini*.

Abstract No. 113

MOLECULAR MECHANISM OF ANTISPERMATOGENIC ACTIVITY OF *TERMINALIA CHEBULA* (RETZ.) IN ALBINO MOUSE

Prakash Chandra Gupta and Laxmi Yadav

Department of Zoology
KPM Girls Degree College, Aurai, Bhadohi (U.P.), India

ABSTRACT

There has been a growing interest among researchers to develop a plant-derived antifertility drug for men. The present study has evaluated the molecular mechanism of antispermatogenic activity of *Terminalia chebula* Retz. (*T. chebula*; family: Combretaceae) in albino mice after oral administration of the aqueous bark extract (100, 300, and 500 mg/kg BW daily) for 35 days. The various reproductive endpoints such as sperm parameters, testis histology, activities of 3ß- and 17ß-HSDs, immunoblot expressions of StAR and AR proteins, immunostaining of AR, serum testosterone level, LPO level, activities of SOD and catalase, and fertility indices were investigated. Toxicological and recovery studies were also performed. Testes in Terminalia-treated mice showed nonuniform histologic alterations. Sperm parameters, activities of 3ß-and 17ß-HSDs, immunoblot expressions of StAR and AR proteins, immunostaining of AR, and serum testosterone level were adversely affected, though activities of SOD and catalase were unchanged. Libido remained unaffected, but fertility was inhibited markedly in treated males without signs of toxicity. By 42 days of treatment discontinuation, Terminalia-induced deviations in the reproductive endpoints recovered to control levels. The results of the study indicate that *T. chebula* treatment reversibly inhibits spermatogenesis and fertility without signs of toxicity. Further, the antifertility effects result from diminished production of testosterone due to Terminalia-mediated inhibition of testicular steroidogenesis.

Abstract No. 114

CLITORIATERNATEA: MULTI-FUNCTIONAL THERAPEUTIC AGENT FOR TREATING INFLAMMATION

Eshita Pandey and Shikha Verma

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

ABSTRACT

The anti-inflammatory properties of *Clitoria ternatea* (butterfly pea), a plant deeply rooted in Indian traditional knowledge systems like Ayurveda. It has been traditionally used in Ayurvedic and traditional Asian medicine to enhance memory, reduce anxiety, and combat oxidative stress. Italso supports cognitive health and is useful in managing stress-related disorders. Extracts from *Clitoria ternatea* have shown promise in managing diabetes and promoting skin health. Traditionally it is utilized for treating liver disorders and inflammation; new scientific studies confirm its hepatoprotective effects and indicate its ability to reduce oxidative stress and inflammation by reducing inflammatory cytokines like IL-1β in hepatocytes. IL-1β plays an important role in the inflammatory response. Inflammatory stimuli generally trigger the production of this essential pro-inflammatory cytokine. Interleukin-1 beta (IL-1β) levels are directly proportional to the severity of inflammation; higher IL-1β levels generally indicate a more intense inflammatory response. *Clitoria ternatea* is a natural anti-inflammatory, therapeutic agent. It can help to reduce dependency on synthetic medicines and their ecological footmarks in treating hepatocytic inflammation. Ongoing researches validate its role as a natural, multi-functional therapeutic agent.

Abstract No. 115

EFFECT ON ESTROGEN HORMONE OF FEMALE ALBINO RAT FOLLOWING ACUTE STRESS OF FOOD TOXICANT

Eshita Pandey and Zeba Afroz

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

ABSTRACT

Stress is a sophisticated, rugged psychological and physiological as well as behavioural response of body which is stimulated by stressors. Stress can be in the form of eustress, distress, short term stress or acute stress and long-term stress or chronic stress. Stressors can also be internal or external. Physiological disturbance, hormonal imbalance and behavioural changes, climatic changes, food preservatives, pesticides, food toxicants, contaminated food, air pollutants and contaminated water all act as stressors. Uses of pesticides and chemicals in agricultural field increase the risk of being exposed to food toxicity. Considering the seriousness of the risk the study aims to examine the effect of food toxicity on the level of estrogen hormone in female albino rats. Malathion was used as a representative. The study was conducted in two phases. During Phase I Experimental Group was kept under Acute Stress and during Phase II Acute stress was withdrawn from Experimental Group for recovery. After termination of each Phase; ELISA method was used to measure the level of estrogen hormone in the blood. To observe the differences within and between each phases ANOVA and t-Test were performed. The result obtained proved that acute stress of pesticides as a food toxicant does not cause severe changes.

Abstract No. 116

ETHOLOGICAL AND PHYSIOLOGICAL RESPONSES OF ANIMALS TO CONTAMINATION IN FOOD

Eshita Pandey

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

ABSTRACT

Animal behaviour is complicatedly shaped by environment and food toxicity plays a grave role in manipulating foraging strategies and physiological adaptations. Animals have evolved complex mechanisms to detect, avoid, or tolerate toxic compounds existing in their diets. Various studies have proved that herbivores counteract food toxicity by exhibiting selective feeding on less toxic plant parts. They utilize chemo sensory detection of secondary metabolites like alkaloids, tannins and terpenoid in food. Food aversion behaviour supported by taste and olfactory receptors is displayed by carnivores and omnivores to protect themselves from contaminated toxic food.

Liver enzymes cytochrome P450 metabolizes toxic compounds, enabling some animal species to exploit some unutilized inedible resources. This detoxification pathway varies widely among species and it is formed through evolutionary pressures following diet specialization. Gut microbiome causes toxin breakdown and also plays a role in influencing host dietary tolerance. Gastrointestinal distress leads to learned aversion and is categorised as behavioural plasticity. It refines food selection to avoid harmful substances in future. Exposure to toxins can also influence neurotransmitter systems, altering motivation, cognition, and feeding behaviour. Studies prove that mycotoxins and alkaloids can impair neural processing, thus leading to reduced food intake or changes in social and reproductive behaviour. Sublethal exposure may have long-term consequences on health and fitness. Many physiological processes such as detoxification, neurochemical modulation and sensory responses have been slowly reinforced by animals in their system and behaviour to counteract the toxicity in food.

Abstract No. 117

ENVIRONMENTAL EFFECTS OF E-WASTE ON HUMAN HEALTH

Sarika Gautam

Department of Zoology
Kamla Nehru P.G. College, Tejgaon, Raebareli (U.P), India

ABSTRACT

E-waste is one of the alarming life-threatening pollutants for our environment. Electrical and electronic waste (E-waste) production is increasing daily as consumers continuously upgrade their electrical and electronic devices. People are excited to explore innovations in information with a robust demand for the use of new electrical and electronics equipment (EEE). Due to a lack of E-waste management and their disposal, the expired EEE becomes E-waste in mass and is dumped in landfills, such as near industries and institutes, etc. The continuous dumping of E-waste results in water and soil pollution, especially of underground water, making it unsuitable for different purposes due to release of harmful toxic metals. Consequently, they are harsh health and environmental problems all over the world. The paper compiles E-waste categories and their effect, as well as soil, water contamination, and massive effects on human health.

Abstract No. 118

INCIDENCE AND ECOFRIENDLY MANAGEMENT OF FALL ARMYWOM (SPODOPTERA FRUGIPERDA, SMITH)

Ramesh Chandra Tripathi and Kajal Gupta

Department of Biological Sciences
MG CG Vishwavidyalaya, Chitrakoot, Dist. Satna (M.P.), India

ABSTRACT

The fall armyworm, FAW (S*podoptera frugiperda*, Smith) has emerged as major pest affecting a wide range of crop, particularly maize, sorghum, Sugarcane, Pea nuts, soybean, cotton, vegetables etc, across many parts of the world. Its rapid spread and high reproductive capacity have led to significant economic losses, especially in tropical region. Understanding its incidence pattern is crucial for effective monitoring and early detection. This pest is known for its migratory behaviour and adoptability to various climates, making control efforts challenging. Climate plays crucial role in the population dynamics, distribution, and management effectiveness of fall armyworm (*Spodoptera frugiperda*). Temperature, rain fall and humidity directly influence the pest's life cycle, reproductive rate and migratory behaviour. The Warmer temperature can accelerate the development of FAW, leading to more generations per season and increased the pressure on crops. Extended drought or irregular rainfall can weaken plant health, making crop more vulnerable to infestation, while excessive rain wash away egg or larvae, temporarily reducing pest population. In recent years, attention has shifted toward sustainable and environment friendly management practices to reduce dependence on synthetic pesticides. *Thrichogramma pretiosum, T. chelonis* used as parasitoid flies and *Beauveria bassiana* used as fungal pathogen. Eco-friendly management of (*Spodoptera frugiperda*) strategies that combine multiple methods has shown promise in minimizing the impact of fall armyworm while safeguarding ecological balance.

Abstract No. 119

SCREENING OF MUSTARD CULTIVARS FOR PHYTOREMEDIATION OF CADMIUM CONTAMINATED SOIL USING PARAMETERS OF SEED GERMINATION ANALYSIS

Khushboo Pal and Rajesh Kumar Sharma

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

ABSTRACT

Industrial emissions and long-term application of sewage sludge, wastewater, and phosphate fertilizers caused heavy metal contamination of agricultural soil. It threatens the safety and quality of vegetables. Cadmium (Cd), a non-essential, toxic and highly mobile heavy metal in soil-plant and causes the highest threat in terms of damage to plant growth and human health. Mustard (*Brassica juncea* L.) plant is a well-known and widely accepted hyper-accumulator of heavy metals. In the present study, a pot-based experiment was conducted in Botanical Garden, Banaras Hindu University to screen out the Cd sensitive and tolerant varieties of mustard plants using parameters such as Germination efficiency (GE), germination percentage (GP), mean germination rate (MGR) and germination index (GI)of seed germination analysis. Seeds of 15 mustard cultivars were sown in Cd (20 mg kg^{-1}) contaminated soil (CCS). The results revealed that GE, GP, MGR and GI of the tested mustard cultivars were significantly influenced by the CCS with no significant influence on Radhika, Giriraj, Brijraj, Kranti, PM-28 and MJ-1. CCS also had significant and maximum effect on germination response of Sonalika and NS-9288. The present research highlights that seed germination analyses, potentially offering insights into their adaptability and resistance to of mustard plant to Cd stress. Such findings could have implications for phytoremediation, of Cd polluted soil and particularly its removal by resistant varieties such as Radhika, Giriraj, Brijraj, Kranti, PM-28 and MJ-1.

Abstract No. 120

ENHANCING THE DYEING AND FUNCTIONAL PROPERTIES OF LINEN FABRIC WITH THE APPLICATION OF NATURAL DYE BASED NANOPARTICLES.

Neelu Kambo

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

ABSTRACT

Natural dyes are sustainable, non-hazardous and eco-friendly in nature. In addition to creating subdued shades but also offer the ability to create unique textile substrates with performance attributes like UV protection, deodorizing, antioxidant, antifeedant, and antibacterial qualities. In today's market, creating colorful textile items using natural colorants may increase consumer interest even more. Finding substitute natural degradable dyes has thus emerged as one of the industry's top initiatives in the current environment. Therefore, finding alternative natural degradable dyes has become one of the leading trends in this field in the present scenario. This study highlights the benefits of natural dyes over synthetic ones, which improves the functional properties of dyed cotton fabric with *Punica granatum* peel, turmeric, and henna natural dyes with the use of alum as mordant and nanoparticle for environmental benefits.

Abstract No. 121

BIODIVERSITY LOSS AND IT'S CONSERVATION: A GLOBAL ISSUE

Alka Misra

Department of Zoology
DSN PG College, Unnao (U.P), India

ABSTRACT

The term "Biodiversity" is defined as full variety of life on Earth. It includes diversity within species, between species and of ecosystem. Biodiversity plays a major role in climatic balance and regulation. From last few decades the drastic changes in climatic conditions has been noticed. Environment researches suggest that several anthropogenic activities are responsible for drastic climate change. The major cause is the large scale emission of Greenhouse gases as vehicular exhaust, responsible for rise in global atmospheric temperature. These climate changes adversely affect the biological resources of the countries. Many species are on the edge of extinction, many others survive in reduced numbers while many flourish with a changed geographical distribution. The only tool biodiversity conservation will lead to strengthening of ecosystem resilience and will improve the ability of ecosystem to provide important services during increasing climate fluctuations. Various aspects regarding causes for biodiversity loss and measures for its conservation will be discussed later.

Abstract No. 122

ACRYLAMIDE IN PROCESSED FOODS: IMPLICATIONS FOR BIODIVERSITY, HUMAN HEALTH AND SOCIETAL WELL-BEING

Anjana Jadon

Department of Zoology
Govt. Girls Degree College Kurawali, Mainpuri (U.P), India

ABSTRACT

Modern lifestyles and busy schedules have led to an increased consumption of processed foods, which, despite offering some nutritional value, often harbor harmful toxicants. Acrylamide (AA) is one such contaminant formed predominantly during high-temperature processing of starchy foods. Beyond its industrial applications in cosmetics, mining, water purification, and food packaging, AA is also detected in cigarette smoke. The alarming discovery of AA in food products like coffee, green tea, confectioneries, vegetables, and potato-based items has raised significant public health concerns due to its neurotoxic, genotoxic, hepatotoxic, nephrotoxic, mutagenic, and carcinogenic properties. Acrylamide is primarily formed when free asparagine reacts with reducing sugars at temperatures between 120–200°C. Although its presence in foods is generally at trace levels, the potential risks associated with long-term cumulative exposure cannot be ignored. This article highlights the sources, formation mechanisms, and toxicological impacts of acrylamide, emphasizing the need for continued research and public awareness regarding food safety.

Abstract No. 123

FROM POLLUTION TO PULSE: MODELING BLOOD FLOW DYNAMICS IN DISEASED ARTERIES AFFECTED BY ENVIRONMENTAL FACTORS

Anshika Agarwal and Madan Lal

Department of Applied Mathematics
M.J.P. Rohilkhand University, Bareilly (U.P), India

ABSTRACT

Environmental degradation, climate change, and rising pollution levels are increasingly impacting human health, contributing to a surge in cardiovascular diseases such as arterial stenosis. These environmental factors accelerate the hardening and narrowing of arteries, creating an urgent need for improved medical treatments. Motivated by the growing prevalence of environment-induced cardiovascular conditions, this study presents a mathematical investigation of blood flow behavior in stenosed arteries during arterial catheterization. The model considers blood as a two-phase non-Newtonian fluid: a particle phase (erythrocytes) and a fluid phase (plasma). Analytical solutions are obtained for fluid velocity, shear stress at the stenosis throat and shear stress at the wall. Graphical results obtained through MATLAB simulations demonstrate that wall shear stress decreases with increased axial displacement of the balloon but increases with higher red blood cell volume fraction, larger inner tube radius, and greater balloon height. This research bridges biomedical engineering and public health, emphasizing the importance of sustainable living and early intervention in the face of growing environmental health challenges.

Abstract No. 124

SIGNIFICANCE AND ROLE OF SACRED PLANTS IN CULTURAL PRACTICES

Dinesh Bharti, Santosh Kumar and Vaibhavi

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

ABSTRACT

India's cultural and religious traditions have long revered plants as sacred entities, attributing them with divine, medicinal, and ecological significance. Sacred plants such as Tulsi (*Ocimum sanctum*), Peepal (*Ficus religiosa*), Banyan (*Ficus benghalensis*), Neem (*Azadira chtaindica*), and Bel (*Aegle marmelos*) are deeply integrated into rituals, folklore, and daily worship. These plants are closely associated with Hinduism, Buddhism, Jainism, and tribal traditions, symbolizing various deities and cosmic principles. Tulsi, considered the consort of Lord Vishnu, is worshiped in households and temples, while the Peepal tree, believed to be the abode of Lord Vishnu and associated with enlightenment in Buddhism, venerated for its spiritual and medicinal properties. Similarly, the Banyan tree, representing longevity and wisdom, plays a central role in religious ceremonies. Beyond their religious significance, these plants hold immense ecological and medicinal value. Traditional practices, such as Ayurveda, utilize their healing properties, reinforcing their role in holistic wellness. Sacred groves, protected due to religious beliefs, serve as biodiversity hotspots, preserving indigenous flora and fauna. The worship of these plants reflects India's ethnobotanical wisdom, which emphasizes a harmonious relationship between nature and spirituality. Despite modernization, the reverence for sacred plants continues, adapting to contemporary environmental movements that advocate for conservation. This study explores the historical, religious, medicinal, and ecological significance of sacred plants in India, illustrating their enduring role in cultural sustainability. It highlights how these plants serve as a bridge between spiritual beliefs and environmental consciousness, offering valuable insights into the interplay of tradition, nature, and modern conservation efforts.

Abstract No. 125

EFFECT OF URBANIZATION AND ABIOTIC FACTORS ON AQUATIC INSECT DIVERSITY IN RAMGANGA RIVER AT MORADABAD

Ramnikant Kumar and Sunil Kumar

Department of Animal Science
M.J.P. Rohilkhand University, Bareilly (U.P), India

ABSTRACT

Many aquatic ecosystems are under persistent stress due to influxes of anthropogenic activities. Aquatic biodiversity gets affected by several factors such industrial pollution or climate change variation in the diversity of aquatic insect may be attributed to the degree of anthropogenic interface in the ecological balance of fresh water bodies. River Ramganga is considered sacred for providing life sustenance to the people of Moradabad. The Ramganga river water pollution due to industrial wastes is one of the major concerns in most of the metropolitan cities nowadays. These waste discharge from diverse industries entering the water system changes in the physicochemical and biological properties of bioaccumulation and biomagnification in the bodies of aquatic organisms and hence can enter the food web. Aquatic insects like mayflies, stoneflies, caddisflies, chironomids are bioindicators of water quality. Findings urbanized zones lower diversity, higher dominance of pollution – tolerant species (e.g. chironomids). Upstream sites more sensitive taxa like Ephemeroptera, Plecoptera, Trichoptera (EPT). Main factors altering aquatic insects' biodiversity from local to regional scales. Therefore, the retention of even in urban and industrialized areas can maintain the aquatic insect's species by providing suitable environments for the habitat, and reproductive requirements of these aquatic insects.

Abstract No. 126

MODELLING MAGNETO HYDRODYNAMIC TURBULENCE: IMPLICATIONS FOR ENVIRONMENTAL FLUID DYNAMICS AND POLLUTANT DISTRIBUTION IN OCEANIC CIRCULATION

Harshita Singh and Madan Lal

Department of Applied Mathematics
M.J.P. Rohilkhand University, Bareilly (U.P), India

ABSTRACT

This study investigates Magneto hydrodynamic (MHD) turbulence in electrically conducting fluids under a magnetic field, demonstrating its environmental relevance through direct numerical simulations. The research indicates that turbulence behavior depends on the Stuart number: low values result in isotropic turbulence, high values create a stable two-dimensional vortex lattice, and intermediate values create intermittent three-dimensional bursts. These behaviors are analogous to environmental fluid systems, including ocean and atmospheric currents, in which forces such as the Earth's magnetic field control turbulence and energy transfer. Two-dimensional states correspond to natural eddies that affect resource allocation and trap pollutants, while stability analysis corresponds to environmental robustness to disturbances. Model is assumed to predict pollutant distribution that includes MHD turbulence in oceanic circulation models. By adding effects of the magnetic field, the model identifies regions where pollutants accumulate in stable eddies, increasing the accuracy of cleanup and conservation strategies. This model not only enhances knowledge of environmental fluid dynamics, but it also provides a useful tool for minimizing pollution and protecting ecosystems.

Abstract No. 127

MORPHOLOGICAL AND BIOCHEMICAL VARIABILITY OF *CORDIA MACLEODII* IN DIFFERENT AGROCLIMATIC ZONES OF CHHATTISGARH

Preeti Shukla, Kaushal Tripathi, Nikhil Verma
Fatima Shirin and Komal Rani

ICFRE-Tropical Forest Research Institute, Jabalpur (M.P.), India

ABSTRACT

Cordia macleodii (Griff.) Hook. f. & Thomson is an endangered forest tree species of central India, especially in the forests of Chhattisgarh (CG), Madhya Pradesh (MP) and Maharashtra (MH). Vernacularly, it is known as Dahiman, belonging to the family *Boraginaceae*. Overexploitation of the species in the forests of central India poses a significant threat to its survival and existence in the wild. The need and urgency of restoring declining stands, using seeds or propagating material, suggest an assessment of its geographical variability. The purpose of this study is to identify the discriminating morphological and biochemical descriptors, allowing us to describe and characterize the species. Three agroclimatic zones (ACZ) over the whole geographical distribution area in Chhattisgarh were evaluated for morpho-metric (4 descriptors), leaf (3 descriptors), fruit (3 descriptors), and seed (3 descriptors) traits. We estimated the total phenolic content (TPC), total flavonoid content (TFC), tannin, and alkaloids for biochemical variability. We used the co-efficient of variation (CV) and the analysis of variance (ANOVA) to assess the variability among populations in the three ACZs of CG. Results indicate that the discriminating morphological and biochemical descriptors for *C. macleodii* in CG are the clear bole length (CBL), total height (TH), bark thickness (BT), fruit length and fruit width. Additionally, all four biochemical analyses show significant variability. Along with this observed variability and multipurpose use of Dahiman, preparation of a species-specific conservation strategy (SSCS) is urgently required.

Abstract No. 128

WOOD WIDE WEB: MYCORRHIZA

Vijay Tewari

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

ABSTRACT

Nature created plants to nurture the humans on this earth. The creator's aim was that both of them become companions and allies in the earth's preservation and mutual blossoming. Due to this symbiotic relationship, the world grew green and happy. The fine hair like root tips of trees join together with microscopic fungal filaments to from the essential links of the network, which appears to operate as symbiotic relationship between fungi and trees : Mycorrhizae (Pl. mycorrhizae or mycorrhizas : Gr. Mykes = mushroom + rhiza = root) is an association of a fungus with roots / rhizomes of a plant. The associated fungi are called mycorrhizal fungi. Formerly it was thought that the mycorrhizal fungi are important in the case of forest trees only, however, recent studies have indicated that mycorrhizal fungi are playing an important part in many of crop plants. Trees produce food, in the form of glucose, sugar through photosynthesis. The plants share this glucose with the fungi, meanwhile the fungi absorb nutrients from the soil to give back to the trees. Trees use this network to communicate and share resources. That's why some scientist call it the internet of trees, or the "wood wide web". A forest is a cooperative system using the language of 'communication' made more sense because we were looking at not just resource transfers but things like defense signaling and kin recognition signaling. We as human beings can relate to this better. If we care about it more, then we are going to do a better job of stewarding our landscape. If we can recognize this social aspect of trees and make friends with them, we can take care of the environment very well. Let us realize that plants are very social, and they respond positively if we loving take care of them. Thus, by planting trees and making friends with them, we can save the environment. Mycorrhizal fungi play an important role in afforestation. It has been demonstrated that mycorrhizal infection is essential for normal growth of many forest trees. Recent indications are that not only mycorrhizal fungi are playing an important part in the forest ecosystem, they seem to be equally important in many of our crop plants.

Abstract No. 129

PURIFICATION OF WATER THROUGH MICRO ORGANISMS

Sunita Arya[1] and Renu Goel[2]

[1]Department of Zoology, Dayanand Girls P.G. College, Kanpur (U.P.), India
[2]Department of Zoology P.P.N. College, Kanpur (U.P.), India

ABSTRACT

Water pollution is a pressing global concern, with increasing contamination of freshwater resources due to industrialization, urbanization, and agricultural runoff. Conventional water purification methods, while effective, often involve high operational costs, chemical usage, and environmental impacts. In contrast, the use of microorganisms for water purification offers a sustainable and eco-friendly alternative. Microbial bioremediation harnesses the natural metabolic activities of microorganisms such as bacteria, fungi, and algae to degrade, detoxify, or transform pollutants present in contaminated water. Various microbial species, including Pseudomonas, Bacillus, Nitrosomonas, Nitrobacter, and cyanobacteria, play critical roles in the removal of organic and inorganic contaminants. These organisms are capable of breaking down complex organic compounds, reducing heavy metal toxicity, and aiding in nitrogen and phosphorus removal through processes such as nitrification, denitrification, and phosphate solubilization. Biofilms and microbial consortia are increasingly used in constructed wetlands, bioreactors, and sewage treatment plants to enhance the purification process.It was found that microbial treatment can effectively reduce biochemical oxygen demand (BOD) and chemical oxygen demand (COD) by up to 90%, while also eliminating pathogens and toxic substances. For example, activated sludge systems in wastewater treatment employ microbial communities that degrade organic pollutants efficiently under aerobic conditions. Similarly, anaerobic digesters utilize microbes for the treatment of industrial and domestic wastewater, producing biogas as a useful by-product. The integration of microbial technologies in water purification is gaining global attention due to its cost-effectiveness, scalability, and environmental compatibility. It also aligns with the goals of sustainable development, particularly in resource-limited and rural settings. However, optimizing microbial efficiency and ensuring pathogen safety remain key challenges.

Abstract No. 130

ADVANCES IN ENERGY CONSERVATION AND STORAGE

Atul Tewari

Department of Chemistry
DBS College, College, Kanpur (U.P.), India

ABSTRACT

Advances in energy conservation and storage are pivotal in addressing global energy challenges and achieving sustainability. Recent innovations have focused on enhancing efficiency, scalability, and integration with renewable energy sources. In Energy Storage Technologies Lithium-ion batteries continue to dominate, with improvements in energy density and safety. Solid-state batteries, offering higher energy density and reduced risk, are gaining traction. Flow batteries, with their scalability and long-duration storage capabilities, are ideal for renewable energy integration. Compressed Air Energy Storage (CAES) systems provide a unique solution by storing energy in compressed air, later converted to electricity. Energy Conservation Innovations consist Smart grids, powered by AI and IoT, optimize energy distribution and minimize wastage. Advanced materials, such as thermoelectric and next-generation photovoltaics, enhance energy capture and reduce losses. In Renewable Energy Integration Perovskite solar cells have achieved ef ficiencies exceeding 25%, revolutionizing solar energy. Hydrogen production technologies and innovative fuel cell designs are paving the way for cleaner energy conversion. Studies indicate that integrating energy storage systems with renewable energy can increase efficiency by up to 30%. Flow batteries demonstrate energy efficiencies of over 80%, with long cycle lives. Perovskite solar cells have shown potential to reduce manufacturing costs by 20% compared to traditional silicon-based cells. These advancements not only address the growing energy demand but also contribute to reducing carbon emissions and promoting a sustainable future. The synergy between conservation and storage technologies is essential for transitioning to a carbon-neutral energy ecosystem. Continued research and development in these areas will play a crucial role in shaping the future of global energy systems.

Abstract No. 131

GREEN TECHNOLOGY: A CATALYST FOR INDIA'S ECONOMIC TRANSFORMATION

Ram Krishna Vishwakarma

Uttar Pradesh Sehkari Gram Vikas Bank Ghazipur (U.P.), India

ABSTRACT

Green technology is poised to significantly influence the Indian economy by fostering sustainability, innovation, and inclusive growth. It encompasses renewable energy, sustainable agriculture, energy-efficient solutions, and eco-friendly manufacturing practices, all of which align with India's commitment to achieving environmental and economic goals. The adoption of green technology is reshaping traditional industries, reducing carbon emissions, and increasing resource efficiency. For instance, the surge in solar and wind energy has not only mitigated dependence on fossil fuels but has also generated employment in clean energy sectors. Economic benefits extend to rural areas as green technology promotes sustainable agriculture and micro-enterprises, bridging income disparities. Furthermore, investments in green technology encourage research and development, spurring innovation and elevating India's position in global markets. Indian government initiatives, such as the National Electric Mobility Mission Plan and renewable energy targets, underscore the prioritization of eco-friendly solutions. These efforts also catalyze foreign direct investment (FDI) and partnerships, enhancing India's economic growth. Challenges, however, remain. The initial costs of green technology implementation can be prohibitive for many businesses, particularly small and medium enterprises (SMEs). Infrastructure gaps and policy frameworks need to evolve to ensure widespread adoption. Additionally, striking a balance between economic growth and environmental preservation requires consistent and collaborative efforts. In conclusion, green technology holds transformative potential for the Indian economy, fostering sustainability while addressing challenges through innovation and strategic policymaking. As India transitions towards a greener future, the integration of green technology within its economic landscape symbolizes a pathway to long-term prosperity and environmental stewardship.

Abstract No. 132

ROLE OF VERMICOMPOSTING IN SOLID WASTE MANAGEMENT

Indrani Dubey

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

ABSTRACT

Solid waste management is a critical environmental issue, particularly in urban areas where the generation of solid waste is increasing at an alarming rate. According to the Central Pollution Control Board (CPCB), India generates approximately 62 million tonnes of municipal solid waste annually, out of which around 50% is organic in nature. Traditional methods of waste disposal such as landfilling and incineration pose serious environmental threats including groundwater contamination, air pollution, and greenhouse gas emissions. In this context, vermicomposting has emerged as a sustainable, low-cost, and eco-friendly solution for the management of organic solid waste. Vermicomposting involves the use of specific species of earthworms, such as Eisenia fetida and Eudriluseugeniae, to decompose organic waste into high-quality compost known as vermicompost. This process not only significantly reduces the volume of or ganic waste but also transforms it into nutrient-rich manure that enhances soil health and agricultural productivity. Studies have shown that vermicompost contains 1.5–2.5% nitrogen, 1.2–2.0% phosphorus, and 1.0–1.5% potassium, making it an excellent alternative to chemical fertilizers. The adoption of vermicomposting in community, institutional, and household settings has demonstrated effective waste reduction—up to 60% of total organic waste—and promotes a circular economy by converting waste into a valuable resource. Additionally, vermicomposting reduces methane emissions from landfills and supports climate resilience in agriculture. Cities like Pune and Bangalore have implemented decentralized vermicomposting systems, successfully managing a significant portion of their organic waste through this method.

Abstract No. 133

VARIABILITY, HERITABILITY AND GENETIC ADVANCE STUDIES IN HYBRID TEA ROSES

Ranjit Singh

Department of Botany
DSN College, Unnao (U.P.), India

ABSTRACT

The assessment of genetic variability, heritability, and genetic advance is fundamental for effective selection and improvement in ornamental crops such as hybrid tea roses (Rosa hybrida), which are prized for their aesthetic value, fragrance, and commercial demand. This study was conducted to evaluate the extent of genetic variability and potential for genetic improvement in 15 hybrid tea rose genotypes grown under uniform agro-climatic conditions. Significant differences were observed among the genotypes for all traits studied, including plant height, number of flowers per plant, flower diameter, stem length, and blooming duration. The phenotypic coefficient of variation (PCV) was slightly higher than the genotypic coefficient of variation (GCV) for all traits, indicating a lesser influence of environmental factors. The highest GCV (22.14%) and PCV (24.63%) were recorded for the number of flowers per plant, suggesting ample genetic variability for this trait. Heritability in the broad sense ranged from 65.12% (blooming duration) to 91.45% (flower diameter), indicating that most of the traits are governed by additive gene action and are less influenced by environmental conditions. The highest genetic advance as a percentage of the mean was noted for the number of flowers per plant (43.12%), followed by stem length (35.67%), indicating the potential for significant improvement through selection. These results suggest that traits such as flower diameter, stem length, and number of flowers per plant can be effectively improved through direct selection due to their high heritability and genetic advance. The high variability among genotypes offers a rich pool for selecting superior varieties for breeding programs aimed at enhancing ornamental.

Abstract No. 134

THE ROLE OF *EISENIA FETIDA* IN ACCELERATING ORGANIC MATTER DECOMPOSITION

Pratibha Shrivastava and Atul Kumar Misra

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

ABSTRACT

Vermicomposting is a bio-oxidative fragmentation process where earthworms (*Eisenia fetida*) and microorganisms together convert organic waste into an organic fertilizer that is nutrient-rich. Earthworms serve as biological decomposers that consumes organic matter and enhances microbial activities in their gut. This rise in use chemical fertilizers has led to concerns about soil health degradation and environmental pollution arising from fertilizer use in agriculture. As eco-friendly methods for managing organic waste, vermicomposting has been described as a sustainable alternative. This review describes the important role of *Eisenia fetida* in agriculture waste decomposition and its effects on the fertility and growth of soil and plants. The practice of vermicomposting is a benign and efficient method to convert organic matter into a fertile product and an integral process in the management of the food chain. However, challenges like scalability, farmer awareness and environmental constraints prevent large scale adoption. This paper highlights the mechanisms, benefits, applications, and challenges associated with vermicomposting while stressing the need for additional research and technological progress in the area.

Abstract No. 135

CLIMATE CHANGE AND ITS IMPACT ON DRUG EFFICACY, STABILITY, AND DISTRIBUTION

Anik Kumar Sinha and Abushan Khan

Department of Pharmacy
MJP Rohilkhand University Bareilly (U.P.), India

ABSTRACT

Climate change, once viewed primarily as an environmental issue, has emerged as a formidable threat to global health systems, including the pharmaceutical sector. Rising global temperatures, erratic weather patterns, increased humidity, and extreme climatic events are directly affecting the stability, efficacy, and distribution of medications across the world. As the climate crisis intensifies, so does the vulnerability of essential drugs, particularly those sensitive to temperature and moisture, such as vaccines, insulin, and certain antibiotics. The degradation of pharmaceuticals due to environmental stressors not only compromises their therapeutic effectiveness but also raises the risk of adverse health outcomes, antimicrobial resistance, and economic losses. Furthermore, climate-induced disruptions to global supply chains—caused by floods, heatwaves, or infrastructural collapse—are undermining the timely and equitable distribution of drugs, especially in low- and middle-income countries. The fragility of cold chain systems and inadequate storage infrastructure in climate-vulnerable regions compound these challenges. The altered pharmacokinetics in patients exposed to extreme environmental stressors add another layer of complexity to drug efficacy and dosing. This review highlights the urgent need for a transdisciplinary approach involving pharmacists, climate scientists, policy-makers, and healthcare professionals to mitigate the pharmaceutical risks posed by climate change. It advocates for the development of climate-resilient drug formulations, smart packaging, adaptive logistics, and real-time monitoring systems. Regulatory bodies must also revise drug storage and transportation guidelines to align with shifting climate realities. By addressing these challenges proactively, the pharmaceutical industry and healthcare systems can safeguard public health, ensure therapeutic reliability, and contribute to global sustainability efforts. Climate change is not just a future threat—it is a present and escalating crisis that demands immediate, coordinated, and innovative responses from all stakeholders in the pharmaceutical and healthcare landscape.

Abstract No. 136

IMPACT OF TRAINING OF ATTRACTING AND RETAINING YOUTH IN AGRICULTURE (ARYA) ON WHITE BUTTON MUSHROOM (AGARICUS BISPORUS) CULTIVATION IN DISTRICT GURUGRAM, HARYANA

Bharat Singh[1], M.S. Meena[2], Anamika Sharma[1], R.P. Singh[1] and Gaurav Papnai[1]

[1]ICAR-IARI, KrishiVigyan Kendra, Shikohpur, Gurugram (Haryana), India
[2]ICAR- ATARI ZONE-II, Jodhpur (Rajasthan), India

ABSTRACT

White Button Mushroom (*Agaricus bisporus*) is mainly cultivated in north India under natural and controlled condition. To meet the challenges and provide food and nutritional security to the people, it is important to diversify the agriculture. Mushroom cultivation is a prominent option for rural youth for additional income. Keeping that in view the study was conducted during the year 2022-23 & 2023-24 at village Khaika (block-Sohna) of district Gurugram, Haryana. The hi-tech mushroom unit was constructed in a 27000 sqft. area. The enhancement of farm income from white button mushroom cultivation with the investment of expenditure of Rs. 1,62,000 and Rs. 1,23,600 during year 2022-23 & 2023-24, whereas, gross income obtained Rs. 4,43,880 and Rs. 3,26,304 respectively. Net profit of Rs. 2,81,880 and Rs 2,027,04 were obtained by the rural youth during the year 2022-23 & 2023-24. It was found that this vocation have an important role in enhancement of farm income to small and marginal farmers and rural farm youth.

Abstract No. 137

STUDY ON FOOD AND FEEDING HABITS OF SNAKE HEADED FISHES FROM BHAGDA TAAL, A WETLAND OF DISTRICT BALRAMPUR, U.P.

Varsha Singh

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

ABSTRACT

Aim of the present piece of work was to analysis the food composition and feeding habits of three snakeheaded fresh water air breathing fishes. The RLG value of *Channa* species decrease with the increasing length of the fish that revealed the changing feeding habit from fry stage to adult stage. The gut content of three fishes has been analysed and are broadly classified into six categories i.e. zooplankton, annelids, insects, fishes, plant matter and decay organic matter. Gut content analysis showed significant seasonal patterns and dominated by Insects (31.10-34.52 %) followed by decay organic matter (16.62-22.56%), fishes (14.90-16.70%), zooplankton (11.95-13.15%), plant matter (10.14-12.22%) and annelids (5.58-7.22%), in the order of preference.

Abstract No. 138

TOXICITY AND BEHAVIOURAL CHANGES IN FRESHWATER FISH *CIRRHINUS MIGRALA* EXPOSED TO SUGAR FACTORY EFFLUENT

Santosh Kumar Tiwari

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

ABSTRACT

Many industries in India discharge their effluents directly or indirectly into inland water bodies, eventually contaminating nearby rivers. Studies have revealed that almost all such industries violate environmental regulations, leading to significant pollution of freshwater sources and adjacent agricultural land. The present study was conducted to assess the toxicity of effluents from a sugar factory on the freshwater fish *Cirrhinus migrala*. A renewal bioassay method was used over a period ranging from 24 to 96 hours. To estimate LC50 values, a series of effluent concentrations (% dilutions) were prepared. The observed mortalities occurred at effluent concentrations of 35%, 30%, 25%, and 20% for 24, 48, 72, and 96 hours respectively. During the experiments, affected fish exhibited several adverse reactions including erratic swimming, jerky movements, rapid opercular activity, leaping out of water, and excessive mucus secretion. These findings highlight the urgent need for strict enforcement of environmental quality standards to safeguard aquatic ecosystems and minimize health risks associated with water pollution.

Abstract No. 139

SEASONAL VARIATION IN PRIMARY PRODUCTIVITY OF GUTHIA TAAL, WETLAND OF BAHRAICH (U.P.)

Alpana Parmar

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

ABSTRACT

Wetlands are areas where water is primary factor controlling the environment and the associated plants and animal life. They occur where the water table is at or near the surface of the land, or where the land is covered by water. Wetlands are among the world's most productive environments. Guthia taal is a large, shallow and horse shoe shaped wetland of tarai region of eastern U.P. Seasonal variations in primary productivity and macrophytes were carried out during July, 2023 to June, 2024. Grass primary productivity (GPP) and net primary productivity (NPP) ranged from 52.20 to 95.70 mg C/m3/3hr and 35.90 to 60.90 mgC/m3/3hr, respectively. The respiration(R) values varied between 16.35 to 34.85mgC/m3/3hr. The maximum rates of production in summer months denote the peak of phytoplankton, macrophytes, and higher values of light intensity, temperature and chlorophyll concentration. The minimum rates of primary production were observed during monsoon months.

Abstract No. 140

STUDIES OF ECOLOGICAL MICROORGANISM IN NATURAL ENVIRONMENT

Kamalesh Kumar

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

ABSTRACT

In the context of research and applied fields microbial ecology helps in areas like medicine in the natural environment microorganism play crucial roles in maintaining ecology balance and contributing to essential processes. Microbial ecology in natural environment refers to the interaction between microorganism bacteria, fungi, and viruses are crucial functioning of natural environment. understanding infection and diseases, agricultural enhancing soil fertility or controlling pests, and environment sciences.

Abstract No. 141

ECHOES OF ENVIRONMENTAL DEGRADATION IN HUMAN PHYSIOLOGY: A HEMODYNAMIC STUDY OF ARTERIAL STENOSIS

Akansha Saxena and Madan Lal

Department of Applied Mathematics
M.J.P. Rohilkhand University, Bareilly (U.P.), India

ABSTRACT

Environmental degradation causing health benefits is a paradoxical notion that underscores the urgency for trans-disciplinary evaluation of anthropogenic impacts on human health. This study investigates the hemodynamics of non-Newtonian blood flow through an overlapping stenosed artery under the effect of magnetic field, integrating variable viscosity effects to simulate real physiological conditions. Environmental stressors such as air pollution and dietary shifts, often tied to urbanization and ecological degradation, contribute to increased incidence of arterial stenosis. Through mathematical modeling and computational simulations and MATLAB, we examine the alterations in blood flow dynamics under pathological conditions. The study emphasizes the complex interplay between environmental factors and vascular health, illustrating how systemic degradation manifests in localized physiological disruptions. These findings underscore the need for a unified approach linking environmental science, public health, and biomedical engineering to foster sustainable living conditions and informed policy responses.

Abstract No. 142

BIODIVERSITY OF WILD EDIBLE PLANTS OF JHARKHAND

Bhavna Kumari[1] and Pallavi Praveen[2]

[1]Department of Life Science, BBMKU, Dhanbad (Jharkhand), India
[2]Department of Botany, BSC College, Bokaro (Jharkhand), India

ABSTRACT

In the 21st century world, approximately 870 million individuals are anticipated to lack desired calories and additional 2 billion individuals are micronutrient deficient. Such an undesirable phenomenon is very much linked to the fact that we have 20000 edible plant species, yet only a few less than 20 species supply 90% of our food today. Monotonous diets lacking in food diversity and proper diet planning resulted in malnourished conditions, which is regarded as one of the top 10 risks factors contributing to burden of chronic health issues worldwide risk factors collaborations, 2020). This challenge can be overcome by a food based strategy incorporating wild edibles into daily diet. Wild edible plants (WEPs) can be defined as native species that grow and reproduce naturally in their natural habitat without being cultivated. WEPs play an important role when food crops are scarce, ensuring food sovereignty and food security. The contribution of wild edible plants to man's food heritage is as old as human civilization. They are not only the store house of a wide range of essential nutrients. But also the crucial source of genetic diversity for breeding and improving cultivated crops. In some region of the Jharkhand it acts as essential component of people's diet and provides greater dietary diversity for those who rely on them. Wild edible plants are also eaten for their health giving properties and many species are commonly used as herbal medicines for treatment of several ailments. They have positive influence on health and are often identified as functional foods, because of their higher contents of vitamins, antioxidants, microelements, macro elements etc. The various plant parts used include whole plants, leaves, steams, roots, tubers, barks, flowers, fruits and seeds. Jharkhand is one of the biodiversity reach region of India because of its diverse physiographic and climatic conditions. It is also blessed with floral diversity like wild fruits, wild vegetables, ornamentals, medicinal and aromatic plant wealth due to its diverse agroecological habitats and geographical region. Today we are witnessing rapid change in socio-economic and environmental condition and there is rapid loss of biodiversity worldwide, reducing the possibilities of finding new food and crop genetic resources. Realizing the alarming facts, Scientists from every corner of the world have started documenting local food heritage associated biodiversity components. It is hoped that an increasing amount of scientific research will focus on plant diversity, traditional knowledge, and agricultural studies and will foster bioconservation strategies and sustainable food production.

Abstract No. 143

STUDY ON RHINO COURTSHIP: PRE-MATING INTERACTIONS IN KANPUR ZOO

Nayna Pandey and Sunita Arya

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

ABSTRACT

This study explores the pre-mating interactions and courtship behaviours of rhinoceroses at Kanpur Zoological Park, with the objective of gaining a comprehensive understanding of their social and reproductive dynamics in a controlled zoo environment. By conducting systematic observations and maintaining detailed behavioural records, we were able to identify and document a range of distinct courtship rituals. These include vocalizations, body postures, mutual grooming, horn touching, parallel walking, and various forms of physical interactions that are crucial in the lead-up to mating.Our findings emphasize the significance of these specific behaviours, which act as indicators of reproductive readiness and mutual interest. Notably, mutual body rubbing, body licking, sparring, chin resting, urine squirting, sniffing, flehmen responses, and vocal exchanges were frequently observed during the pre-mating phase. These behaviours appear to serve both communicative and physiological functions, facilitating pair bonding and preparing both individuals for successful mating. During the mating phase itself, actions such as mounting and dragging by the male, along with the female's responses, were commonly recorded. After mating, both rhinos often resumed their typical daily behaviours, indicating a return to baseline activity levels. In addition to behavioural observation, the study also considered the impact of environmental factors-such as enclosure design, availability of space, and ambient conditions-on the frequency and quality of these interactions. To further support our behavioural data, non-invasive hormonal sampling was carried out, enabling us to correlate observable behaviours with internal physiological changes and reproductive cycles. This research contributes to the broader understanding of rhinoceros courtship behaviour and reproductive biology. These insights are especially valuable for enhancing the effectiveness of ex-situ conservation efforts and captive breeding programs, ultimately supporting long-term species survival.

Abstract No. 144

INVESTIGATING THE POTENTIAL OF *ARTEMISIA ANNUA* L. CONSTITUENTS IN ENVIRONMENTAL MONITORING AND BIOREMEDIATION STRATEGIES AGAINST PULMONARY FIBROSIS USING MOLECULAR DOCKING

Anjali Hazarika[1], Anurag Koch[1], Vani Mishra[2] and Rohit Kumar Mishra[1]

[1]Centre of Science and Society, IIDS, University of Allahabad, Prayagraj (U.P.), India
[2]Women Scientist-DST, Dept. of Biotechnology, MNNIT Prayagaraj (U.P.), India

ABSTRACT

The increasing burden of environmental pollution and urbanization has worsened respiratory disorders including pulmonary fibrosis, emphasizing the need for effective environmental monitoring and mitigation strategies. Pulmonary fibrosis is a chronic, progressive, and irreversible interstitial lung disease characterized by excessive accumulation of extracellular matrix (ECM) components, resulting in compromised gas exchange and eventual respiratory failure. Despite advances in understanding the disease pathogenesis, current therapeutic options remain inadequate, underscoring the need for novel and effective treatment strategies. Artemisiatriene, a bioactive sesquiterpene derived from Artemisia annua L., has exhibited notable pharmacological activities, including anti-inflammatory and antifibrotic effects. In this study, an *in silico* approach was employed to evaluate the therapeutic potential of Artemisiatriene in the context of pulmonary fibrosis. Transcriptomic data obtained from the Gene Expression Omnibus (GEO) database were analyzed using GEO2R to identify differentially expressed genes (DEGs) associated with fibrotic lung tissue. Subsequently, molecular docking analyses were conducted to assess the binding affinity of Artemisiatriene to key profibrotic target proteins implicated in ECM remodeling and fibrogenesis. The docking results demonstrated strong binding interactions between Artemisiatriene and several fibrosis-related proteins, suggesting a potential modulatory effect on pathways central to fibrotic progression. These *in-silico* findings provide preliminary support for the therapeutic potential of Artemisiatriene in pulmonary fibrosis. Nevertheless, comprehensive preclinical investigations, including in-vitro mechanistic studies and in-vivo efficacy assessments, are essential to validate these results and further elucidate the molecular mechanisms underlying Artemisiatriene's antifibrotic activity.

Abstract No. 145

UNVEILING ANTI-DERMATOPHYTIC EFFICACY OF A-PINENE IDENTIFIED FROM STORED *CRYPTOMERIA JAPONICA* D. DON ESSENTIAL OIL AGAINST *TRICHOPHYTON RUBRUM* USING MOLECULAR DOCKING

Anurag Koch[1], Anjali Hazarika[1], Vani Mishra[2] and Rohit Kumar Mishra[1]

[1]Centre of Science and Society, IIDS, University of Allahabad, Prayagraj (U.P.), India
[2]Women Scientist-DST, Dept. of Biotechnology, MNNIT Prayagaraj (U.P.), India

ABSTRACT

Trichophyton rubrum is a prevalent pathogenic fungus responsible for various dermatophytosis, necessitating the exploration of novel therapeutic strategies. Several chemotherapeutic agents like azoles and allylamines compounds are systematically used for treatment of the fungal infection. However, the use of synthetic compound does not result in complete eradication of the disease pathophysiology. Moreover, the generation of resistant species and subsequently the resurgence are also reported. Hence, there is a need for some herbal active constituents which could act as novel therapies and reduce cosmetic embarrassment. The current study, therefore, investigates the bioactive constituents of *Cryptomeria japonica D. Donleaves* through an integrated approach combining network pharmacology. In the current work, stored essential oil (EO) was utilized in drug preparation to evaluate its retained bioactive potential under prolonged storage conditions and to observe any variations in efficacy that may result from extended preservation. GC-MS with NIST library search reveals α-pinene as active constituent in the stored EO of *C. japonica*. We, then, systematically collected *T. rubrum* related targets from NCBI-GEO databases. GEO2R analysis was employed to explore differential gene expression profiles between healthy and infected skin samples. We identified several upregulated and down regulated differentially expressed genes (DEGs) during disease pathogenesis. These genes were further integrated via STRING with Cytoscape 3.10.2 to contract PPI network map of the cross targets and MFS1 was identified as hub-gene. Both ligand (α-pinene) and protein (MFS1) were processed for molecular docking (Autodock vina). The study shall decipher new markers genes associated with dermatological infections and open new avenues for the therapeutic interventions in the arena of complementary and alternative medicines.

Abstract No. 146

TOWARD GREEN FUTURE EARTHWORMS: BIO-INDICATORS CUM WASTE REMEDIATOR FOR THE SUSTAINABLE AGRO-ECOSYSTEM AND BIODIVERSITY

Hardeep Kumar

Department of Life Sciences and Allied Health Sciences
Sant Baba Bhag Singh University (Punjab), India

ABSTRACT

The earthworms are the biological indicator of the soil ecosystem as they indicate the health and fertility of the soil for proper cropping. In the soil for proper aeration, rich nutrient contents earthworms are very essential organisms. They enhance the nutrients contents, increase water holding capacity, and improve microbial activity in the soil. Punjab is one of the pre-dominant agricultural states of India. However, different types of wastes are generated during the agricultural practices, among them Punjab produces roughly 705 lakh quintals of sugarcane straw is produced every year and roughly 185 lakh tones of paddy straw every year. People usually burn or dump these wastes for longer period which results in air pollution, respiratory tract infections (RIT) or vector borne diseases. Therefore, present review hypothesized that these wastes could be reused for the production of bio-manure to replace synthetic fertilizers (Potash, N, P & K and many more) and vermin-wash to conserve the fertility of soil, conserve the floral and faunal diversity. By the use of vermin-amended techniques (use of earthworms and organic waste) in the presence of oxygen organic waste turns into manure. Therefore, present study hypothesized that the use of rice straw, sugarcane straw, fungal formulation and then introduction of earthworms might be better method to get rid from the waste-induced environmental degradation, environmental pollution, and biodiversity loss.

Abstract No. 147

NATURAL INFECTION OF PEARL MILLET AND SORGHUM BY WHEAT STREAK MOSAIC VIRUS (WSMV) IN AYODHYA OF EASTERN U.P. INDIA

Ishwar Deen Chaudhary[1], Vinay Kumar Singh[1] and D.B. Singh[2]

[1]Department of Botany, K. S. Saket P.G .College, Ayodhya (U.P.) India
[2]Department of Botany, Govt. Degree College, Pachmohani, Siddharth Nagar (U.P.), India

ABSTRACT

Pearl millet (*Pennisetum glaucum*) and sorghum (*Sorghum bicolor*) plants in Ayodhya (U.P.) India, were observed to have virus like symptoms. Symptomatic plants were tested by enzyme-linked immunosorbent assay (ELISA) against wheat streak mosaic virus (WSMV), maize dwarf mosaic, and sugarcane mosaic virus strain MDMV-B, and johnsongrass mosaic virus. Positive reactions were obtained only with WSMV antisera. Pearl millet and sorghum plants (of genotypes naturally infected in the field) mechanically inoculated in the greenhouse developed symptoms and were positive in ELISA for WSMV. The virus was vectored by wheat curl mites (*Aceria tosichella*) from pearl millet and sorghum to the host from which it was obtained and to wheat. Mechanical inoculation of several sorghum lines showed that the WSMV isolates differed in ability to infect sorghum, and the type specimen could not infect any of the sorghum lines. These results indicated that WSMV occurring in Ayodhya (U.P.) India can infect sorghum and pearl millet, crop plants not reported previously as susceptible to WSMV.

Abstract No. 148

WOMEN EMPOWERMENT AND SUSTAINABILITY THROUGH ORNAMENTAL FISH FARMING

S. Barat

Department of Zoology
University of North Bengal, Siliguri, Darjeeling (W.B.), India

ABSTRACT

Aquaculture and Fisheries are industries providing not only nutrition but also, enabling in the upliftment of livelihood activities. The skill development in the field of Aquaculture and Fisheries can lead to empowerment and sustainability both socially and environmentally. Empowerment of women being a multi-faceted and multi-dimensional concept. It indicates a shift from the position of enforced powerless to greater self-reliance. Women are competent in different livelihood activities but their role in Aquaculture and Fisheries is very much restricted. The present study, therefore, tries to reflect how involvement of rural women in aquaculture production activities like Ornamental fish farming, Fish seed rearing and Integrated fish farming have advocated for their socio-economic upliftment and generation of self-employment for sustainability.

Abstract No. 149

BIODIVERSITY AND ITS IMPACT IN NATURES SUSTAINABILITY

Rashmi Tripathi

Zoology Department
Brahmanad PG College, Kanpur (U.P.), India

ABSTRACT

Quail are sensitive to operative temperatures >38.7 C, which commonly occur under natural conditions in different latitudes. Based on different studies which suggested that the laying season for quail may be reduced by as much as 60 days because of high temperatures. Although global warming could be associated with an accelerated rate of quail decline in some areas, its importance relative to other potential problems remains unknown. The Indian quail is classified as Callipepla and belongs to the pheasant family, Phasianidae, in the order Galliformes. It is also known as the Indain Valley Quail or Valley Quail. It is a small bird in the quail family, and prefers to dwell on the ground surface. If the quails are startled they explode into short fast flights, but given a choice, they normally escape on foot. The Indian quail bird is found in Southern part of India, in the edges of woodlands, and in suburbs with permanent sources of water. The male courts the female with a dance that includes fluffing his feathers and dropping his head. The female constructs a very sparse nest on the ground and lays 12-16 cream-buff to ivory-yellow eggs. The female incubates, or warms, the eggs by sitting on them for about two weeks. The newly hatched Indian quail Bird are precocious, which means that their eyes are open and they are able to walk on their own and feed themselves. Both parents stay with the young teaching them how to forage for seeds and insects, and how to avoid enemies. Indian quail can be seen feeding at the sides of roads and their diet consists mainly of seeds and leaves, but they also eat some particular berries and insects. One of the daily activities of the Indian quail Bird is taking dust baths. A covey of quails selects a soft sunny ground using their underbellies, and then burrows downward into the soil some 1-2 inches. Then the quails wriggle about, flapping their wings and ruffling their feathers, causing dust to rise in the air. Ornithologists can detect the presence of quail in an area by spotting the 7-15 cm. circular indentations left behind in the soft dirt. With the steady increase in human populations the Indian quail Bird is declining in some areas.

Abstract No. 150

AIR POLLUTION AND ITS IMPACT ON HUMAN HEALTH

Manisha Tripathi[1] and Jaya Tripathi[2]

[1]Department of Zoology, S.P.M. Govt. Degree College,
University of Allahabad, Prayagraj (U.P.), India
[2]Department of Zoology, Iswar Saran Degree College,
University of Allahabad, Prayagraj (U.P.), India

ABSTRACT

Air pollution refers to contamination of the air by harmful substances including gases, particulate matter and biological substances that negatively impact on human health and the environment. Air pollution is caused by both human interventions and natural phenomena, it is caused by many kinds of pollutants including solid, liquid and gaseous substances. Broadly air pollutants are classified as Primary and Secondary air pollutants. Primary air pollutants are emitted directly from the sources such as Carbon monoxide (CO), Sulphur dioxide (SO2), Nitrogen dioxides (NO2) and Lead (Pb) etc. Secondary air pollutants are formed in the lower atmosphere through chemical reactions such as tropospheric ozone or ground-level ozone and photochemical smog etc. Air pollution is an important environmental problem and it significantly impacts on human health. The main effects of air pollution on human health can be categorised as Short-term and Long-term health effects. The Short-term health effects include respiratory irritation, coughing, wheezing, eye irritation, headache, nausea, and reduced lung function. These effects are usually temporary and may subside when the air quality improves. The Long-term health effects include chronic respiratory diseases, cardiovascular diseases, cancer and neurological disorders etc. These effects can be more serious and lasting, impacting quality of life and lifespan. Air pollution is a complex issue with far reaching consequences for human health and the environment. The only way to tackle this problem is through public awareness coupled with a multidisciplinary approach encompassing technological advancements, policy changes and international cooperation.

Abstract No. 151

IMPACT OF ACTIVE PHARMACEUTICAL INGREDIENTS (APIS) IN SOIL AND WATER SYSTEMS: A TRANS-DISCIPLINARY THREAT TO ENVIRONMENTAL SUSTAINABILITY

Abushan Khan and Kaushal Kumar

Department of Pharmacy
MJP Rohilkhand University Bareilly (U.P.), India

ABSTRACT

In the race to improve health and longevity, humanity has overlooked a silent but surging threat. Active Pharmaceutical Ingredients (APIs) are slowly infiltrating our soil and water systems. These potent chemical compounds, designed to treat disease and improve well-being, are now emerging as persistent environmental pollutants, capable of disrupting entire ecosystems. Once consumed, APIs often pass through the human or animal body unmetabolized, entering the environment through excretion, manufacturing discharges, hospital waste, landfill leachate, and agricultural runoff from medicated livestock. Their presence in terrestrial and aquatic environments is not just a byproduct of pharmaceutical progress. It is a transdisciplinary threat to environmental sustainability. Recent global monitoring efforts have detected a wide spectrum of APIs. Surface water, groundwater, sediments, and agricultural soils contain various APIs such as antibiotics, analgesics, antiepileptics, antidepressants, and synthetic hormones. Although often present in trace amounts (ng/L to µg/L), these concentrations can still cause significant biological effects. Endocrine-disrupting compounds like ethinylestradiol can make male fish develop female traits, and antibiotics in the environment lead to increased antimicrobial resistance (AMR), which is a serious global health issue. Soil ecosystems are equally vulnerable. APIs affect microbial diversity, inhibit key enzymatic processes, and impair nutrient cycling, threatening soil fertility and food security. Moreover, bioaccumulation and plant uptake raise concerns about pharmaceuticals entering the human food chain. Traditional wastewater treatment systems are ill-equipped to completely remove APIs, allowing these compounds to persist, circulate, and concentrate in the environment. While advanced technologies like ozonation and activated carbon filtration show promise, they remain economically inaccessible for many low- and middle-income countries. Despite the mounting evidence, regulatory frameworks lag behind scientific knowledge. There is a critical lack of environmental risk assessments for many APIs, and global policy efforts remain fragmented and reactive rather than preventive. This review underscores the need for a transdisciplinary, systems-based approach uniting pharmaceutical science, environmental engineering, ecology, toxicology, and public health.

Abstract No. 152

FROM CONTAMINATION TO RESTORATION: A MONITORING-BASED BIOREMEDIATION FRAMEWORK FOR THE ISHAN RIVER

Meenakshi Yadav and Esha Yadav

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

ABSTRACT

The Ishan River, a vital freshwater source in the Mainpuri district of Uttar Pradesh, is undergoing ecological degradation due to increasing anthropogenic pressures. The unchecked discharge of domestic sewage, fertilizers, and solid waste has led to elevated levels of pollutants, posing a threat to the riverine ecosystem and community health. This research presents a framework that transitions from contamination assessment to bioremediation-based restoration, emphasizing the role of systematic monitoring and nature-based solutions. Water samples were collected from five representative locations along the river, and parameters including pH, TDS, BOD, COD, nitrate, and chloride were analyzed. The findings highlighted severe organic pollution, indicating that the river is densely polluted and ecologically stressed. A monitoring-based restoration framework was developed, involving microbial bioremediation using pollutant-degrading bacteria, coupled with phytoremediation through floating aquatic plants. This integrated bioremediation approach reduces pollutant concentrations while restoring the river's self-purifying capacity. Continuous environmental monitoring using sensors and scheduled sampling enhances the feedback loop, allowing adaptive management. The study demonstrates that community-inclusive and science-backed approaches can transform polluted water bodies into resilient ecosystems.

Abstract No. 153

ECO-CONSCIOUS ANALYSIS OF MHD OLDROYD-B NANOFLUID FLOW WITH SORET AND DUFOUR EFFECTS FOR SUSTAINABLE POLYMER PROCESSING

Madan Lal and Haris Alam Zuberi

Department of Applied Mathematics
M.J.P. Rohilkhand University, Bareilly (U.P.), India

ABSTRACT

To support cleaner manufacturing and sustainable energy technologies, this study analyzes viscoelastic nanofluid behavior in magnetically driven polymer processes—critical for reducing energy use and industrial waste. Nanofluids enhance heat and mass transfer in eco-friendly coatings, biomedical devices, and smart materials. This work investigates the Soret and Dufour effects in an Oldroyd-B nanofluid flowing magnetohydrodynamically across a stretching sheet using Buongiorno's two-component model. The governing equations, incorporating viscoelasticity, thermophoresis, and cross-diffusion, are transformed via similarity variables and solved using MATLAB's bvp4c solver. Results show that magnetic fields and elasticity reduce velocity and improve thermal retention. The Dufour effect enhances heat transfer, while Brownian motion and thermophoresis increase thermal conductivity. The Soret effect boosts concentration transport, and skin friction rises with magnetic and elastic effects. By optimizing thermal and mass transport, this study contributes to the design of low-carbon, energy-efficient nano-polymer systems aligned with environmental sustainability and societal progress.

Abstract No. 154

MODELING CARDIOVASCULAR FLOW ALTERATIONS INDUCED BY ENVIRONMENTAL DEGRADATION USING A HERSCHEL–BULKLEY FRAMEWORK

Madan Lal and Shivangi Verma

Department of Applied Mathematics
M.J.P. Rohilkhand University, Bareilly (U.P.), India

ABSTRACT

Environmental degradation, climate change, and social instability are increasingly recognized as contributors to cardiovascular diseases, primarily through air pollution, thermal stress, and systemic disruption. This study investigates arterial blood flow under such pathological influences by modeling a multi-irregular stenosed artery, commonly observed in affected individuals. In this paper, Blood is treated as a Herschel–Bulkley fluid to capture its non-Newtonian characteristics, and analytical methods are employed to resolve the governing system of equations. The effects of slip velocity, yield stress, and flow behavior index on axial velocity, rate of volumetric flow, andshear stress at the wall are examined through MATLAB-based simulations. Results show that axial velocity and flow rate increase with higher slip velocity, while wall shear stress rises significantly with increased yield stress. A notable decline in flow rate occurs at critical points within the stenosed region, offering potential diagnostic insights. This study provides a deeper understanding of hemodynamic behavior under environmentally and socially induced cardiovascular stress, contributing to improved clinical strategies.

Abstract No. 155

SUSTAINABLE AQUACULTURE PRACTICES: A PATHWAY TO ENVIRONMENTAL HEALTH AND SOCIETAL WELL-BEING

Shruti Jain

Department of Zoology
Sri Guru Tegh Bahadur Khalsa College, Jabalpur (M.P), India

ABSTRACT

Aquaculture plays a vital role in meeting global food demands, contributing significantly to nutrition, employment, and economic growth. However, its rapid expansion presents serious environmental challenges, including habitat degradation, water pollution, and loss of biodiversity. This study explores sustainable aquaculture practices that balance environmental protection with social and economic development, aligning with the broader theme of "Environment and Society."The research focuses on innovative, low-impact methods such as biofloc technology, recirculating aquaculture systems (RAS), and integrated multi- trophic aquaculture (IMTA). These systems improve resource efficiency, minimize ecological footprints, and support long-term aquatic ecosystem health. The study also emphasizes the importance of community participation, traditional ecological knowledge, and the role of tribal and coastal populations in promoting sustainable practices. By integrating zoological expertise with environmental science and community-based approaches, this research positions aquaculture as a key solution to achieving food security, climate resilience, and social equity. The findings encourage the development of inclusive policies and education-driven models to ensure that aquaculture continues to evolve in harmony with both nature and society.

Abstract No. 156

THE INFLUENCE OF SEASONAL VARIATION ON HELMINTHIC INFECTION IN A CAT FISH OF RIVER GANGES, KANPUR

Jyoti Trivedi and Sabhyata

Department of Zoology
Dayanand Anglo-Vedic College, Kanpur (U.P.), India

ABSTRACT

Catfish are one of the most important group of fishes which serve as nutritious food for humans. Present paper gives an account of variations in the incidence and intensity of infection of two helminthic parasites namely, *Ripido cotylequadriculata* and *Bucephalopsis magnum* (Verma, 1936).Both the parasites are reported from *Mystusaor* (Ham.) from river Ganges, Kanpur. Total 388 fishes were dissected and observed for helminthic infection analysis in one year. Season wise analysis has shown maximum infection of *Bucephalopsis magnum* during spring period in March. The rate of infection is minimum during rainy period in July. Whereas in *Ripido cotylequadriculata* maximum percentage of infection reported during November month and minimum percentage of infection reported during September month.

Abstract No. 157

TRICHODERMA AS BIO-AGENT FOR THE MANAGEMENT OF CROP DISEASES IN SUSTAINABLE AGRICULTURE

Shenu Sankhwar and Archana Srivastava

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

ABSTRACT

Trichoderma is a fungus of the ascomycota division with great potential to control disease in economically significant crops. This antagonistic fungus prevents the growth of phytopathogenic microorganisms, including those responsible for root diseases. Commonly, it involves the genetically modified microbes which reduce the effect of pathogen and diseases. The crop disease is controlled by the chemical pesticides, which are now richly used. Due to exorbitant use of pesticides, and environmental pollution issues have been resulted, which requirement the alternative method to reduce content of chemical pesticides. *Trichoderma* is an environmental-friendly method employed to control the plant diseases, with the purpose of developing a sustainable system in agriculture. *Trichoderma* mechanism involves the interaction among the antagonists and pathogens, which aid in selection and manipulation to develop an effective control system. Presently, *Trichoderma* spp. are being used to control crop diseases in sustainable disease management system. Bio-control process involved various mechanisms such as secretion of toxic metabolites competition for nutrients. Furthermore, *Trichoderma* based products have proven to be safe for the farmers and consumers as well as they are favourable for the environment.

Abstract No. 158

MANAGEMENT OF CROP DISEASES BY USE OF BIOCONTROL AGENT TRICHODERMA

Archana Srivastava and Shenu Sankhwar

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

ABSTRACT

Bio-control agents extensively used in management crop diseases of crop plants exhibiting mycoparasitism against a wide range of plant pathogen. The potential role of bio-control agent such as antagonistic fungi is well documented. Application of such biocontrol harmless method in controlling thus reducing environmental pollution and hazardous chemicals. Some antagonist fungi are performing proper inhibitory effect against plant pathogen under laboratory and green house conditions. Such bio-control agents have also shown direct beneficial effect for promoting plant growth and development, induced defence activity against plant pathogens. Also increased fertilizer utilization efficiency and increased crop yield. The enrichments of compost with such agents have been also proposed to enhance their suppressive capacity of diseases. As an antagonistic fungus *Trichoderma* spp. subtract the growth and establishment of the wilt pathogen through multifaceted mode of action of various *Trichoderma* species includes competition for nutrients and space, mycoparasitisim by secretion of enzyme, secretion of antimicrobial secondary metabolites and induced systematic resistance.

Abstract No. 159

UNLOCKING THE POTENTIAL OF MAP RESIDUES: INTEGRATIVE APPROACHES FOR BIODIVERSITY, WASTE MANAGEMENT, AND SOCIETAL WELL-BEING

Indrajeet Kumar

Department of Botany
Govt. Degree College Pawanikala, Sonbhadra (U.P.), India

ABSTRACT

The escalating demand for natural products derived from medicinal and aromatic plants (MAPs) has catalyzed their large-scale cultivation, inadvertently generating considerable post-harvest and industrial residual biomass. Traditionally perceived as waste, these residues such as distillation by-products and unutilized plant components harbor immense potential for sustainable valorization. From a waste management and biodiversity perspective, this chapter underscores the innovative repurposing of MAP-derived residues into value-added products through eco-friendly methodologies including extraction, hydrolysis, pyrolysis, and fermentation. These strategies not only mitigate environmental burdens but also enhance circular bio economy practices by unlocking antioxidant-rich phenolics, pivotal in food preservation, pharmaceuticals, cosmetics, and wellness industries. Post-extraction residues further contribute to agro-ecological sustainability as organic mulch, animal feed, bio sorbents, composts, and biochar-supporting soil health and wastewater treatment. By bridging lab-scale innovations with scalable industrial applications, the study highlights integrative approaches that align with biodiversity conservation, waste reduction, and human well-being. This multidisciplinary outlook redefines MAP biomass not as waste, but as a resource pivotal to the health of ecosystems, societies, and economies.

Abstract No. 160

TO STUDY THE GUT MICROBIOTA OF RIVER AND POND WATER FISH (*LABEO ROHITA*) THROUGH METAGENOMICS

Hemprabha and Sunita Arya

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

ABSTRACT

Metagenomic analysis of fish gut microbiota involves sequencing and examining microbial DNA to investigate the diversity, function, and ecological significance of gut microorganisms. This approach enables the identification of bacterial, viral, archaeal, and fungal communities, revealing variations influenced by species, diet, and habitat. In this study, fish samples were collected from both river and pond environments, and gut microbiota were analyzed following dissection and sample collection. The workflow included DNA extraction, PCR amplification using a 16S primer, purification of PCR products, sequencing via the Illumina MiSeq platform, and quality assessment through Multi QC protocols. The 16S rRNA gene was amplified to classify microbial species using specific primers: 16S Forward (5'-AGAGTTTGATGMTGGCTCA-3') and 16S Reverse (5'-TTACCGCGGCMGCSGGCAC-3'). Microbial communities were examined at different taxonomic levels, including phylum, class, order, family, and genus. The analysis revealed distinct microbial compositions between pond and river water fish. In pond water fish, *Pseudomonas* was the most prevalent bacterial genus, accounting for 33.6% of the community, followed by *Bacillus* (23.4%), *Serratia* (11.1%), *Lactobacillus* (8.91%), *Aeromonas* (7.31%), and *Methylocaldum* (6.68%), while *Prevotella* was the least abundant at 1.46%. In contrast, river water fish exhibited a dominance of *Bacillus* (54.7%), followed by *Methylocaldum* (23.9%), *Pseudomonas* (6.43%), and *Serratia* (4.25%), with *Prevotella* being the least represented at 1.02%. Additionally, certain bacterial genera, including *Burkholderia*, *Ralstonia*, *Bifidobacterium*, and *Prevotella*, were exclusively detected in pond water fish and were absent in river water fish. The presence of *Methylocaldum* in both environments suggests its potential role in methane metabolism and microbial balance, indicating its possible neutral or beneficial impact on the gut microbiota of fish.

Abstract No. 161

THE ROLE OF MICROBIAL COMMUNITIES IN BIOREMEDIATION OF POLLUTED ENVIRONMENTS

Mohd. Asif Baig

Kalinga University, Raipur (Chhattisgarh), India

ABSTRACT

Microorganisms play a crucial role in maintaining environmental balance, particularly through bioremediation—the natural or engineered process of using microbial communities to degrade or detoxify pollutants. These microbial communities, including bacteria, fungi, and archaea, possess metabolic pathways that enable them to break down a wide range of contaminants, such as hydrocarbons, heavy metals, pesticides, and plastic waste. In soil and water ecosystems, specialized microbes like Pseudomonas, Bacillus, and Mycobacterium species have demonstrated the ability to degrade toxic compounds, while fungi like Aspergillus and Penicillium aid in organic waste decomposition. The efficiency of bioremediation is influenced by environmental factors such as temperature, pH, oxygen availability, and nutrient levels. Advancements in biotechnology, including genetic engineering and bioaugmentation, have further enhanced microbial capabilities, making bioremediation a sustainable and eco-friendly alternative to conventional pollution management strategies. Understanding and harnessing these microbial interactions is essential for restoring contaminated ecosystems and mitigating the long-term effects of environmental pollution.

Abstract No. 162

GREEN WEED MANAGEMENT: BIOHERBICIDE INNOVATION TARGETING LEGUMINOUS WEEDS IN MAHAKAUSHAL

Saurabh Gupta

Department of Biotechnology
Sri Guru Tegh Bahadur Khalsa College, Jabalpur (M.P.), India

ABSTRACT

A legume is a plant or its fruit that develops from a simple carpel, forming a simple dry fruit that usually dehisces, or opens along a seam. A weed, on the other hand, is a plant considered undesirable in a particular situation-essentially, a plant growing in the wrong place. Recognizing the potential for eco-friendly weed control, the primary objective of this study is to develop and utilize indigenous fungal pathogens as bioherbicides to manage problematic weeds. During periodic surveys across various leguminous crop fields in the Mahakaushal region, several disease symptoms were observed on green gram weeds, including leaf spot, leaf blight, die-back, and petiole rot. From these diseased tissues, a total of 12 fungal isolates were obtained and studied. Among the phytotoxic effects observed, initial symptoms included distinct epinasty, followed by necrosis, blackening, and stiffness of the stem, eventually leading to plant death. Among all isolates, *Alternaria alternata* (FCLW#03) was found at the highest frequency and demonstrated significant pathogenic potential. Therefore, it is identified as the most promising fungal candidate for the biological management of leguminous weeds.

Abstract No. 163

INTEGRATING SEED TRAIT DIVERSITY FOR RESILIENT ECOSYSTEMS: A CAMPA-AICRP INITIATIVE IN CENTRAL INDIA

Manish Kumar, Vijay, Shweta Tiwari, Lata Kahar, Neeraj Prajapati and Neelu Singh

ICFRE-Tropical Forest Research Institute, Jabalpur (M.P.), India

ABSTRACT

This study emphasizes the importance of integrating seed trait diversity and phenology in strengthening ecosystem resilience and biodiversity conservation. Undertaken as part of the All India Coordinated Research Project (AICRP) on Seed Technology-funded by CAMPA (MoEF&CC, GoI) and implemented at ICFRE–Tropical Forest Research Institute, Jabalpur—the research focuses on fourteen ecologically significant native tree species of Central India. These include *Buchanania cochinchinensis*, *Butea monosperma*, *Cochlospermum gossypium*, *Commiphora wightii*, *Feronia limonia*, *Hymenodictyon excelsum*, *Kydiacalycina*, *Mallotus philippensis*, *Nyctanthes arbor tristis*, *Putranjiva roxburghii*, *Pterospermum acerifolium*, *Semecarpus anacardium*, *Sterculia villosa*, and *Stereospermum chelonoides*. Over a five-year period (2020–2025), the study recorded variations in flowering, fruiting, and seed maturation across diverse forest ecosystems. Simultaneously, seed morphometric analysis was carried out using advanced image processing techniques to quantify parameters such as seed area, length, width, aspect ratio, average diameter, perimeter, convex perimeter, and roundness. Seed color was assessed using the RHS color chart.The results reveal significant interspecific diversity in both phenology and seed traits, providing essential data for developing species-specific seed handling, viability testing, storage, and nursery protocols. These insights are instrumental for enhancing restoration practices, ensuring sustainable forest regeneration, and supporting resilient tree farming systems. By leveraging native species diversity, this initiative contributes to long-term ecological sustainability and ecosystem service enhancement provided by the targeted species in Central India.

Abstract No. 164

IN-VITRO EVALUATION OF PLANT GROWTH PROMOTION BY TWO HEAVY METAL RESISTANT BACTERIAL STRAINS

Meenakshi Shrivastav[1] and Mahendra K. Gupta[2]

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

ABSTRACT

Soil contamination by heavy metals has become a growing environmental concern, threatening agricultural productivity and human health through disruption of soil microbial composition and entry into the food chain. Due to their toxicity, even at low concentrations, heavy metals significantly impair soil fertility and microbial diversity . In this context, the use of heavy metal-tolerant plant growth-promoting bacteria (PGPB) emerges as an eco-friendly solution for soil restoration and sustainable agriculture. This study characterizes two such promising bacterial strains, *Pseudomonas glycinae* MSP2b and *Priestia aryabhattai* MSP3a, isolated from the rhizosphere of legume crops. Both strains exhibited remarkable tolerance to multiple heavy metals, including zinc (Zn), copper (Cu), chromium (Cr), cadmium (Cd), nickel (Ni), and cobalt (Co), at concentrations of 0.5%, 1.0% and 1.5%. Notably, *P. glycinae* MSP2b showed maximum resistance to zinc at 1.0%, while *P. aryabhattai* MSP3a demonstrated the highest cobalt tolerance at 1.5%. In-vitro assays confirmed their ability to survive and grow under heavy metal stress, suggesting strong resistance mechanisms. Furthermore, both strains displayed key plant growth-promoting (PGP) traits, including phosphate solubilization, indole 3-acetic acid (IAA) synthesis, siderophore production, HCN production and ammonia production. These features highlight their potential role in enhancing soil fertility and supporting plant growth in metal-contaminated environments. Their isolation from a legume crop rhizosphere reflects their adaptability to agricultural ecosystems. Biochemical characterization and 16S rRNA gene sequencing were used to confirm their identities. Future studies should explore their genetic makeup and evaluate their field application for bioremediation and sustainable land use practices.

Abstract No. 165

IMPACT OF CLIMATE CHANGE ON ENVIRONMENTAL SUSTAINABILITY

Prvesh Kumar

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

ABSTRACT

Climate change is a significant global health threat, causing acute and chronic morbidity, premature mortality, and extreme environmental conditions. It has imposed major threats worldwide, including tropical storms, heat waves, droughts, wildfires, floods, and landslides. However, there is a lack of attention on monitoring, measuring, and communicating climate change's impact on human mortality. Climate change is an urgent issue that has a significant impact on the environment and human life. Rising global temperatures, changing weather patterns, and extreme weather events are just a few of the impacts of climate change that are felt around the world. The consequences of climate change extend beyond just the environment and have far-reaching effects on human health, social and economic systems, and the natural world. The concept of environmental sustainability has had a major influence on the practice of urban planning over the past 20 years. The importance of the philosophy of sustainability that is being practiced and implemented is becoming increasingly important for our communities as water resources, species and biodiversity decline. There is no doubt that urgent action is needed if we are to save the planet. Climate change has led to primary, secondary, and tertiary environmental impacts, including sea level rises, intensified tropical storms, floods, extreme heat waves, wildfires, and cold winter storms. As global warming continues, ocean surface temperature will increase, glacier ice will melt, and sea levels will rise. The health effects of climate change include climate-related diseases such as asthma, aller gies, respiratory diseases and cancer. Thence, the effects of human health and environmental change on human health and the environment need to be considered. It provides a framework for quantifying the effects of changing air, land and ocean temperatures and reducing anthropogenic uncertainties in terms of health outcomes. The environmental risks often trigger secondary environmental risks, such as agricultural productivity, food supply, terrestrial and marine ecosystem disruption, air pollution, infrastructure damage, and economic loss. Indirect losses, such as job loss or business interruption, may last months or years after the disaster. The deterioration of environmental conditions may facilitate the transmission of infectious diseases, cardiovascular and respiratory illnesses, malnutrition, and mental health problems. The long-term impact of climate change has been a driver of worldwide and synchronistic war-peace, population, and price cycles. The objective of this paper is describes the links between the climate change and environmental sustainability.

Abstract No. 166

A BALANCED ASSESSMENT: CLIMATE CHANGE AND WASTE MANAGEMENT

Veena Pandey

Department of Zoology
Tilak Mahavidyalay, Auraiya (U.P.), India

ABSTRACT

Climate change is thought to be the culprit responsible for some of the recent environmental problems the world over. There is a two-way interaction between climate change and waste management. It showed that while solid waste management can have exacerbating effects on the climate especially due to the emission of greenhouse gasses, climate change will have some positive impacts on waste water management facilities such as waste stabilization pond and septic tanks. It was also shown that rising temperatures will lead to exponential increase of bacteria activity in waste water treatment facilities, hence resulting in increased efficiency. The effects of other climate change indicators such as increased rainfalls have also been highlighted. The work indicates that while high temperatures may be good for these units, increased rainfall will have a net negative effect leading to inundation and consequent overland flow of waste water from treatment facilities. Furthermore interaction between popular solid waste management options namely: composting, landfill, incineration and anaerobic digestion was succinctly illustrated. Waste management strategies for reduction of greenhouse gas emission in developing countries were proposed.

Abstract No. 167

ALGAE FOR PLASTIC BIODEGRADATION AND BIOPLASTICS PRODUCTION: NATURE'S BATTLE AGAINST PLASTIC POLLUTION

Akanksha Pal and Kirti Raje Singh

Department of Botany
CMP College, University of Allahabad, Prayagraj (U.P.), India

ABSTRACT

The rising demand for plastic materials worldwide has resulted in a serious pollution problem with plastic trash, especially for the marine environment. Due to microplastics' ability to enter the food chain and have a variety of negative health ef fects, this important issue affects both humans and marine life. One of the biggest obstacles facing the plastics industry in its quest to offer sustainable substitutes for petroleum-based plastic is the development of novel biodegradable plastic compounds from renewable sources. Typically, photosynthetic biomass-such as higher plants, crops, and more recently, algae-is the source of bio-based polymers. It appears that landfills, incineration, chemical treatments, and plastic recycling are not the best ways to reduce plastic pollution. In order to address the growing amount of plastic trash in the world, this review offers two recently discovered environmentally favourable methods: plastic biodegradation and the manufacturing of bioplastics from algae. It was discovered that the components of red, brown, and green algae-agar, kappa-carrageenan, alginate, and cellulose—have the potential to manufacture biodegradable plastic because of their favourable characteristics, which include their capacity to form strong, stiff gels, water insoluble nature, and high water resistance.

Abstract No. 168

INFLUENCE OF CLIMATE CHANGE ON HEAVY METAL STRESS IN CYANOBACTERIA

Ishika Srivastava and Kirti Raje Singh

Department of Botany
CMP College, University of Allahabad, Prayagraj (U.P.), India

ABSTRACT

The impact of heavy metal stress in response to climate change poses significant risks to algae. Climate change, through its various effects like rising temperatures, altered precipitation patterns, and changes in water chemistry, can intensify the stress cyanobacteria experience from heavy metal contamination. Rising water temperatures, a direct result of climate change, can enhance the bioavailability and toxicity of heavy metals, impairing photosynthesis, nitrogen fixation, and overall metabolism, which results in diminished growth and reproductive rates. Extreme weather conditions, such storms and intense rainfall, leads to sudden inflow of heavy metals that can inundate cyanobacterial populations, resulting in reduction in diversity of a species and a loss of ecosystem functions. It also contributes to hypoxic conditions in water bodies, which may enhance the release of toxins from heavy metals and contribute to longer-lasting environmental stress on cyanobacteria. Prolonged exposure to elevated levels of heavy metals could negatively impact long-term viability of microbial populations, hence constraining their utility as a sustainable solution. However, algae's natural ability to accumulate and detoxify heavy metals offers a promising avenue for mitigating metal pollution exacerbated by climate change. Bioremediation, biosensing, and genetically modified algae represent valuable tools for addressing the dual challenges of heavy metal pollution and climate change. Future research is essential to optimize these approaches and ensure their ecological safety, efficiency, and long-term sustainability in a changing environment.

Abstract No. 169

POWER FROM POLLUTION: GENERATING BIOELECTRICITY FROM PHARMACEUTICAL WASTEWATER USING MICROBIAL FUEL CELLS

Prashant Kumar and Kaushal Kumar

Department of Pharmacy
MJP Rohilkhand University, Bareilly (U.P.), India

ABSTRACT

Pharmaceutical factories churn out life-saving drugs, but they also produce wastewater loaded with tricky pollutants like antibiotics and chemicals that harm rivers and ecosystems. What if we could clean up this mess and generate electricity at the same time? That's the spark behind my poster. I'm exploring microbial fuel cells (MFCs)-nifty devices where bacteria munch on organic waste and produce power as a byproduct. My focus is on using pharmaceutical wastewater, which is packed with organic compounds, as fuel for these cells. Based on some lab work and studies I've dug into, a small MFC setup can generate about 0.5 watts per liter of wastewater while breaking down 70% of the organic pollutants. That's enough juice to run low-power sensors or lights, plus it reduces the toxic load on our water bodies. For me, it's exciting to think about pharma companies cutting disposal costs and contributing to clean energy. My poster will walk you through how MFCs work, share some promising results, and talk about why this could be a game-changer for sustainability. It's a step toward tackling human impacts on the planet, blending science, environment, and a bit of hope for cleaner communities.

Abstract No. 170

A SURVEY OF CESTODE PARASITES IN FOWL FROM DHULE DISTRICT OF MAHARASHTRA

D. R. Patil[1], A. T. Kalse[2] and G. A. Malthane[2]

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

ABSTRACT

The present investigation deals with the survey of Cestode parasites found in domestic fowl *Gallus gallus domesticus* from Dhule district during June 2022-May 2023. The study shows that highest prevalence of Cestode parasites in the month of January (78.57%) and lowest in the month of March (33.33%), while moderate parasites were recorded between the months of October to December. It indicates that for the development of parasites various environmental factors are required such as humidity, temperature, rainfall, vegetation and availability of intermediate hosts.

Abstract No. 171

IMPACTS OF CLIMATE CHANGE ON GROUNDWATER QUALITY

Shailja Yadav and Esha Yadav

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

ABSTRACT

All underground water, including soil water, confined and unconfined aquifer waters, is referred to as groundwater. Aquifers are essential reservoirs of freshwater; thus, preserving and improving aquifer recharge and storage is crucial for climate adaptation. Climate change refers to long-term shifts in temperature and weather patterns, which can occur naturally or be caused by human activities. According to the Intergovernmental Panel on Climate Change (IPCC), the global mean surface temperature has increased by 0.6±0.2°C since 1861 and is expected to rise by 2 to 4°C over the next 100 years. Changes in the main long-term climate factors, such as air temperature, precipitation, evaporation, and transpiration, have a direct impact on surface water supplies. However, the interaction between these variables and groundwater is more complex and less understood. Groundwater is essential for supporting ecosystems and helping humans adapt to climate change and variability. Climate change is widely recognized as ongoing and is expected to cause environmental issues, including changes to the hydrological cycle already affected by human activity. The climate-induced changes in groundwater quality including pH, dissolved oxygen level, salinity, and concentrations of organic and inorganic compounds are assessed. This study summarizes existing research associated with the possible effects of a changing climate on the quality of groundwater, including changes in water availability, increased salinity and pollution from extreme weather events.

Abstract No. 172

PHYTODIVERSITY OF REGENERATED TREE SPECIES IN TIRUPATI FOREST DIVISION OFANDHRA PRADESH

M. B. Honnuri

ICFRE-Institute of Forest Biodiversity, Dulapally, Hyderabad (Telangana), India

ABSTRACT

Tirupati WLM division is located in the Tirupati District of Andhra Pradesh.Geographical area of the division is755.17 sq.km. It lies in the Southern part of Andhra Pradesh between latitudes of 130 36' 18" and 130 56' 55.68" N and longitudes 790 07' 51.96" and 790 30' 18.36"E.Phyto-sociological study was conducted by applying quadrat method. 31.62 x 31.62m size quadrat was laid out for trees. Two nested quadrats of the size of 5x5m for saplings and 1 x 1m for seedlings were laid out. There were a total of 49 tree species in the study area of Tirupati division, where regeneration study was carried out**.** Phytodiversity of regenerated tree species include the species of Good regeneration, Fair regeneration Poor regeneration, No regeneration and New regeneration. This paper will focus on these diversity in details.

Abstract No. 173

IMPACT OF CLIMATE CHANGE ON WELL-BEING OF ELDERLY

Soumya Kammar[1] and Jinamoni Saikia[2]

[1]ICFAI School of Social Sciences IFHE University Hyderabad (Telangana), India
[2]Department of Human Development & Family Studies,
Assam Agricultural University, Jorhat, (Assam), India

ABSTRACT

Climate change with intensified environmental changes is no longer a situation that should be treated lightly. NASA (2020) defines climate change as 'the shift in the average weather pattern that leads to changes the earth's local, regional, and global climates over a period of time'.Impact of extreme weather events such as air pollution, natural calamities, heatwaves, poor management and scarcity of resources during natural disasters makes all age group people vulnerable. However, elderly are particularly more vulnerable to climate change effects and are overlooked due to social, physical, and economic factors. Besides these conditions combination of chronic health problems, limited access to services and social isolation with economic status increase the vulnerability among elders making it dif ficult physically, psychologically, socially and economically. Amidst the global transition, the interaction of ageing population with climate change underscores the urgent need for targeted strategies to protect physical and psychosocial well-being of elderly . The present paper addresses multifaceted impact of climate change on domains of well-being among older adults, particularly focusing on physical, psychological, and social health. Decline in immunity and chronic health issues such as cardiovascular diseases and respiratory problems physiologically makes elderly sensitive to climate change. Migration, isolation or change in infrastructure during disasters affects them socially and psychologically by heightened emotions, anxiety and depression ultimately affecting their well-being. The paper also uncovers lack of preparedness to face extreme climate change, non-inclusion of geriatric needs in policy making, healthcare services and infrastructure at community level to safeguard the well-being of elderly.

Abstract No. 174

ANTIMICROBIAL RESISTANCE: A SIGNIFICANT CLINICAL THREAT IMPOSED BY PHARMACEUTICAL INDUSTRIAL DRAINAGE IN URBAN RIVER ECOSYSTEM

Rajat Kumar Bharti and Kaushal Kumar

Department of Pharmacy
MJP Rohilkhand University, Bareilly (U.P.), India

ABSTRACT

One of the most urgent worldwide health and environmental issues is antimicrobial resistance (ARBs), which has the potential to hamper clinical treatments and increase mortality rates. As a significant environmental subsystem, urban rivers provide a multitude of ecological functions that are advantageous to city inhabitants. A report of "Organization for Economic Cooperation and Development" came up with findings that approximately 10% pharmaceuticals efflux results in harmful effects on environment especially efflux containing antidepressants, painkillers and hormones. India being no exception many of the Indian rivers have been found to lodged with sufficient concentration of antibiotics to result in ARBs. Such antibiotics include ciprofloxacin, ofloxacin, norfloxacin, and oxytetracycline.It is possible for these ARBs in urban waterways to spread to diseases that are clinically significant. The primary causes of this include the high motility of organisms, genetic elements like ARBsand mobile genetic elements in the river, as well as the direct vulnerability of human kind to the highly polluted river water.By emphasizing on the origins and clusters of various ARBs in urban waterways that co-occur antibiotic resistance genes and mobile genetic elements, ARBs can be checked by implementation of methods targeted for the purpose including disinfection with peracetic acid, photocatalytic methods, special provisions for wetlands, fenton process and ozonation etc. Government of India too has taken impressive initiatives in this direction to combat water pollution such as Ganga Action Plan - 1985, National River Conservation Plan, National Water Policy – 2002, National Water Mission – 2010 and in particular National Action Plan in 2017through spreading awareness, making surveillance plans, prevention and control of infections, harnessing research and development, increasing inflow of investments, and to promote collaboration of related activities in order to control AMR.

Abstract No. 175

HISTOPATHOLOGICAL EFFECTS OF CESTODE INFECTION IN THE INTESTINE OF CAPRA HIRCUS

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

[1]Department of Zoology
Nanasaheb Y.N. Chavan ASC College, Chalisgaon, Dist. Jalgaon (M.S.), India
[2]Department of Zoology
BP Arts, SMA Science and KKC Commerce College Chalisgaon, Jalgaon (M.S.), India

ABSTRACT

The present study investigates the histopathological impact of cestode parasite Stilesia on the intestinal tissues of *Capra hircus* (domestic goat). Through microscopic examination of infected and non-infected intestinal sections, it was observed that Stilesia uses a penetrative scolex to attach deeply within the mucosa and submucosa layers of the host's intestine. The infected tissues displayed severe structural damage, including the destruction of villi, ulceration of the intestinal wall and extensive cellular infiltration by leukocytes, eosinophil's, and lymphocytes. These changes indicate significant inflammation and tissue degradation caused by the parasite. The presence of Stilesia not only reduces the digestive absorptive surface area but also competes for nutrients, ultimately leading to malnutrition and decreased meat quality in the host. These findings highlight the serious threat posed by cestode infections to livestock health and productivity.

Abstract No. 176

APPEARANCE OF LEAF GALL ON MANGO TREE *PROCONTARINIA MATTEIANA* (KIEFFER AND GECCONI) IN THE MIDDLE OF MARCH IN THE REWA REGION OF MADHYA PRADESH

Ramesh Chandra Tripathi and Monika Tiwari

Department of Biological Sciences
MGC Gramodaya Vishwavidyalaya, Chitrakoot, Distt. Satna (M.P.), India

ABSTRACT

The occurrence of leaf galls on Mango tree caused by the gall midge *Procontarinia matteiana* belongs to family Cecidomyiidae (Order: Diptera) have noticed during this study. The study reveals that while field survey to collection of gall midges for find their diversity has been seen evidences of leaf galls on Mango leaf in the Mango trees of Rewa region. Especially, the larvae are noticed clearly. The infestation leads to characteristics like, circular, depressed, solid and sessile disc like galls with size 3-4 in diameter and about 2mm thick. These are swelled up and developed equally on both surface of the leaf blade. The larvae in the gall emerge about the middle of march and in newly forming leaves in early spring. The larval period ranges from 120 to 386 days. The pupal period lasts from 7 to 10 days during late February or early march. The adult midges usually emerge in the morning. Meanwhile, infestation mainly affecting the photosynthesis of leaves. The study aims to highlight the emergence of leaf galls on Mango tree and damage caused by their infestation to tree. May be the month of March favors the spreading of *Procontarinia matteiana* due to the rising of temperature and changes occur in climate after winter. This study will be revealed the partial biodiversity of leaf galls on mango trees in the Rewa region of Madhya Pradesh.

Abstract No. 177

ROLE OF WOMEN AND TRIBES IN SOCIAL AND ENVIRONMENTAL SUSTAINABILITY

Kaushal Kumar and Ayushi Singh

Department of Pharmacy
MJP Rohilkhand University, Bareilly (U.P.), India

ABSTRACT

Women play a vital role in the preservation of natural resources and the promotion of sustainable practices, particularly in rural and tribal communities. They contributed to community resilience, biodiversity preservation, and environmental protection. Chipko, Green Belt, and Navdanya showed how women can work together to protect nature and empower communities, while Mei Ng, Vandana Shiva, Wangari Maathai, Maria Cherkasova, and Rachel Carson carried out worldwide environmental efforts. In Maharashtra, tribal women like the Bhils, Gonds, Warlis, and Mahadeokolis preserve farming, medicinal plant, and food preservation expertise. Modernization and environmental issues endanger this knowledge transmission. Agriculture, fishing, and bamboo crafts are supported by Karbi Anglong's forests, which produce cane, agar, and medicinal herbs. Women contribute equally to the economy of the region. Watershed initiatives used earthen dams and wells to empower tribal women by recognizing their local expertise and incorporating them in sustainable development. These initiatives also encouraged women, students, and social professionals to respect, think critically about, and comprehend tribal societies via learning and collaboration. In response to climate change, tribal women are harnessing traditional knowledge and growing hardy crops like turmeric, broom grass, and frost-tolerant cardamom. Adi women possess extensive knowledge of native flora and animals utilized for food, medicine, and income, promoting biodiversity and resilience. Policies should foster traditional knowledge, local cuisine, women's empowerment, and integrated land use planning to protect this. Tribal women's marginalization requires empowerment and traditional knowledge integration for sustainability.

Abstract No. 178

BIOFUELS-A INNOVATIVE APPROACH OF GREEN TECHNOLOGY FOR SUSTAINABLE DEVELOPMENT

Suchismita Chatterjee Saha

Department of Zoology
Nabadwip Vidyasagar College, Nabadwip, Nadia (W.B.), India

ABSTRACT

Green technology is a broad category of new technologies designed to reduce climate impact and preserve the environment. Green tech uses science to facilitate initiatives like carbon emissions reductions and renewable energy usage that promote environmental sustainability. Green technology offers many advantages for the Earth, its inhabitants, and our way of life. Biofuels are one such type of green technology which plays important role to combat such environmental pollution and maintain a sustainable environment for inhabiting into the earth. Biofuels is one type of green technology that come from exhaustible and renewable sources, emit less greenhouse gas, and are fully biodegradable. Commercially viable Sustainable biofuel produced from agricultural residue and municipal waste. Now a days different types of biofuels production are observed. Such as, 2G- Ethanol production and Enzyme development technologies. In this type of technology, 2G Ethanol can be produced from farm waste such as left over after agricultural waste and mixed with conventional fuels. 2G ethanol bio-refineries may significantly contribute of Ethanol in Petrol and reducing consumption of fossil fuels eventually. Another initiative is Waste to Energy. Organic waste is the major sources of greenhouse gas emissions in the atmosphere. To utilize these wastes as resources for energy production is a huge contribution to combat climate change. Greenhouse gas emissions into the atmosphere could be reduced by utilizing the organic waste as resource for the generation of biogas and bio manure instead of landfilling. Next is the Algal biofuels and value-added productions. Algae have the potential to utilize the atmospheric Carbon dioxide as well as the lipids and biomass of algae is being used for biofuels and other bio based values added products. This would lead to significant reduction Green House Gases in atmosphere as well as reduced dependency on chemical-based products that cost huge environment impact and contribution to climate change. Next is Carbon Dioxide to high value lipids technology. In this technology carbon dioxide into acetic acid and Centre's aerobic fermentation technology to convert acetic acid to lipids (algal oil) including highly valuable Omega 3-fatty acids (DHAs) & biodiesel. The main aim of this article is to review the different biofuels production technologies to reduce the environmental pollution and to main sustainable environment.

Abstract No. 179

FACTORS AFFECTING THE APPLICATION OF INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT) IN THE AGRICULTURE SECTOR OF NEPAL

Om Prakash Singh and Rabin Aryal

Department of Agricultural Extension and Rural Sociology
Agriculture and Forestry University, Rampur, Chitwan, Nepal

ABSTRACT

Scaling-up of modern ICT tools produces an avenue to use ICT in the dissemination of agriculture information. To successfully apply ICT-based information for the prime development of sustainable agriculture, understanding the factors affecting the use of ICT in agriculture information is valuable. This study tried to analyze the socio-economic factors that influence the application of ICTs amongst farmers of the Rupandehi district of Nepal. Altogether, three villages, which are also declared and enlisted under smart villages by the Ministry of Agriculture, Food Technology, and Land Management of Lumbini province, were purposely selected for this study. Data were collected from randomly selected 145 respondents from Devdaha, Omsatiya and Tilotama villages, of which 95 were ICT user farmers and 50 of them were non-users of ICT. A binary probit model was used for its statistical analysis. Social, economic, and institutional factors were explored as the major factors affecting the use of ICT among farmers in the delineated study area. Farm size, sex, and income were explored as positive and significant factors that influence the use of ICT in agriculture. The governmental policies including ICT tools in extension methodologies were found at an inadequate level. Moreover, the present ICT tools assessed inappropriate in the existing market that didn't address the real needs of farmers were the major constraints of using ICT tools in agriculture in the study area. Factors and reasons explored through this study should be internalized by concerned stakeholders as input while forming their policy or implanting ICT-related activities in forthcoming technological generations.

Abstract No. 180

PHYTOREMEDIATION EFFICIENCY OF *LANTANA CAMARA* IN THE UPTAKE AND ACCUMULATION OF HEAVY METALS FROM CONTAMINATED INDUSTRIAL AREA

Neha Shrivastava and R.K. Shrivastava

Rani Durgavati University, Jabalpur (M.P.), India

ABSTRACT

Industrialization, while essential for economic development, has led to serious environmental consequences, especially in the form of heavy metal contamination in soil and water bodies. These metals, including iron (Fe), zinc (Zn), chromium (Cr), and copper (Cu), are non-biodegradable and persist in the environment, accumulating in the food chain and posing significant threats to ecological and human health. Conventional methods for heavy metal remediation are often expensive, labour-intensive, and can further disturb the environment. As a sustainable and cost-effective alternative, phytoremediation utilizes plants to extract, stabilize, and detoxify heavy metals from contaminated sites.This study explores the phytoremediation potential of *Lantana camara*, an abundant and hardy invasive plant species, for the uptake and accumulation of Fe, Zn, Cr, and Cu from soils surrounding an industrial zone. Soil and plant samples were collected from metal-polluted sites and analysed for heavy metal content using atomic absorption spectroscopy (AAS). The study focused on determining the plant's bioaccumulation factor (BAF) and translocation factor (TF) to assess its capability for metal uptake and internal distribution.The results demonstrated that *Lantana camara* effectively accumulated Fe and Cu in its above-ground parts, indicating its suitability for Phytoextraction. Zn and Cr, however, were predominantly retained in the roots, highlighting its phytostabilization potential. The plant exhibited high tolerance to metal stress, showed no significant morphological damage, and maintained vigorous growth, which are key indicators of its phytoremediation viability.Moreover, *Lantana camara*'s wide distribution, rapid growth, and ability to thrive in poor soils make it an ideal candidate for large-scale remediation in resource-limited settings. The dual mechanism of Phytoextraction and phytostabilization exhibited by the plant adds to its ecological and practical value in the restoration of degraded environments.In conclusion, the study establishes *Lantana camara* as a promising bio-tool for remediating heavy metal-contaminated soils, particularly in industrial regions. Its use could play a crucial role in developing sustainable remediation strategies that are both environmentally friendly and economically feasible. Future research should focus on enhancing metal uptake efficiency, understanding the physiological mechanisms of tolerance, and evaluating its long-term impact on soil health and biodiversity.

Abstract No. 181

PHYCOBILIPROTEINS FROM CYANOBACTERIA AS BIO ACTIVE COMPOUNDS : EXTRACTION, CHARACTERIZATION AND APPLICATION

Sweety Sahu and Kirti Raje Singh

Department of Botany
Chaudhary Mahadeo Prasad Degree College, Prayagraj (U.P.), India

ABSTRACT

Cyanobacteria are rich sources of diverse pigments, particularly phycobiliproteins such as phycocyanin, phycoerythrin, and allophycocyanin, which exhibit significant bioactive properties. This study focuses on the extraction, characterization, and potential applications of phycobiliproteins and other pigments from selected cyanobacterial strains. Pigments were extracted using optimized buffer systems and characterized spectrophotometrically and through chromatographic techniques. The study highlights the potential of cyanobacterial pigments as natural alternatives in food colouring, cosmetics, and pharmaceuticals due to their stability, biocompatibility, and multifunctional bioactivity. These findings contribute to the sustainable utilization of cyanobacteria in biotechnology and support further exploration of pigment-based bioproducts. Moreover, the integration of cyanobacterial pigments in functional foods, pharmaceuticals, and cosmeceuticals is likely to grow, driven by increasing consumer demand for natural and safe alternatives to synthetic additives. Studies on the pharmacokinetics, bioavailability, and in vivo efficacy of these pigments are essential to support clinical applications.

Abstract No. 182

ROLE OF *AZADIRACHTA INDICA* LEAVES IN REDUCING RHYZOPERTHA DOMINICA INFESTATION IN STORED GRAIN SORGHUM

Puja Singh and Sangeeta Avasthi

Department of Zoology
A.N.D.N.N.M.M., Kanpur (U.P.), India

ABSTRACT

Sorghum (*Sorghum bicolor*) is a crucial cereal crop in many countries of the world, particularly in semi-arid and tropical regions. However, post-harvest losses due to insect pests, especially the lesser grain borer (*Rhyzopertha dominica*), pose a significant threat to food security and farmer livelihoods. There are two types of pesticides which is used by former for prevention of this damage, Conventional chemical insecticides used for pest control which is more effective but it lead to environmental concerns, health risks, and the development of resistant pest populations. Consequently, there is increasing interest in environmentally friendly, plant-based natural pesticides such as neem (*Azadirachta indica*). This study evaluates the effectiveness of dried neem leaves in reducing *R. dominica* infestation in stored Sorghum grains under laboratory conditions. Sorghum grains were treated with different concentrations of neem leaf powder (5%, 10% and 20%), while untreated grains served as the control. All samples were kept for 60 days after being experimentally infested with adult *R. dominica*. Weight loss, adult mortality, and the percentage of grain damage were measured at 15-day intervals. In comparison to the control, the results showed that neem leaf powder significantly reduced insect infestation at all treatment doses. The highest concentration (20 %) recorded the highest adult mortality (over 85%) and the lowest percentage of grain damage and weight loss.

Abstract No. 183

BIODIVERSITY PERSPECTIVE OF FOOD, HEALTH AND SOCIETY IN JAMMU AND KASHMIR

Wahied Khawar Balwan

Department of Zoology
Govt. Degree College, Doda (J.& K.), India

ABSTRACT

Jammu and Kashmir, nestled in the western Himalayas, boasts rich biological resources fundamental to food security, human health, and societal well-being. The region's varied climate supports a wide range of crops, including fruits, vegetables, and grains, ensuring food security and resilience to climate change. Local communities rely on traditional food systems closely linked to their cultural heritage and biodiversity. Biodiversity ensures a wide range of crops, enhancing food security and resilience to climate change. Jammu and Kashmir is home to diverse medicinal flora, with many plants used in traditional medicine to treat various ailments. Biodiversity ensures clean air and fresh water, essential for human health. Diverse crops provide essential nutrients, vitamins, and minerals, promoting healthy diets. Well-preserved ecosystems help regulate disease outbreaks and promote human health. Biodiversity supports ecosystem services like pollination, pest control, and soil health, crucial for sustainable agriculture. Biodiversity helps to regulate ecosystems, reducing the risk of disease outbreaks and promoting human health. Exposure to nature and biodiversity has been linked to improved mental health and well-being. Biodiversity is deeply ingrained in the region's culture, with many communities relying on natural resources for their livelihood. Biodiversity is often closely tied to cultural heritage and traditional practices. Biodiversity supports industries like forestry, fisheries, and tourism, contributing to local economies. Biodiversity supports local economies through sustainable use of natural resources like timber and fiber. Biodiversity conservation often involves community participation, fostering a sense of ownership and responsibility. Human activities pose significant threats to biodiversity, including habitat destruction and climate change. But initiatives like protected areas and sustainable forest management can help conserve biodiversity. Balancing economic development with biodiversity conservation is essential for the region's long-term sustainability.

Abstract No. 184

TOXICITY OF ZINC OXIDE NANOPARTICLE ON FRESHWATER FISH: A REVIEW

Nityaa Tripathi and Sadguru Prakash

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

ABSTRACT

Nanotechnology has been significant advancements, with nanoscale elements showing potential across various scientific fields. In particular, the use and application of nanoparticles are rapidly expanding both in daily life and industrial sectors, driven by ongoing scientific and technological progress. However, there is growing concern about the exposure to nanomaterials and their impact on aquatic life. Heavy metal nanoparticles, for instance, have been shown to alter the behaviour, physiology, and reproduction of fish. Among these nanomaterials, zinc oxide (ZnO) nanoparticles have garnered considerable attention due to their unique properties and relatively lower environmental hazards. Despite their popularity, ZnO nanoparticles, like many other nanoparticles, are toxic to living organisms. Interestingly, this toxicity has been harnessed for beneficial uses such as antibacterial, antiviral, antifungal, and antialgal applications. ZnO nanoparticles are widely used in products like plastics, ceramics, glass, rubber, paints, and even food, owing to their strong UV absorption and reflective properties. Literature reviews also suggest that biogenic ZnO nanoparticles exhibit toxic potential toward freshwater fish. Antioxidant enzyme analyses indicate that exposure to ZnO nanoparticles can induce oxidative stress in these fish. Additionally, histoarchitectural changes have been observed in fish exposed to ZnO nanoparticles, further highlighting their impact on aquatic organisms.

Abstract No. 185

THE ROLE OF *EISENIA FETIDA* IN ACCELERATING ORGANIC MATTER DECOMPOSITION

Pratibha Shrivastava and Atul Kumar Misra

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

ABSTRACT

Vermicomposting is a bio-oxidative fragmentation process where earthworms (*Eisenia fetida*) and microorganisms together convert organic waste into an organic fertilizer that is nutrient-rich. Earthworms serve as biological decomposers that consume organic matter and enhance microbial activities in their gut. This rise in use chemical fertilizers has led to concerns about soil health degradation and environmental pollution arising from fertilizer use in agriculture. As eco-friendly methods for managing organic waste, vermicomposting has been described as a sustainable alternative. This review describes the important role of *Eisenia fetida* in agriculture waste decomposition and its effects on the fertility and growth of soil and plants. The practice of vermicomposting is a benign and efficient method to convert organic matter into a fertile product and an integral process in the management of the food chain. However, challenges like scalability, farmer awareness and environmental constraints prevent large scale adoption. This paper highlights the mechanisms, benefits, applications, and challenges associated with vermicomposting while stressing the need for additional research and technological progress in the area.

Abstract No. 186

ISOLATION AND IDENTIFICATION OF SOME PATHOGENIC FUNGI FROM SOOTY MOULD DISEASE

Sohni Jain

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

ABSTRACT

Sooty moulds are dark-pigmented fungi which live saprophytic and superficially on plants. It is a fungal disease that grows on plants and other surfaces covered by honeydew, a sticky substance created by certain insects. Plants are completely covered with sooty mold it may interfere with photosynthesis which can affect the overall health and growth of a plant. The aim of this study is to isolate the pathogenic fungi from selected infected leaf samples from *Citrus limon* (lemon), *Syzygium cumini* (java plum), *Hibiscus syriacus* and *Hibiscus×rosa* (hibiscus) in the local area of Jabalpur. Some of the most devastating and harmful pathogenic fungi are *Alternaria* sp., *Aspergillus* sp, *Curvularia lunata, Colletotrichum* sp., *Fusarium* sp, *Microsporum audouinii* and *Rhizopus* sp., which isolated from infected leaf and by using potato sucrose agar (PSA) using morphological and fungal characteristics. This study aims for a simple, efficient, and cost-effective alternative for disease monitoring, detection, and identification of pathogenic fungi.

Abstract No. 187

INTERACTIVE EFFECTS OF NITROGEN REGIMES AND WATER DEFICIT ON GROWTH AND STRESS PHYSIOLOGY OF PEARL MILLET (*PENNISETUM GLAUCUM* (L.) R BR.)

Shiv Shankar Shukla and Sanjib Kumar Panda

Department of Biochemistry
Central University of Rajasthan, Ajmer (Rajasthan), India

ABSTRACT

Pearl millet (*Pennisetum glaucum* (L.) R Br.) is the world's fourth most important cereal crop, primarily cultivated in hot, arid regions. Water scarcity poses a major challenge in these areas, adversely impacting agricultural productivity and this situation is anticipated to worsen in the coming decades. This study examines the effects of drought stress on different pearl millet genotypes during the vegetative growth phase, specifically focusing on their drought management under varying nitrogen levels. Six experimental conditions were evaluated: N 0 (no nitrogen), N 0 + SS (severe stress- 30- 20% of soil field capacity), LN (low nitrogen- 40kg/ha), LN + SS, HN (high nitrogen- 70 kg/ha), and HN + SS. Significant morpho-physiological and biochemical changes were noted after ten days of drought stress, including decreased biomass, water use efficiency (WUE), relative water content (RWC), element concentration(C &N), and chlorophyll fluorescence. Drought stress also led to elevated levels of reactive oxygen species (ROS) and lipid peroxidation (MDA) in the shoots, along with compromised membrane integrity. A metabolomics study was conducted to elucidate the function of secondary metabolites (such as flavonoids, phenols, terpenes, etc.). The drought-resistant line showed enhanced antioxidant activity, accumulating higher amounts of quercetin, caffeine, coumarin, berseran, etc. Applying a nitrogen treatment program helped alleviate the adverse effects of drought on the plants, effectively managing stress levels. Proline accumulation was greater in the nitrogen-treated groups compared to those without nitrogen treatment. Overall, the findings indicate that GHB- 538 is vulnerable to drought stress under various nitrogen treatment conditions, showing reduced WUE, Fv/Fm, C/N, CAT, and SOD levels. In contrast, RHB-234 exhibited drought resilience with nitrogen treatments. Moreover, these nitrogen treatments alleviated the impact of drought on the plants. This study highlights the regulatory role of nitrogen in mediating drought stress responses in pearl millet at both physio-biochemical and metabolomic levels.

Abstract No. 188

TRIBES - THE GUARDIANS OF FOREST

Mrunal I. Warhade

Department of Botany
Gramgeeta Mahavidyalaya, Chimur, Dist.: Chandrapur (M.S.), India

ABSTRACT

India has the rich diversity of ethnic societies with varied indigenous culture. Many tribal communities lived in harmony with nature. According to 2011 census, there are 550 tribes found in India. States like Maharashtra, Madhya Pradesh, Rajasthan, Chhattisgarh and Jharkhand have major tribal communities like Gonds, Madiyas, Bhils, Santhals etc. Tribal communities have vast knowledge of traditional medicinal plants. They are depending upon the plants for healthcare as well as for their livestock. Many of the plants utilized for different ceremonies and festivals, and for various treatments are domesticated by the tribes. Tribal people developed their sustainable methods for resources. Development and industrialization at the cost of environmental degradation leads to depletion of forest resources rapidly. Tribal population play crucial role in conservation of forest. It is important to embrace their traditional knowledge and amalgamate into modern conservation system. By learning from their sustainable efforts we can move towards a more sustainable future.

Abstract No. 189

CHARACTERISTICS OF ACTIVATED CARBON PREPARED FROM ANIMAL WASTE THROUGH CHEMICAL ACTIVATION PROCESS

V.S. Manik[1] and S.K. Gudadhe[2]

[1]Department of Environmental Science
Gramgeeta Mahavidyalaya, Chimur (M.S.), India
[2]Department of Environmental Science
Dr. Khatri Mahavidyalaya, Chandrapur (M.S.), India

ABSTRACT

Growing interest in turning agricultural and animal wastes into activated carbon results from the growing need for reasonably priced and environmentally friendly adsorbents. This work explores using chemical activation techniques the physicochemical properties of activated carbon produced from cow and buffalo dung. Following chemical activation with agents like phosphoric acid (H_3PO_4) and potassium hydroxide (KOH), the raw materials were carbonized at controlled temperatures. BET surface area analysis, scanning electron microscopy (SEM), Fourier-transform infrared spectroscopy (FTIR), and proximal analysis were among the other analytical methods used to define the resulting activated carbon. The results show that activated carbon derived from animal feces has great surface area, considerable porosity, and functional groups suitable for adsorption techniques. Analyzed were variations in the characteristics of activated carbon produced from cow versus buffalo dung, therefore stressing the effect of feedstock composition and activation settings. The results imply that a plentiful and underused biomass, animal manure, provides a practical and environmentally friendly source for the manufacturing of activated carbon with possible uses in wastewater treatment and environmental remediation.

Abstract No. 190

ASSESSMENT OF GENETIC DIVERSITY IN MADHYA PRADESH, CHHATTISGARH, AND MAHARASHTRA, BIOCHEMICAL VARIATION, AND PROPAGATION STRATEGIES IN HALDINA CORDIFOLIA (ROXB.) RIDSDALE: A NEAR THREATENED MEDICINAL TREE

Vivek Verma and Fatima Shirin

ICFRE-Tropical Forest Research Institute, Jabalpur (M.P.), India

ABSTRACT

Haldina cordifolia (Roxb.) Ridsdale, commonly known as Haldu, is a valuable deciduous tree species categorized as Near Threatened in Central India due to severe population decline. Overexploitation for its high-quality timber and traditional medicinal uses, combined with poor natural regeneration, has significantly reduced populations. Field surveys revealed scattered natural population across Madhya Pradesh, Chhattisgarh, and Maharashtra. This study aimed to: (i) standardize a DNA isolation protocol for *H. cordifolia*, resulting in a modified Doyle & Doyle (1987) method optimized from leaf material; (ii) assess genetic diversity and population structure using morphometric traits (tree height, number of primary branches, clear bole height) and through SSR markers developed with cross-species transferability using bioinformatics approaches; (iii) estimate plant secondary metabolites-total flavonoid content, tannins, alkaloids, and phenolics-from bark and leaf samples; and (iv) explore macro-propagation techniques through various vegetative propagation methods including coppice cuttings, branch cuttings; hardwood, and softwood. The integration of morphological, biochemical, and molecular data highlights significant intra-specific variability, which is critical for formulating conservation strategies. The findings emphasize the urgent need for in situ and ex situ conservation interventions, alongside propagation protocols, to ensure the sustainable restoration and utilization of *H. cordifolia*.

Abstract No. 191

SULFIDO-BRIDGED 1,2-BIS(DIPHENYLPHOSPHINO)ETHANE (DPPE) APPENDED TRINUCLEAR NICKEL(II) CLUSTERS: CRYSTALLOGRAPHIC AND COMPUTATIONAL ANALYSES

Amita Singh

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

ABSTRACT

The cluster compounds are still gaining considerable attention due to their peculiar behaviour and M− M bonding or M....M interactions. In this report, two sufido-bridged, 1,2-bis-(diphenylphosphino) ethane (dppe) appended trinuclear Ni(II) clusters having formula [Ni3S2(dppe)3].2BPh4 (Ni3S2-1) and [Ni3S2(dppe) 2(4-pyCH2OH)2].2PF6 (Ni3S2-2) are reported. These clusters are synthesized from the same starting reactants the xanthate ligand 4- PyCH2OCS2Na, Ni(II) and dppe employing two different reaction pathways. The obtained compounds have been characterized by microanalyses, FTIR, UV–Vis, 1 H, 13C and 31P NMR spectroscopy as well as by single crystal Xray diffraction technique. The X-ray analyses revealed that in both compounds three Ni (II) centers are coordinated to two sulfido and dppe ligands. In Ni3S2-1 three dppe and two sulfido ligands are stabilising the trinuclar cluster cation while in Ni3S2-2 along with two sulfido and two dppe ligands, two 4-pyCH2OH are also coordinating with one of the Ni(II) center. Both Ni3S2-1 and Ni3S2-2 display different non-covalent interactions along with the Ni....Ni interactions. The nature of these interactions has been addressed with the aid of Hirshfeld surface analysis, density functional theory and quantum theory of atoms-in-molecules (QTAIM) analyses. The occurrence of such non-covalent intermolecular interactions is also well supported by the non-covalent interactions reduced density gradient (NCI-RDG) approaches. Also, the Wiberg bond index, Mayer bond order and delocalization indices have been calculated to assess the nature of Ni....Ni interactions.

Abstract No. 192

5R'S OF ZERO WASTE MANAGEMENT TO SAVE OUR GREEN PLANET

Sachdeep Kour

Educator at Cypress Fairbanks Independent School District, Houston, Texas, USA

ABSTRACT

Earth, the green planet is the only planet in our solar system known to host life. In the absence of food and water, life cannot survive. Without productive soil, the world would fail to support even half of its present organisms, or a tenth of its human population. At present, basic natural resources needed for human life are either growing scarce or are frequently polluted. In many parts of the world, soil is degraded, water is scarce, and food supplies are declining. In modern times, the waste generated by humans has become a big challenge for our environment. Several developed as well as developing countries are generating enormous amount of waste and struggling to deal with it in a sustainable way. Waste that is non-biodegradable or non-recyclable is not only filling landfills but also affecting our water bodies, grasslands, fields, climate, public health, wildlife, and so forth. Since we have limited space on earth to dispose all the waste, it is imperative to take steps to manage the waste by using the resources efficiently. Zero waste management is a global movement designed to reduce waste in our society. The concept of 5R's is to decrease the number of things we use and simultaneously also decrease the number of things we throw away. The intent of this article is to understand the existing global status of Municipal Solid Waste (MSW) generation as well as to explore various ways to manage ever growing volume of waste, which poses formidable challenges to both high and low-income countries of the world.

Abstract No. 193

SOLID WASTE MANAGEMENT: A REPORT ON GARBAGE PROBLEM IN DODA REGION OF JAMMU AND KASHMIR, INDIA

Neelam Saba

Department of Zoology
Govt. Degree College Bhaderwah, Doda (Jammu & Kashmir), India

ABSTRACT

Waste has been a major environmental issue everywhere ever since the onset of Industrial revolution. In Doda region of Jammu and Kashmir, due to the increase in the population and the standard of living of people, there has been a tremendous increase in the quantity and variety of waste generation like all other areas of India. There has been rapid increase in the generation of Municipal Solid Waste (MSW) due to increased urbanization. High standards of living of ever-increasing population have resulted in an increase in the quantity and variety of waste generated, particularly in urban areas. It is now being realized that if waste generation continues recklessly at this very pace, then it would become rampant and alarming very soon and possibly beyond rectification. Management of solid waste has, therefore, become very important in order to minimize the detrimental and lasting aftermaths of solid waste. Solid waste (i.e., waste other than liquid or gaseous) can be classified as Municipal, Industrial, Agricultural, Medical/Bio-medical, Chemical, Mining, Radioactive, Metallurgical, Poultry/Animal and Sewage sludge. The composition of municipal solid waste varies greatly from municipality to municipality, and it changes significantly with time. These different compositions that contribute to Municipal Solid Waste (MSW) are called 'Municipal Solid Waste (MSW) Streams'. In municipalities which have a well-developed waste recycling system, the waste stream mainly consists of intractable wastes such as plastic film and non-recyclable packing materials. Solid Waste Management (SWM) has become one of the crucial parameters of urbanization. India has recognized its importance and has set-up 'Clean India Mission'.

Abstract No. 194

IMPACT OF CLIMATE CHANGE ON INDIAN AGRICULTURE IN THE CURRENT SCENARIO

Awanish Kumar Singh

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

ABSTRACT

Climate change significantly affects Indian agriculture, driven by rising temperatures, altered precipitation patterns, and a surge in extreme weather events. These changes disrupt crop yields and water availability, posing challenges to a sector vital for food security and rural livelihoods. In India, regional variations intensify the impact - droughts increasingly afflict arid zones, while excessive rainfall and flooding threaten other regions, straining irrigation systems and degrading soil health. Smallholder farmers, who form the backbone of Indian agriculture, face heightened risks as unpredictable weather undermines their livelihoods. Socio-economically, these disruptions threaten food production and rural economies, amplifying vulnerabilities in an agrarian society. However, adaptive measures offer hope: innovations such as drought-resistant crop varieties, enhanced irrigation techniques, and advanced weather forecasting systems can mitigate these effects. A comprehensive strategy integrating technology, policy support, and community resilience is essential to secure Indian agriculture against the evolving challenges of climate change in the current scenario.

Abstract No. 195

EXPLORING CYANOBACTERIAL DIVERSITY AND DYNAMICS IN THE GOMTI RIVER

Meenakshee Pandey and Kanchan

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

ABSTRACT

Pollution threatens the Gomti River, a crucial freshwater resource in India, with cyanobacterial blooms posing a particular risk due to their potential for toxin production. To address this concern, this study aimed to comprehensively evaluate the diversity of cyanobacterial strains present in the river. Water samples were collected from multiple locations, and standard methods were used for isolation. Identification relied on microscopic and molecular techniques, and the study further investigated the toxin-producing capabilities of the isolates and the role of environmental factors in shaping cyanobacterial diversity. Gaining insight into cyanobacterial diversity and toxin production is critical for implementing effective water quality management strategies and ensuring the long-term safety of the Gomti River. Understanding cyanobacterial taxonomy is crucial for scientific inquiry, applied research, and floristic analysis, where it serves diverse diagnostic purposes. While the Gomti River region harbors a rich diversity of freshwater species, the cyanobacterial variety within this water body, particularly in the Sultanpur sections, remains largely unexplored despite the area's favorable climate.In this study entitled 'exploring cyanobacterial diversity and dynamics in the Gomtiriver', many cyanobacterial strains recovered from water samples in the Gomti River had been identified using a taxonomical and morphological technique. In the class Cyanophyceae, the orders Chroococcales, Nostocales, and Stigonematales comprise the majority of the taxa that had been isolated from different locations. 20 cyanobacterial isolates from 14 different genera in the class Cyanophyceae had been described in this study. *Anabaena*, *Aphanothece*, *Aulosira*, *Chroococcus*, *Cylindrospermum*, *Gloeocapsa*, *Gloeotrichia*, *Lyngbya*, *Microcystis*, *Nostoc*, *Nostochopsis*, *Oscillatoria*, *Phormidium*, and *Scytonema* are the fourteen genera from which the isolated strains are formed. This study identified *Anabaena*, *Aphanothece*, *Cylindrospermum*, *Gloeocapsa*, *Lyngbya*, and *Oscillatoria* as the prevalent blue-green algal genera. In contrast, *Gloeotrichia*, *Scytonema*, and *Chroococcus* were found to be less common in the studied samples from Sultanpur.

Abstract No. 196

ASSESSMENT OF THE HYDROCHEMICAL CHARACTERISTICS OF WATER SAMPLES OBTAINED FROM THE GOMTI RIVER WITHIN THE URBAN CONFINES OF SULTANPUR

Shalini Singh, Meenakshee Pandey and Anchal Vishwakarma

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

ABSTRACT

The Gomti River serves as an important source of water for both domestic and agricultural purposes. Due to urbanization, industrialization, and agricultural runoff, the water quality has been increasingly compromised, raising concerns about its safety for consumption and ecological health. This study aims to evaluate the physicochemical parameters of the Gomti River water, including its physical characteristics, chemical composition, and potential contamination levels, to assess its suitability for various uses. Samples were collected from different stretches of the river at various points, including areas with significant human activity and industrial discharge. The findings revealed elevated levels of turbidity, TDS, and BOD, indicating substantial organic contamination and poor water clarity. The pH values were found to range from slightly alkaline to neutral, reflecting natural and anthropogenic influences. The DO levels were lower than the standard requirement for supporting aquatic life, and the BOD levels were high, suggesting the presence of excess organic matter. Nutrient concentrations, particularly nitrates, were higher than permissible limits, pointing to agricultural runoff and untreated sewage discharge. In conclusion, the physicochemical analysis of the Gomti River water reveals significant pollution levels, particularly in areas influenced by urban and industrial activities. The water quality is unsuitable for direct consumption without proper treatment and poses potential risks to aquatic life and public health. The study emphasizes the urgent need for water treatment infrastructure, pollution control measures, and regular monitoring to restore the river's water quality and ensure its sustainability for future generations. In present study, three different sites of Sultanpur district were analyzed in light of different parameters namely Sitakund, Dhobighat and Golaghat which are located in urban areas of the district. In our study, most of the parameters undertaken indicated Dhobighat to have maximal pollution.

Abstract No. 197

ENHANCING HEAT TRANSFER WITH NANOPARTICLES: A STEP TOWARD ENERGY EFFICIENCY AND SUSTAINABILITY

Alok Gangwar and Madan Lal

Department of Applied Mathematics
MJP Rohilkhand University, Bareilly (U.P.), India

ABSTRACT

Adding tiny particles called nanoparticles to everyday liquids like water, kerosene, and engine oil can greatly improve how well these fluids transfer heat. In this study, three distinct base fluids are used to examine five different types of nanoparticles: graphene oxide, iron oxide, copper oxide, titanium oxide, and alumina. The results shows that graphene oxide mixed with water gave the highest temperature and heat transfer performance. These special fluids, known as micropolarnano fluids, also take into account small internal spinning movements, making the heat transfer process even more efficient. This has real-world benefits for improving cooling systems in engines, power plants, and electronics. By making these systems more energy-efficient, the use of nanofluids can help lower energy consumption and reduce environmental impact. Overall, this approach supports cleaner technologies and contributes to a more sustainable and eco-friendly future.

Abstract No. 198

COMPARATIVE ANALYSIS OF PHYTOREMEDIATION POTENTIAL OF INVASIVE PLANT SPECIES

Nisha Patel and R.K. Shrivastava

Department of Environmental Science
Government Science College, Jabalpur (M.P), India

ABSTRACT

Invasive Plant species, despite their negative ecological impacts, possess unique physiological and ecological traits such as rapid growth rates, stress tolerance, and high biomass production that can leveraged for environmental cleanup. This study presents a comparative analysis of the phytoremediation potential of *Xanthium strumarium* and *Argemone mexicana* under heavy metal contaminated soil condition. Experimental evaluation focused on the accumulation of these metals in root and shoot tissues, along with the calculation of bioconcentration factor (BCF) and translocation factor (TF) to assess metal uptake and mobility within plant system. The findings reveal significant interspecies differences in heavy metal tolerance and accumulation efficiency, with implications for species selection in site specific remediation strategies. This study underscores the potential of certain invasive species as effective, low- cost tools for ecological restoration of metal contaminated Environments.

Abstract No. 199

SUSTAINABLE MEDICAL INNOVATIONS: ENVIRONMENTAL BENEFITS OF NON-INVASIVE THERMO-MAGNETIC THERAPIES

Suhasi Arora and Haris Alam Zuberi

Department of Applied Mathematics
M.J.P. Rohilkhand University, Bareilly (U.P.), India

ABSTRACT

By examining how thermal energy and magnetic fields influence blood circulation, this research encourages sustainable healthcare practices. It highlights the potential of non-invasive therapies to minimize surgical waste, reduce environmental contamination from pharmaceuticals, and lower the ecological impact associated with conventional medical interventions. This study examines how thermal radiation, heat sources, and a variably inclined magnetic field influence blood flow in a permeable horizontal channel. By applying non-dimensional analysis and solving the resulting equations analytically, it finds that thermal radiation alters flow behavior, a stronger magnetic field boosts blood movement, and increased heat source raises temperature while reducing flow, with results illustrated graphically. This research promotes environmental conservation by supporting non-invasive medical treatments using thermal radiation and magnetic fields. These methods reduce medical waste, energy use, and reliance on pharmaceuticals, minimizing pollution of water and soil. They also lower the demand for disposable supplies, making healthcare more sustainable. Additionally, the fluid dynamics modeled reflect natural processes, offering insights valuable for environmental applications, effectively linking medical innovation with ecological responsibility.

Abstract No. 200

MATHEMATICAL INSIGHTS INTO BLOOD FLOW DYNAMICS UNDER MAGNETIC FIELDS: TOWARD ENVIRONMENT-SMART HEALTHCARE SOLUTIONS

Aastha Mishra and Shivangi Verma

Department of Applied Mathematics
M.J.P. Rohilkhand University, Bareilly (U.P.), India

ABSTRACT

As worldwide systems look for non-invasive, environmentally friendly solutions, environmental sustainability in healthcare is gaining traction. In this regard, the current work contributes to long-term biomedical progress by providing a mathematical analysis of arterial blood flow affected by a magnetic field and body acceleration. In order to examine changes in velocity and temperature profiles under physiological conditions, blood is modeled as a Newtonian, incompressible fluid, and the governing momentum and energy equations are analytically solved. By minimizing reliance on chemical-intensive or surgical procedures, external magnetic fields provide a clean, reusable, and controllable way to regulate blood flow, hence reducing medical waste and its negative effects on the environment. Socially, the concept could lead to better, preventive cardiovascular treatment, particularly in dynamic settings like the transportation, defense, and aerospace industries. This study combines mathematics with environmental awareness and innovative public health by offering accurate computational insights into how body acceleration and magnetic intensity impact circulation. It lays the groundwork for upcoming treatments that are both ecologically conscious and physically successful.

Abstract No. 201

MAGNETICALLY INFLUENCED PERISTALTIC BLOOD FLOW IN NON-UNIFORM CHANNELS: A NON-NEWTONIAN MODEL WITH ENVIRONMENTAL IMPLICATIONS

Manju Gangwar and Haris Alam Zuberi

Department of Applied Mathematics
M.J.P. Rohilkhand University, Bareilly (U.P.), India

ABSTRACT

This study promotes environmental innovation by enhancing the design of non-invasive biomedical devices, such as magnetic blood pumps. Controlled by magnetic fields and fluid dynamics, these pumps can replace chemically powered or mechanically complex systems, offering cleaner and more energy-efficient healthcare alternatives. By improving the efficiency of magnetohydrodynamic peristaltic flow, the research reduces reliance on energy-intensive equipment and minimizes the production of medical waste. This advancement supports the development of sustainable medical technologies with a lower environmental footprint. The study models blood flow in non-uniform channels under magnetic influence using a non-Newtonian couple-stress fluid approach, accounting for particle size effects. It reveals how pressure dynamics are influenced by magnetic fields and fluid properties—insights that directly guide the development of eco-friendly medical solutions. Overall, the findings contribute to greener healthcare innovations that align with environmental sustainability goals, combining biomedical progress with reduced ecological impact.

Abstract No. 202

GREEN PHARMACY PRACTICE IMPACT ON BIODIVERSITY, WATER & WILD LIFE MANAGEMENT

Kaushal Kumar and Utkarsh Yadav

Department of Pharmacy
M.J.P. Rohilkhand University, Bareilly (U.P.), India

ABSTRACT

The concept of green pharmacy has emerged as a sustainable approach to mitigate the environmental impact of pharmaceutical production, use, and disposal. Conventional pharmaceutical practices often lead to the release of active pharmaceutical ingredients (APIs) into aquatic ecosystems through human excretion and improper disposal, posing significant threats to biodiversity and wildlife. These contaminants persist in the environment, disrupting aquatic life, altering reproductive cycles, and accumulating in the food chain. Green pharmacy aims to minimize these risks by promoting eco-friendly drug design, improved waste management, and environmentally conscious prescribing habits. This abstract explores the intersection of green pharmacy with biodiversity conservation and water quality protection. It highlights the environmental challenges posed by pharmaceutical pollution, such as the feminization of fish due to hormone residues and the development of antibiotic resistance in microbial communities. Additionally, it examines how green chemistry principles can lead to the development of biodegradable drugs with reduced ecotoxicity. By incorporating life cycle assessments in pharmaceutical development and encouraging the take-back programs for unused medicines, green pharmacy helps limit environmental contamination. The positive impact of green pharmacy extends beyond aquatic systems to terrestrial wildlife, which may be indirectly exposed through water or food sources. Furthermore, safeguarding water quality supports healthy ecosystems and promotes sustainable development. This approach calls for collaboration between pharmacists, environmental scientists, healthcare providers, and policymakers to create a more responsible pharmaceutical system. Ultimately, green pharmacy offers a promising path toward balancing human health needs with the imperative to protect our planet's biodiversity and water resources.

Abstract No. 203

PRODUCTION OF INDOLE ACETIC ACID PLANT HORMONE BY USING PLANT GROWTH PROMOTING RHIZOBACTERIA BY BATCH FERMENTATION

Shephali Rathore[1], Kusum Sharma[1] and Abhishek Gupta[2]

[1]Department of Life Science, Rabindranath Tagore University, Raisen, Bhopal (M.P.),
[2]The Center for Microbiology & Bio-Technology (CMBT), Bhopal (M.P.), India

ABSTRACT

Among the most significant Auxins that are physiologically active is indole IAA, or acetic acid. Rhizobacteria that Promote Plant Growth (PGPR) is among the several microorganisms that create IAA, a common by result of tryptophan metabolism. The bacterial enzyme tryptophanase has the ability to oxidize tryptophan, an important amino acid. Since the test can be used as a biochemical differentiator because not all bacteria have this enzyme. Rhizobacteria are the primary source of tryptophanase, which is used in the synthesis of plant growth hormones. By extending the newly produced cells in the meristem, indole acetic acid has the most significant effect on root and stem development. However, this outcome is dependent on the hormone's concentration; in various organs, IAA regulates cell division. IAA is partially purified, and thin layer chromatography is used to verify purity. The study concludes by recommending that bacteria that produce IAAs be used as effective inoculants of the auxin class hormones to stimulate plant development. This study's primary objective is to separate and screen native bacteria that produce indole acetic acid from various rhizospheric soils.

Abstract No. 204

MAGNETOHYDRODYNAMIC CONTROL OF BLOOD FLOW IN STENOTIC ARTERIES: IMPLICATIONS FOR BIOMEDICAL AND ENVIRONMENTAL ELECTROMAGNETIC EXPOSURE

Kaushki Gangwar and Shivangi Verma

Department of Applied Mathematics
M.J.P. Rohilkhand University, Bareilly (U.P.), India

ABSTRACT

This research examines the influence of externally applied magnetic fields on blood flow in arteries with stenosis, with an emphasis on environmental electromagnetic exposure and its physiological implications. Blood is treated as an electrically conducting fluid with radially dependent viscosity, simulating realistic biological conditions. A transverse magnetic field is introduced, and the resulting non-linear pressure distribution is analyzed using boundary conditions and a series solution method. The study demonstrates that magnetic fields can alter blood flow dynamics by reducing velocity and increasing resistance, particularly in narrowed arterial regions. These results, presented graphically, highlight the potential of magnetic fields to influence circulatory health. Beyond clinical applications, the findings offer insight into the broader environmental effects of electromagnetic fields on biological systems. The study bridges biomedical fluid dynamics and environmental science, suggesting that sustained exposure to magnetic fields-natural or artificial-could have measurable effects on human cardiovascular function.

Abstract No. 205

PHYTOCHEMICAL STUDIES OF ETHNOMEDICINAL PLANTS OF BARMER, RAJASTHAN

Aditi Pareek and Aparna Pareek

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

ABSTRACT

A few ethno-medicinal plants which were used by the local and tribal people of Barmer region of Rajasthan to cure various health ailments were chosen for the purpose of study. These plants due to their biologically active constituents are used to treat various types of disorders. Keeping in view the importance of such ethno-medicinal plants, this work was carried out to determine the crude phytochemicals qualitatively. Phytochemicals such as alkaloids, flavonoids, tannins, saponins, total phenols etc were determined qualitatively by using standard tests. The phytochemical studies of ethno-medicinal plants are important for identifying the active principles behind the medicinal properties of such plants. Moreover, it is responsible for the targeted isolation of compounds thus helps in performing more precise investigations and will lead to the development of potential drug system.

Abstract No. 206

CLIMATE CHANGE AND AGEING: PREPARING SENIORS FOR ENVIRONMENTAL CHALLENGES

Shivani Pal

Centre for Development Studies
University of Allahabad, Prayagraj (U.P.), India

ABSTRACT

Climate change poses significant challenges to aging populations, exacerbating vulnerabilities due to physiological, social, and economic factors. Seniors are particularly susceptible to extreme weather events such as heat waves, floods, and hurricanes due to age-related health vulnerabilities, limited mobility, and reduced access to resources. Additionally, climate-driven disruptions in healthcare, nutrition, and housing exacerbate their challenges, highlighting the ur gent need for inclusive solutions. Rising temperatures, extreme weather events, and environmental degradation disproportionately affect seniors, who often face reduced mobility, chronic health conditions, and limited access to resources. The impact of heatwaves increases risks of heatstroke and cardiovascular strain, while floods and storms disrupt access to healthcare and safe housing. Social isolation and financial constraints can limit adaptive capacity, leaving older adults particularly susceptible. To prepare seniors for climate change, a multi-pronged approach is essential. This includes enhancing awareness among elderly populations through accessible education programs about climate risks and adaptive measures. Healthcare systems should prioritize resilience, ensuring that seniors have access to medical services even during disasters. Urban planning must incorporate senior-friendly designs, such as accessible shelters and infrastructure that can withstand extreme conditions. Policies focusing on social equity should address financial limitations that prevent seniors from implementing adaptive solutions, such as home modifications for energy efficiency. Community-based programs and Policy interventions, such as subsidies for energy-efficient housing and transportation, can alleviate economic burdens. By prioritizing the unique needs of aging populations, society can better equip seniors to face climate-related challenges. This effort requires collective action from policymakers, healthcare professionals, urban planners, and communities. Addressing the vulnerabilities of elderly individuals in the context of climate change not only safeguards their well-being but also contributes to broader environmental resilience.

Abstract No. 207

HUMAN BLOOD FLOW THROUGH A STENOSED CAROTID ARTERY: A MATHEMATICAL APPROACH

Ashwini Kumar[1] and C. K. Mishra[2]

[1]Department of Physics and Electronics
Dr. RML Avadh University, Ayodhya (U.P.), India
[2]Department of Mathematics and Statistics
Dr. RML Avadh University, Ayodhya (U.P.), India

ABSTRACT

This paper investigates the mathematical modelling of human blood flow through a stenosed carotid artery. Constraints of blood flow in human carotid arteries may cause hypertension/stoke and heart failure. Apart from this, the cholesterol deposited on the arterial wall are responsible for abnormal growth in the lumen of an artery. In this work, the mathematical modelling is performed to analyse the effect of multistenosis in relation to shear stress, pressure gradient and viscosity of constricted human carotid arterial blood flow and its effect on the heart and general human health. The governing equations and involved parameters of interest such as number of stenosis, percentage of Hematocrit of red blood cells in the blood and the length of the artery are discussed. Based on the medical observations, the governing mathematical equations are utlized to analayse the effects of pressure gradients, wall shear stress, velocity and volumetric flow rate of blood in human carotid arteries. The analysis results are interpreted in terms of possible reason behind the damage of veins around the arteries and possible effects on human health are discussed.

Abstract No. 208

CLIMATE CHANGE: AN ENVIRONMENTAL CONCERN IN AGRICULTURE

E. Logeswari and K. Revathi

Sri Venkateshwaraa Medical College Hospital & Research Cell, Ariyur, Puducherry

ABSTRACT

In today's world, the most important environmental concern is climate change, and its effect on agriculture must be assessed. Crops cultivated in various conditions are affected by temperature. Man-made factors, such as rising carbon dioxide and ozone gas depletion are the primary causes of climate change. Globally, food availability will result from declining agricultural output and rising food prices due to more erratic weather patterns. In addition, levitating the risk of hunger, the effects of global warming have serious impact on the agricultural output and trade of the developing nations. Particularly in some nations, variations in precipitation, modifications to irrigation have significant impact. Food distribution patterns, as well as its quality and accessibility would be severely impacted by all of these climate-related disruptions. Furthermore, food security and public health are closely related, it will also cause humanitarian issues and feed the cycle of hunger, illness, and criminality. Reduced agricultural land use as a result of coastal regions being submerged and tropical high agricultural potential regions becoming more arid are some of the possible ef fects of climate change. Other effects include an increase in farm pests and diseases, overcultivation, food insecurity, and poverty, particularly in tropical regions. Analyzing how crops have responded to inter-seasonal climate variability in the past is one of the straightforward empirical methods for assessing the effects of future climate change. Impact analyses must take into account the swift changes in land cover and use. The socioeconomic elements must be better connected. Careful management of resources including soil, water, and biodiversity will be necessary to adapt to the effects of climate change on agriculture. India must take action at the international, regional, national, and local levels to address the effects of climate change on agricultural and food production. International policies on agriculture and climate change are urgently needed, but they must be implemented locally. Agriculture and climate change are closely linked. Planning for adaptation and mitigation is challenging due to the extreme unpredictability of climate change and its repercussions. This necessitates an interdisciplinary approach to the creation of regionally unique climate-resilient technologies. Crop pest control, planned agronomic management, and the creation of appropriate cultivars that can adapt to climate changes are all essential. Farmers need to be educated about climate-smart technologies and trained to make their use easier on the ground.

Abstract No. 209

ASSESSING THE TOXICOLOGICAL LANDSCAPE OF NANOPARTICLES: TRACING THE PATH FROM ENVIRONMENTAL EXPOSURE TO HUMAN HEALTH RISKS

Rohit Kumar Mishra

Centre of Science and Society, Institute of Interdisplinary Sciences (IIDS),
University of Allahabad, Prayagraj (U.P.), India

ABSTRACT

Nanoparticles from both natural and anthropogenic sources are increasingly released into the environment, raising significant concerns about their ecological and human health impacts. Engineered nanoparticles (ENPs), widely used in industrial and biomedical applications, now permeate air, water, and soil systems, making environmental and human exposure inevitable. Although the toxic effects of nanoparticles through various exposure routes are well-documented, their long-term environmental risks remain underexplored. This review highlights key aspects of nanoparticle toxicology, including their environmental fate, bioaccumulation, and mechanisms of toxicity at cellular and molecular levels. Special attention is given to their potential role as environmental stressors, carcinogens, and contributors to ecosystem imbalance. Understanding nanoparticle interactions at sub-cellular levels is vital for assessing ecological risks and guiding the development of safer nanomaterials. Enhanced insight will also aid policymakers in establishing effective environmental regulations and safety standards.

Abstract No. 210

DEPRESSION IN ADOLESCENTS: A BARRIER TO SOCIAL SUSTAINABILITY

Rupali Mishra

Department of Education
Mahakaushal University, Jabalpur (M.P.), India

ABSTRACT

Depression in adolescents is a growing global concern that poses a serious threat to social sustainability. This research examines how adolescent depression is not only a psychological issue but also a reflection of deeper systemic problems rooted in indiscriminate anthropogenic impacts—ranging from environmental degradation and urban isolation to digital dependency and weakened community ties. These external pressures are compounded by increasing societal tendencies among youth, such as excessive social comparison, materialism and emotional detachment, all of which contribute to rising levels of stress, anxiety and disillusionment. The erosion of traditional value systems and a growing disconnect from nature and community have created a void in the emotional and spiritual development of adolescents. This study highlights the need to address this void by integrating spiritualism and human values—such as empathy, compassion, mindfulness and a sense of purpose—into education, social discourse and policy frameworks. Spiritual grounding and value-based living can foster resilience, inner stability and a sense of interconnectedness, thereby empowering adolescents to engage meaningfully with themselves, others and the environment. By linking adolescent mental health with broader ecological and social dynamics, this research underscores the urgency of adopting a holistic approach. Promoting emotional well-being, environmental consciousness and human values together can transform youth into active contributors to a sustainable, just and harmonious society.

Abstract No. 211

ADVANCING SUSTAINABILITY IN PHARMACEUTICAL SCIENCES THROUGH DIGITAL INNOVATION

Kaushal Kumar and Parvi Saxena

Department of Pharmacy
MJP Rohilkhand University, Bareilly (U.P.), India

ABSTRACT

The pharmaceutical industry faces increasing challenges in maintaining environmental sustainability while meeting growing healthcare demands. Digital innovation presents transformative opportunities to enhance sustainability across the pharmaceutical value chain from drug discovery and development to manufacturing, distribution, and patient care. This article explores modern strategies leveraging digital innovations and environmentally conscious practices to achieve a balance between therapeutic effectiveness and ecological responsibility. Emerging technologies such as artificial intelligence and machine learning are revolutionizing drug formulation, enabling precision-based development to optimize efficacy and reduce waste. Artificial intelligence is revolutionizing the pharmaceutical industry, creating new possibilities for aligning healthcare advancements with environmental sustainability. In manufacturing, AI optimizes production processes through real-time monitoring, minimizing energy usage and material waste. Continuous manufacturing supported by AI enhances consistency and reduces the environmental impact of traditional batch production methods. In the realm of drug delivery, AI enables the design of precision targeted nanocarriers that minimize off-target effects and environmental contamination. It also aids in optimizing the selection of biodegradable excipients, ensuring that formulations leave minimal residue in ecosystems. Block chain, integrated with AI, enhances supply chain transparency by ensuring eco-friendly sourcing and sustainable distribution practices. This trans-disciplinary approach underscores the potential of AI to transform the pharmaceutical industry into a steward of environmental sustainability. Nonetheless, the integration of digital innovation within pharmaceutical sciences offers a powerful path forward to achieving both environmental and economic sustainability. As the industry continues to evolve, embracing digital technologies will be essential in shaping a more resilient, efficient, and eco-conscious pharmaceutical landscape.

Abstract No. 212

TO STUDY THE EFFECT OF AMMONIA IN THE BIO-FLOCSYSTEM BY USING DIFFERENT CARBON SOURCES DURING THE GROWTH-OUT CULTURE OF COMMONCARP (*CYPRINUS CARPIO*) FRY

Ratnakar Mishra[1], Shreya Tiwari[2], Shriparna Saxena[1] and Deepak Kher[1]

[1]Department of Aquaculture
Sanjeev Agrawal Global Educational University, Bhopal (M.P.), India
[2]Department of Biotechnology
Barkatullah University, Bhopal (M.P.), India

ABSTRACT

In this Study 13 weeks feeding trial was carried out to evaluate the effects of different carbon sources (sugar beet molasses: SBM + BFT, sugar: (S + Wheat Flour) BFT, corn starch: CS + BFT) on water quality, growth performance, for common carp fry. Results showed a significant difference in water quality parameters among different culture systems; CS + BFT had the lowest amount of Total Ammonia Nitrogen (TAN) at the end of culture period. The fish weight was the highest in CS + BFT, which also had the lowest significant feed conversion ratio. Overall, this study suggests that microbial flocs formed in corn starch based biofloc can improve common carp growth performance and tanks water quality under zero water exchange and hence ensures sustainability.

Abstract No. 213

ASSESSMENT OF ADHESIVE PROPERTIES AND PRELIMINARY CHARACTERISATION OF BACTERIOCIN OF CANDIDATE PROBIOTIC BACTERIA ISOLATED FROM THE GUT OF ROHU, *LABEO ROHITA* (HAMILTON, 1822)

Dipanjan Dutta[1] and Koushik Ghosh[2]

[1]Department of Zoology, Hooghly Mohsin College, Chinsurah (W.B.), India
[2]Department of Zoology, The University of Burdwan, Bardhaman (W.B.), India

ABSTRACT

The present study was targeted at evaluation of probiotic potential of autochthonous bacteria isolated from gut of rohu, *Labeo rohita* with special emphasis on estimation of their bio-film forming ability. Fourteen strains out of 126 extracellular enzyme producing bacteria were primarily selected through qualitative and quantitative assay of six extracellular enzyme activities (viz., amylase, protease, lipase, cellulase, phytase, xylanase). Further test of antagonism with these strains revealed 6 strains to be antagonistic against ≥1 of the seven tested fish pathogens. Based on cumulative results, LR3H1A and LR3F3P were designated as putative probiotics. 16S rDNA partial sequencing identified LR3H1A and LR3F3P as Bacillus subtilis subsp. spizizenii (KF623286) and Bacillus tequilensis (KF623287) respectively. Both the strains were able to tolerate gastro-intestinal condition and were not observed to cause mortality or external disease symptoms. To evaluate adhesive nature of the strains, cell surface traits such as hydrophobicity, auto aggregation and co-aggregation capacity were examined. The results indicated potential adherent nature of the strains. The strains were assessed of their adherence capacity to glass and polystyrene surfaces to gauge their ability to form biofilm and both the strains were categorized as moderate biofilm producer. The bacteriocin in the cell free supernatant of the isolates was partially characterized and the results revealed the bacteriocin to be proteinaceous in nature showing its maximum ef ficacy at 30°C and pH 7. Based on the obtained results, LR3H1A and LR3F3P were postulated as probiotic candidates although further in vivo validation is required for their future possible use in commercial aquaculture.

Abstract No. 214

STUDIES ON SEASONAL VARIATIONS IN PHYSICOCHEMICAL PARAMETERS OF NAGAPUR DAM OF BEED DISTRICT, MAHARASHTRA, INDIA

Siddiqui Qurratulayen Mohd. Abdul Gaffar[1], Shaikh Yasmeen A.[1] and Raut Ranjit R.[2]

[1]Department of Zoology
Dr. Rafiq Zakaria College for Women, Chhatrapati Sambhajinagar (M.S.), India
[2]Department of Zoology
Yogeshwari Mahavidyalaya Ambajogai, Dist. Beed (M.S.), India

ABSTRACT

The present study investigates the seasonal fluctuations in key physicochemical parameters of water from Nagapur Dam, situated in Beed district of Maharashtra, India. Water samples were collected during three distinct seasons-pre-monsoon, monsoon, and post-monsoon—across the year 2023. Parameters such as temperature, pH, electrical conductivity (EC), dissolved oxygen (DO), total dissolved solids (TDS), biological oxygen demand (BOD), chemical oxygen demand (COD), total hardness (TH), alkalinity, nitrates, and phosphates were analyzed. The data indicates significant seasonal variations, especially in DO, BOD, and nutrient concentrations, influenced by rainfall, agricultural runoff, and temperature. The findings underscore the importance of continuous water quality monitoring for the sustainable management of freshwater bodies.

Abstract No. 215

CHEMISTRY AND BIODIVERSITY: A SYNERGISTIC PATH TO SUSTAINABLE DEVELOPMENT

Basant Kumar

Department of Chemistry
MLK PG College, Balrampur (U.P.), India

ABSTRACT

Biodiversity encompasses the vast range of life forms on Earth, from microscopic organisms to massive plants and animals. It serves as a critical source of chemical compounds with wide applications in medicine, agriculture, research, and industry. The field of chemistry particularly natural product, medicinal, and environmental chemistry plays a central role in identifying, analyzing, and sustainably utilizing this molecular diversity. Organisms such as plants, fungi, and microorganisms produce secondary metabolites with significant bioactivity, many of which have led to groundbreaking drugs and industrial materials. Modern analytical techniques, including nanotechnology, chromatography, mass spectrometry, and spectroscopy, are essential for detecting these compounds and for monitoring the health of ecosystems and biodiversity. Moreover, green chemistry contributes to biodiversity conservation by encouraging the development of synthetic alternatives to natural products and by promoting environmentally friendly materials and practices. This interdisciplinary relationship underscores how chemical sciences not only drive innovation but also support the preservation of natural resources. Ultimately, the integration of biodiversity and chemistry is vital for sustainable development and for maintaining the ecological and molecular wealth of our planet.

Abstract No. 216

TRIBES AS INGENIOUS ENVIRONMENTAL RESEARCH INDIGNATION: A STUDY OF THE USAGE OF ETHNOMEDICINE AMONG THE KURMIMAHATOS OF JHARGRAM DISTRICT

Sanchita Bhattacharya

Centre for Adivasi Studies and Museum
Vidyasagar University, Paschim Medinipur (W.B.), India

ABSTRACT

Tribes live apart from the world's mainstream and are isolated from modern influences. In India they are known to be the autochthonous people of the land and are considered as the indicators of cultural heritage with their roots from the centuries of Indian society. Since time immemorial they generally depend on rich bio-cultural resources in order to sustain their traditional livelihood system. The forest ecology has shaped their life and the society they presently have. The tribes have a deep bonding with their respective physical and biological environment. Their unique languages, knowledge systems and even beliefs and possess provide invaluable knowledge of practices for the sustainable management of natural resources. The present study clearly signifies the practice of traditional knowledge of the usage of medicinal plants against various diseases. The study further signifies that the Indigenous communities, particularly the Kurmi Mahatos of Jhargram district, possess knowledge about medicinal plants and animal derivatives from forests. This traditional knowledge, commonly identified as ethnomedicine, is crucial for their health, environmental conservation, and overall living. Traditional healers, play a unique and significant role in preserving and passing this knowledge from one generation to the next. It further explored that various parts of about 47 plant species found in the selected study help in the treatment of a range of ailments. The traditional healers helped in the identification of the role of the medicinal plants within and outside this community's members. The respondents focused on validating the importance of this traditional practice and the practicality and affordability of these remedies. Admixture of culture has presently brought prominent changes in this traditional practice. The inclination of the present generation towards modern drugs has reduced their usage. It is crucial to recognize the urgent need to preserve this traditional knowledge. As researchers, environmentalists, policymakers, and those interested in the study of traditional knowledge, it is our responsibility to protect it for the present and future generations, as its loss would be a setback for the field of medicine and environmental conservation.

Abstract No. 217

STUDY THE ETHNIC VARIATION AMONG THE GONDS AND BRAHMINS BY USING TRANSVERSE FLEXION CREASES

Anjali Pandey

Mahakaushal University, Tilwara (M.P.), India

ABSTRACT

The traits of flexion creases are controlled polygenic factor and they give a chance to be study ethnic and geographical distribution. The status of ethnic variation of flexion creases may be better appreciated in the study of palmar, planter, phalangeal and bracelet creases. Like other human traits palmar flexion creases are effectively applied in the study of human variation. There are so many scholars and researches worked in the field of ethnic variation. The main objective of this study is to examine the Ethnic Variation through Transverse Flexion Creases of Gonds and Brahmins for which 150 males and 150 females' unrelated individuals were selected randomly from each population. The values are qualitative in nature so that for statistical interpretation chi-square test is applied. The results related Transverse Flexion Creases among Brahmins and Gonds are exhibits significant ethnic variation.

Abstract No. 218

ASSESSMENT OF THE GENETIC DIVERSITY IN MONOECIOUS AND PARTHENOCARPIC CUCUMBER GENOTYPE (F) LOCUS

Pawan Kumar Mallah

Department of Biotechnology
Dhamma Dipa International Buddhist University, Sabroom (Tripura), India

ABSTRACT

Cucumber (*Cucumis sativus* L.) is a major fruit vegetable which belongs to the family Cucurbitaceae. It is recognised as genetically useful model plant species in terms of a fast generation cycle and diverse sex expression patterns. The present project work has been conducted using varieties of monoecious as well as parthenocarpic cucumber plant PJBC-1, PPCUC-2 ,PPCUC-3, PPCUC-4, PPCUC-5, PPCUC-6, PPCUC-7 ,CUCUMBER-8, PPCUC-9,PPCUC-10, PPCUC-11, PPCUC-12, PPCUC-13, PPCUC-14, CUCUMBER-51, & CUCUMBER-28. To assess their genetic diversity, we first designed SSR markers for F gene locus and tried to check the genetic diversity following basic PCR and gel electrophoresis of PCR product. The two SSR Markers 4th SSR 2 & 4th SSR 4 are used for this study. The result was analyzed using Gel documentation reveals that 4th SSR 2 marker shows a relatively high variation among parthenocarpic as well as monoecious variety as compared to 4th SSR 4 marker.

Abstract No. 219

BIOACCUMULATION ANALYSIS OF PYRENE IN THE SKIN OF CYPRINUS CARPIO AND CTENOPHARYNGODON IDELLA

Poonam and Sandhya Bharti

Fish Physiology and Ecotoxicology Laboratory, Department of Zoology
Babasaheb Bhimrao Ambedkar University, Lucknow (U.P.), India

ABSTRACT

Polycyclic aromatic hydrocarbons (PAHs) are listed as priority mutagenic and carcinogenic pollutants by US EPA (2008). They are hydrophobic in nature and try to accumulate in suspended particles in aquatic ecosystem and fine grained particles of sediments.In aquatic ecosystem, they remobilised in water column and become available for aquatic organisms. Among all PAHs, Pyrene (PYR, four ring), a higher molecular weight compound, readily degradable and used as marker of PAHs contamination in wastes and listed as potential hazards for fish. Therefore, PYR bioaccumulation in laboratory condition is challenging. In present study, two Indian major carps namely *Cyprinus carpio* and *Ctenopharyngodon idella* were subjected to PYR sub-lethal doses of PYR bioaccumulation for 20 days of exposure duration and noticed that PYR bioaccumulation was found only in *C. carpio*. *C. carpio* is comparatively more active than *C. idella* and preferred swimming in water column. The bioaccumulation of pyrene is found in *C. carpio* even very short time period. Therefore, in natural water column, fish may have pose greatest concentration of PAHs, this may be helpful for concluding the human health risk assessment.

Abstract No. 220

CLIMATE CHANGE AND THE EXPANDING RANGE OF VECTOR-BORNE DISEASES

Nisha Siwal

Department of Zoology
A.N.D.N.N.M. Mahavidyalaya, Kanpur (U.P.), India

ABSTRACT

Climate change is increasingly recognized as a major factor influencing the spread and intensity of vector-borne diseases (VBDs) worldwide. The habitats, life cycles, and behaviors of vectors including mosquitoes, ticks, and flies are changing because of changes in temperature, humidity, rainfall patterns, and extreme weather events. Consequently, infections such as Lyme disease, dengue, chikungunya, Zika virus, and malaria are spreading to formerly untouched places, such as high-altitude regions and temperate zones. Significant public health issues are raised by this global spread, especially in areas with weak health infrastructure and little ability for adaptation. In this study examines the intricate connections between climate factors and the ecology of disease-carrying organisms, backed by up-to-date data and forecasts. It emphasizes that higher temperatures can speed up the reproduction of vectors and the growth of pathogens, while greater precipitation or flooding can establish additional breeding sites. On the other hand, droughts may compel vectors and human populations to interact more closely. Additionally, the review discusses the repercussions of these patterns for disease monitoring, vector management initiatives, and healthcare readiness. Adaptation strategies such as climate-aware early warning systems, comprehensive vector management, and collaboration across various sectors are vital for reducing future risks. It is crucial to comprehend how climate change influences the dynamics of vector-borne diseases (VBDs) to create resilient health systems and formulate effective policy interventions in an environment that is evolving quickly.

Abstract No. 221

PREDICTING HUMAN AND ECOLOGICAL RISK OF PESTICIDES BY USING COMPUTATIONAL TOXICOLOGY

Sunil Kumar Mishra

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

ABSTRACT

Pesticides are crucial for agricultural efficiency, but they present considerable dangers to both human health and environmental systems. Computational toxicology provides an economical and predictive approach to assess the toxicity of pesticide substances prior to widespread application. By utilizing in silico techniques such as Quantitative Structure-Activity Relationship (QSAR) modelling, molecular docking, and machine learning methods, scientists can anticipate biological targets, environmental behaviour, and toxicological outcomes of pesticides. These methods facilitate high-throughput screening and the prioritization of hazardous compounds, minimizing the reliance on extensive animal testing. Furthermore, merging cheminformatics with toxicogenomic data improves the accuracy of toxicity predictions across various species and ecosystems. This methodology aids in creating safer pesticides, conducting regulatory risk evaluations, and promoting sustainable agricultural practices.

Abstract No. 222

IMPACT OF WASTE AESTHETIC GASES ON CLIMATE CHANGE

Kaushal Kumar and Deepshikha

Department of Pharmacy
MJP Rohilkhand University, Bareilly (U.P.), India

ABSTRACT

The growing global concern over climate change has primarily focused on major contributors such as fossil fuel combustion, industrial emissions, and deforestation. However, less attention has been paid to the environmental impact of waste gases originating from aesthetic and non-essential industries. These "waste aesthetic gases" refer to emissions produced by products and activities intended primarily for visual, sensory, or cosmetic appeal, including aerosol sprays, fragrance diffusers, fog machines, fireworks, and beauty or luxury product manufacturing. Though often perceived as minor, these sources contribute to atmospheric pollution through the release of volatile organic compounds (VOCs), greenhouse gases like carbon dioxide (CO_2), and hydrofluorocarbons (HFCs). This article examines the environmental footprint of aesthetic waste gases by analyzing their sources, chemical composition, and cumulative impact on global warming and ozone depletion. The research reveals that while individual emissions from these sources are small, their widespread use across the globe adds up to a measurable contribution to climate change. Additionally, many of these gases have high global warming potentials (GWPs), amplifying their long-term environmental impact. The study emphasizes the need for increased awareness, better regulation, and the development of sustainable alternatives within these industries. Encouraging shifts toward eco-friendly products, promoting responsible consumption, and innovating low-emission technologies can help mitigate the overlooked but significant role of aesthetic waste gases in climate change. Addressing this niche source of emissions complements broader environmental strategies and supports a more comprehensive approach to sustainability.

Abstract No. 223

ROLE OF INDIGENOUS COMMUNITIES IN ENVIRONMENTAL SUSTAINABILITY

Savita Tiwari

Department of Botany
Sri Guru Tegh Bahadur Khalsa College, Jabalpur (M.P.), India

ABSTRACT

Indigenous communities play a vital role in environmental sustainability, holding extensive traditional knowledge about ecosystems and sustainable resource management. The traditional knowledge of Indigenous people includes practices for managing land, water and other resources in a sustainable way which is often superior to conventional approaches. These people act as stewards of biodiversity, protecting plant & animal species of their territories. Their traditional knowledge can guide conservation efforts such as indentifying protected areas and sustainable harvesting practices. These communities sometimes developed innovative systems for managing the local resources. These communities are also crucial in advocating for the protection of their territories and rights which are often related with environmental conservation. Their participation in policy and decision making processes is essential for ensuring that environmental policies respect their knowledge and rights. By documenting and preserving this indigenous communities knowledge we can developed more inclusive conservation strategies. This integration not only tackles environmental challenges but also preserves cultural heritage, promoting sustainable development and respecting the wisdom of indigenous communities.

Abstract No. 224

EXPLORING THE DIVERSITY AND ECOLOGY OF TREMATODE PARASITES IN FRESHWATER FISH (*CHANNA* SPP.) FROM GONDA, UTTAR PRADESH, INDIA

Arun Kumar[1], Avnish[1], Shraddha[1], A.M. Saxena[2] and Sudhakar Prakash[1]

[1]Department of Zoology, Shia P.G. College Lucknow (U.P.), India
[2]Department of Zoology, University of Lucknow, Lucknow (U.P.), India

ABSTRACT

The ecology and variety of trematode parasites in freshwater fish (*Channa* spp.) are examined in this study. Fishes were collected from 'River Kuano' Chandradeep Ghat Gonda (Uttar Pradesh) India and examined for the helminth parasites for intensity which is describe in the form of table. Out of which we collected the trematode parasites and describe in this paper. Infection rates and severity differed by host species and geographic region. Morphological and Ecological study verified the parasites' identity. With consequences for fish health population dynamics, and possible zoonotic hazards, the study emphasizes the significance of comprehending the diversity and ecology of trematode parasites in freshwater fish. The results of this study advance our understanding of trematode parasites in *Channa* species and shed light on the intricate relationship that exists between parasites, hosts and ecosystem.

Abstract No. 225

IMPACT OF CLIMATE CHANGE ON AGRICULTURE

Bhavana Yadav[1] and Shweta Tiwari[2]

[1]Institute of Agricultural Sciences
Rani Durgavati Vishwavidyalaya, Jabalpur (M.P.), India
[2]Department of Plant Breeding and Genetics
Jawaharlal Nehru Krishi Vishwavidyalaya, Jabalpur (M.P.), India

ABSTRACT

Climate change, driven largely by indiscriminate anthropogenic activities such as deforestation, industrial emissions, unsustainable land use, and excessive resource exploitation, is increasingly disrupting the agricultural sector. Among its most vulnerable segments is horticulture, which plays a vital role in ensuring nutritional security, generating income, and diversifying rural livelihoods. Horticultural crops—fruits, vegetables, spices, flowers, and plantation crops—are susceptible to microclimatic conditions. Altered temperature regimes, irregular rainfall, prolonged dry spells, heat waves, and increased frequency of cyclonic events have begun to significantly impact flowering, fruit setting, quality, and overall yield. Additionally, post-harvest losses in horticulture are being amplified by climate variability. Increased ambient temperatures and humidity fluctuations accelerate spoilage, especially in fruits and vegetables, many of which are highly perishable. The inadequacy of cold storage and value-chain infrastructure in rural and semi-urban areas further exacerbates these losses, posing a direct threat to the livelihoods of small and marginal farmers who rely on horticultural produce for income. A trans-disciplinary approach is essential to address these interconnected challenges. This includes the development and dissemination of climate-resilient varieties, promotion of protected cultivation techniques (like polyhouses and net houses), efficient water management through drip and mulching, and adoption of integrated pest and disease management practices. Equally important are policy-level support systems, research-extension linkages, and capacity building at the grassroots level. Ensuring horticultural resilience under changing climatic scenarios is not just an agricultural priority but a crucial step towards environmental sustainability and social equity.

Abstract No. 226

DOSE-DEPENDENT EFFECTS OF CALCIUM SUPPLEMENTATION ON GROWTH DYNAMICS, PHOTOSYNTHETIC EFFICIENCY, ANTIOXIDATIVE DEFENSE, AND SECONDARY METABOLITE PROFILING IN *OCIMUM BASILICUM* L.

Asif Hussain Hajam and Gausiya Bashri

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

ABSTRACT

Calcium (Ca) is an essential secondary messenger known to regulate various physiological and metabolic processes in plants. Despite its well-established roles, limited information is available on the dose-dependent impact of Ca on growth, photosynthesis, and secondary metabolite production in *Ocimum basilicum* L. (sweet basil). This study evaluated the influence of increasing Ca concentrations (0, 2.5, 5, 10, and 25 mM CaCl) on morphological, physiological, antioxidative, and phytochemical responses in *O. basilicum*. A controlled pot experiment was conducted using a completely randomized design. Key parameters assessed included plant height, leaf number, biomass accumulation, chlorophyll fluorescence, and photosynthetic efficiency. Biochemical assays quantified proline, total phenolics, flavonoids, and essential oil content. Antioxidant enzyme activities (superoxide dismutase [SOD], catalase [CAT], and ascorbate peroxidase [APX]) were analyzed to assess oxidative stress mitigation. Gas chromatography-mass spectrometry (GC–MS) characterized the bioactive essential oil constituents. Our results showed that Ca supplementation significantly enhanced plant growth, photosynthetic efficiency, and antioxidant enzyme activities in a dose-dependent manner. The 10 mMCa treatment was most effective, resulting in optimal biomass, chlorophyll content, and secondary metabolite accumulation. Higher doses (25 mM) showed signs of saturation or mild toxicity. Moderate Ca supplementation, particularly at 10 mM, enhances growth, stress tolerance, antioxidant defense, and the biosynthesis of key bioactive compounds in *O. basilicum*, offering insights for optimizing cultivation strategies and improving phytochemical yield.

Abstract No. 227

PHYTO-AMALGAMATION OF SILVER NANOPARTICLE USING METHANOLIC EXTRACT OF *BAUHINIA ACUMINATA*

Indu[1] and Pallavi Praveen[2]

[1]Department of Botany, BBMKU, Dhanbad (Jharkhand), India
[2]Department of Botany, Bokaro Steel City College, Bokaro (Jharkhand), India

ABSTRACT

Nanotechnology is a rapidly evolving interdisciplinary field, and silver nanoparticles (AgNPs) are among the most extensively studied nanomaterials due to their unique properties and wide-ranging applications. This study focuses on the green synthesis of silver nanoparticles using the methanolic extract of *Bauhinia acuminata*, a plant known for its rich phytochemical content. The objectives include synthesizing AgNPs, characterizing their size, shape, and properties using various analytical techniques, and evaluating their biological activities. UV-Vis spectroscopy, scanning electron microscopy (SEM), transmission electron microscopy (TEM), X-ray diffraction (XRD), and Fourier transform infrared spectroscopy (FTIR) were employed to analyse the synthesized nanoparticles. The results indicate that the nanoparticles have a uniform size distribution, are well-dispersed, and exhibit the characteristic features of silver nanoparticles. The study demonstrates that the phytochemicals in *Bauhinia acuminata* act as reducing and stabilizing agents, making this green synthesis method eco-friendly and sustainable. The synthesized AgNPs show potential for various applications, including antimicrobial, antioxidant, and anti-inflammatory activities, highlighting the value of *Bauhinia acuminata* in nanotechnology.

Abstract No. 228

ASSESSMENT OF WATER QUALITY PARAMETERS AND SUSTAINABLE DEVELOPMENT OF RIVER PANDU IN DISTRICT KANPUR

Amrita and Esha Yadav

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

ABSTRACT

A river is a living ecosystem. It is not just a mere channel of water but a real magic at work that sustains a variety of life forms and functions. River flows connect people, places, and other forms of life, inspiring and sustaining diverse cultural beliefs, values, and way of life. Rivers have been the backbone for nearly all human settlements for generations. The physicochemical parameters and coliform distribution of River Pandu were evaluated using standard analytical procedures. The physicochemical parameters which are analysed during the study are temperature, color and odour, turbidity, electrical conductivity, total dissolved solids, pH, chloride, phosphates, dissolved oxygen, sulphate, nitrate, total hardness, BOD, COD and presence of heavy metals. Total coliforms were detected in counts. One-way ANOVA showed that pH, temperature, electrical conductivities, nitrates, chloride, dissolved oxygen, total dissolved solid, total hardness and alkalinity were significantly different, whereas turbidity and sulphate were not significantly different from each parameter with respect to sampling sites. The results from this study suggest that the river water is not suitable for consumption and domestic use and emphasize on the importance of protecting the freshwater resources of district Kanpur.

Abstract No. 229

APPLICATION OF NANOTECHNOLOGY IN WASTE MANAGEMENT AND SOCIO-ECONOMIC IMPACT

Kaushal Kumar[1] and Sashin Kumar[2]

Department of Pharmacy
MJP Rohilkhand University, Bareilly (U.P.), India

ABSTRACT

Nanotechnology, the manipulation of matter at the atomic and molecular scale, offers transformative solutions for modern waste management. As global waste production intensifies due to urbanization, industrialization, and population growth, conventional waste management strategies often fall short in efficiency and sustainability. Nanotechnology introduces innovative tools and materials such as nanocatalysts, nanoadsorbents, and nanomembranes that enhance waste detection, separation, treatment, and recycling processes. For instance, nano-material like carbon nanotubes and metal oxide nanoparticles can effectively remove heavy metals, dyes, and organic pollutants from wastewater, while nanosensors improve monitoring and early detection of toxic substances. In solid waste management, nanocomposites facilitate the breakdown and conversion of complex waste into reusable resources, promoting circular economy principles. Beyond environmental benefits, nanotechnology in waste management yields significant socioeconomic impacts. By improving waste treatment efficiency and reducing operational costs, nanotechnology enables the creation of cleaner and more sustainable urban environments. This fosters public health, reduces disease burdens, and minimizes healthcare expenditures. Economically, it supports the growth of green industries and creates high-skilled employment opportunities in nanomaterial production, system design, and environmental monitoring. Moreover, in developing countries where waste management infrastructure is often limited, low cost nanotechnology-based solutions can provide scalable, decentralized systems that empower local communities and promote inclusive development. In conclusion, the application of nanotechnology in waste management not only enhances environmental sustainability but also catalyzes socio-economic growth, representing a vital component of future urban development strategies.

Abstract No. 230

ENVIRONMENTAL IMPACT OF CLINICAL TRIALS AND HOSPITAL PHARMACIES

Sobhna Singh, Kaushal Kumar and Neha

Department of Pharmacy
MJP Rohilkhand University, Bareilly (U.P.), India

ABSTRACT

The healthcare sector, while essential for public well-being, significantly contributes to environmental degradation. Clinical trials and hospital pharmacies, often overlooked in sustainability discussions, play a notable role in this footprint. This abstract explores the environmental impact of these two components, focusing on waste generation, energy consumption, and pharmaceutical pollution. Clinical trials typically involve complex logistics, high material consumption, and the generation of considerable medical and packaging waste. The frequent use of single-use plastics, transportation of investigational products across borders, and disposal of unused medications exacerbate their environmental toll. Hospital pharmacies, integral to patient care, also contribute through energy-intensive operations, overstocking, and improper disposal of expired drugs. The lack of standardized protocols for sustainable practices further amplifies these issues. Pharmaceutical residues entering water systems from hospital waste pose serious ecological risks, affecting aquatic life and potentially contributing to antimicrobial resistance. This abstract underscores the need for green initiatives, including eco-design in trial protocols, improved inventory management in pharmacies, and the adoption of energy-efficient technologies. Additionally, integrating environmental assessments into clinical trial planning and promoting policies for responsible medication disposal can significantly mitigate harm. Collaboration among healthcare professionals, researchers, and regulatory bodies is crucial to develop and implement sustainable practices. Addressing the environmental impact of clinical trials and hospital pharmacies is not only a matter of environmental stewardship but also of advancing a holistic approach to public health.

Abstract No. 231

AI-DRIVEN FINGERPRINT CLONING: EMERGING THREATS TO BIOMETRIC SECURITY

Pawan Kumar Shrivastava and Anjali Pandey

Mahakaushal University, Jabalpur (M.P.), India

ABSTRACT

The integration of biometric systems into everyday security infrastructure has made fingerprint authentication a widely adopted method for identity verification. However, advancements in artificial intelligence (AI) have introduced new vulnerabilities, particularly through fingerprint cloning. This paper investigates the emerging threat of AI-assisted fingerprint cloning, focusing on how deep learning techniques, including generative adversarial networks (GANs), can be used to generate synthetic fingerprints or reconstruct them from partial or low-quality data. These AI-generated fingerprints can be exploited to deceive biometric systems, posing significant risks to personal privacy and secure access controls. The study also reviews existing security measures, explores their limitations against AI-generated spoofs, and proposes enhanced detection frameworks to counteract these threats. The findings underscore the critical need for next-generation biometric defenses in the era of AI.

Abstract No. 232

SPATIO-TEMPORAL BIG DATA FUSION FOR EARLY DETECTION OF AGRICULTURAL RISKS

Pooja Upadhyay

Department of Computer Science
Mahakaushal University, Jabalpur (M.P.), India

ABSTRACT

The increasing availability of heterogeneous spatio-temporal sensor data across domains such as agriculture, environmental monitoring, transportation, and industrial systems presents new opportunities and challenges for predictive modeling and intelligent decision-making. This study proposes a comprehensive and adaptable deep learning framework that integrates domain-specific data fusion techniques with advanced spatio-temporal neural network architectures. In precision agriculture, we introduce a distributed framework for managing and querying complex spatio-temporal semantic data (STSD), validated through integration with European platforms (AFarCloud and DEMETER) and extended with a Spatio-Temporal Recurrent Neural Network (STRNN) to forecast forage harvesting and crop disease outbreaks. For hydrological forecasting, a hybrid model combining Temporal Convolutional Networks (TCN), Gated Recurrent Units (GRU), and Random Forest (RF) is applied to multi-source satellite and in-situ data, delivering accurate stream flow predictions and interpretability via SHAP analysis. In urban transportation and renewable energy, we employ CNN-based rasterization for multi-source traffic prediction and a Spatio-Temporal Fusion Neural Network (STFNN) combining Multi-Kernel CNNs and LSTM layers for wind turbine fault diagnosis using SCADA data. Validated across real-world datasets—from Kobe City to the Jialing River Basin—the proposed models consistently outperform baselines. This research underscores the transformative potential of unified spatio-temporal deep learning in driving predictive intelligence and resilience across smart systems and environmental applications.

Abstract No. 233

THE EFFECT OF BIOFLOC TECHNOLOGY ON THE GROWTH OF ORNAMENTAL FISH *C. AURATUS* (GOLDFISH)

Sushma Kumari[1], Praveen Tamot[2], Vipin Vyas[3] and Ratnakar Mishra[4]

[1*3]Department of Zoology and Applied Aquaculture
Barkatullah University, Bhopal (M.P.), India
[2]Department of Zoology
Govt. Maharani Laxmi Bai Girl (Auto.) PG College, Bhopal (M.P.), India
.[4]Department of Aquaculture
Sanjeev Agrawal Global Educational University, Bhopal (M.P.), India

ABSTRACT

Biofloc technology is based on microbial activities that immobilise nitrogen and carbon. The current study sought to maintain water quality while improving the production performance of *C. auratus* (Goldfish) in a zero-water exchange biofloc system. 30 *C. auratus* (Goldfish) were placed in each treatment and control tank in triplicate and fed a designed food at a rate of 3% of body mass daily. In control-1, 50% of the water was exchanged weekly in accordance with industry standards, while no water was swapped in control-1 or the treatment. Depending on the percentage of total ammonia nitrogen (TAN) in the water, rice bran was added as a carbon source to the treatment tanks to maintain a C:N ratio of 20:1.The water quality in the biofloc treatment, control-1, and control-2 was suitable for *C. auratus* (Goldfish).TAN and pH levels were considerably higher in tanks with no water exchange ($P < 0.05$).The biofloc treatment significantly increased weight gain, specific growth rate, survival rate, ultimate weight, and length of *C. auratus* (Goldfish) compared to the control group ($P < 0.05$). Fish grown in the biofloc treatment exhibited a much brighter red body and fin colour than the controls. In zero-water exchange culture systems, biofloc technology can be used to maintain water quality while also improving *C. auratus* (Goldfish) productivity.

Abstract No. 234

ECHOES OF EXPLOITATION: RECLAIMING HARMONY THROUGH ART, CULTURE, AND CONSCIOUSNESS

Sushma Vishwakarma

Department of Arts and Humanities
Mahakaushal University, Jabalpur (M.P.), India

ABSTRACT

Human civilization has long progressed at the cost of nature, but the unchecked and indiscriminate anthropogenic impact in the modern era has pushed both the environment and society to the edge. This paper examines the complex and layered consequences of such human-induced disturbances through the lens of arts and humanities. Drawing from literature, visual arts, folklore, and cultural narratives, it reveals how creative expressions both reflect and resist ecological degradation and social injustice. The study argues that sustainability is not merely a scientific concern but a cultural and moral responsibility. By adopting a trans-disciplinary approach, the paper integrates artistic insight, historical context, and ethical reflection to reimagine our relationship with nature. It further explores how indigenous traditions, oral histories, and aesthetic sensibilities can guide us toward more sustainable and inclusive futures. Through this exploration, the research emphasizes the power of cultural consciousness in fostering environmental empathy and collective action.

Abstract No. 235

APPLICATION OF NANOPARTICLE ENHANCED COMMON CARP FISH FEED: BENEFIT AND CHALLENGES

Dhanush Pal and Sunil Kumar

Department of Animal Science
M.J.P. Rohilkhand University, Bareilly (U.P.), India

ABSTRACT

The remarkable functional properties the nanoparticle have been widely used and being enhanced common carp fish (*Cyprinus carpio*). The progression in nanotechnology, a grate number of nanoparticle i.e is showing with exclusive properties. The extraordinary features of nanoparticle have made them relevant in numerous enhanced common carp fish application approaches. Bearing in mind the shortcoming of physico-chemical approaches cost ef fective and energy effective novel substicle for nanoparticle. Incorporating nanoparticle in common carp fish feed after numerous benefit improved nutrient, absorption, enhanced growth rate, better feed conversion rating and overall health improvement in fish. Various type of nanoparticle, such as metal based. Non- metal based and composite nanoparticle can boost fish immune system.

Abstract No. 236

STUDY ON DIGENETIC TREMATODE PARASITES INFECTING FRESHWATER FISHES OF COMMERCIAL IMPORTANT IN UTTAR PRADESH, INDIA

Shraddha Vishwakarma[1], Arun Kumar[1], Avnish Kumar[1], A.M. Saxena[2] and Sudhakar Prakash[1]

[1]Department of Zoology, Shia P.G. College, Lucknow (U.P.), India
[2]Department of Zoology, University of Lucknow (U.P.), India

ABSTRACT

Based on the survey of literature the present study shows the morphological and histopathological changes in commercially important fishes which are considered as the Gold Coin of aquaculture because of their significant nutritional, medicinal and economic benefits. Among the helminth parasites digenetic trematodes infect the fishes, infection result the morphological and histological changes in different organs like liver, kidney, gills and guts. Infected organs shows the severe tissues damages, chronic inflammatory responses, immune cell infiltration into cyst wall and granulomatous lesion, muscles degradation and other consequences which decreases the economical and nutritional values of these fishes and increases the rate of mortality of these. The main reason of this study is to understand the histological changes for developing anti-helminthic formulation for control the trematodes infection and maintain fish health that's why we can increase the productivity of commercially important fishes.

Abstract No. 237

TUBERCULOSIS A MAJOR RISK TO GLOBAL HEALTH,STUDY AND KNOWLEDGE IN DISTRICT DODA ALONG WITH CHALLENGES AND STATUS WITH SPECIAL REFERENCE TO JAMMU AND KASHMIR

Ajaz Ahmed Wani

Department of Zoology
Govt. PG College, Bhaderwah, Doda (J. &K.), India

ABSTRACT

Tuberculosis (TB) is one of the most ancient disease of mankind and is one the ten major cause of mortality worldwide particularly in developing countries .It is an infectious disease caused by bacteria *Mycobacterium tuberculosis*. It usually affect the lungs but can also affect other organs of body. Inspite of various measures taken to eliminate the TB by Govt. of India by 2025 .The trend of TB cases and drug resistant cases in India is very disturbing. The study presents survey, knowledge, challenges and status of tuberculosis in Jammu and Kashmir with special reference to District Doda where it was observed that still stigma regarding tuberculosis is prevalent in the society.

Abstract No. 238

STUDY OF BIVALVE DIVERSITY IN THE SELECTED INTERTIDAL ZONES ALONG THE COASTLINES OF GOA

N. G. Shinde and Alisha Goankar

Department of Zoology
K.J. Somaiya College of ASC, Kopargaon, Dist. Ahilyanagar (M.S.), India

ABSTRACT

The bivalve fauna across Goa's intertidal zones exhibits a fascinating heterogeneity, with variations observed in species richness and taxonomic composition between the northern and southern regions. Carmona beach and Mobor beach stands out as a biodiversity hotspot, boasting the highest number of individuals and species respectively. The present study provides a valuable baseline assessment of the biodiversity status of marine bivalves within the intertidal zones of Goa's coastal regions. The observed variations in species richness and abundance across the study sites highlight the potential influence of environmental factors, including topography, substrate composition, and anthropogenic activities. The documented diversity levels underscore the need for continued monitoring and implementation of effective conservation measures to safeguard the ecological integrity of these vital marine ecosystems. Despite their ecological, economic, biological, and evolutionary significance, molluscs have not been comprehensively studied by field biologists. While these creatures have garnered some attention, research efforts have been sporadic and fragmented. Malacofaunal diversity on some beaches were might be underestimated and some of these beaches are undescribed. A comprehensive investigation of marine bivalves within the intertidal zones of Goa's coastal regions yielded a total of 629 bivalve specimens across twelve randomly selected sites. These specimens were meticulously classified, revealing the presence of 29 distinct bivalve species. Notably, the Veneridae family emerged as the most abundant bivalve taxon within the study area. This valuable research endeavour establishes a vital baseline understanding of the current ecological status with a 47-particular focus on bivalve communities, along the Goan coastline. This information serves as a foundation for future monitoring and conservation efforts, ensuring the long-term health and biodiversity of these crucial marine ecosystems.

Abstract No. 239

IDENTIFICATION & CHARACTERIZATION OF POTENTIAL BIOLOGICAL STRAIN AGAINST *FUSARIUM* WILT OF PIGEONPEA

Ruby Fatma[1], Ratna Katiyar[1] and Suchi Srivastava[2]

[1]Department of Botany, University of Lucknow, Lucknow (U.P.), India
[2]CSIR-National Botanical Research Institute, Lucknow (U.P.), India

ABSTRACT

A significant legume crop that is frequently used as a food grain, pigeonpea (Cajanuscajan) L. Millsp. is high in protein, carbohydrates, essential amino acids, minerals, and fibre. India is well renowned throughout the world for being a significant producer of pigeonpea. Pigeonpea is susceptible to a number of pathogens, among which *Fusarium oxysporum f. sp.* is considered as the most important fungal pathogen causing considerable economic loss in India and all over the world. Among different states in India, Uttar Pradesh is the major pigeonpea growing state having most of the wilt susceptible pigeonpea growing areas causing considerable yield losses. It is need to find an effective and environmentally friendly way to treat the disease. Traditional methods of controlling this fungal infection, like using fungicides, are recommended, however using a lot of chemicals are hazardous. Crop rotation and other management techniques are crucial for preventing disease however these chemicals show adverse effect on nontargeted microorganisms and soil crop quality. In light of these conditions, biocontrol methods that employ bioagents are becoming more and more significant in the management of *Fusarium* Wilt. The aim of this study is to identify promising rhizobacteria and assess their capacity to suppress disease and promote plant growth in pigeon pea.

Abstract No. 240

WETLANDS WEAVE NATURE INTO CITIES: CAPTURING CARBON TO MITIGATE CLIMATE CHANGE

Suraj Prakash Yadav and Mahima Chaurasia

Department of Environmental Sciences
Dr. RML Avadh University, Ayodhya (U.P.), India

ABSTRACT

Wetlands play an important role in mitigating climate change and connecting cities to nature. When we talk about amenities, the 'city' emerges as an attractive option in the human mind. However, the definition of the city is based on a basic concept that reflects the primary needs of a living being. These include clean water, clean and balanced food, clean air, and small and safe shelter. All these primary requirements are ultimately influenced by the climate of that region. Climate is made up of the amount of rainfall, temperature, humidity, and other related components, which define the environmental conditions of an area. The balance of gases in the atmosphere provides the basis for the greenhouse effect. These gases, which are crucial to the continuation of life on earth, primarily consist of carbon dioxide, methane, and water vapor. Any geographic area's terrestrial elements like land, water, forests, and biodiversity determine its natural richness. These factors not only make the region environmentally sound but also provide the people there with the ability to lead sustainable and balanced lives. By incorporating wetlands into urban planning, cities can enhance their ecological strength, providing a dual function of supporting biodiversity and reducing greenhouse gas concentrations. Wetlands, as multifunctional ecosystems, seamlessly integrate these principles, capturing carbon while safeguarding cities against climate adversities. This highlights their pivotal role in creating urban environments that are not only habitable but also environmentally resilient.

Abstract No. 241

ANTHROPOGENIC PRESSURES ON AVIAN BIODIVERSITY IN UTTAR PRADESH: A PERSPECTIVE ON SUSTAINABLE CONSERVATION

Princess Tiwari and Amrita Singh

Department of Zoology
BSNV PG College, Lucknow (U.P.), India

ABSTRACT

Birds, is rightly known as a natural indicator of a healthy ecosystem, but are under increasing threat from anthropogenic activities including deforestation, natural disasters, habitat loss due to human encroachment, pollution, and habitat fragmentation led to biodiversity loss and causing ecosystem instability. This conceptual study explores the relationship between human-induced environmental changes and their impact on avian biodiversity , with a focus on Uttar Pradesh. As habitats degrade due to unregulated land use, biodiversity loss accelerates, threatening ecosystem services and resilience. Using a trans-disciplinary lens, this study discusses the interconnectedness of biodiversity, human well-being, and environmental sustainability. The study proposes a framework that integrates ecological research, community-based conservation initiatives, and policy measures to mitigate avian biodiversity loss. By aligning conservation strategies with sustainable development goals, this study illuminates the need for proactive interventions to protect bird habitats and promote coexistence. The insights presented aim to contribute toward a holistic approach to biodiversity conservation within the context of social and environmental sustainability.

Abstract No. 242

DIGITAL MEDIA AND BIODIVERSITY: INTERSECTIONS OF FOOD, HEALTH, AND SOCIETY IN THE ANTHROPOCENE

Abhishek Kumar

Mass Communication and Journalism Department
Babasaheb Bhimrao Ambedakar University, Lucknow (U.P.), India

ABSTRACT

In the wake of intense environmental challenges, the interconnection between biodiversity, food systems, human health, and societal well-being has gained unprecedented significance. Biodiversity is the cornerstone of resilient food systems, providing the genetic variety necessary for nutrition security, ecosystem services, and disease resistance. However, rapid urbanization, monoculture agriculture, climate change, and industrial food production are eroding this biodiversity, with vast impacts on health-ranging from rising non-communicable diseases to the re-emergence of zoonotic infections. Within this fragile nexus, society's perception and engagement with biodiversity is being increasingly shaped by digital media.Digital platforms-ranging from social media and e-agriculture portals to biodiversity mapping tools-play a important role in spreading awareness, shaping consumer choices, and mobilizing communities. They amplify indigenous knowledge, promote sustainable food practices, and spotlight endangered species and agro-biodiversity. Influencers, grassroots movements, and citizen science initiatives are leveraging platforms like Instagram, YouTube, and X (formerly Twitter) to advocate for organic farming, seed sovereignty, and biodiversity conservation. Simultaneously, digital misinformation and green washing present challenges that may distort public understanding.This convergence of biodiversity, health, food, and digital engagement underscores the urgent need for a transdisciplinary approach-where ecologists, health experts, media analysts, and local communities collaboratively design communication strategies that promote sustainability. As digital media continues to evolve as a critical space for discourse and action, its integration into biodiversity and health policy frameworks could foster more inclusive, informed, and resilient societies in the Anthropocene.

Abstract No. 243

EFFECTS OF MICROBIAL WATER CONTAMINATION ON DOMESTIC ANIMAL HEALTH

Alka Varshney[1] and D.K. Sharma[2]

Zoology Department, PM CoE Govt. PG College, Morena (M.P.), India
Zoology Department, SMS Modal Science College, Gwalior (M.P.), India

ABSTRACT

Water is the most important requirement of life. The total body weight of dairy cattle is 56 to 81% water and water is the main component of milk and waste products. Decreasing free water intake is undesirable as it will limit milk production and reduce health status, resulting in decreased producer profitability. Water is necessary for all metabolic processes essential for life, growth and reproduction like regulation of body temperature, lactation, and digestion, lubrication of joints, eyesight and as a cleansing agent. Water contaminated with infected faeces, urine, discharges and tissues may contain pathogenic organisms. Most waterborne illnesses cause common symptoms and characteristics of each symptom depend on the bacteria, viruses, or pathogenic microorganisms. Water quality is an important issue in the production and health of dairy cattle. Limiting water availability to cattle will lower production rapidly and harshly. Monitoring of water quality during periods of reduced production or nonspecific diseases will improve herd health and solve production problems. The five properties most often considered in assessing water quality for livestock are organoleptic properties (odor and taste), physiochemical properties (pH, total dissolved solids, total dissolved oxygen and hardness), presence of toxic compounds (heavy metals, toxic minerals, organophosphates and hydrocarbons), presence of excess minerals or compounds (nitrates, sodium sulfates and iron) and presence of bacteria. The two most common methods to kill microorganisms in the water supply are: oxidation with chemicals such as chlorine, chlorine dioxide or ozone, and irradiation with Ultra-Violet (UV) radiation.

Abstract No. 244

ANTIMICROBIAL ACTIVITY OF ETHNOMEDICINAL PLANTS OF SHEKHAWATI REGION, RAJASTHAN

Aparna Pareek

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

ABSTRACT

The gradual increase in multidrug resistance (MDR) and antimicrobial resistance (AMR) of pathogens is a great concern of worry to the world, for the solution of this alarming situation, novel drug discoveries are required. Ethnomedicinal plants can be the sources of new drug discoveries against this panic situation. So in present study ethnomedicinal plants *Peganumharmala* and *Sidamysorensis* were selected from Shekhawati region, Rajasthan for antimicrobial activities against infectious diseases. Tribal communities and local people of Shekhawati region have indigenous knowledge of ethnomedicinal plants that save their lives from various ailments. In some area of Shekhawati, people still use plant based remedies to cure their diseases. The gradual increase in multidrug resistance (MDR) and antimicrobial resistance (AMR) of pathogens is a great concern of worry to the world so novel and effective bioactive constituents from the plants should be explored to get rid of this panic situation. Chemically synthesized drugs can be instant relievers but have major adverse effects. Due to the presence of various phytoconstituents, *Peganum harmala* can be a novel source in drug designing to fight against different infectious diseases. So in present study ethnomedicinal plants *Peganum harmala* and *Sida mysorensis* were selected from Shekhawati region, Rajasthan for studying antimicrobial activities against infectious diseases.

Abstract No. 245

MANAGEMENT OF PLASTIC WASTES BY DEVELOPING VERTICAL GARDENS IN JAMMU: A CASE STUDY

Nazia Rasool Latifi

Department of Environmental Sciences
GCW Gandhinagar, Jammu (J. & K.), India

ABSTRACT

The rising tide of plastic waste and its disposal is a pressing issue that is effecting our environment on a global scale. Single use plastic bottles are a major source of plastic waste contaminating land, oceans, ecosystems and human health. Additionally, there are concerns about potential health risk associated with chemical leaching and micro plastic release from these bottles, especially when reused. Globally less than 10% of plastic bottles are recycled .Plastic pollution is a growing environmental crisis in Jammu also, necessitating innovative and sustainable solutions. This case study focuses on the development of vertical gardens utilizing plastic bottles as planters which is a creative and practical approach to repurposing plastic waste. By integrating waste reduction with urban greening, the initiative not only diverts plastic from landfills but also promotes sustainable gardening practices and enhances the aesthetic and ecological value of urban spaces. Furthermore, the project being economical and eco-friendly , serves as an educational platform, fostering community participation and raising awareness about environmental stewardship and circular economy principles. In this case study, attempt is made to demonstrate how discarded materials can be reimagined as valuable resources, contributing meaningfully to environmental sustainability and community resilience.

Abstract No. 246

WASTE MANAGEMENT AND SOCIO-ECONOMIC IMPACT

Anuj Kumar Singh

Department of Botany
K.P.M. Govt. Mahila Mahavidyalaya, Aurai, Dist. Bhadohi (U.P.), India

ABSTRACT

Waste management or Waste disposal encompasses the entire process of handling materials considered unwanted or discarded, from collection to final disposal,with a focus on minimizing environmental and health impacts.The management of waste is not merely an environmental concern but a significant socio-economic issue. Now It has emerged as a critical component of sustainable development, directly influencing public health, environmental quality,and economic stability. Effective waste management systems (EWMS) not only reduce pollution and conserve resources but also create economic opportunities through job creation, recycling industries, and energy recovery. In contrast, inadequate waste disposal exacerbates poverty, health risks, and environmental degradation, particularly in low-income communities and certainly it would be proved to be very fatal to our society. This present paper clearly explores the various socio-economic dimensions of waste management and its environmental sustainability practices.Waste management is a multidimensional challenge with far-reaching socio-economic implications. By analyzing current practices, recent challenges and policy frameworks, the current study emphasizes the need for integrated waste management (IWM) strategies, incentivizing recycling and reuse Formalizing informal workers and community engagement that align environmental sustainability economic inclusion and social equity and also supported by strong governance and community participation, is very much essential to address the growing waste crisis.

Abstract No. 247

UV-B RADIATION INDUCED PLANT PROTECTION OVER ARCTIC REGION

Rudra P. Singh and Vinod Kumar Chaudhary

Department of Environmental Sciences
Dr. RML Avadh University, Ayodhya (U.P.), India

ABSTRACT

Stratospheric ozone depletion allows high exposure of biologically active ultraviolet-B (UV-B) radiation on Earth surfaces. Arctic territory, divided into 21 floristic provinces under 5 subzones (A-E) which is dominated by vascular plants, bryophytes and algae.About 3% species (approx. 5900 sp.) of the global flora occurs in the Arctic regions. Arctic flora consists of angiosperms (0.7%), gymnosperms (1.6%), bryophytes (4%) and lichens (11%) as, Polar Regions are more prominent to high UV-B exposure due to stratospheric ozone depletion. The investigation related to UV-B radiation effects on cryptogams (cyanobacteria, algae, lichens, mosses, liverworts, pteridophytes and fungi) reveals dramatic results. In Arctic region, the cryptogamic plants produced UV protective pigments in repose to UV-B radiation. Different organisms synthesized various types of UV-absorbing substances such as cyanobacteria synthesized Scytonemin and Mycosporine-like amino acids (MMAs); parietin and usnic acid synthesized from *Xanthoria parietina* and *Cetraria nivalis* respectively; flavones and flavonol glycosides synthesized from *Bryumalgens*. In lichens, usnic acid, perlatolic acid and fumarphotocetraric acid which is particularly induced by UV-B radiation exposure. Similarly, in mosses, neoxanthin, violaxanthin, lutein, epoxide, anteraxanthin, lutein, zeaxanthin, UV absorbing and phenolics are the important pigments synthesized by UV radiation stress. The UV screening compounds such as phenolics and carotenoids synthesized by cryptogams are helpful to screen out the biologically harmful UV-B radiation. In terrestrial and shallow wetland Arctic plants adapted to harsh conditions by applying three important mechanisms i.e. avoidance, protection, and formation of partnership, against to UV radiation exposure.

Abstract No. 248

HARNESSING GENETIC POTENTIAL FOR CLIMATE-RESILIENT CROP BREEDING: A PATHWAY TO SUSTAINABLE AGRICULTURE

Nisha Yadav and Nimisha Tiwari

Agriculture Department
Mahakaushal University, Jabalpur (M.P.), India

ABSTRACT

In the face of global climate change, the role of genetics and plant breeding has become pivotal in developing resilient and high-yielding crop varieties. This study highlights the integration of classical breeding techniques with modern genomic tools to enhance genetic gain and improve stress tolerance in crops. By focusing on molecular markers, QTL mapping, and CRISPR-based gene editing, the research underscores the potential of advanced breeding technologies to combat biotic and abiotic stresses. Special emphasis is laid on the identification and introgression of desirable traits from wild relatives to cultivated varieties, ensuring genetic diversity and sustainability. The study also explores participatory breeding approaches that involve farmers in the varietal selection process to ensure adaptability at the grassroots level. The findings advocate for a multidisciplinary approach to strengthen food security and promote climate-smart agriculture, aligning with the goals of sustainable development.

Abstract No. 249

ARTIFICIAL INTELLIGENCE, SYSTEMIC RISKS, AND SUSTAINABILITY

Nutan Bairagi

Department of Computer Science and Application
Mahakaushal University, Jabalpur (M.P.), India

ABSTRACT

Automatic selection-making-Predictive analyses related to the multiplied technological advances in technologies along with sensor era and robotics is possibly to revolutionize and respond to changes in climate and ecology. Various sorts of synthetic intelligence-primarily based technologies are already being used in diverse fields of weather alternate and environmental surveillance research. Investments in the applications of those technologies in agriculture, forestry and marine aid harvesting additionally appear to be developing swiftly. In the meantime, the hobby and use of AI era in regions vital to sustainability examines capability systemic risks in element. This work gives a international picture of such technological advancements in industries which have a sizeable impact on sustainability, consisting of: It also determines capacity systemic dangers in these areas. This consists of a) set of rules identity and allocation harm. b) Unequal distribution and blessings. c) Cascadie's errors and outside shocks, and d) Compromise in efficiency nutrition. We take a look at these new dangers, define key questions, and don't forget the constraints of existing governance framework situations in answering AI sustainability dangers in these regions.

Abstract No. 250

USING DEEP LEARNING FOR PRECISE DETECTION OF CUCUMBER DISEASES

Ravi Prakash Jaiswal[1], Manish Sharaf[1], Vijendra Pratap Singh[2] and Ambuj Kumar Misra[1]

[1]Deparatment of Computer Applications
Eklavya University, Damoh (M.P.), India
[2]Deparatment of Computer Science & Applications
Mahatma Gandhi Kashi Vidyapith, Varanasi (U.P.), India

ABSTRACT

Cucumbers hold significant importance as a global greenhouse crop, playing a vital role in dietary habits and contributing extensively to the nutrition of populations worldwide. However, their susceptibility to various diseases, driven by adverse environmental conditions, underscores the need for precise disease detection to safeguard crop quality and support food security. Conventional methods, reliant on manual inspection, often fail in identifying diseases during their early stages.This study introduces a deep learning-based solution, utilizing the VGG19 architecture and an innovative transfer learning technique for the identification and classification of cucumber diseases. The approach successfully distinguishes between healthy and diseased cucumber samples, covering conditions such as Anthracnose, Bacterial Wilt, Belly Rot, Downy Mildew, Fresh Cucumber, Fresh Leaf, Pythium Fruit Rot, and Gummy Stem Blight. Achieving a balanced accuracy of 96.65% on unseen test data, the model significantly outperforms traditional transfer learning approaches, which achieved an accuracy of 94.65%.By advancing early disease detection and supporting informed agricultural management, this research establishes a new benchmark in cucumber disease recognition and highlights the transformative potential of artificial intelligence in agriculture. Its contributions enhance productivity and sustainability, offering practical solutions for modern farming challenges.

Abstract No. 251

AGRICULTURAL DECISION SYSTEM BASED ON MACHINE LEARNING METHODS FOR YIELD PREDICTION

Ambuj Kumar Misra[1], Manish Saraf[1], Vijendra Pratap Singh[2],and Ravi Prakash Jaiswal[1]

[1]Deparatment of Computer Applications
Eklavya University, Damoh (M.P.), India
[2]Deparatment of Computer Science & Applications
Mahatma Gandhi Kashi Vidyapith, Varanasi (U.P.), India

ABSTRACT

This paper presents a comprehensive agricultural decision support system leveraging machine learning techniques for crop yield prediction. The system integrates multiple data sources including historical yield data, weather patterns, soil characteristics, and management practices to generate accurate yield forecasts. Through comparative analysis of various machine learning algorithms including random forests, deep neural networks, and ensemble methods, we demonstrate significant improvements in prediction accuracy compared to traditional statistical models. Field testing across diverse agricultural regions in the United States shows yield prediction accuracies of 85-92% depending on crop type and region. The resulting decision support framework enables farmers to optimize resource allocation, planting schedules, and management interventions based on data-driven insights. The system's practical applications and economic benefits are discussed, along with challenges in implementation and directions for future research.

Abstract No. 252

IMPACT OF ICT TOOLS ON MANAGEMENT OF PEST AND DISEASES IN TRIBAL REGION OF YELLAPURA TALUK, UTTARA KANNADA DISTRICT

H.B. Narasimhamurthy[1], Jyothi M. Rathod[1] and Mukesh Sehgal[2]

[1]College of Agricultural Sciences Iruvakki
Keladi Shivappa Nayaka University of Agricultural and Horticultural Science, Shivamogga (Karnataka), India
[2]ICAR-National Research Centre for Integrated Pest Management, New Delhi, India

ABSTRACT

Digitalization in agriculture is increasingly becoming one of the key technologies for agricultural modernization in many parts of the world. Of late, a number of aids have been developed and are progressively being tested and deployed to support agricultural production systems, including those focused on pest and disease management. The use of ICT-driven processes in pest and disease management is a growing trend across the world, particularly in supporting pest and disease diagnosis, reporting and alerts. The present study has undertaken in tribal region of Karnataka namely, Honnalli and Bachanahalli tribal camp of Yallapura taluk, the results shown that ICT tools are potential tools in gaining the information on cultivation of crops viz, rice, vegetables (chilli, brinjal cucumber) and areca nut and management of pest and diseases but due to poor economic level in buying the ICT tools, lack of power supply, lack of skill in handling ICTs, low ICT literacy, lack of confidence in operating, low network connectivity, lack of awareness of benefits of ICTs, lack of repairing facilities, lack of training and practical exposure, high cost of repairing ICTs and insufficient regional language were the major constraints faced by the farmers in the effective use of ICTs in managing pest and diseases in rice, vegetables and areca nut.

Abstract No. 253

THE IMPACT OF THE ENVIRONMENT ON BEHAVIOR AND SOCIAL RESPONSIBILITY

Sonal Kumar

Psychology Consultant, USA

ABSTRACT

As per Indian mythology, it is spiritually believed that our body is composed of Panch-Tattva (Earh, water, fire, air and sky). The entire universe is formed by these dynamic five elements and the composition and mix of these elements in each form – animate or inanimate – varies in degrees. The environment plays a critical role in shaping human behavior, influencing not only individual well-being but also collective social responsibility. As environmental challenges such as climate change, pollution, and resource scarcity become increasingly visible, they demand a reevaluation of how societies respond to shared ecological threats. Temperature elevation, extreme weather events, and rising air pollution negatively affect interpersonal and intergroup conflict and possibly increase psychological distress. Recreational opportunities are compromised by extreme weather, and children may suffer delayed cognitive development. This abstract explores the dynamic relationship between environmental conditions and social behavior, emphasizing how environmental degradation can trigger psychological stress, reduce social cohesion, and foster inequality, while healthy environments tend to promote cooperation, empathy, and civic engagement. The perception of environmental risk often influences the level of responsibility individuals and communities feel toward sustainable practices. For example, populations directly affected by environmental hazards are more likely to adopt eco-conscious behaviors and advocate for policy change. Furthermore, built environments including urban design and access to green spaces significantly impact community interaction, participation in public life, and the development of social norms around responsibility. Cultural and social contexts also play a vital role, as environmental challenges frequently reshape traditional values and promote new forms of collective action. Understanding this complex interplay is essential for designing effective environmental policies and educational strategies that foster environmental stewardship and social resilience.

Abstract No. 254

THE ROLE OF INDIAN HIGHER JUDICIARY FOR THE SUSTENANCE OF SUSTAINABLE DEVELOPMENT IN INDIA AND THE EFFECTIVENESS OF ENVIRONMENTAL LEGISLATIONS FOR EFFECTIVE GOVERNANCE: A CRITICAL ANALYSIS

S. Ganapathy Venkatasubramanian

Department of Environmental Law and Management
Anna University, Chennai (T.N.), India

ABSTRACT

The Judiciary played a key role in balancing the functions between 'Development' and 'Sustainability' as well as between 'Economic Exploitation' and 'Intergenerational Equity'. Apart from that the Indian Judiciary played an active role in evolving several principles and doctrines infusing new doctrinal, procedural and remedial moralities into the environmental law, bringing new concepts of accountability, enunciating the principle of good governance through directive and suggestive techniques. For the effective Environmental management and good Governance, we need Four Es namely Education, Engineering, Enforcement and Economics. The Judicial adoption of various international environmental law viz. Basel Convention, Bio diversity Convention, Ramsar Convention, Montreal Convention, Kyoto Protocol etc into our domestic law in India has not been done overnight. In order to understand the Judicial process of such adoption, it is important to understand a blend of technological solution with Economic, ecological and legal regime. Finally in conclusion for the effective Environmental Management the three 'Ps' are important viz Political will, Public participation and finally Professional ethics. I will elaborate them in details.

Abstract No. 255

IMPACT OF INTEGRATED PEST MANAGEMENT PROGRAMS ON KNOWLEDGE OF TRIBAL FARMERS OF KARNATAKA

H.B. Narasimhamurthy[1], Mukesh Sehgal[2] and Jyothi Rathod M.[1]

[1]College of Agricultural Sciences Iruvakki
Keladi Shivappa Nayaka University of Agricultural and Horticultural Science, Shivamogga (Karnataka), India
[2]ICAR-National Research Centre for Integrated Pest Management, New Delhi, India

ABSTRACT

ICAR-National Research centre on Integrated Pest Management, New Delhi and Keladi Shivappa Nayaka University of Agricultural and Horticultural Sciences, Shivamogga, Karnataka, India were organising various training programs to cater felt needs of the remote tribal farmers. The training programs focus on integrated pest management technologies which make use of locally available material for managing pests. The present study was conducted during the year 2023-24 and a total of 85 tribal farmers and women were selected from Shivamogga district of Karnataka. The ex-post facto evaluation of training programmes revealed that there was an overall increase of 45.9 per cent in knowledge level of respondents regarding various plant protection activities. However, 23.0 per cent gaps indicated that tribal men farmers and women were not well conversant of IPM activities. More technical gaps were recorded on identification of pest and natural enemies, use of bio control agents. Socio-economic attributes of tribal farmers had not much influence in improving their knowledge on plant protection strategies and hence, a number of training programmes were organized need-based training IPM training programmes to enhance their knowledge and skill of these farmers to modify their plant protection strategies for enhancing the crop yield and income for their lively-hood.

Abstract No. 256

EXPLORING THE ROLE OF NEPALESE RURAL WOMEN AND TRIBES IN SOCIAL AND ENVIRONMENTAL SUSTAINABILITY

Yashodhara Bhetuwal Prasai

Rato Bangala, Patandhoka , Lalitpur, Nepal

ABSTRACT

In Nepal, Rural community people, specifically women, continuously contribute to social and environmental sustainability, although their roles are frequently underestimated. Women are known as the primary caretakers in many communities and are essential for effective resource management. Similarly, tribal women connect profoundly to their land, culture, and traditions. These are valuable knowledge and practices for environmental stewardship. This article highlights the overlooked role of tribal rural women in environmental sustainability and the conservation of natural resources in Nepal. Nepalese rural women are deeply connected to land and traditional knowledge and have been essential stewards of Nepalese ecosystems. In Nepal, the roles of rural women are underrepresented despite their crucial contributions to sustainable development in agriculture and biodiversity preservation. The study takes interviews, field, and case studies to explore how tribal rural women navigate socio-cultural and political challenges while engaging in these practices. It also evaluates the effect of climate change and the government's frequently changed policy on their environmental roles. The findings emphasize the need to identify and support tribal rural women's contributions to the conservation of natural resources and the use of inclusive policies that recognize and advocate for their involvement in decision-making processes related to environmental policy.

Abstract No. 257

SUSTAINABLE DEVELOPMENT PRACTICES WITH RESPECT TO INDIAN KNOWLEDGE SYSTEM

Anand Kumar[1] and Anoop Kumar[2]

[1]Department of Mathematics, Government Degree College, Kant, Shahjahanpur (U.P.)
[2]Department of Botany, Government Degree College, Kant, Shahjahanpur (U.P.)

ABSTRACT

Sustainable development refers to the ability to maintain a healthy environment on our planet and conserve natural resources to support the well-being of future generations. At present, sustainable development is crucial for India's growth and prosperity. The country faces numerous challenges, including environmental degradation, climate change, and social inequality, which can be addressed through sustainable practices. By adopting sustainable development strategies, India can ensure the long-term health of its ecosystems, promote economic growth, and improve the well-being of its citizens. It requires a balanced approach that integrates economic, social, and environmental considerations. These practices often involve reducing waste, conserving resources, and using renewable energy sources. They also encompass social and economic considerations, aiming for a balance between human needs and environmental protection. Indian knowledge systems, particularly indigenous knowledge, play a significant role in sustainable development by promoting environmentally friendly practices, conserving biodiversity, and ensuring sustainable use of natural resources. Traditional practices like rainwater harvesting, organic farming, and agroforestry have been passed down through generations, enabling communities to manage resources effectively. This research paper focuses on the significance of indigenous knowledge systems in promoting sustainable development practices. By exploring the intricate relationship between traditional knowledge and environmental conservation, the paper highlights the importance of recognizing and respecting indigenous perspectives. It examines the role of indigenous communities in conserving biodiversity, managing natural resources, and mitigating climate change

Abstract No. 258

BIODIVERSITY CONSERVATION AND WATER MANAGEMENT FOR SUSTAINABLE DEVELOPMENT

Anoop Kumar[1] and Vandana Gupta[2]

[1]Department of Botany, Government Degree College, Kant, Shahjahanpur (U.P.), India
[2]Department of Home Science
Government Degree College, Kant, Shahjahanpur (U.P.), India

ABSTRACT

The world indeed faces significant challenges related to Biodiversity Loss, Water Scarcity and Climate Change. Biodiversity conservation and water management are intricately linked to sustainable development. The conservation of biodiversity is crucial for maintaining ecosystem services, including water regulation, which is essential for human well-being and upcoming generation. An integrated landscape approach to conservation planning and effective management of protected areas are necessary for ensuring suitable habitats for species and promoting sustainable development. Water biodiversity faces numerous threats, including habitat destruction and pollution, emphasizing the need for sustainable water management practices. By harnessing synergies between biodiversity conservation, water management, and sustainable development, we can achieve multiple Sustainable Development Goals and ensure a secure future for both biodiversity and human well-being. The paper concludes that the integrated approaches considering the interconnectedness of biodiversity, water, and sustainable development are essential for achieving a secure future for both biodiversity and human well-being.

Abstract No. 259

THE IMPACT OF UNSUSTAINABLE DEVELOPMENT ON THE BEHAVIOUR OF ANIMALS

Jitendra Kumar[1] and Amita Kanaujia[2]

[1]Department of Zoology, Government Degree College, Kant, Shahjahanpur (U.P.), India
[2]Department of Zoology, University of Lucknow, Lucknow (U.P.), India

ABSTRACT

In recent years, the unsustainable development often causes environmental disturbances that impact on various animals to change their behaviour. The behavioural responses can induce a chain of reactions through the network of species interactions and trophic interactions via consumptive and trait mediated connections. Species interactions define the structure and proper functioning of an ecosystem. Changes in surrounding environment have impacts on species interactions and trophic interactions. Here, this paper explores the transmission of behavioural responses through the network of species interactions and how the responses influence ecological conditions. The paper describes the impact of unsustainable development on behavioural responses of animals in changing environmental conditions. This paper also focuses on the impact of changing animal's behaviour on ecosystem's stability and services. This knowledge can improve our ability to predict the effects of unsustainable development on animal population and their ecosystems.

Abstract No. 260

FOOD INSECURITY, MALNUTRITION, AND BIODIVERSITY LOSS: A THREAT TO HUMAN HEALTH AND SUSTAINABLE DEVELOPMENT

Vandana Gupta[1] and Anoop Kumar[2]

[1]Department of Home Science
Government Degree College, Kant, Shahjahanpur (U.P.), India
[2]Department of Botany
Government Degree College, Kant, Shahjahanpur (U.P.), India

ABSTRACT

The world is facing various challenges in ensuring food security, promoting nutrition, and conserving biodiversity. The global population is projected to reach 9.7 billion by 2050, putting immense pressure on food systems to produce more food while minimizing environmental impacts. However, the current state of global food systems is alarming, with approximately 820 million people suffering from hunger, 2 billion people experiencing micronutrient deficiencies, and biodiversity loss threatening the very foundation of food production. In 2023, the Global Hunger Index ranked India at 105th out of 127 countries. According to United Nations, there are nearly 195 million undernourished people in India that make up a quarter of the world's undernourished population. In addition, roughly 43% of children in India are chronically undernourished. The loss of biodiversity, including crop and animal diversity, can lead to reduced crop yields, decreased nutritional quality, and increased vulnerability to climate change. This, in turn, can exacerbate food insecurity and malnutrition, with devastating consequences for human health. Sustainable development plays a vital role in ensuring food security and reducing malnutrition. By adopting sustainable agriculture practices, promoting equitable food systems, and prioritizing nutrition, we can increase food availability, improve nutritional quality, and conserve the environment. Sustainable development also enhances resilience to climate change, ensuring food security for future generations. By integrating sustainability into food systems, we can promote healthy diets, support human well-being, and protect the planet.This paper aims to explore the complex relationships between food insecurity, malnutrition, and biodiversity loss, and to identify potential strategies for promoting sustainable food systems, conserving biodiversity, and improving nutrition.

Abstract No. 261

THE SEASONAL FOOTPRINT OF ABIOTIC AND BIOTIC FACTORS ON WATER QUALITY IN UTTAR PRADESH RIVERS

Dinesh Kumar and Meenakshee Pandey

Department of Botany
KNIPSS, Sultanpur (U.P.), India

ABSTRACT

The escalating pollution of rivers represents a critical global challenge, particularly acute and devastating in developing countries where surface water quality often lacks adequate protection. Rivers, streams, and lagoons are common recipients of a wide array of untreated wastes – household, industrial, agricultural, and more – often disregarding their natural purification abilities. This intense interaction between human activities and water bodies invariably leads to serious and far-reaching consequences for a multitude of water quality characteristics. Historically, rivers have been the cradles of great civilizations, underscoring their fundamental importance to human survival and health. Yet, contemporary civilization and population growth are demonstrably diminishing both the quantity and quality of these essential resources. A stark example of this crisis unfolds in Uttar Pradesh, where the revered Ganga and its tributaries face severe water quality degradation due to increasing pollutant influxes, primarily from commercial and residential areas, sewage discharge, and industrial wastewater.This study investigates the intricate interplay of abiotic and biotic determinants influencing seasonal water quality fluctuations in the prominent rivers of Uttar Pradesh, a region vital for agriculture and human sustenance in India. We conducted a comprehensive assessment across multiple river stretches, encompassing major rivers such as the Ganga, Yamuna, and Gomti, over distinct seasons (pre-monsoon, monsoon, and post-monsoon). Water samples were analyzed for a suite of physicochemical parameters (e.g., temperature, pH, dissolved oxygen, electrical conductivity, and nutrients) and biological indicators (e.g., phytoplankton diversity and abundance). The findings reveal significant seasonal shifts in water quality parameters, with the monsoon season exhibiting the most pronounced changes due to increased runoff and associated pollutant loads. Furthermore, the study elucidates the specific impact of identified abiotic and biotic determinants on critical water quality indices, providing valuable insights for effective river water quality management and conservation strategies in the state. The outcomes of this research contribute to a better understanding of the complex ecological dynamics governing riverine ecosystems and offer a scientific basis for informed policy decisions aimed at ensuring sustainable water resources in Uttar Pradesh.

Abstract No. 262

THE EFFECTS OF CLIMATE CHANGE ON MENTAL HEALTH: PSYCHOLOGICAL PERSPECTIVE

Yogendra Pratap Singh[1] and Anoop Kumar[2]

[1]Department of Psychology
Government Degree College, Kant, Shahjahanpur (U.P.), India
[2]Department of Botany
Government Degree College, Kant, Shahjahanpur (U.P.), India

ABSTRACT

Climate change is increasingly recognized as a significant threat to global health, including mental health. Rising temperatures, more frequent natural disasters, and changing environmental conditions are altering the way we live, work, and interact with our environment, with profound implications for our psychological well-being. This paper examines the psychological impact of climate change, including increased stress, anxiety, depression, and post-traumatic stress disorder (PTSD). As severe weather events, poorer air quality, degraded food and water systems, and physical illnesses increase, the direct and indirect impacts on health are becoming better understood .We explore the pathways through which climate change affects mental health, including direct exposure to extreme weather events, indirect exposure through media and social networks, and the chronic stress of living with the threat of climate change. We also discuss the disproportionate impact of climate change on vulnerable populations, including children, the elderly, and those with pre-existing mental health conditions. Finally, we consider the implications for mental health practice, policy, and research, highlighting the need for climate-informed mental health interventions and further research on the psychological impacts of climate change.

Abstract No. 263

RESTORATION OF PAMOHI RIVER- IMPLEMENTATION OF AN INNOVATIVE MICROBIOME ENGINEERING-BASED BIOREMEDIATION STRATEGY

Mayur Bawri[1], Ajanta Dey[1] and Punyasloke Bhadury[2]

[1]Nature Environment & Wildlife Society, Kolkata (West Bengal), India
[2]Centre for Climate and Environmental Studies, Indian Institute of Science Education and Research Kolkata, Mohanpur, Nadia (West Bengal), India

ABSTRACT

Globally, freshwater ecosystems are declining due to increasing anthropogenic forcings such as from release of untreated sewage including different types of pollutants. DeeporBeel, a RAMSAR wetland located in the state of Assam in India is home to endemic biodiversity and key ecosystem services. Many rivers including Pamohi River falls into DeeporBeel but disposes of untreated sewage, among other contaminants, on a daily basis with overall release of bad odour. Since July of 2023, an innovative matrix associated microbiome engineering-based bioremediation technology has been implemented in 1 km of Pamohi River. The cost-effective bioremediation technology involved the implementation of floating devices containing microbiome embedded in matrix with abilities to withstand flow rate per min of upto 3 m per sec in the Pamohi River. The implementation has resulted in a sharp fall of fecal coliform bacterial load in Pamohi River from 107 cells per mL to less than 1200 per 100 mL within one year. Besides, nitrogen load such as dissolved nitrate has fallen from 150 µM to less than 30 µM within one year and continues to be the same. The technology has also removed certain forms of antibiotics, forms of metals, among others. Most importantly , the bad odour has completely gone away despite the flow of raw untreated sewage showing efficacy of microbiome-based bioremediation approach. The Pamohi River is showing signs of passive restoration with re-emergence of submerged and half submerged vegetation, appearance of fish populations and visit of many waterbirds.

Abstract No. 264

BIOACCUMULATION ANALYSIS OF PYRENE IN THE SKIN OF CYPRINUS CARPIO AND CTENOPHARYNGODON IDELLA

Poonam and Sandhya Bharti

Fish Physiology and Ecotoxicology Laboratory, Department of Zoology
Babasaheb Bhimrao Ambedkar University, Lucknow (U.P.), India

ABSTRACT

Polycyclic aromatic hydrocarbons (PAHs) are listed as priority mutagenic and carcinogenic pollutants by US EPA (2008). They are hydrophobic in nature and try to accumulate in suspended particles in aquatic ecosystem and fine grained particles of sediments.In aquatic ecosystem, they remobilised in water column and become available for aquatic organisms. Among all PAHs, Pyrene (PYR, four ring), a higher molecular weight compound, readily degradable and used as marker of PAHs contamination in wastes and listed as potential hazards for fish. Therefore, PYR bioaccumulation in laboratory condition is challenging. In present study, two Indian major carps namely *Cyprinus carpio* and *Ctenopharyngodon idella* were subjected to PYR sub-lethal doses of PYR bioaccumulation for 20 days of exposure duration and noticed that PYR bioaccumulation was found only in *C. carpio*. *C. carpio* is comparatively more active than *C. idella* and preferred swimming in water column. The bioaccumulation of pyrene is found in *C. carpio* even very short time period. Therefore, in natural water column, fish may have pose greatest concentration of PAHs, this may be helpful for concluding the human health risk assessment.

Abstract No. 265

AQUATIC HABITAT DEGRADATION IN TEMBHAPURI DAM: A REFLECTION OF INCREASING ANTHROPOGENIC STRESS

Madhuri Raju Paithane and Shaikh Yasmeen

Department of Zoology
Dr. Rafiq Zakaria College for Women, Chhatrapati Sambhajinagar (M.S.), India

ABSTRACT

Aquatic ecosystems display a high sensitivity to alterations in their physical, chemical, and biological conditions, especially those brought about by human influence. The Tembhapuri Dam in Maharashtra faces increasing human-induced pressures, resulting in the degradation of its aquatic environment. This research seeks to evaluate the present ecological condition of the dam and investigate the degree to which human activities have caused habitat decline. Field studies were conducted to assess water quality metrics, biodiversity indices, and sediment properties. Findings indicate a significant drop in water quality, characterized by high levels of nutrients, increased turbidity, and biochemical oxygen demand (BOD), accompanied by a marked decrease in dissolved oxygen (DO). These shifts have directly affected aquatic biodiversity, demonstrating a considerable decline in sensitive fish species, plankton, and benthic organisms. Factors contributing to this decline include untreated agricultural runoff, sewage discharge, sand extraction, and expanding recreational pursuits around the dam's edges. The destruction of riparian vegetation and changes to the dam's natural flow patterns have exacerbated ecological pressure. The results suggest that the dam is currently experiencing ecological imbalance, which, if not addressed, could result in permanent habitat loss and diminished ecosystem services. This study highlights the critical need for comprehensive watershed management, implementation of pollution control strategies, and initiatives to raise community awareness. Preserving and rehabilitating the aquatic environment of Tembhapuri Dam is essential for both biodiversity conservation and the sustainability of local livelihoods, as well as ensuring long-term water security in the area.

Abstract No. 266

PHYSICAL PROPERTY DEPENDENCE ON PLANT DENSITY; IT'S NOBLE AND SCIENTIFIC CORRELATION WITH HUMAN INTELLECT AND MATERIALISTIC BEHAVIOUR

Nikhil Ranjan Jha

Mahakaushal University, Jabalpur (M.P.), India

ABSTRACT

Quantum and Classical Physics are inter-woven. Classical Physics at one end is the study of Material world those are at bulk regime and Quantum on the other hand is the study of material world at sub atomic level. We live in the universe where around 5% of the existence is of Matter. Among those matters, living and non-living things are categorized. Living being behaviour could be further being divided into intellectual and physical response. It is now evident that the whole matter world is made of atoms. These atoms are the responsible entity that combined to form Molecule, then molecule combine to form cell and so forth combine to form organ and hence a physical body of any living being is formed. Free electrons of atoms are responsible for transmission of electronic signals via neurons.In the present paper the effect of Plant density on human intellect and physical (materialistic) Behaviour are been studied. In condensed matter physical properties of atoms viz. atomic arrangements, conductivity, elasticity, magnetism etc. are discussed. We have discussed here about the growth rate, density, digestibility, decomposition, volatility and magnetic properties of edible plants and some of theireffects on human intellect. It is found that the faster growing edible plants are less denser in property, easily digestible, simple compounded, highly volatile in nature (burns at instant), less fetors on decay and provide neurotic strengthening for a healthy and intellectual person. On the other hand, plants having higher density grow slowly, have latent nutrients, not easily digestible, have complex compounds, higher specific heat for burning, decays slowly and fetors unpleasant, provides specific treatment of the physical diseased body. Research paper also studied about the properties of edible plants and co-related it with the "guna" (properties) propounded in Indian scriptures (specifically- Patanjaliyogsutra and Bhagwatgeeta). It is found that lower density edible plants shows "Satva-guna" properties in general, good for mental peace and physical health. On the other hand, high density edible plants are not easily digestible and are "Sthool", Bulk in properties, consumption of which increases "Tamo-guna", laziness and fatigue.

Abstract No. 267

IMPACT OF DIMETHOATE PESTICIDE ON SERUM BIOCHEMICAL PARAMETERS OF *CHANNA PUNCTATUS* (BLOCH)

Chandra Shekhar and Ram Nayan Singh

Sant Tulsidas P.G. College, Kadipur, Sultanpur (U.P.), India

ABSTRACT

Pesticides are commonly used in agriculture to protect crops and livestock from insects, weeds, and diseases. However, these chemicals can enter aquatic ecosystems through runoff, where they accumulate and transfer through the food chain, ultimately impacting aquatic organisms such as fish. This exposure may lead to various health issues in aquatic life. The primary objective of this study was to investigate the biochemical changes caused by the toxic effects of the pesticide dimethoate under controlled laboratory conditions. In the freshwater fish *Channa punctatus*, significant decreases were observed in key biochemical parameters, including protein, glycogen, and cholesterol levels. These declines suggest potential health risks posed by pesticide exposure. Conversely, a notable increase in blood glucose levels was recorded, with the extent of the rise correlating with both the concentration of dimethoate and the duration of exposure. These findings highlight the utility of biochemical markers as effective indicators for assessing the impact of chemical pollutants like pesticides on the health of freshwater organisms.

Abstract No. 268

IMPACT OF HEAVY METAL, NICKEL ON HISTOPATHOLOGICAL TISSUES OF FRESHWATER FISH, CLARIAS BATRACHUS

Manoj Kumar

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

ABSTRACT

In the present investigation acute toxicity bioassay tests were conducted at various sublethal concentrations of nickel on freshwater fish, *Clarias batrachus* for 24, 48, 72 and 96 h. The acute toxicity values were determined as 11.690, 10.444, 8.997 and 7.595 mg/l respectively under laboratory conditions. These LC_{50} values showed that the chemical is highly toxic to the fish. Then the fish were exposed to sub lethal concentrations 96 h LC_{50} i.e. 0.4 mg/l, 0.8 mg/L and 1.2 mg/L for one month studied the significant histopathoogical changes in gill, liver and kidney of freshwater fish *Clarias batrachus*. The gill, liver and kidney show normal structure in control fish but in exposed fish degenerative effect is evident in the mucosal lining and microvilli of the gill, rupture of villi at the tip were noticed. In the exposed fish liver shows vacuolation, loose arrangement of hepatocytes, and dilated sinusoid and histolysiswere noticed. In the exposed fish kidney shows vacuolization, tubule disintegration and necrosis. The foregoing accounts suggests that the toxic impact of heavy metals influences considerable changes in histological organization of the gills, liver and kidney of *Clarias batrachus* leading to its functional disruption.

Abstract No. 269

NEEDS AND IMPORTANCE OF ENVIRONMENTAL EDUCATION IN PRIMARY EDUCATION

Shilpi Gupta

Basic Education Department, Balrampur (U.P.), India

ABSTRACT

Environmental issues are a global concern, with the quality of our environment continuing to deteriorate. As a result, environmental education has become an essential component for ensuring the sustainability of life on Earth. To address these challenges, it is crucial to raise public awareness and promote behavioural change. Environmental education plays a key role in fostering this awareness and motivating individuals to adopt more responsible behaviors. Such education can lead to significant transformations in production and industry, consumption patterns, and how people interact with the environment. This form of education is particularly important at the primary school level. Shaping children's environmental awareness places a significant responsibility on primary school teachers, making their training in environmental education vital. As an integral part of general education, environmental education encompasses two equally important elements: environmental knowledge and environmental awareness. Educators strive to impart this knowledge through a variety of methods, including hands-on experiences, active student participation, practical activities, and the development of understanding through learned concepts.

Abstract No. 270

REGRESSION-BASED ANALYSIS OF METEOROLOGICAL INFLUENCES ON AIR POLLUTION IN AYODHYA

Akansha Patel[1], Naveen Patel[2], Sangram Singh[3] and Vinod Kumar Chaudhary[1]

[1]Department of Environmental Sciences
Dr. RML Avadh University, Ayodhya (U.P.), India
[2]Department of Civil Engineering, I.E.T
Dr. RML Avadh University, Ayodhya (U.P.), India
[3]Department of Biochemistry
Dr. RML Avadh University, Ayodhya (U.P.), India

ABSTRACT

In the present study the influence of meteorological parameters on air pollutants were analyzed using a regression model. Air pollutant concentrations of SOx, NOx, and PM_{10} were measured by the established monitoring station. The relationship between meteorological parameters (temperature, precipitation, wind speed and humidity) and monitored air pollutant (SOx, NOx, and PM_{10}) concentration were analyzed statistically using IBM SPSS software. Through statistical analysis, it was found that temperature has a significantly strong correlation with average concentration of NO_x, SOx and PM_{10} (corr. = -0.956, corr. = -0.820 and -0.873 respectively). Precipitation and wind speed had shown a weak correlation with the average concentration of NO_x, whereas moderate correlation with SOx and PM_{10}. No significant correlation between the average concentration of NO_x, SOx and PM_{10} with relative humidity was observed. Correlation coefficient value (R^2) of 0.914, 0.76 and 0.80 were obtained for NOx, SO_x and PM_{10} respectively.

Abstract No. 271

ADVANCES IN CHROMIUM BIOREMEDIATION: MECHANISMS, LIMITATIONS, AND FUTURE PERSPECTIVES

Naveen Patel[1] and Vinod Kumar Chaudhary[2]

[1]Department of Civil Engineering, I.E.T
Dr. RML Avadh University, Ayodhya (U.P.), India
[2]Department of Environmental Sciences
Dr. RML Avadh University, Ayodhya (U.P.), India

ABSTRACT

The rapid pace of industrialization, coupled with technological advancement and increasing globalization, has led to the widespread discharge of hazardous pollutants into natural ecosystems—particularly aquatic environments. Among these, chromium stands out as a persistent and highly toxic contaminant, raising serious concerns due to its detrimental effects on both ecological systems and human health.A variety of remediation techniques have been employed to address chromium contamination in wastewater, including physico-chemical treatments, electrochemical methods, and advanced oxidation processes. However, bioremediation—the use of biological systems, especially microorganisms, to detoxify or remove pollutants—has gained recognition as a promising, sustainable, and cost-effective approach.In the context of chromium remediation, microorganisms leverage several biochemical strategies to facilitate its removal. These include biotransformation (where chromium is enzymatically reduced or oxidized to a less toxic state), biosorption (the passive binding of chromium ions onto microbial cell surfaces), and bioaccumulation (the active uptake and internal storage of chromium within microbial cells). These processes not only reduce chromium toxicity but also minimize secondary pollution risks, making bioremediation a compelling alternative to conventional methods.This review aims to provide a comprehensive examination of the biological mechanisms that underpin microbial remediation of chromium, offering a clearer understanding of how these processes function at the molecular level.

Abstract No. 272

BIOCHEMICAL ANALYSIS OF INTERLEUKINS IN BLOOD PARAMETERS IN ASTHMATIC PATIENTS IN NORTHERN POPULATION

Rashmi Pandey

Department of Biochemistry
State Medical College, Hardoi (U.P.), India

ABSTRACT

Asthma being one of the chronic inflammatory diseases, concerns to the development ofcomplications into the airways to the lungs leading to painful breathing. In this process, there are multiple factors involved such as environmental pollution, obesity, eosinophilia, and respiratory infections. There are many therapeutics so often prescribed to the patients to treat asthma, which include corticosteroids, cromolyn sodium and nedocromil, methylxanthines, leukotriene modifiers, and long-acting β2-adrenoreceptor agonists. The therapeutics used for the quick relief of bronchoconstriction and acute asthmatic symptoms include short acting β2-adrenoreceptor agonists, and anticholinergics. The β2-Adrenoceptor agonists evolved from the catecholamines from adrenal medulla and the corticosteroids from adrenal cortex have proved to be potential bronchodilators and most effective modulators of the bronchial inflammatory processes. In addition, several phytochemicals have been explored in past for their antiasthmatic properties. Keeping in view the side effects induced by synthetic antiasthmatics and their inability to manage severe asthma, there is a need to develop safe, potential and cost effective antiasthmatic drugs to impart quick relief to the patients. Plant based principles in this context are believed to offer a potential solution to this challenging issue. We have presented here a case study on the asthmatics from North Indian population and have correlated the biochemical, immunological and molecular indices of their blood as significant markers associated to the occurrence and severity of the disease. Some of these indices may also be exploited for the early detection of asthma in patients, which may help start early medication to treat the disease effectively. The plant extracts may be used as supplements with the therapeutics.

Abstract No. 273

THE INFLUENCE OF INTENT: EXAMINING THE ROLE OF BRAND MISSION IN SHAPING CONSUMER PERSPECTIVES

Mukesh Kumar Singh

Department of Management Studies
Mahakaushal University, Jabalpur (M.P.), India

ABSTRACT

In the current saturated marketplace, people are increasingly making judgments based not just on product qualities or price, but rather on brands that resonate with their personal values and social ideas. This transition has established brand purpose—a company's rationale for existence beyond profit—as a vital factor in influencing customer perception and enhancing engagement. This study examines the degree to which brand mission and purpose affect consumer views, trust, loyalty, and, ultimately, purchase behavior. The study used a mixed-methods research methodology, providing both quantitative and qualitative insights into contemporary consumers' interpretations and reactions to purpose-driven branding initiatives. The study is organized into two phases. During the initial phase, a survey was administered to over 500 consumers from diverse age groups and demographic backgrounds to assess their impressions of numerous prominent brands, both purpose-driven and conventional. Participants were requested to evaluate their trust, emotional engagement, perceived authenticity, and propensity to recommend or purchase from a business, contingent upon their comprehension of the brand's objective. During the second phase, comprehensive interviews were conducted with a sample of 30 participants to investigate the fundamental motives, beliefs, and emotions that shape consumer-brand connections about brand purpose. Findings indicate that companies with a well-articulated and consistently conveyed purpose—such as Patagonia, which champions environmental stewardship, and Ben & Jerry's, recognized for its dedication to social justice—experience markedly elevated levels of consumer trust and loyalty. These brands are regarded as more authentic, credible, and emotionally impactful than those whose mission is ambiguous or seems to be a mere afterthought. Participants demonstrated an increased readiness to pay a premium for products from these companies, attributing this to a sense of shared values and the conviction that their purchases support a larger cause.

Abstract No. 274

PHARMACOLOGICAL APPROACHES TO THE TREATMENT OF NEUROPATHY: CURRENT INSIGHTS AND FUTURE DIRECTIONS

Aman Shukla

Department of Pharmacy
Mahakaushal University, Jabalpur (M.P.), India

ABSTRACT

Neuropathy, a condition marked by peripheral nerve injury, poses a considerable clinical challenge owing to its intricate etiology and frequently resistant symptoms. It presents in multiple forms, such as diabetic neuropathy, chemotherapy-induced peripheral neuropathy (CIPN), HIV-associated neuropathy, and idiopathic variants, all of which typically exhibit chronic pain, paresthesia, and functional impairments. The pharmacological treatment of neuropathy has advanced considerably in recent years; nonetheless, many current medications provide only limited relief and are linked to substantial side effects. This paper examines contemporary pharmaceutical strategies for neuropathy, evaluates their effectiveness and constraints, and addresses novel therapies and prospective research avenues. The research employed a mixed-methods strategy, incorporating a systematic literature review and data analysis from active clinical trial databases. For the literature review, we executed thorough searches on PubMed, Scopus, and Web of Science with keywords including "neuropathy," "neuropathic pain," "pharmacological treatment," and "drug therapy." The primary pharmacological treatments for neuropathy consist of tricyclic antidepressants (e.g., amitriptyline), serotonin-norepinephrine reuptake inhibitors (SNRIs) such as duloxetine, and anticonvulsants including pregabalin and gabapentin. These drugs influence central pain pathways by regulating neurotransmitter release and neuronal excitability. Although beneficial for certain patients, these medications usually produce inadequate results, exhibiting response rates of 30–50%, and are commonly associated with adverse effects such as drowsiness, dizziness, and gastrointestinal issues. In conclusion, the pharmaceutical treatment of neuropathy is a continually evolving domain characterized by persistent innovation. An personalized, interdisciplinary treatment strategy that combines both established and novel medicines provide the most potential avenue for enhancing patient outcomes.

Abstract No. 275

PHYSICO - CHEMICAL CHARACTERISTICS AND ZOOPLANKTON IN LAKE HATIA (DHURWA DAM) IN RANCHI JHARKHAND

Kunjlata Lal

Ranchi Women's College, Ranchi University, Ranchi (Jharkhand), India

ABSTRACT

This paper presents the physic-chemical characteristics and zooplanktons of Lake Hatia (Dhurwa Dam). The physico-chemical characteristics of a lake encompass a wide range of physical and chemical properties that define its environment and influence the organisms that inhabit it.It includes temperature, transparency, dissolved oxygen, and dissolved salt in lake water.The zooplanktons are small, free-floating aquatic microorganisms. They range from about 20 micrometers to several centimeters as large copepods or jellyfish. It has a crucial role in the pathway for energy transfer between primary production and higher tropical levels. It maintains the food web and overall balance of the aquatic system. Zooplankton is good indicator of the changes in water quality because they are strongly affected by environmental conditions. They are weak swimmers and depend on water flow. Lake Hatia (Dhurwa Dam) is located in Ranchi Jharkhand, it is a significant dam on the Subarnarekha River. It is located South-west of the city the Latitude is 23°17' and 23°20' North and Longitude 85°9' and 85°17'30" East. Average Elevation is about 641m (2,103ft).

Abstract No. 276

EXPLORING POTENTIAL OF *ALOE VERA* EXTRACT TO REVERSE MALATHION INDUCED NEUROTOXICITY IN WISTAR RATS

Bechan Sharma

Department of Biochemistry
University of Allahabad, Prayagraj (U.P.), India

ABSTRACT

The acute and chronic applications of different classes of pesticides being used in agricultural practices and sanitation purposes are known to adversely impact the neurotransmission systems thereby causing development of the neurological disorders. The amelioration of neurotoxic effects induced by these chemicals in general and organophosphates group of pesticides in particular have recently been reported. We therefore envisaged inducing neurotoxicity in rats by administration of varying concentrations of malathion, an organophosphate group of pesticides. These rats were treated with two different concentrations of aqueous extract of *Aloe vera* before and after the exposure to malathion. Another set of animals treated with pesticides served as positive control. The group of animals receiving only *Aloe vera* extract or normal saline served as control. The neurotoxicity in terms of morphological, behavioural and physiological alterations was monitored at regular intervals. At the end of the treatment duration, the animals were sacrificed and the blood, brain and liver were removed. The organs were thoroughly washed in normal saline, blotted dry and either used afresh for the determination of different oxidative stress biomarkers or stored at -20^{0}C for further use. The pesticide treated animal groups showed inhibition in the activity of acetylcholinesterase (AChE) both in the blood and the brain tissues. The pesticide treatment displayed rise in the level of MDA both in the blood and the organs with drastic decrease in glutathione content reflecting thereby the enhanced lipid peroxidation. The sharp reduction in the levels of antioxidant enzymes (SOD and Catalase) due to pesticide treatment was an indicative of generation of oxidative stress in the animals. The significant alterations in the levels of hepatic and inflammatory biomarkers in the malathion treated animals suggested development of hepatotoxicity and neurodegeneration. The treatment with aqueous extract of *Aloe vera*, however, displayed significant protection/recovery from malathion induced toxicity. The results indicated that malathion exposure may alter the functions of brain and liver through generation of redox imbalance and enhancing lipid peroxidation, which may be significant reversed by use of aqueous extract of *Aloe vera*.

Abstract No. 277

THE IMPACT OF GREEN ENERGY'S ENVIRONMENTAL EFFECTS ON BOTH DEVELOPED AND EMERGING ECONOMIES

Acharya Harendra Saraswat and Kuldeep Saraswat

Mahakaushal University, Jabalpur (M.P.), India

ABSTRACT

Globally, buildings are responsible for approximately 40% of the total world annual energy consumption. Most of this energy is for the provision of lighting, heating, cooling, and air conditioning. Increasing awareness of the environmental impact of CO2 and NOx emissions and CFCs triggered a renewed interest in environmentally friendly cooling, and heating technologies. Under the 1997 Montreal Protocol, governments agreed to phase out chemicals used as refrigerants that have the potential to destroy stratospheric ozone. It was therefore considered desirable to reduce energy consumption and decrease the rate of depletion of world energy reserves and pollution of the environment. This article discusses a comprehensive review of energy sources, environment and sustainable development. This includes all the renewable energy technologies, energy efficiency systems, energy conservation scenarios, energy savings and other mitigation measures necessary to reduce climate change.

Abstract No. 278

DEVELOPMENT OF KARANJ AND COPPERPOD BASED AGROFORESTRY SYSTEMS FOR SOIL IMPROVEMENTS IN SEMI-ARID ECOSYSTEM OF BUNDELKHAND REGION

Vinita Bisht, B.S. Rajput and Sanjeev Kumar

Banda University of Agriculture and Technology, Banda (U.P.), India

ABSTRACT

The diverse and multi-component nature of traditional agroforestry systems (AFS) provides them a unique edge over monoculture cropping, particularly in arid and semi-arid ecosystems due to their role in providing several ecosystem services (ES) in addition to their prime role in agricultural production. Appropriate selection of tree components and their management practices results in reduced competition for resources. Karanj and copperpod tree-based AFS adopted in a big way by farmers in the Bundelkhand region of India has improved their economic status due to its high industrial and other values. A field experiment was carried out during 2023-24 to study the effect of 5-year-old karanj and copperpod based agroforestry system on soil chemical properties and nutrient dynamics. During winter season field pea was sown during first week of October. The data of organic carbon, available N, P, K reveals significant under Karanj and copperpod based agri-silviculture and sole cropping systems. Available N, P, K and organic carbon decreases from 0-15 cm to 15-30 cm depth. The maximum available N, P, K at 0-15 cm depth was recorded while minimum in 15-30 cm depth. Relatedly, in open condition found minimum nutrient availability and organic carbon as compared to agroforestry system. The available NPK and organic carbon were also significantly increased under agri- silviculture system.

Abstract No. 279

ENVIRONMENTAL INFLUENCES ON BLOOD FLOW THROUGH OVERLAPPING ARTERIAL STENOSIS: A THEORETICAL AND MATHEMATICAL STUDY

Arjun Singh and Madan Lal

Department of Applied Mathematics
M.J.P. Rohilkhand University, Bareilly (U.P.), India

ABSTRACT

Environmental factors such as air pollution, stress, and exposure to toxins play a critical role in cardiovascular health, influencing the development and progression of conditions like atherosclerosis. This study presents a theoretical investigation of blood flow through an artery with a time-dependent overlapping stenosis, modeled to represent the complex geometry of atheromatous plaque. The artery is treated as an elastic cylindrical tube with moving walls, and blood is modeled as a visco elastic fluid. The unsteady flow is driven by a pulsatile pressure gradient reflecting heart function. Governing equations are transformed into Laplace space and solved numerically using finite difference methods, followed by numerical inversion. Key hemodynamic parameters—including velocity, volumetric flow rate, wall shear stress and impedance—are analyzed with respect to time, pressure gradients, and stenosis severity. The study highlights how environmentally influenced factors may interact with arterial diseases, offering insights into the broader impact of environmental health on cardiovascular function.

Abstract No. 280

POPULATION DYNAMICS OF PARASITES AND ITS EFFECTS ON FRESHWATER FISHES: A REVIEW

Stuti Vishwakarma and Sadguru Prakash

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

ABSTRACT

India ranks as the third-largest fish producer and the second-largest inland fish producer in the world. The fisheries sector plays a vital role in the Indian economy. The overall health of any population, including aquatic species, depends on effective disease control and maintaining a balanced relationship between living organisms and their environment. In fish populations, parasite communities show significant variation depending on environmental conditions. Fish production, particularly in inland culture fisheries, is constantly threatened by diseases caused by various parasites. These parasitic infections can reduce reproductive potential, lower market and nutritional value, and pose a serious concern for fish productivity. Among environmental factors, water temperature is a critical criterion influencing disease outbreaks. Recent studies have shown that ectoparasitic infections are increasingly causing significant issues in both cultured freshwater fish and wild populations. Notably, disease prevalence tends to be higher during the winter season compared to other times of the year. Infections by these parasites can result in poor growth, delayed sexual maturity, and increased mortality in fish. Moreover, they may contribute to human and animal diseases due to an imbalanced host-parasite relationship. This review highlights that water quality plays a crucial role in determining the abundance of pathogens and their survival on fish hosts.

Abstract No. 281

STUDY OF PREVALENCE AND EFFECT OF HELMINTH PARASITES IN GALLUS DOMESTICS NASHIK DISTRICT

Vaishali Ashok Rahane

Department of Zoology
K.R.T. Arts, B.H.C. Commerce and
A.M. Science (KTHM) College, Nashik (M.S.). India

ABSTRACT

Farmers in the rural Nashik district of Maharashtra state domesticated Gallus domesticus (Linnaeus, 1758). It exhibits a high prevalence of cestode infections, especially *Raillietina* Fuhrmann, 1905, as a result of unrestricted feeding on trash. Because its life cycle phases and intermediate host availability rise in the winter and mature into definitive hosts in the summer, the authors discovered that prevalence is highest in the summer and lowest in the rainy season. It's possible that life cycle stages and intermediate host availability rise in the winter and mature into definitive hosts in the summer, which explains why infection rates are lowest during the rainy season and highest during the summer. During the study period, no nematode or trematode parasites were taken into account or found. Despite touching the serosa, cysts were discovered deep within the submucosa. *Raillietina* sp. and *Paruterina* sp. are penetrative worms, but *Cotugnia* sp. and *Thaparea* sp. are non-penetrative worms. Mature segments are freely hanging from scoleces in the intestinal lumen; only scoleces are connected, either deeply in the submucosa (penetrative type) or superficially (non-penetrative type). Free gravid segments are primarily seen in the posterior section of the colon.

Abstract No. 282

REVIVING TRADITION: EXPLORING THE LEGACY AND MODERN RELEVANCE OF HANDBLOCK PRINTING TECHNIQUES IN INDIAN TEXTILES - BATIK, BAGH, AJRAKH, AND KALAMKARI

Muskan Bairagi

Mahakaushal University, Jabalpur (M.P.), India

ABSTRACT

Handblock printing techniques have a rich and diverse heritage in Indian textiles, contributing significantly to the country's textile traditions. This study focuses on three unique and prominent handblock printing styles: Batik, Bag, Ajrakh, and Kalamkari, each with its distinct historical background, cultural significance, and artistic expression. Batik, known for its intricate wax-resist dyeing, reflects the artistic legacy of ancient India, while Bagh and Ajrakh print techniques showcase the craftsmanship and creativity of rural artisans. Kalamkari, with its delicate hand-painted designs, has been an emblem of storytelling through textiles for centuries. The research delves into the techniques, patterns, and cultural relevance of each style, highlighting the intricate processes involved and their continued relevance in contemporary fashion and textile industries. This paper aims to preserve these ancient techniques while examining their modern-day applications, their impact on the global textile market, and their role in promoting sustainable fashion practices.

Abstract No. 283

REMOVAL OF CHLORPYRIFOS FROM SYNTHETIC WASTEWATER USING COPPER OXIDE NANOPARTICLES

Monika Jain

Department of NRM, College of Forestry
Banda University of Agriculture & Technology, Banda (U.P.), India

ABSTRACT

Chlorpyrifos (CPF) is a broad-spectrum, chlorinated organophosphate insecticide, used to control a wide range of insects and crop pests like termites, ants, and mosquitoes. It is extremely toxic and dangerous to the environment due to its high solubility in lipids. The current research was conducted with the aim to explore the potential of copper oxide nanoparticles for the removal of chlorpyrifos from the aqueous solution. The results revealed that the highest %removal was found at pH 7.0i.e 98.35. Therefore, pH 7.0 was chosen as the optimum pH for further experiments. The highest %removal in case of initial concentration, contact time, dose and temperature was found to be91.90, 94.17, 93.52 and 89.4 respectively. Overall, the highest % removal was found to be 95.46 at pH 7.0, initial concentration 25 ppm, dose 5 mg/10 mL, temp 26°C at 240min. The equilibrium was achieved within 20 min of contact time. The adsorption equilibrium data and kinetic data fitted well to Langmuir model and the pseudo-second-order model.

Abstract No. 284

SPATIAL VARIABILITY IN ORGANIC CARBON OF SOILS IN PERMANENT BENCH MARK SITES OF JABALPUR IN AESR-10.1 UNDER RICE-WHEAT CROPPING SYSTEM

Rohit Pandey[1], H.K. Rai[2], A.K. Upadhyay[2], Pragya Kurmi[2] and Vijay Baghare[2]

[1]Rani Durgawati Vishwavidyalaya, Jabalpur (M.P.), India
[2]Jawaharlal Nehru Krishi Vishwavidyalaya, Jabalpur (M.P.), India

ABSTRACT

The study aimed to found the spatial and vertical variability in Organic Carbon of soils for regulating the nutrient availability under Rice-Wheat cropping system in permanent bench mark sites (PBMS) of Jabalpur in AESR-10.1 region. Rice wheat cropping system is dominant cropping system in AESR-10.1 Jabalpur region in Madhya Pradesh, India. Organic carbon (OC) have an justify role in the nutrient availability. SOC is key properties which are resultant of all soil physical, chemical and biological property of soil thus it varies vertical and spatial effect on site of Jabalpur district. Collected 45 soil samples to examine the SOC results were interpreted. Three locations treated as main plot and five depths used as sub treatment for analysis the soils. Magarmuha soils have lowest OC values while soils of Khamaria showed significantly higher values of OC than Udna and Magarmuha. Rice wheat cropping system is dominant cropping system in AESR-10.1 Jabalpur region in Madhya Pradesh, India. Since Rice –Wheat cropping system has a proliferous root system ,thus study the vertical and spatial difference on SOC helps to judging the overall effect of soil diversity in soil fertility Management of Soils in these areas were necessary for full potentially use of nutrient balance of these PBMS sites.

Abstract No. 285

NEXT-GENERATION FARMING SOLUTION: NANOFORMULATION ENCAPSULATED PGPR FOR CROP IMPROVEMENT

Shambhavi Singh[1], Shephali Rathore[1], Kusum Sharma[1] and Abhishek Gupta[2]

[1]Department of Life Science
Rabindranath Tagore University (RNTU), Bhopal (M.P.), India
[2]C.M.B.T. Research and Training Institute, Bhopal (M.P.), India

ABSTRACT

Modern agriculture faces the challenge of balance in increasing food demand with environmental sustainability. Plant growth promoting rhizobacteria (PGPR), have emerged as promising biofertilizers that enhance the plant growth and soil health. The employment is naturally occurring microbial biofertilizer, primarily plant growth- promoting rhizobacteria, present a viable option for addressing this persistent issue. Nanotechnology is the rising technology of the current decade, which has shown promising results in controlling excess Agri-inputs and maintaining environmental balance. The characteristics of controlled release capacity and targeted delivery of nano fertilizer and nano pesticide showed high activity in comparison to conventional fertilizers and pesticides. Different nano fertilizers and nano pesticides such as silver, zinc, iron, titanium, phosphorus, molybdenum and polymer nanoparticles have shown great potential as plant growth and pest control agents. The harsh use of nitrogen fertilizer to boost the crop yield is the current farmer's practice. This causes the unfavourable effects and hazard to the environment and human population. Root of a leguminous plant shows the symbiotic association with the Rhizobium gram-negative bacteria. Selection and screening of rhizobium strain is important for biological nitrogen fixation. I have taken the root nodule samples from the three different fields of Raisen district, Madhya Pradesh. Sample1 is taken from the field of BITS [LAT-23.145, LON-77.542]. Sample2 is taken from Mendua village near Bhojpur [LAN-23.120, LON-77.545]. Sample3 is taken from the RNTU campus [LAN-23.132, LON-77.564]. The study was to isolate and identify *Rhizobium* from *Cicer arietinum* (chickpea) root nodules using YEMA medium. Rhizobium gives the nitrogen fixation, which induces the fertility of the soil. Genetic characterization like CTAB (cetyltrimethyl ammonium bromide), rpoB amplicon sequencing, Plasmid analysis, pSym plasmid is used. Biochemical tests such as indole, methyl red, urease, hydrogen sulphide and carbonate fermentation are useful. Other analyses include growth rate, guanine cytosine percentage.

Abstract No. 286

ROLE OF MEDIA IN BIODIVERSITY CONSERVATION

Rachana Gangwar[1], V.P. Singh[2] and Binod Singh[3]

[1]Department of Mass Communication & Journalism
Babasaheb Bhimrao Ambedkar University, Lucknow (U.P.), India
[2]Department of English
Government PG College, Sangipur, Pratapgarh (U.P.), India
[3]Department of Zoology
Buddha PG College, Kushinagar (U.P.), India

ABSTRACT

Habitats of freshwater existing in rivers, streams, springs and headwaters are heterogeneous due to variations in altitudes, flow rates, dissolved oxygen, physical substrate and the riparian zones that provide food, shade and cover. The biosphere constitutes a vital life support system for man. Its existence in a healthy and functional state is essential for existence of human race. It is complex collection of innumerable organisms the biodiversity which makes our life both pleasant and possible. So, the biodiversity is basically species richness (plants, animals and microorganisms) occurring as an interacting system in a given habitat. The biodiversity conservation and appropriate utilization of natural resources are need of today and for sustainable future. To educate and aware the peoples regarding the importance of environment and biodiversity is the need of time. Introduction of environment awareness course in schools and colleges, various activities conducted by biodiversity conservation institutes at national and international levels, organization of seminars, conferences, symposia to target group of audience are inadequate measure in this regard. The print media, electronic media and social media play a crucial role in lifting the public understands regarding benefits, challenges, trends, and policy actions on biodiversity conservation. They promote and aware the common people about the connections between science and the public which links nature and human beings. They have great impact on society as they attract most of the population throughout the world, as they can aware the peoples about the importance of biodiversity by positively influencing the common people. We will discuss in details.

Abstract No. 287

ROLE OF BIOSYNTHESIZED NANOPARTICLES IN CLIMATE CHANGE MITIGATION

Shyamji Shukla

Department of Biotechnology
Mata Gujri Mahila Mahavidyalaya, Jabalpur (M.P.), India

ABSTRACT

Climate change represents one of the most pressing challenges of the 21st century , driven largely by greenhouse gas emissions, industrial pollution, and unsustainable resource use. In response, nanotechnology has emerged as a promising field, offering innovative solutions for environmental sustainability. Among these, biosynthesized nanoparticles—produced using biological agents such as plants, bacteria, fungi, and algae—present a particularly sustainable and eco-friendly alternative to conventional chemically synthesized nanomaterials. This review explores the emerging role of biosynthesized nanoparticles in climate change mitigation, highlighting their potential across various sectors. Biosynthesized nanoparticles are gaining attention due to their low energy demand, non-toxic precursors, and biodegradability. Their applications in carbon capture and storage (CCS), greenhouse gas sensing, renewable energy systems, and environmental remediation are of growing significance. For instance, metallic nanoparticles synthesized through green methods have been used in photocatalysis for CO_2 reduction and hydrogen production. Others enhance the efficiency of solar cells and supercapacitors, contributing to cleaner energy technologies. Moreover, biosynthesized nanomaterials have shown remarkable potential in water purification and soil remediation, addressing key issues related to climate-resilient infrastructure. This article critically examines recent advances in biosynthetic methods, evaluates the physicochemical properties of the resulting nanoparticles, and discusses their roles in addressing global warming. Challenges such as scalability, reproducibility, and regulatory hurdles are also explored. Finally, future perspectives are offered on integrating biosynthesized nanoparticles into circular economy models and sustainable industrial processes.

Abstract No. 288

ROLE OF WOMEN AND TRIBES IN SOCIAL AND ENVIRONMENTALLY SUSTAINABLE DEVELOPMENT: A CASE STUDY AT ARKI BLOCK OF KHUNTI DISTRICT, JHARKHAND, INDIA

Dara Singh Gupta and Manjula Gupta

University Department of Botany
Kolhan University, Chaibasa (Jharkhand), India

ABSTRACT

Women have very vital role in preserving wild-life and environment. Time to time women played a significant role in preserving nature. Actually, women are called nature preservers. Planet earth is also known as mother earth, which means woman play a significant role in environment and nurturing nature. There are so many so many literatures present here, which shows that the women go hand in hand for environment and biodiversity conservation and also structural growth. In Jharkhand, there are 34 tribes, who are very serious among environment and biodiversity conservation. The natural resources, such as different types of minerals, coals, ponds, rivers etc. have conserved and protected only by women and tribal communities. The women and tribe's strengthening are a vital factor for accomplishing sustainable financial development, social development and ecologically maintainability. Women play an imperative part in ecological administration and development. In India, in most of the Traditional societies the role of women has been always substantial and crucial in resource management at the domestic front. The tribal women due to their social structure enjoyed more freedom than their non-tribal counterpart. Their interaction with forest and traditional ways in which they manage natural resources makes their role in sustainable development more prominent than that of tribal men folk. Women have ben active in promoting an environmental ethics, reducing resources misuses and reusing and recycling of resources to minimise wastes and excessive consumption. In this case study, the main objectives understand the status of women and tribal people who have generate income without any damage of environment and also the sustainable point of views. Another objective is identifying the indigenous knowledge system and techniques which helps to protection and conservation of environment and biodiversity. Arki Block is tribal dominating block and about 65% people are tribal caste. So, this research was carried out at this block area. The women and tribal people were nature lovers. This research reveals that the applying of said techniques helps to balancing and maintaining natural equilibrium and also the conservation of biodiversity and environment.

Abstract No. 289

GENETIC IMPROVEMENT FOR DEVELOPMENT OF HIGH YIELDING MINT GENOTYPES BY CSIR-CIMAP FOR SOCIAL SECURITY OF MINT GROWERS IN INDIA

Birendra Kumar

Plant Breeding & Genetic Resource Conservation Division,
CSIR-Central Institute of Medicinal and Aromatic Plants (CIMAP), Lucknow (U.P.), India

ABSTRACT

Mentha has recently emerged as a major economic genus in view of the menthol, carvone or linalool rich essential oil obtained from the green herbs of some of its species, that finds wide uses in perfumery, pharmaceutical and food industries. The high economic importance of Mentha prompted a review on its breeding and genetic improvement especially pertaining to its major economic species: Menthol mint (*M. arvensis* L.), Spearmint (*M. spicata* L.), Peppermint (*M. piperita* L.), Bergamot mint (*M. citrate* Ehrh.) and Scotchmint (*M. cardiaca* Baker). The CSIR-CIMAP has developed a total of 13 improved high yielding varieties in *M. arvensis*, 07 varieties in *M. piperita*, 05 varieties in *M. spicata*, 01 variety in *M. citrata* and 03 varieties in *M. cardiaca* using plant breeding approaches viz. selection, hybridization, somaclonal variation and mutation. India has become the global leader in the production and export of menthol mint oil and allied products in the world market due to adoption and popular among mint growers for commercial cultivation. India currently provides more than 85% of the global share due to suitable agro-climatic conditions and the availability of several improved mint varieties of CSIR-CIMAP. These varieties not only empower the farmers but also help in the development of social security through sustainable cluster at the village level for startup, mint industries and market for buyer and sellers. Detailed description of commercially viable varieties of mint species will be discussed during presentation.

Abstract No. 290

समाज पर भोजन एवं स्वास्थय के प्रभाव का अध्ययन

श्रुति प्रभा पाण्डेय

कला विभाग कला संकाय
पी.के. विश्वविद्यालय, शिवपुरी (म.प्र.)

शंक्षेपिका

भारत विश्व का एक ऐसा विकासशील देश है, जिसमें विभिन्न प्रकार की संस्कृतियों के लोग आपस में, सात्मीकरण के कारण, एक साथ रहते हैं। भारतीय समाज की विशेषताओं में संस्तरण एक विलक्षण विशेष रूप से देखा जा सकता है। ग्रामीण समुदायों को विशेषता है जिसको कि ग्रामीण व्यक्ति अधिकांशतः आर्थिक रूप से कृषि पर ही निर्भर हैं एवं अन्य किसी प्रकार का व्यवसाय से संलग्नता न होने के कारण वर्तमान समय में भी भारतीय ग्रामीण क्षेत्रों की आर्थिक स्थिति पिछड़ी हुई हैं। ग्रामीण समुदाय पर दृष्टिपात करने पर यह ज्ञात होता है कि संरचना स्तर पर जाति असमानता, लिंग असमानता, एवं शिक्षा का अभाव होने के कारण, भारतीय ग्रामीण स्वास्थ्य प्रणाली पर प्रतिकूल प्रभाव देखने को मिलता है, यदि राष्ट्र के विकास को मूलभूत उच्च श्रेणी के स्तर लक ले जाना हैं तो सर्वप्रथम प्रत्येक व्यक्ति का स्वास्थ्यहोना अत्यन्त ही आवश्यक हैं। स्वास्थ्य प्रत्येक व्यक्ति की एक मूलभूत आवश्यकता हैं क्योंकि स्वास्थ्य को एक अनमोल सम्पति के रूप में माना गया हैं। अतः मनुष्य में स्वास्थ्य के अभाव के कारण मनुष्य की स्वय की प्रगति तथा समाज के लिए किसी अन्य तत्व की कल्पना करना कठिन हैं। इसमें किसी भी प्रकार का सन्देह नहीं है, कि रोग तथा स्वास्थ्य में जहां शारीरिक विशेषताएँ महत्वपूर्ण हैं, वहीं उसमें सांस्कृतिक एवं सामाजिक परिवेश की भी भूमिका अहम होती है। रोग की उत्पति एवं व्यक्ति की रोगग्रस्तता की स्थिति में उसमें आस पास का सॉस्कृतिक एवं सामाजिक वातावरण निश्चित रू से जुड़ा होता है। इसलिए रोग ग्रस्तता जहां एक ओर शारीरिक पीड़ा और कष्ट को जन्म देती हैं वही साथ ही साथस वह व्यक्तियों में सामाजिक व्यवहार एवं उनकी भूमिका निष्पादन को भी प्रभावित करती हैं। जिसके फलस्वरू व्यक्ति, सामुदायिक, सामाजिक एवं संस्थागत हितों को क्षति पहुँचती हैं।

Abstract No. 291

सामाजिक और पर्यावरणीय स्थिरता में महिलाओं की भूमिका

बेबी शुक्ला एवं निधि अवस्थी

कला संकायः गृह विज्ञान विभाग
पी०के० विश्वविद्यालय, शिवपुरी (एम०पी०)

शंक्षेपिका

आज विश्व कई जटिल चुनौतियों का सामना कर रहा है, जिसमें सामाजिक असमानता, जलवायु परिवर्तन, जैव विविधता का नुकसान और संसाधनों की कमी प्रमुख हैं। इन चुनौतियों से प्रभावी ढंग से निपटने और एक स्थायी भविष्य सुनिश्चित करने के लिए, समाज के सभी वर्गो की सक्रिय भागीदारी आवश्यक है। इस संदर्भ में, महिलाएं परिवर्तन के एक शक्तिशाली वाहक के रू‍प में उभरी हैं, जो सामाजिक स्थिरत का अर्थ है एक ऐसा समाज जो न्यायपूर्ण, समावेशी और समतावादी हो, जहाँ सभी व्यक्तियों को विकास और कल्याण के सामान अवसर प्राप्त हों। महिलाएं सदियों से सामाजिक न्याय और समानता के लिए संधर्ष करती रही हैं। शिक्षा, स्वास्थ्य और राजनीतिक प्रतिनिधत्व जैसे क्षेत्रों में महिलाओं की उन्नति न केवल उनके अपने अधिकारो ं की पूर्ति करती हे, बल्कि पूरे समाज को लाभान्वित करती है। शिक्षित महिलाएं बेहतर स्वास्थ्य देखभाल निर्णय लेती हैं, उनके बच्चे स्वस्थ होते हैं और वे आर्थिक विकास से अधिक योगदान करती हैं। राजनीति में महिलााओं कीअधिका भागीदारी से नीतियों में लैंगिक संवेदनशीलता बढ़ती है और समाज अधिका समावेशी बनता है। जमीनी स्तर पर,? महिलाएं अक्सर सामुदायिक एकजुटता और सामाजिक सदृभाव बनाए रखने में महत्वचपूर्ण भूमिका निभाती हैं। वे स्थानीय नेटवर्क बनाती हैं, संघर्षो का समाधान करती हैं। और कमजोर वर्गो की सहायता करती हैं, सिसे सामाजिक ताना-बाना मजबूत होता है। पर्यावरणीय स्थिरता का तात्पर्य प्राकृतिक संसाधनों का इस प्रकारए उपयोग करता है कि वर्तमान पीढ़ी की आवश्यकताएं पूरी हों और भविष्य की पीढ़ियों के लिीए भी संसाधन सुरक्षित रहें। पर्यावरण संरक्षण में महिलाओं की भूमिका अद्वितीय और महत्वपूर्ण है। कई विकासशील देशों में, महिलाएं पानी, ईंधन और भोजन जैसे प्राकृतिक संसाधनों के प्रबंधन में अग्रणी भूमिका निभाती हैं। उनके पास स्थानीय पारिस्थितिकी और टिकाऊ प्रथाओं का गहरा ज्ञान होता है।

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: officegesa1@gmail.com]**

IDB : 22 May 2025

INTERNATIONAL DAY FOR BIODIVERSITY 2025

Harmony with nature and sustainable development