

Newsletter

PAKISTAN ACADEMY OF SCIENCES

Promoting Science, Technology and Innovation for Socio-economic Development

Volume 18, No. 2

APRIL 2023

President

Prof. Dr. Khalid M. Khan
SI

Secretary General

Prof. Dr. Tasawar Hayat
HI, SI, TI

Treasurer

Prof. Dr. Amin Badshah
TI

Editor

Dr. M. Javed Akhtar

Composer

Mr. Muhammad Naseer
Mr. Ali Ahsan

**Fellows and Members
may submit news and
views related to Science
and Technology to:**

Editor

**Pakistan Academy of
Sciences
3-Constitution Avenue,
G-5/2, Islamabad,
Pakistan**

Email: editor@paspk.org

Tel: (+92 51) 920-7140

Web: www.paspk.org

Pakistan Academy of Sciences (PAS) and Pakistan Biological Safety Association (PBSA) Joint Workshop on Biological Risk Mitigation Training at PAS Secretariat, Islamabad (March 11-13, 2023)



The Pakistan Academy of Sciences (PAS) in collaboration with the Pakistan Biological Safety Association (PBSA) jointly organized a three-day "Train the Trainers" Workshop on the Biological Risk Mitigation Training Program for the Islamabad Capital Territory (ICT) chapter on March 11-13, 2023. The main objective of the workshop was to raise awareness about the safety measures and practices which can be adopted by the researchers during work in the laboratories to minimize the risk of exposure to biological hazards.

The workshop was attended by 44 professionals from various institutions. Dr. Mukhtar Ahmed, Chairman Higher Education Commission (HEC), was invited as chief guest. President PBSA Dr. Saeed Khan inaugurated the workshop. The workshop comprised hands-on practical sessions, interactive discussions, and informative presentations on various topics such as donning and doffing of personal protective equipment (PPE), the beaking method, biosecurity and its primary control measures, roles and responsibilities of a biosafety officer, types of biosafety cabinets, waste management, biological spill management, and the shipping of infectious substances.

Prof. Dr. Zabta Khan Shinwari (Fellow PAS) presented a talk on "Leadership in Biosafety and Biosecurity" on March 11, 2023. The trainers, namely Mr. Anayat Umar, Dr. Zia Ashraf, Dr. Imran Khattak, Mr. Raza Mohy Ud Din, and Dr. Tahir Usman, delivered training lectures on important concepts related to biosafety and biosecurity. Chapter Head Dr. Afreenish Hassan and Co-chapter head Dr. Muhammad Ali (Member PAS) contributed with their incredible efforts in organizing the event successfully. President PBSA Dr. Saeed Khan and General Secretary - PBSA Dr. Javed Muhammad also delivered lectures during the event. The workshop provided knowledge and skills to implement measures that enhance laboratory safety and minimize the risk of exposure to biological hazards. The workshop was concluded by Dr. Muhammad Ali (Member PAS) by giving a vote of thanks to the honourable chief guest, organisers, speakers and all the participants

Pakistan Academy of Sciences Organized the Reference for (Late) Prof. Dr. Ghulam Abbas Miana (S.I.) (March 20, 2023)

The Pakistan Academy of Sciences (PAS) organized the Reference for condolence of the sad demise of (Late) Prof. Dr. Ghulam Abbas Miana (S.I.). A number of Distinguished Professors Renowned Scientists, and Research Scholars from various universities attended the Reference and prayed for the departed soul. They also shared unforgettable memories and the prestigious contributions of (Late) Dr. Ghulam Abbas Miana towards research and development (R&D).



International Workshop on Science Journalism at Forman Christian College University, Lahore (January 11-12, 2023)

The Pakistan Academy of Sciences (PAS) sponsored a two-day international workshop on Science Journalism at the FC College, jointly organized by ORIC FCCU, Faculty of Humanities and KAM-School of Life Sciences on 11-12 January 2023. In the inaugural ceremony held on 11th January 2023, the Chief Guest Prof. Dr. Shahid Munir; Chairman PHEC highlighted the importance of communicating science in a better way in a developing country like Pakistan. He said that it is important that our entertainment industry now inclines towards producing science-based content instead of conventional scripts. Ms. Ayesha Aslam - Manager Innovation and Commercialization at ORIC FCCU served as coordinator for this workshop. The objective of this workshop was to achieve a better understanding of science among the journalist community to focus on the tactics that will make the journalists write about new inventions in a positive way. Speaking at the occasion, the coordinator of the workshop stated that the information in journals written in scientific language by scientists is very hard for the public to understand. There is a need to educate journalists to transform scientific writing into simple

language for laymen in an effective and interesting way.

Dr. Tasawar Hayat- General Secretary PAS also attended the ceremony and appreciated the efforts of ORIC and FC College for creating awareness about Science Journalism among the journalists and scientific community through this workshop.

Dr. Jonathan Addleton (Rector-FCCU) said that it is time that we start introducing joint courses of communication and science in the curriculum so that the upcoming journalists know how to pitch science stories and scientists know how to translate their work in much simpler and understanding language for the non-scientific community. He also thanked the Director ORIC and Dean Postgraduate Studies, Dr. Kauser Abdulla Malik (Fellow PAS) and Dean Faculty of Humanities Dr. Altaf Ullah Khan for providing this platform to bridge the gap between the scientific and journalist community in Pakistan. Dr. Altaf Ullah Khan presented an overview of the workshop and explained how efficiently it has been designed both for journalists and scientists.



Prof. Dr. Zabta Khan Shinwari Presented a Keynote Lecture at the 24th International Scientific Conference at the International Center for Chemical and Biological Sciences (ICCBS), University of Karachi (March 7-8, 2023)

Prof. Dr. Zabta Khan Shinwari (Fellow PAS) presented a keynote lecture entitled, “Plant Sciences: A tool to achieve targets of SDGs” at the “24th International Scientific Conference on Challenges to Promote Science & Technology for Socio-Economic Development in OIC Countries”, at the International Center for Chemical and Biological Sciences (ICCBS), University of Karachi.



18th conference on “Recent Advances in Mathematical Methods, Models and Applications (RAMMMA)” Lahore School of Economics, Lahore (March 4-5, 2023)

The 18th conference on “Recent Advances in Mathematical Methods, Models and Applications (RAMMMA)” was organized by three senior PAS Fellows Prof. Dr. Asghar Qadir, Prof. Dr. Saleem Asghar and Prof. Dr. Ismat Beg at the Lahore School of Economics, Lahore. It brought together prominent mathematicians and scientists from all over Pakistan who delivered a number of fascinating presentations in various fields of mathematics. The conference aimed to promote research in mathematics and science and provided a platform for researchers to exchange ideas and share their latest research findings.

The first talk of the conference was presented by Prof. Dr.

Ismat Beg (Fellow PAS), a mathematician at the Lahore School of Economics, on the topic of the “Core of a Convex Mixture Set and Convex Functions”. Afterwards, presentations on various other topics were delivered, including numerical and optical soliton solutions of stochastic Gross-Pitaevskii equation in dispersive media, reliable numerical analysis for stochastic reaction-diffusion systems, and a clustering algorithm based on fuzzy decision-making. Prof. Dr. Asghar Qadir (Fellow PAS), an HEC distinguished professor, concluded the event by presenting a talk on the “Complex Connections between Special Functions, Symmetry Analysis and Singularity Analysis”.



Prof. Dr. Zabta Khan Shinwari Participated in an International Workshop on “Biorisk and Technology” Organized by The Stockholm International Peace Research Institute (SIPRI) at Solna, Sweden (January 17-18, 2023)

Prof. Dr. Zabta Khan Shinwari (Fellow PAS) participated in an international workshop hosted by The Stockholm International Peace Research Institute (SIPRI). The workshop aimed to present the in-progress toolkit framework to a group of over 25 internationally renowned experts in the field for the practice of responsible biological science, targeting academics and researchers in the life sciences.



International Conference on Mitigation and Adaptation for Climate change; Focus on Agriculture and Food Security, at Forman Christian College University, Lahore (February 6-9, 2023)

Agriculture in Pakistan is significantly affected by short-term climate variability and longer-term climate change. Periods of severe droughts, followed by devastating floods are common in the country and have contributed to low crop yields, loss of livestock, damage to irrigation infrastructure and food shortages. According to the Climate Change Index, droughts will increase in winter affecting the yield of cash harvests. Meanwhile, an increase in precipitation in the summer season may cause floods throughout different areas of Pakistan.

In this regard, KAM-School of Life Sciences in collaboration with ORIC organized the International Conference at Forman Christian College University Lahore from 6th – 9th February 2023. The conference consisted of lectures on conservation agriculture, water conservation, stress tolerance, bio-fortification, livestock, plant and microbial interactions, disease resistance, low-cost production and e-agriculture as well as a panel discussion on Policy and governance for mitigation of climate change.

Dr. Jonathan Addleton- Rector FCCU welcomed the participants and appreciated Dr. Kauser Abdulla Malik-Director ORIC (Fellow Pakistan Academy of Sciences) and Dr. Samina Mehnaz- Chairperson KAM-SLS for successfully organizing this conference. In the inaugural session President Economic Cooperation Organization-Science Foundation, Prof. Dr. Seyed Komail Tayebi was the Chief Guest. He emphasized the importance of Mitigation and adaptation technologies in Pakistan for Climate Change. The environmental lawyer, Mr. Rafay Alam talked about the climate crisis and its impacts on our future. Dr. Mahaletchumy Arujanan, Executive Director MABIC talked about science communication as an approach for effective climate action during the inaugural session. This international conference is supported by CropLife Asia, CABI, Pakistan Science Foundation, Babar Ali Foundation, FAO, WWF Pakistan, COMSTECH, HEC, Four Brothers Group and ECO Science Foundation. Their representatives also gave remarks at the ceremony.



Books Co-edited by Fellows of the Pakistan Academy of Sciences

Professor Emeritus Dr. Asghari Maqsood (PAS Fellow) Co-edited a Book titled: “Graphene - A Wonder Material for Scientists and Engineers”

Graphene - A Wonder Material for Scientists and Engineers

15 February 2023

Editors: Mujtaba Ikram, Asghari Maqsood and Aneeqa Bashir

Print ISBN 978-1-80356-431-9

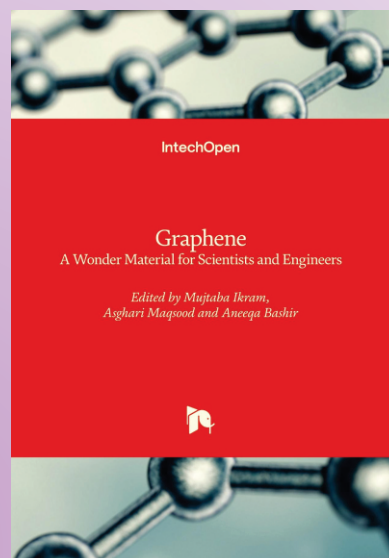
Online ISBN 978-1-80356-432-6

eBook (PDF) ISBN 978-1-80356-433-3

Published by IntechOpen

Graphene is considered a miracle material for scientists and engineers owing to its outstanding physical properties. Graphene and its nanocomposites are promising multifunctional materials with improved tensile strength and elastic modulus. Graphene nanocomposites may have a wide range of potential applications due to their outstanding properties and the low cost of graphene. Because graphene composites have a controllable porous structure, a large surface area, high conductivity, high-

temperature stability, excellent anti-corrosion properties, and composite compatibility, they can be used in energy storage as electro-catalysts, electro-conductive additives, intercalation hosts, and an ideal substrate for active materials. Shortly, graphene will be a base for the next generation's scientific revolution.



Prof. Dr. Munir Ozturk (Fellow PAS) Co-edited a Book titled: “Synthesis of Bionanomaterials for Biomedical Applications”

Synthesis of Bionanomaterials for Biomedical Applications

1st Edition - January 11, 2023

Editors: Munir Ozturk, Arpita Roy, Rouf Ahmad Bhat, Fazilet Vardar Sukan, Fernanda Maria Policarpo Tonelli

Paperback ISBN: 9780323911955

978 0-323-91195-5

eBook ISBN: 9780323998437

Published by Elsevier

Synthesis of Bionanomaterials for Biomedical Applications summarizes a range of procedures, including green synthesis of metal nanoparticles, metal oxide nanoparticles, and other types of nanoparticles while also exploring the appropriate use of these nanoparticles in various therapeutic applications such as anticancer, antibacterial, antifungal, drug delivery, and more. The book provides important information for materials scientists and pharmaceutical scientists on the synthesis of various nanoparticles using a variety of eco-

friendly bionanomaterials. As concern has arisen regarding the environmental impact caused by some of nanomaterials, as well as their possible toxicity to cells, this book presents information on a new generation of eco-friendly materials.

In addition, the green synthesis of nanoparticles shows how environmentally-friendly nanoparticles can be synthesized from different biological sources, such as microbes, fungi, algae and plants.



Prof. Dr. Munir Ozturk (Fellow PAS) Co-edited a Book titled: “Halophyte Plant Diversity and Public Health”

Halophyte Plant Diversity and Public Health

1st Edition - March 01, 2023

Authors: Münir Öztürk, Volkan Altay, Moona Nazish,
Mushtaq Ahmad, Muhammad Zafar

Paperback ISBN: 978-3-031-21943-6

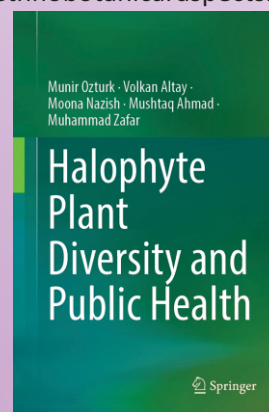
978-3-031-21946-7

eBook ISBN: 978-3-031-21944-3

Published by Springer, Cham

Salinity is one of the acute problems causing enormous yield loss in many regions of the world. This phenomenon is particularly pronounced in arid and semiarid regions. Halophytes can remove salt from various types of problematic soils due to their unique morphological, physiological and anatomical adaptations to these environments. Halophytes are also used for the treatment of certain diseases but scientific documentation in terms of current phytotherapeutic applications is deficient in this unique group of plants. Different ethnic groups around the world use medicinal

halophytes according to their own beliefs and ancestor's experiences. However, their knowledge about the use of salt tolerant medicinal plants is usually confined to their own community. There is thus a knowledge gap on halophytes which should be bridged and preserved. This book provides a comprehensive account on the distribution of halophytes, their ethnobotanical and medicinal aspects, economic importance, and chemical constituents along with scientific description. The book therefore serves as a valuable resource for professionals and researchers working in the fields of plant stress biology and ethnobotanical aspects.



Prof. Dr. Munir Ozturk (Fellow PAS) Co-edited a Book titled: “Phytohormones and Stress Responsive Secondary Metabolites”

Phytohormones and Stress Responsive Secondary Metabolites

1st Edition - March 10, 2023

Editors: Munir Ozturk, Rouf Ahmad Bhat, Muhammad Ashraf, Fernanda Maria Policarpo Tonelli, Bengu Turkyilmaz Unal, Gowhar Hamid Dar

Paperback ISBN: 9780323918831

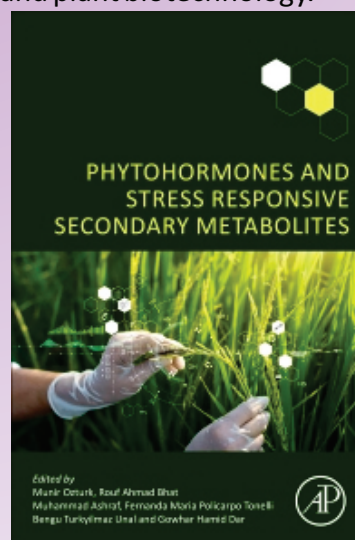
978-0-323-91883-1

eBook ISBN: 9780323914208

Published by Academic Press

Phytohormones and Stress Responsive Secondary Metabolites provides a deep dive into the signaling pathways associated with phytohormones and phytometabolites. With a strong focus on plant stress responses and DNA technology, the book highlights plant biotechnology and metabolic engineering principles. Biotechnology, by using DNA editing technologies, allows the expression of plant genes into other plant species with desirable modulation on plant behavior. Beginning

with an overview of phytohormone signaling, growth and abiotic and biotic stresses, subsequent chapters explore DNA modification strategies, epigenetic and epigenomic regulation, and miRNA regulation. This book will be an essential resource for students, researchers and agriculturalists interested in plant physiology, plant genetics and plant biotechnology.



Prof. Dr. Munir Ozturk (Fellow PAS) Co-edited a Book titled: “Phytosequestration: Strategies for Mitigation of Aerial Carbon Dioxide and Aquatic Nutrient Pollution”

Phytosequestration: Strategies for Mitigation of Aerial Carbon Dioxide and Aquatic Nutrient Pollution

1st Edition - March 17, 2023

Authors: Dervash Moonisa Aslam, Yousuf Abrar, Ozturk
Munir, Bhat Rouf Ahmad

Paperback ISBN: 9783031269202

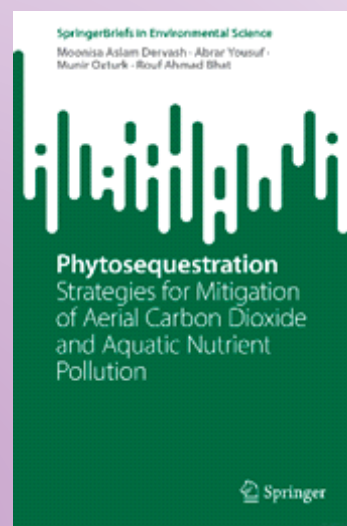
978-3-031-21946-7

eBook ISBN: 978-3-031-21944-3

Published by Springer, Cham

Most imperative environmental concerns are Cultural eutrophication pertaining to industrialization and urbanization which lead to proliferation of weeds in aquatic environs disturbing these ecosystems. Alarming increase in CO₂, CH₄, CFC's, N₂O and water vapour in the atmosphere cause enhanced greenhouse effect, among all these CO₂ is accountable for 55-60 % of total enhanced effect. Phyto- and Nutrient sequestration via plants helps storage of atmospheric CO₂ in the vegetation to get rid of contaminants. Carbon and nutrient sequestration can be

braided together for sustainable development goals. The chapters adopt the hierarchy as follows: significance of quality environs, quantification and bio-monitoring of culprit contaminants, the issues relevant to global warming and accelerated eutrophication and their ecological impacts followed by various sequestration technologies.



Obituary

Prof. Dr. Ghulam Abbas Miana (1939-2023)

Prof. Dr. Ghulam Abbas Miana (S.I.), a versatile Organic Chemist and one of the most highly rewarded academicians and researchers of Pakistan, breathed his last on February 28, 2023, in Islamabad. He joined the Pakistan Academy of Sciences (PAS) as a Fellow in 1998 and served the Academy as Secretary General (PAS) from 2011-2012 and Treasurer (PAS) from 2018-2020.

Prof. Miana enjoyed a distinguished career in the field of Organic Chemistry. During his service, he held prestigious positions such as: Rector, Riphah International University, Islamabad, 2003-2021. Director Research, Riphah Institute of Pharmaceutical Sciences, Riphah International University, 2006-2021. Associate Dean, RARE Research Division, 2007-2013. Director, Hamdard Institute of Pharmaceutical Sciences, Hamdard University, 1999-2003. Whole Time Member, University Grants Commission, Islamabad, 1996-1999. UNIDO Expert on Botanical Pesticide, 1967 (China), 1996 (Thailand), and 1990 (Germany). Gomal University, D.I. Khan (Vice Chancellor, 1987-1993; Professor, 1974-1999; Chairman, Dept. of Chemistry, 1980-1981, 1993-1996; Chairman, Dept. of Pharmacy, 1974-1981). Visiting Professor, Institute of Herbal Medicine and Pharmacology, Hamdard University, Karachi, 1998-2021. Visiting Professor, HEJ Research Institute of Chemistry, University of Karachi, 1994-2021. Professor, King Saud University, Riyadh, Saudi Arabia, 1981-1986. Associate Professor, Quaid-i-Azam University, 1971-1974. Senior Research Officer, PCSIR Labs, Peshawar, 1961-1971.



Postdoctoral Research Fellow, 1970-1971; University of Calgary, Canada. Humboldt Research Fellow, University of Bonn, Germany, 1973-74. Postdoctoral Research Fellow, Pennsylvania State University, USA, 1978-79. Postdoctoral Research Fellow, London School of Pharmacy, University of London, UK, 1984.

In recognition of his academic and scientific achievements, Dr. Ghulam Abbas Miana received prestigious awards, including Sitara-i-Imtiaz (Govt. of Pakistan, 1988); Gold Medal in M.Sc. (University of Peshawar, 1961); Cash Prize for the best book by National Book Foundation, 1989.

May Allah Almighty bless the departed soul with eternal peace. Aameen.