GO GREEN SUMMIT

2025

13th GoGreen Summit

25th-26th September, 2025

Bangkok, Thailand

Organized by

IFERP Life Sciences
Explore Your Research Journey...

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GO GREEN SUMMIT

13th GoGreen Summit 2025, Bangkok, Thailand

ISBN 978-93-92106-94-1

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IFERP Life Sciences
Explore Your Research Journey...

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“Sustainable Innovations for a Greener Future”

~ 13th GoGreen Summit’s Theme

Preface

This book reports the Proceedings of the "13th GoGreen Summit 2025" held on 25th & 26th September 2025, organized by IFERP Life Sciences-Formerly BioLEAGUES.

The publishing department has accepted more than 100+ abstracts. After an initial review of the submitted abstracts, 45+ papers were presented at the conference and were accepted for publication in the Conference Proceedings. The topics that are covered in the conference include environmental sustainability, encompassing renewable energy, ecofriendly technologies, sustainable agriculture, waste management, conservation efforts, and initiatives promoting green infrastructure and practices. We would like to thank all the participants for their contributions to the conference and the proceedings.

Reviewing papers of 13th GoGreen Summit was a challenging process that relies on the good will of those people involved in the field. We were invited to the 13th GoGreen Summit Proceedings. We would like to thank all the reviewers for their time and effort in reviewing the documents.

Finally, we would like to thank all the proceeding team members who with much dedication have given their constant support and priceless time to bring out the proceedings in a grand and successful manner. I am sure the 13th GoGreen Summit will be a credit to a large group of people, and each one of us should be proud of its successful outcome.

ISBN: 978-93-92104-82-4

About 13th GoGreen Summit

13th GoGreen Summit – Bangkok 2025 is a premier global event dedicated to sustainable innovations, environmental solutions, and climate resilience. Under the theme "Sustainable Innovations for a Greener Future," this summit will bring together visionary leaders, researchers, policymakers, industry pioneers, and sustainability advocates to drive impactful change toward a more eco-friendly world.

Taking place in Bangkok, Thailand, on september 25th-26th, 2025, the GoGreen Summit will provide a collaborative platform for dialogue, innovation, and actionable solutions to address the most pressing environmental challenges. With a legacy of successful past editions, this summit continues to serve as a catalyst for groundbreaking ideas, global partnerships, and transformative policies that pave the way for a sustainable future.

Conference Benefits

Engage with Global Experts

Gain insights from renowned environmentalists, scientists, and policymakers leading sustainability efforts worldwide

Explore Cutting-Edge Innovations

Discover the latest green technologies, climate solutions, and industry best practices that are shaping the future

Networking Opportunities

Connect with international sustainability leaders, businesses, and research institutions, fostering valuable collaborations

Interactive Workshops & Panel Discussions

Participate in hands-on sessions, thought-provoking panel discussions, and knowledge-sharing forums

Showcase Your Research & Ideas

Present your work to a global audience of experts, investors, and changemakers committed to sustainability

Drive Meaningful Impact

Be part of an event that influences environmental policies, corporate sustainability strategies, and real-world green initiatives

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About Life Sciences

IFERP Life Science is a globally recognized professional association meant for research, innovation and development in the field of life sciences and medical sciences . It serves to propel and fuel all innovative works of research with immense potential in the fields of Healthcare, Life Sciences, Pharmaceutical Sciences, Medical Sciences, Food & Nutrition, Environmental Science, Oncology, Cardiology, Nursing, Microbiology, Physiotherapy, Dentistry and many more. IFERP Life Science has been directly responsible for a significant amount of the revolutionary developments that have taken place in these fields over the past few decades.

IFERP Life Science is a specialized platform that supports life science and medical professionals in advancing their careers and research impact. Our tailored solutions include international conferences, Faculty Development Programs, Webinars, author services, membership and scientific communications, designed to foster collaboration and knowledge-sharing within the global medical community.

Our Mission

- Promote global research, innovation and development in life science, medical science, environmental science, pharmaceutical science and health care, to attain sustainable development goals (SDG's) for universal benefit.
- Advance Life Science & Medical Science for societal service.
- To facilitate knowledge exchange and growth through our professional activities and scientific conferences.

Our Vision

- An inclusive global scientific community promotes excellence in life science and medical events, author services, membership, informed decisions, and actions worldwide.

ISBN: 978-93-92104-82-4

From Vice Chancellor, Mahakaushal University

Dr. R .C . Mishra

Vice Chancellor
Mahakaushal University, Jabalpur
India

It is with great humility, profound respect, and immense pleasure that I, Dr. R C Mishra on behalf of the Mahakaushal University, Jabalpur (MKU), extend our warmest welcome to you. We are truly honored to have you join us today at the 13th GoGreen Summit-2025, a prestigious event that has become a beacon of hope, innovation, and change toward an eco-friendlier world. The Conference is hosted by IFERP Life Sciences and takes place on the 25th and 26th of September, 2025, a momentous occasion that marks yet another milestone in our ongoing journey to foster cross-disciplinary partnerships and push the boundaries of sustainability.

On behalf of Mahakaushal University, it is an honor to participate in this esteemed gathering, which plays a pivotal role in driving innovation, advancing research, and fostering groundbreaking ideas, global partnerships, and transformative policies that pave the way for a sustainable future. . This hybrid conference offers a rich platform for dialogue, innovation, and actionable solutions to address the most pressing environmental challenges.

Bringing together a distinguished community of professionals 13th Go Green Summit-2025 promises to spark meaningful dialogue through panel discussions, interactive sessions, and technical presentations. Our shared mission is to encourage cross-disciplinary partnerships and push the boundaries of innovation for global sustainability. I am eager to contribute to these critical conversations and to engage with fellow participants in the energetic and diverse setting of Bangkok during the 13th Go Green Summit-2025.

Thank you for being a part of this remarkable event. I wish you a productive and enriching Conference experience.

ISBN: 978-93-92104-82-4

From Managing Director, IFERP

Mr. A. Siddth Kumar Chhajer

Managing Director & Founder,
IFERP, Technoarete Group

On behalf of Institute For Educational Research and Publications (IFERP) & the organizing Committee, I express my hearty gratitude to the Participants, Keynote Speakers, Delegates, Reviewers and Researchers.

The goal of the 13th GoGreen Summit is to provide knowledge enrichment and innovative technical exchange between international researchers or scholars and practitioners from the academia and industries of related fields.

This conference creates solutions in different ways and to share innovative ideas in the releted fields. 13th GoGreen Summit provides a world class stage to the Researchers, Professionals, Scientists, Academicians and Students to engage in very challenging conversations, assess the current body of research and determine knowledge and capability gaps.

13th GoGreen Summit will explore the new horizons of innovations from distinguished Researchers, Scientists and Eminent Authors in academia and industry working for the advancements in related fields from all over the world. 13th GoGreen Summit hopes to set the perfect platform for participants to establish careers as successful and globally renowned specialists in the related fields.

ISBN: 978-93-92104-82-4

From Chief Executive, IFERP

Mr. Rudra Bhanu Satpathy

Chief Executive Officer & Founder,
IFERP, Technoarete Group

IFERP is hosting the 13th GoGreen Summit this year in month of September, 2025.

The main objective of 13th GoGreen Summit is to grant the amazing opportunity to learn about groundbreaking developments in modern industry, talk through difficult workplace scenarios with peers who experience the same pain points and experience enormous growth and development as a professional. There will be no shortage of continuous networking opportunities and informational sessions.

The sessions serve as an excellent opportunity to soak up information from widely respected experts. Connecting with fellow professionals and sharing the success stories of your firm is an excellent way to build relations and become known as a thought leader. I express my hearty gratitude to all my Colleagues, Staffs, Professors, Reviewers and Members of Organizing Committee for their hearty and dedicated support to make this conference successful. I am also thankful to all our delegates for their pain staking effort to make this conference successful.

ISBN: 978-93-92104-82-4

About Keynote Speaker

Dr. R .C . Mishra

Vice Chancellor
Mahakaushal University, Jabalpur
India

Prof. Dr. R.C. Mishra is a renowned educationist in the field of Higher Education. He has a vast career as an academician. He is currently heading Mahakaushal University as a Vice Chancellor. A committee member of various panels pan India including UPPSC, NAAC & UGC-HRDC, Bar Council of India. He has played a pivotal role in designing various policy for improving the quality education. He has been an author of more than 50 Research articles, more than 20 Indian & International patents and various other popular articles. His dedication for the weaker section of society specifically for woman education is well known fact to everyone. He has been consistently working for bringing quality education to the weakest and underprivileged section of the society.

ISBN: 978-93-92104-82-4

About Keynote Speaker

Ts.Ir.Dr. Kumaran Kadirgama

Professor
Faculty of Mechanical and Automotive Engineering Technology
Universiti Malaysia Pahang (UMP)
Malaysia

Prof. Ts. Ir. Dr. Kumaran Kadirgama is a Professor and research fellow of Advanced Nano Coolant Lubricant Laboratory (ANCoL), UMP. He is a Profesional Engineer registered under the Board of Engineers Malaysia (BEM); and a Charted Engineer (UK) under the Institution of Mechanical Engineers (IMechE). He also a Professional Technologist (P.Tech) of Malaysia Board of Technologists (MBOT). Up to date, he has 18 years' of experience in teaching and research activities in Universiti Malaysia Pahang (UMP) and University Tenaga Nasional (UNITEN).His expertise is on nanofluid and advanced material. He has also been appointed as Associated Researcher in Nelson Mandela University, South Africa, and appointed as Visiting Professor in Rajarshi Shahu University, India. He also panels for the Malaysian Qualifications Agency (MQA) from 2015 - current. In research, he was involved in the supervision of postgraduate students in Master and PhD levels. So far, he has already graduated numerous students in PhD and Master level.He also published and presented various technical papers and journals at an international and national level. He has an h-index of 31 with a citation of 4312. He has received grants totalling RM 6.02 million from various agencies and institutions. He has won a Gold medal in International Invention, Innovation & Technology Exhibition (ITEX), Seoul International Invention Fair, Korea (SIFF), and British Invention Show (BIS). He also included in top scientist 2% in the world for 2021 and 2022 in individual and career long achievement.

ISBN: 978-93-92104-82-4

About Keynote Speaker

Dr. Muhamad Mat Noor

Professor
Faculty of Mechanical and Automotive Engineering Technology
Universiti Malaysia Pahang Al-Sultan Abdullah (UMPSA), Malaysia

Ts. Dr. Muhamad Haji Mat Noor is a Professor of Mechanical Engineering at Universiti Malaysia Pahang Al-Sultan Abdullah (UMPSA), with a PhD from the University of Southern Queensland, Australia. A dynamic academic leader, he has held key administrative roles, including Director of SUARA UMPSA and UMPSA Press, Dean of Students Development, and Director of the UMPSA German Academic and Career Centre. An internationally recognized researcher, his work spans automotive engineering, heat transfer, battery thermal management, green hydrogen, and nanofluids, with over 350 publications and multiple patents. His innovations have earned him gold, silver, and special awards at prestigious competitions (PECIPTA, ITEX, iENA Germany, SIIF Korea, etc.) and 60+ UMPSA Cendekia Bitara Excellence Awards. A founding Editor-in-Chief of Scopus-indexed journals (IJAME & JMES), he serves as a reviewer, keynote speaker, and judge for global conferences and invention panels. Beyond academia, he was a Six Sigma Black Belt engineer at Sony EMCS Malaysia (12 years) before transitioning to higher education. Recently appointed to the Board of Governance for KPTM Education College, he continues shaping Malaysia's engineering and innovation landscape.

ISBN: 978-93-92104-82-4

About Keynote Speaker

Dr. Amin Beiranvand Pour

Institute of Oceanography & Environment (INOS)
Higher Institution Center of Excellence (HICoE) in Marine Science
University Malaysia Terengganu (UMT)
Malaysia

Associate Professor Amin Beiranvand Pour is a leading scientist and internationally established researcher in the field of geological remote sensing and mineral exploration. He was listed among the World's Top 2% Scientists by Stanford University for the years 2019–2024. He is Co-Founder and Team Lead in ScanMiner Solutions. He is one of the highly cited researchers in the field of geological remote sensing in the world (ranked 2 in Google Scholar). He has ranked 1 among Top Scientists for years 2023 and 2024 in Earth Science in Malaysia. He has a full academic background in applied geology, economic geology, remote sensing and mineral exploration. He was project Leader of numerous mineral exploration research projects using multispectral and hyperspectral sensors for geological mapping and mineral exploration in arid and semi-arid regions, Antarctica, Arctic and tropical areas. His experience ranges widely, from geological mapping to environmental issues such as lithological and structural mapping, mineral exploration, environmental monitoring and modelling, geo-hazard, geothermal mapping, geomorphic and coastal geology investigations. He has published more than 200 research papers and 5 edited books in the field of geological remote sensing, mineral exploration and geohazard modeling.

ISBN: 978-93-92104-82-4

About Keynote Speaker

Dr. Kurian Joseph

Emeritus Professor and Former
Director, Centre for Climate Change
and Disaster Management (CCCDM)
Centre for Environmental Studies
(CES), Anna University , Chennai
India

Kurian Joseph is an Environmental Engineer and currently Emeritus Professor and Former Director, Centre for Climate Change and Disaster Management at Anna University, Chennai, India. He received his B.Tech. degree in Civil Engineering from the University of Calicut, M.Tech. in Environmental Engineering from the University of Kerala and Ph. D in Environmental Engineering from the Anna University. He has served as Professor of Environmental Engineering at Centre for Environmental Studies, Anna University during the years 1993 to 2025. The main areas of his interest include Cleaner Production, Industrial and Hazardous Waste Treatment, Municipal Solid Waste Management, Environmental Impact Assessment, Environmental economics, Sustainable Development and Climate Action.

He started his professional career as a Project Engineer in a Chennai based Indo- Italian Consultancy Company in the field of water and wastewater treatment. He offers Environmental Engineering and Management related courses to Post Graduate and Graduate programmes of Anna University and is actively involved in number of Consultancy works. He was an Investigator of the Asian Regional Research Project on " Sustainable Landfill Management in Asia". He has organized a number of training programmes and seminars for the benefit of practicing Engineers and Professionals. He is a life member of five Professional Associations in the country, author of several technical papers and a consultant on environmental matters. He received the "Kriton Curi" award for the best paper in waste management from developing countries in Sardinia 2003, – IX International Waste Management and Landfill Symposium Sardinia, Italy, October 2003.

He is currently a member of the Tamil Nadu State Level Environmental Appraisal Committee, Tamil Nadu Disaster management Authority and Member of Expert advisory Committee on waste management Technologies, Technology Development and Transfer Division, Department of Science and Technology, Government of India.

ISBN: 978-93-92104-82-4

About Keynote Speaker

Dr. Pahurat Kongmuang Taisuwany

Director
Secretariat Office of the Royal
Development Projects Committee
Department of Disease Control
Ministry of Public Health
Bangkok , Thailand

Dr. Pahurat has been a dedicated public health professional at Thailand's Ministry of Public Health since 2001, specializing in infectious disease control and crisis risk communication. She holds a Ph.D. in Medical and Public Health Social Sciences and has led numerous initiatives addressing emerging infectious diseases such as COVID-19, SARS, MERS, and Zika. Currently, she serves as the Director of the Secretariat Office of the Royal Development Projects Committee, focusing on disease prevention and health programs for vulnerable populations, including rural communities and prison inmates. Her work emphasizes health communication, emergency response, and health literacy.

ISBN: 978-93-92104-82-4

About Keynote Speaker

Dr. Hayat Ullah

Senior Research Specialist and Affiliated Faculty, Agricultural Systems and Engineering, Department of Food, Agriculture, and Natural Resources, Asian Institute of Technology (AIT)
Bangkok , Thailand

Dr. Hayat Ullah is an agricultural scientist and sustainability expert specializing in Climate-Smart and Regenerative Agriculture. He currently serves as Senior Research Specialist and Faculty at the Asian Institute of Technology (AIT), Thailand. Dr. Ullah's work focuses on advancing sustainable crop production systems, with core expertise in water and nutrient management, crop stress physiology, and circular bioeconomy practices. He has led and contributed to multiple international projects promoting resilient agricultural practices, community-based resource management, and green innovation across Asia. In addition to his academic and research roles, Dr. Ullah actively engages in capacity-building initiatives and delivers guest lectures at universities and research institutions across the region. His commitment is centered on fostering sustainable development pathways that address the pressing challenges of climate change, food security, and environmental conservation.

ISBN: 978-93-92104-82-4

About Keynote Speaker

Ts. Dr. Sasitharan Nagapan

Associate Professor,
Faculty of Civil Engineering and Built Environment, Universiti Tun Hussein Onn Malaysia (UTHM), Malaysia

Associate Professor Ts. Dr. Sasitharan Nagapan is an academician at the Faculty of Civil Engineering and Built Environment, Universiti Tun Hussein Onn Malaysia, with 20 years of experience in higher education, spanning from polytechnic to university level. His expertise includes construction & demolition waste management, construction management and sustainability. He has published over 100 scholarly works and received more than 25 national and international awards. Dr. Sasitharan has supervised 8 Ph.D. and 13 master's students. His cumulative involvement in research grants exceeds RM2 million. His academic influence is reflected in an h-index of 18 (Scopus) and 29 (Google Scholar). He has served as an adjunct professor, keynote speaker, assessor, thesis examiner, judge, and consultant for various national and international initiatives. Currently, he is a member of the BILT Expert Group under UNESCO-UNEVOC (2024-2025), appointed to support TVET in the building and construction sector. His current research aligns with the United Nations Sustainable Development Goals (SDGs).

ISBN: 978-93-92104-82-4

About Session Speaker

Mr. Ranjith Kumar K

Director
MORINGA PROMISE WELLNESS
India

K. Ranjith Kumar, from a century-old agricultural family, pursued his passion for organic farming. Despite a successful IT career, he left his job to focus on his lifelong love for sustainable agriculture. He has extensive experience in software development, working with international clients for 15 years. He has now decided to pursue his passion for organic farming, leaving his corporate career behind to embark on a new venture. He founded 'Moringa Promise Wellness', a startup offering unique products formulated by Siddha, Ayurveda, and Homeopathy experts. The company aims to address malnutrition, enhance fertility, and provide solutions for chronic conditions and joint pain to boost immunity in the elderly.

ISBN: 978-93-92104-82-4

About Session Speaker

Dr. Nishit Aman

Researcher/Model Developer,
Hydro-Informatics Innovation Division,
Hydro-Informatics Institute (HII),
Ministry of Higher Education, Science,
Research and Innovation (MHESI),
Bangkok, Thailand

Dr. Nishit Aman is a researcher in the Department of Environmental and Sustainable Engineering, Faculty of Engineering, Chulalongkorn University, Thailand. He holds a Ph.D. in Environmental Engineering from King Mongkut's University of Technology Thonburi (KMUTT), Thailand; an M.Tech in Environmental Engineering from the Indian Institute of Technology (IIT) Bombay, India; and a B.Tech in Agricultural Engineering from Tamil Nadu Agricultural University (TNAU), India.Dr. Aman's research lies at the intersection of environmental engineering, atmospheric science, and data science, contributing to the emerging field of environmental data science. His work focuses on data-driven modeling and analysis of complex climate and atmospheric systems by leveraging big data and employing advanced data science and artificial intelligence/machine learning (AI/ML) techniques. He develops innovative tools and data-driven solutions for complex challenges in environmental sustainability, energy, and related fields, while also providing actionable insights to support evidence-based policymaking.

His recent efforts involve developing novel machine learning frameworks for air pollution and climate modeling and mitigation in Greater Bangkok and other regions in Thailand. Dr. Aman has contributed to more than a dozen national and international projects funded by prominent agencies such as the Asia-Pacific Space Cooperation Organization (APSCO), Energy Conservation Promotion Fund (ENCONFUND), Ministry of Energy, National Research Council of Thailand (NRCT), Electricity Generating Authority of Thailand (EGAT), Hydro-Informatics Institute (HII), and Thai Health Promotion Foundation.He has published extensively in leading international journals and developed multiple computational/ML-based frameworks for air pollution and climate modeling in Thailand.

ISBN: 978-93-92104-82-4

About Session Speaker

Dr. M. Maria Leena

Head of the Department - Food Technology
School of Biosciences and Technology
SRM Institute of Science & Technology (SRMIST) , Trichy
India

Dr. M. Maria Leena is a Nanobiotechnologist with multidisciplinary expertise in encapsulation of bioactives, 3D printing of food and biomaterials, functional food development, oil powder processing, and bioavailability enhancement. She currently serves as Assistant Professor in the Department of Biotechnology at SRM Institute of Science and Technology, Tiruchirappalli.

She holds a Ph.D. in Biotechnology from the Indian Institute of Food Processing Technology (IIFPT), along with Master's degrees in Nanotechnology and Project Management. Her career spans both academia and industry, including a stint as a software engineer at Infosys and multiple research positions supported by government funding.

Dr. Leena has led government-funded projects including a DST Women Scientist-A grant and a SERB SRG project on smart nanocarriers. She has received several prestigious awards, including international travel grants from SERB and INSA-CCSTDS, and her review article on intelligent packaging is one of the most cited in the field.

With over 90 publications, including 32 research papers, 20 book chapters, and several conference presentations, she has a total impact factor of 183.05 and an h-index of 20. Her work reflects a strong commitment to innovation in food technology and nanobiotechnology.

ISBN: 978-93-92104-82-4

About Session Chairs

Dr. Sri Shalini Sathyanarayanan

Foreign Expert, Civil and Environmental Engineering, Mahidol University Nakhon Pathom, Thailand

Ms. Analyn I. Diola

Assistant Professor II,
Pangasinan State University,
Philippines

Ms. Leticia M. Babas, MN

Dean, College of Allied Health
Basilan State College,
Philippines

Dr. Bhaskar Jyoti

Head IPR Cell, Assistant Professor,
Department of Food Science and Technology,
(School of Agricultural), Mahakaushal University,
Jabalpur, Madhya Pradesh, India

ISBN: 978-93-92104-82-4

About Session Chairs

Dr. Arshi Naim

Guest Faculty, Department of Botany
Centre for Microbiology,
Ewing Christian College
India

ISBN: 978-93-92104-82-4

About Committee Members

Conference Chair

Dr. Pratikshya Bhandari
Director, International Affairs & Lecturer, Faculty of Management, Shinawatra University, Pathum Thani, Thailand

Organizing Committee

Dr. Sri Shalini Sathyanarayanan
Foreign Expert, Civil and Environmental Engineering, Mahidol University Nakhon Pathom, Thailand

Dr. Md. Nasir Uddin
Founder and CEO, Global Climate Change Foundation, PhD Research Fellow Multimedia University, Kualalampur, Malaysia

Dr. Mefo'o Mbiabe Ayafor Nadesh
Specialised Juriste, International Humaniterian Law, Global Climate Change Foundation, Cameroon

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Zenevev Amandoron-Longaquit
Supervising Environmental Management Specialist, Provincial Environment & Natural Resources Office-Local Government Unit, Provincial Government of Agusan del Sur (PGAS), Prosperidad, Agusan de Sur, Philippines

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Faculty Dean, Faculty of Agriculture, Food and Environmental Science, Southern Leyte State University-Hinunangan Campus, Southern Leyte, Philippines

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Lecturer, Business, Institute Business and Communication LSPR, Jakarta, Indonesia

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Postdoctoral Research Scientist, Food Science and Nanotechnology, Zhejiang University, Hangzhou, China

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Core Faculty, Palawan State University, Palawan, Philippines

Pribadi Sutiono
Ambassador of the Republic of Indonesia to the Slovak Republic, Lecturer -University of Pembangunan Nasional Veteran Jakarta, Indonesia &
Faculty of Social and Politics Science International Relations Department, Jakarta, Indonesia

Asmat Chiragh Kakar
Principal, Education, Coordinator, Global Climate Change Foundation, Pakistan

Ms. Gaurangi Munje-Paralkar
Assistant Professor, BBA, Dr. Ambedkar Institute of Management Studies and Research (DAIMSR), Nagpur, India

Dr. Monika Jain
Head of Department, Dr. Ambedkar Institute of Management Studies and Research, Rashtrasant Tukadoji Maharaj, Nagpur University. Maharashtra, India

ISBN: 978-93-92104-82-4

Abstract's Index

ISBN: 978-93-92104-82-4

ISBN: 978-93-92104-82-4

A Decade of In Silico Drug Discovery for *Naegleria fowleri*: Progress, Challenges, and Future Directions

Kavitha Rajendran
Sunway University, Malaysia

Devandran Apparasamy
Sunway University, Malaysia

Chris Izaak Jones
Mapua University, Philippines

Marineil Gomez
Mapua University, Philippines

Abstract:

The brain-eating amoeba, more formally known as *Naegleria fowleri* (*N. fowleri*), is the main cause of Primary Amoebic Meningoencephalitis (PAM), a rare albeit universally fatal infection. The rapid infectivity in conjunction with its guaranteed lethality alongside its limited treatment options should be the proverbial klaxon that signals for new therapeutic techniques. In recent years, *in silico* drug discovery, which includes computational techniques like molecular docking, molecular dynamics simulations, pharmacophore modelling, virtual screening, and QSAR analysis, has emerged as a powerful tool to identify potential treatments for PAM.

Researchers have expended no small number of cognitive resources in fully maximising these methods to identify promising drug candidates, including both novel molecules and repurposed FDA-approved drugs. These efforts target essential proteins and metabolic pathways in *N. fowleri*, with structural bioinformatics helping to identify key drug targets such as proteases, kinases, and metabolic enzymes. The integration of AI and machine learning has further optimised the drug discovery process, enhancing prediction accuracy and compound optimisation. Additionally, diving into green chemistry with the goal of minimising toxicity and environmental impact.

However, challenges remain. These include a shortfall of detailed protein structures, limited experimental validation, gaps between computational predictions and clinical effectiveness. Progressing forward, researchers are encouraged to integrate multi-omics data, expand screening libraries, and improve predictive models to accelerate the discovery of eco-friendly and effective therapies.

This study highlights how computational drug discovery is recontextualising therapeutic strategies against PAM from 2015 to 2025. A multidisciplinary approach combining bioinformatics, chemistry, and experimental biology is paramount to translate computational leads into clinically viable treatments.

ISBN: 978-93-92104-82-4

Nanoparticle-Based Therapeutics and Diagnostics for Acanthamoeba Keratitis: A Comprehensive Review (2015–2025)

Devandran Apparasamy
Sunway University, Subang Jaya, Malaysia

Kavitha Rajendran
Sunway University, Subang Jaya, Malaysia

Abstract:

Acanthamoeba keratitis (AK) is a sight-threatening corneal infection caused by free-living amoebae, often associated with contact lens use. AK is notoriously difficult to treat due to the resilience of Acanthamoeba cysts and limited drug penetration into the cornea. In recent years, nanoparticle-based approaches have emerged as promising tools for both therapy and diagnosis of AK. This review provides a comprehensive overview of the literature (2015–2025) on silver and gold nanoparticles in AK management. On the therapeutic front, silver nanoparticles (AgNPs) have demonstrated direct anti-amoebic and cysticidal effects, as well as the ability to enhance the efficacy of existing anti-amoebic. Gold nanoparticles (AuNPs), while less inherently amoebicidal, serve as versatile carriers for drug delivery, improving drug bioavailability and reducing host cell toxicity. Several studies report nanoparticle conjugates with repurposed drugs (e.g. biguanides, diamidines, antifungals) that show enhanced trophozoite kill rates and prevention of cyst formation. On the diagnostic front, gold nanoparticle-based colorimetric assays and biosensors enable rapid and sensitive detection of Acanthamoeba DNA or antigens, addressing the current delays in diagnosis. Notably, a dual-mode AuNP colorimetric assay allows naked-eye visualization of Acanthamoeba genomic DNA within minutes, and a surface-enhanced Raman scattering (SERS) immunoassay targeting a specific amoebic antigen has achieved ultra-low detection limits in tear samples. Despite these advances, translation to clinical practice faces challenges including nanoparticle biocompatibility, ocular delivery barriers, and the need for in-vivo efficacy validation. This review discusses the state-of-the-art nanoparticle strategies for AK, analyzes current limitations in their clinical implementation, and outlines future research directions. Nanotechnology-based theragnostic approaches hold significant promises to improve AK outcomes by enabling more effective treatments and earlier point-of-care diagnosis, ultimately mitigating the vision loss associated with this severe infection.

ISBN: 978-93-92104-82-4

Affordable Methodologies for Reducing Carbon Footprints-Practical Solutions for Sustainable Living and Low-Cost Climate Action

Dr. Md. Nasir UDDIN
Global Climate Change Foundation(GCCF), Chittagong

Abstract:

As climate change intensifies, the urgency to reduce greenhouse gas emissions has grown immensely. However, many individuals, communities, and developing nations face financial limitations that restrict their ability to engage in costly climate solutions. This abstract explores affordable methodologies for reducing carbon footprints, emphasizing practical, scalable, and inclusive strategies that promote sustainable living and low-cost climate action. The aim is to democratize climate resilience by ensuring accessibility for all, regardless of socioeconomic status.

The study identifies three core domains where cost-effective interventions yield significant impact: energy consumption, transportation, and lifestyle habits. In the energy sector, transitioning to energy-efficient appliances, solar home systems, and improved insulation can drastically cut emissions at low upfront costs. Community-based solar cooperatives and government subsidies further ease financial burdens. In transportation, promoting walking, cycling, public transit, and carpooling—supported by minimal infrastructure investments—proves both economically and environmentally beneficial.

Lifestyle changes such as adopting a plant-based diet, minimizing food waste, composting, and reducing single-use plastics also offer powerful yet inexpensive ways to curb carbon output. Additionally, behavior-focused approaches like climate education, awareness campaigns, and digital carbon tracking tools empower individuals and communities to act responsibly without needing major financial investments.

Furthermore, this paper highlights the role of grassroots initiatives, local innovation, and policy interventions in accelerating low-cost climate action. Urban gardening, circular economy practices, and climate-smart agriculture demonstrate how affordable, community-driven models can achieve systemic impact. Policy recommendations include carbon tax rebates for low-income households, microfinancing for green startups, and mandatory green curriculum in schools.

Ultimately, the paper advocates for a shift from high-tech dependency to human-centered, context-specific climate action models that are economically feasible, environmentally effective, and socially equitable. By integrating affordability into the core of climate strategies, societies can achieve broad participation, faster transitions, and greater long- term sustainability.

ISBN: 978-93-92104-82-4

Site-Specific PM2.5 Surveillance in a Governmental Office Setting for Operational Preparedness During High Air Pollution Periods

Aekgaran Sangmala*
Secretariat Office of the Royal Development Projects Committee, Department of Disease Control, Ministry of Public Health, Nonthaburi, Thailand

Pahurat Kongmuang Taisuwan
Secretariat Office of the Royal Development Projects Committee, Department of Disease Control, Ministry of Public Health, Nonthaburi, Thailand

Anukun Munkitti
Secretariat Office of the Royal Development Projects Committee, Department of Disease Control, Ministry of Public Health, Nonthaburi, Thailand

Pasuta Anurakthaworn
Secretariat Office of the Royal Development Projects Committee, Department of Disease Control, Ministry of Public Health, Nonthaburi, Thailand

Naphasporn Srisuk
Secretariat Office of the Royal Development Projects Committee, Department of Disease Control, Ministry of Public Health, Nonthaburi, Thailand

Wimonmat Ratchata
Secretariat Office of the Royal Development Projects Committee, Department of Disease Control, Ministry of Public Health, Nonthaburi, Thailand

Sorawee Poonnuch
Secretariat Office of the Royal Development Projects Committee, Department of Disease Control, Ministry of Public Health, Nonthaburi, Thailand

Kamolwan Klibkomut
Secretariat Office of the Royal Development Projects Committee, Department of Disease Control, Ministry of Public Health, Nonthaburi, Thailand

Thisiya Limkul
Secretariat Office of the Royal Development Projects Committee, Department of Disease Control, Ministry of Public Health, Nonthaburi, Thailand

Sukwisan U-ralerd
Secretariat Office of the Royal Development Projects Committee, Department of Disease Control, Ministry of Public Health, Nonthaburi, Thailand

Abstract:

Fine particulate matter (PM2.5) presents significant health risks both indoors and outdoors. This study monitored PM2.5 concentrations at the Secretariat Office of the Royal Development Projects Committee, under the Department of Disease Control, Ministry of Public Health, from January to July 2025. Daily measurements were taken each morning at six locations: the meeting room, staff office, kitchen, director's office, front balcony, and garden area.

Using calibrated portable monitors, the study revealed that PM2.5 levels were consistently highest at the front balcony, garden, and staff office—areas likely exposed to outdoor or semi-outdoor conditions. Conversely, indoor spaces such as the meeting room, kitchen, and director's office, which are situated farther from the corridor, showed lower levels. These findings highlight notable exposure risks in both outdoor and semi-outdoor environments within the facility.

The localized data were compared with PM2.5 readings from the fixed monitoring station operated by the Department of Pollution Control within the same Ministry of Public Health premises. The comparison supported the development of a Business Continuity Plan (BCP) aimed at safeguarding health and ensuring operational resilience during high pollution periods. Recommended measures included installing air purifiers, enhancing ventilation systems, and implementing flexible work arrangements.

This study emphasizes the importance of site-specific air quality monitoring in government offices and demonstrates its critical role in strengthening organizational preparedness during episodes of elevated air pollution.

Index Terms: PM2.5, Indoor Air Quality, Environmental Surveillance, Business Continuity Plan

ISBN: 978-93-92104-82-4

An Evaluation of Key Contaminants Influencing Aquaculture in Mine Surface Plant Areas: An Explorative Study of Kalumbila Mining Area in Zambia

Kashale Chimanga
Department of Computer Science, School of Computing and Technology, ZCAS University, Lusaka, Zambia

Christopher Chembe
Department of Computer Science, School of Computing and Technology, ZCAS University, Lusaka, Zambia

Ezekiel Bob Jere
Department of Computer Science, School of Computing and Technology, ZCAS University, Lusaka, Zambia

Abstract:

This study investigates the primary pollutants affecting aquaculture in the mine surface plant areas of Kalumbila District, Zambia. Water samples were collected from four sites in proximity to mining activities and analyzed for heavy metals iron, copper, and cobalt alongside key water quality parameters such as pH, dissolved oxygen (DO), temperature, and conductivity. The findings revealed critically high cobalt concentrations (up to 60 mg/L at Site 1, far exceeding the recommended threshold of 0.01 mg/L), elevated copper levels, and slightly acidic conditions near pollution sources. Site 1 also recorded the lowest DO levels (4.5 ± 0.6 mg/L), indicating stress conditions for aquatic organisms. A spatial gradient in contamination was observed, with pollutant levels declining at sites further from the mine, suggesting natural attenuation. The study highlights the ecological risks posed by heavy metal toxicity, low DO, and elevated conductivity including gill damage, bioaccumulation, and osmotic imbalance particularly in areas closest to mining operations. These results align with existing research on the environmental impacts of mining and underscore the need for urgent mitigation. The study recommends adopting advanced pollution control technologies, strengthening environmental monitoring, and promoting sustainable mining practices to protect aquatic ecosystems and community livelihoods.

Index Terms: Mining, Pollutants, Environmental, Kalumbila, Heavy Metals

ISBN: 978-93-92104-82-4

Reduce, Reuse, Rethink: The 3 R's of Periods

Dr. Monika Jain
Dr Ambedkar Institute of Management Studies and Research, Nagpur, India

Dr. Muktai Chauhan Deb
Maharashtra National Law University, Mumbai, India

Abstract:

Compared to traditional disposable menstrual products, which greatly cause serious waste management issues, sustainable menstruation products, such cloth pads and period pants, offer more environmentally friendly options. Examining menstruators' preparedness to embrace these sustainable alternatives specifically period underwear and reusable cloth pads, as well as the advantages and difficulties of using them are the goals of this study. The researchers also will assess the awareness of waste management in menstrual hygiene and looking at the possibility of lessening the environmental impact of menstrual products. Menstruators from a variety of demographics were surveyed and interviewed as part of a mixed-methods approach to determine their opinions of reusable menstrual products. The paper also mentions cultural taboos, inaccessibility, and inadequate awareness as obstacles to adoption. This study emphasizes the necessity of educational initiatives and awareness raising campaigns to support sustainable menstruation practices. This study aims to increase the knowledge of sustainable period management by analyzing the benefits and drawbacks of reusable menstruation products. It also wanted to empower menstruators to make well informed decisions about their menstrual health and environmental effect. The research also encourages improved sustainability by highlighting the need of reducing, reusing, and recycling in menstrual hygiene practices.

Index Terms: Sustainable Menstruation, Menstrual Hygiene Management, Period Underwear, Reusable Cloth Pads, Waste Management, Environmental Sustainability, Awareness Campaigns, Reduce Reuse Recycle

ISBN: 978-93-92104-82-4

Exploring Marketing Strategies for Sustainable Consumption in the Circular Economy: A Case Study of Amul & Forest Essentials

Dr. Rinki S. Moolchandani
Assistant Professor, Dr. Ambedkar Institute of Management Studies & Research, Nagpur, India

Dr. Shreeja Kurup
Assistant Professor, L.A.D. & Smt. R.P. College for Women, Nagpur, India

Dr. Prabhjot Kaur Nayyar
Junior College Teacher, Dr. Ambedkar College, Nagpur, India

Abhishek Dubey
National Manager, Debt Management Services, Bajaj Finance, India

Abstract:

Purpose: This case study navigates through marketing strategies aimed at promoting sustainable consumption within the circular economy framework. It explores the role of marketing in influencing consumer behaviour towards adopting circular practices. The study aims to provide insights into effective marketing approaches for businesses operating in the circular economy, emphasizing the importance of aligning marketing efforts with sustainability objectives.

Research Design/Methodology: Through a qualitative approach, this case study examines real-world examples of marketing strategies implemented by businesses in the circular economy sector. Data is collected through interviews, questionnaire and analysis of marketing materials and campaigns.

Originality: The study focuses on identifying key tactics employed by successful companies to engage consumers and drive adoption of sustainable consumption behaviour. The analysis specifically includes detailed case studies of Amul and Forest Essentials, demonstrating how diverse industries like dairy and luxury beauty can implement circular economy principles effectively. Amul's use of cooperative farming models and community-focused marketing strategies, alongside Forest Essentials' commitment to combining traditional Ayurvedic practices with modern sustainability efforts, provide practical frameworks for integrating environmental and economic goals.

Findings: The case study reveals several effective marketing strategies utilized by businesses to promote sustainable consumption within the circular economy. These include highlighting product durability and recyclability, leveraging to communicate the environmental impact of products, and fostering community engagement through social media and experiential marketing. Additionally, the study underscores the importance of authenticity and transparency in building consumer trust and loyalty towards circular economy initiatives. By analysing real-world examples, the study offers valuable insights for businesses seeking to align their marketing efforts with sustainability goals. The findings provide actionable recommendations for companies looking to effectively communicate the benefits of circular practices to consumers and drive positive change towards a more sustainable future.

Index Terms: Sustainability, Consumption behaviour, Circular Economy, Experiential Marketing

ISBN: 978-93-92104-82-4

An Overview on Eco-friendly HRM Policies and Practices in Banks: Green and Sustainable Practices

Vishranti. N. Raut
Research Scholar, Dada Ramchand Bakhru Sindhu Mahavidyalaya, Nagpur, India

Dr. Anand Thadani
Research Guide, Dada Ramchand Bakhru Sindhu Mahavidyalaya, Nagpur, India

Gaurangi Munje
Faculty, Dr.Ambedkar Institute of Management Studies and Research, Nagpur, India

Sonal Dubey
Faculty, Tirpude Institute of Management Education, Nagpur, India

Abstract:

Green and sustainability have emerged as significant responses within business communities. This evolving paradigm integrates environmental management into human resource practices and policies, promoting organizational sustainability and fostering an eco-friendly workplace. As the world becomes increasingly globalized, businesses are adapting to explore the green economic aspects of their operations. This shift emphasizes the importance of cultivating a culture of ecological awareness among employees by incorporating environmental policies and practices into the HRM framework.

Green HRM encompasses various elements, including green recruitment, green training and development, performance management aligned with environmental goals, and green perks and benefits. The practice of Green Human Resource Management (GHRM) has become a crucial business strategy, playing a vital role in promoting sustainability in the workplace. Additionally, we have observed the implementation of Green HRM in the banking sector.

This paper focuses on the various Green Human Resource Practices adopted by banks and explores the reasons behind their adoption of GHRM practices. It also compares findings from different studies conducted by various researchers. The objective of these practices is to reduce the environmental impact of organizations, enhance corporate social responsibility, ensure regulatory compliance, and highlight the importance of GHRM in today's environment.

Index Terms: Green Human Resource Management(GHRM), Sustainability, Green Recruitment, Green Training and Development

ISBN: 978-93-92104-82-4

Growth Mindset for Green Careers: Role of DISC Assessment in Professional Education

Gaurangi Munje
Assistant Professor, BBA, Dr. Ambedkar Institute of Management and Research Studies, Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur, India

Dr. Barna Naidu
Assistant Professor, Christ University, Pune, Lavasa Campus, India

Vishranti Raut
Assistant Professor, BBA, Dr. Ambedkar Institute of Management and Research Studies, Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur, India

Rinki Mulchandani
Assistant Professor, BCCA, Dr. Ambedkar Institute of Management and Research Studies, Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur, India

Abstract:

The need for trained workforce in an environmentally conscious and forward thinking professions has been grown as a result of increasing critical sustainability issues.

However, students firmly block held their opinions about their capacities, ability, talent and professional boundaries is the partly reason of talent shortage.

With the help DISC personality test, this research study aims to explore the relations of growth mind-set in encouraging students to pursue long term career paths.

A growth mind-set always offers a foundation for overcoming psychological barriers to flexibility and ambition it is based on the idea that intelligence and skills can be acquired with hard work.

The research study examines that using the DISC personality model which helps to identify personality type, behavioural styles utilize to improve self-awareness and learning.

Faculties can create interventions which not only improves various skill but also sensitivity to green job paths by classifying their DISC profiles.

In this research study a mixed method strategy recommended to incorporate which includes DISC based personality identification connected with growth mind set interventions and also investigation of student's perception towards sustainable sectors or green careers

It is anticipated that the results will show how integrating DISC profile with growth mindset practice provides students with the self-assurance and adaptability they need to succeed in the green economy.

ISBN: 978-93-92104-82-4

Green Chemistry and Green Engineering as Catalysts for a Sustainable Future

Smita Mandwekar
Assistant Professor, Dr. Ambedkar Institute of Management Studies and Research, Deeksha Bhoomi, Nagpur India

Abstract:

Green Chemistry and Green Engineering are vital for building sustainable industries with less environmental impact. While Green Chemistry focuses on safer chemical processes and products, Green Engineering designs systems that save resources and reduce waste. Together, they help industries fight climate change, improve efficiency, and support a circular economy. This paper reviews their core principles, recent progress, and real-world applications, along with emerging technologies, policies, and future research that can boost the adoption of green practices.

ISBN: 978-93-92104-82-4

Investigating the Potential of Green Algae as Biosorbents for Reducing Heavy Metals in Wastewater: An Effective and Practical Approach

Fatemehsadat Mirmohammadmakki
Researcher of Medical Ethics and Law Research Center, Shahid Beheshti University of Medical Sciences and, PhD graduated of Islamic Azad University, Science and Research Branch Tehran, Iran

Seyed Fathollah Mir Mohammadmakki
Department or Department of Industrial Engineering & Management Systems, Amirkabir University of Technology Country, Tehran, Iran

Abstract:

Introduction: Heavy metal contamination in aquatic ecosystems has become a major environmental and public health concern. Conventional treatment technologies, while effective, often involve high costs and secondary pollution. Biosorption, which uses biological materials to bind and remove contaminants, is emerging as an eco-friendly and cost-efficient solution. Green algae, owing to their abundance, fast growth, and functionalized cell walls, are gaining attention as effective biosorbents.

Methods and Materials: This review compiles findings from experimental studies and field applications assessing the biosorption potential of green algae. Species such as Chlorella vulgaris, Scenedesmus spp., and Spirogyra spp. are highlighted. Experimental designs commonly include batch and continuous-flow systems under controlled conditions. Analytical methods such as Atomic Absorption Spectroscopy (AAS), Inductively Coupled Plasma Mass Spectrometry (ICP-MS), and Scanning Electron Microscopy (SEM) are frequently applied to quantify metal uptake and investigate binding mechanisms.

Results and Discussion: Studies demonstrate that green algae efficiently remove heavy metals including cadmium, lead, arsenic, and mercury, achieving removal efficiencies above 90% in some cases. The biosorption process is largely attributed to functional groups such as carboxyl, hydroxyl, and sulfate present on algal cell walls. Factors like pH, temperature, initial contaminant concentration, and biomass dosage significantly influence performance. Beyond heavy metals, green algae also exhibit removal potential for organic pollutants such as dyes and pharmaceuticals. Importantly, algal biomass offers additional value through applications in biofuels and bioproducts.

Conclusion: Green algae represent a sustainable, effective, and low-cost alternative for heavy metal remediation in wastewater. Their high biosorption efficiency, adaptability, and biomass valorization potential make them strong candidates for large-scale treatment systems. Future research should focus on optimizing operational conditions, ensuring pollutant stability, and integrating algal biosorption with other technologies to enhance remediation outcomes.

Index Terms: Green algae, Biosorption, Heavy metals, Wastewater treatment, Chlorella vulgaris, Environmental remediation

ISBN: 978-93-92104-82-4

Localized Extirpation Risk in a Globally Secure Species: Ecological Assessment of *Gnetum gnemon* L. under Intense Anthropogenic Pressure in the Philippines

Marlon M. Garrigues
North Eastern Mindanao State University, Philippines

Richel B. Garrigues
North Eastern Mindanao State University, Philippines

Abstract:

Global conservation assessments, while essential, often mask localized threats that drive regional extirpations, particularly for ethnobotanically significant species. This study investigates the ecological status of *Gnetum gnemon* L. in Maguindanao, Philippines, addressing the "conservation paradox" surrounding its IUCN 'Least Concern' status versus local rarity. We employed a multi-stage stratified random sampling design across 76.56 km², encompassing four land-use strata: forestland, grassland, brushland, and cultivated land. Our findings reveal critically low population densities, classified as 'very rare' (<1% coverage). Density varied significantly across strata (Kruskal-Wallis, p=0.005), peaking in forestland (4.69 individuals/km²) and lowest in cultivated land (0.90 individuals/km²). Spatial analysis indicated significant clustering (Average Nearest Neighbor index, p<0.001), with 98% of individuals restricted to steep riparian zones, identifying these areas as critical refuge habitats. The population structure is severely degraded, evidenced by a complete decoupling of the height-diameter allometry (Spearman's rho=0.104, p=0.176). This is attributed to intense anthropogenic pressure, with 86% of individuals exhibiting signs of destructive harvesting (felling). These results confirm that *G. gnemon* faces imminent local extirpation in the study area. We argue for the urgent integration of localized ecological data into national conservation frameworks and propose targeted, community-based interventions.

ISBN: 978-93-92104-82-4

Lignocellulosic Fibre-Based Sanitary Pads: An Innovative Approach Integrating Corn Husk, Coconut Fibre, and Aloe Vera

Sanmhidha R V
Kumaraguru Institute of Agriculture, Erode, India

Rakshitha V L
Kumaraguru Institute of Agriculture, Erode, India

Dr.S.Hemalatha
Kumaraguru Institute of Agriculture, Erode, India

Abstract:

This study presents the development of an eco-friendly sanitary pad using agricultural by-product fibres and natural antimicrobial agents within a biodegradable framework. The absorbent core combines corn husk fibre, with an absorption capacity of approximately 200% relative to its dry weight after alkali-enzyme assisted extraction, and coconut fibre, providing high capillarity and structural stability. Aloe vera extract was incorporated into the fibre matrix to enhance hygienic performance, yielding a measurable antimicrobial effect with ~3% inhibition of Staphylococcus aureus and Escherichia coli compared to untreated fibres.

The lower layer consists of a starch-based bioplastic, offering efficient liquid impermeability while maintaining biodegradability and minimizing long-term environmental impact. The resulting composite system provides a dual-functional solution, combining high absorption efficiency with improved microbial resistance, while remaining compatible with sustainable waste management practices.

The study highlights the potential of lignocellulosic fibres and natural bio-extracts to replace conventional synthetic polymers. Future work will focus on prototype fabrication, performance validation, and large-scale feasibility to translate laboratory findings into a practical and sustainable hygiene solution.

ISBN: 978-93-92104-82-4

Integrating Live Moss for Air Filtration and Sustainable Interior Design

Rakshitha V L
Kumaraguru Institute of Agriculture, Erode, India

Sanmhidha R V
Kumaraguru Institute of Agriculture, Erode, India

Gobala Krishnan
Kumaraguru Institute of Agriculture, Erode, India

Abstract:

Growing demand for environmentally friendly and useful décor has stimulated new ideas that combine sustainability with aesthetics. This project involves the production of home and office décor items from live moss, not only improving interior design but also serving as air purifiers. Pollution-resistant moss species like Bryum argenteum and Funaria hygrometrica are chosen for their hardiness in urban settings, capability to absorb airborne toxins, and susceptibility to indoor conditions with low maintenance. For growth and long-term survival, basic nutrition is offered through the occasional use of organic solutions for misting, with the addition of activated charcoal or biochar in the growing medium preventing pollution effect through the adsorption of toxins and heavy metals. These mosses are incorporated into wall art, desktop items, and vertical garden panels to produce green, biodegradable substitutes for man-made décor. By capitalizing on their air-purifying ability and low environmental impact, the project provides a green solution that is compatible with contemporary urban life while enhancing indoor air quality.

ISBN: 978-93-92104-82-4

Sustainable Tourism Development in the Community of Port St-Johns: Opportunities and Challenges

Bantu Mbeko Msengi
Walter Sisulu University, Eastern Cape, South Africa

Abstract:

Tourism has been noted to be the fastest-growing industry globally. It has also been noted that tourism can change the lives of the destination community. However, despite these positive promises of tourism, there is a need to balance tourism expansion and sustainability. In many cases, it seems that the expansion of tourism and sustainability are mutually exclusive. This study looked at how sustainable tourism development in Port St Johns could be achieved.

The study used a mixed methods approach to collect both qualitative and quantitative data. Purposive and convenience sampling procedures were applied. The study revealed that although there is great tourism potential in Port St Johns, it remains largely unexploited due to several reasons including poor funding and lack of all stakeholder involvement. It is also clear that Port St Johns is blessed with several tourist attractions. This study recommends that tourism development planning be made to form part of the general economic development plan of Port St. Johns and appropriate development processes such as effective public consultation, tourism resources inventory, plan implementation and frequent monitoring and evaluation be followed.

Index Terms: Sustainability, Tourism, Development, Port St. Johns, Community

ISBN: 978-93-92104-82-4

Environmental Education Since the Study of Chemistry in the CECYT11, National Polytechnic Institute Mexico

Rodríguez-Angeles, M.G
Center for Scientific and Technological Studies, Chemistry, National Polytechnic Institute, Mexico City, Mexico

Yarzábal-Coronel, N
Center for Scientific and Technological Studies, Chemistry, National Polytechnic Institute, Mexico City, Mexico

Abstract:

The National Polytechnic Institute is an institution of technological, scientific and environmental education in Mexico, heading towards a sustainable campus. The environmental education that high school students receive gives them values, raises awareness and promotes respect for the environment, while they receive knowledge of different disciplines such as chemistry, physics, mathematics, philosophy and subjects in the technological area. Chemicals make modern life easier and provide comfort, but they have a negative impact on the environment when they are deposited in water, air and land, that is why the school teaches students their importance in industry and the economy but also the damage it causes to the environment and health if not worked carefully. In the Chemistry laboratory, after carrying out the experiments of each practice, the students deposit the products of the reactions in containers that are placed in the laboratory, where they are stored until they are neutralized at school by teachers or delivered to a specialized company that treats them chemically, so that they do not go to the city's drainage and reduce pollution by chemical waste. In addition, students are taught to determine their carbon footprint so that they reflect and analyze how each individual damages the environment with their daily activity, so students raise awareness, propose possible solutions and try to reduce the negative impact. These are small big actions within sustainable education that can contribute to reducing pollution and taking care of the environment. SIP 20251232, 20251136. National Polytechnic Institute, Mexico.

Index Terms: Environmental Education, Sustainability, Chemistry, Sustainable Campus, Chemical Waste

ISBN: 978-93-92104-82-4