

International Conference on **Eco-Smart Agriculture**

**Harnessing Stress Resilient Plants
for Food Security and Beyond**

**Funded by Sindh Higher Education Commission
January 28-30, 2026**

Program



Organized by
**Dr. M. Ajmal Khan Institute of Sustainable Halophyte Utilization
University of Karachi**

In collaboration with
Shaheed Zulfiqar Ali Bhutto Institute of Science and Technology, Karachi

Inaugural Session – Wednesday (January 28, 2026)

09:30	Registration
11:00	Recitation from the Holy Quran
11:05	Na'at-e-Rasool-e-Maqbool (SA)
11:10	National Anthem
11:15	Welcome address by Dr. Irfan Aziz , Director Dr. M. Ajmal Khan Institute of Sustainable Halophyte Utilization, University of Karachi
11:25	Keynote address by Prof. Dr. Ali El-Keblawy [Eco-smart agriculture in arid regions: Biochar, biostimulants, and green nanomaterials to build stress-resilient cropping systems], University of Sharjha, UAE
11:50	Address by Prof. Dr. Bilquees Gul , Dean, Faculty of Science, University of Karachi
12:00	Address by Shahnaz Wazir Ali , The Honourable President SZABIST
12:10	Address by Prof. Dr. Khalid Mahmood Iraqi , The Honourable Vice Chancellor, University of Karachi
12:25	Address by the Chief Guest, Mr. Ismail Rahoo , The Honourable Minister, Universities & Boards, Govt. of Sindh and Pro-Chancellor, University of Karachi
12:35	Vote of Thanks by Dr. Muhammad Zaheer Ahmed , Conference Secretary, MAK-ISHU
12:40	Presentation of Shields/Souvenirs
01:00	Lunch

Day 1: Technical Sessions (January 28, 2026; Wednesday)
Session 1: Biotechnology, Nanotechnology & Precision Innovations
(02:00 pm to 03:30 pm) (Conference room - First Floor)

Chair: Ahmad Aldrie Amir / **Co-Chair:** M. Ajmal Shah

INVITED PRESENTATIONS		
Time	Name of the Presenter	Title
02:00 – 02:30	Rehana Kausar	Biometric responses of maize (<i>Zea mays</i> L.) genotypes by the application of green synthesized silver nanoparticles (AgNPs).
02:30 – 02:45	Habib-ur-Rehman Athar	Chlorophyll Fluorescence as a High-Throughput Phenotyping Tool to Accelerate Crop Improvement for Climate Resilience.
02:45 – 03:00	Fahad Shafiq	Agricultural use of nanomaterials to improve crop production, mineral nutrition, and stress tolerance.
03:00 – 03:15	Musarrat Ramzan	Integrated approaches for sustainable and climate-resilient agriculture
03:15 – 03:30	Noor-ul-Ain	Mn ₃ O ₄ Nanoparticles from <i>Cressa cretica</i> : A Sustainable Approach to Enhance <i>Zea mays</i> L. Growth.
TEA BREAK		

Day 1, Session 1B: Stress-Induced Responses & Plant-Environment Interactions
(02:00 pm to 03:30 pm) (Conference room - Ground Floor)

Chair: Habib-ur-Rehman Athar / **Co-Chair:** Sujjad Haider

INVITED PRESENTATIONS		
Time	Name of the Presenter	Title
02:00 – 02:30	Qamar Abbas	Impact Assessment of Nematodes on the Selected Crops of Yasin Valley, District Ghizer.
02:30 – 02:45	Haibat Ali	Impact of Climate Change on Water Resources in Pakistan and the Role of Smart Agriculture.
02:45 – 03:00	Allah Wasaya	Interactive Effect of Tillage Systems and Biochar Application improved Soil Health and Yield Performance of Wheat under Drought Conditions
03:00 – 03:15	Aysha Rasheed	Eco-physiological and Biochemical Responses Illustrating Seed Tolerance to Various Abiotic Stresses in the Co-occurring <i>Suaeda</i> Species from the Salt Deserts of Qatar
03:15 – 03:30	Sahar Un Nisa	The Effect of Multiple Abiotic Stresses on Ecophysiological Responses of <i>Panicum antidotale</i> .
TEA BREAK		

Day1, Session 2A: Phytochemistry, Ecotoxicology & Resource Remediation
(04:00 pm to 05:30 pm) (Conference room - First Floor)

Chair: Rehana Kausar/ **Co-Chair:** Fahad Shafiq

INVITED PRESENTATIONS		
Time	Name of the Presenter	Title
04:00 – 04:30	Ahmad Aldrie Amir	Edible and medicinal uses of mangroves in Indonesia with a systematic review on blue food potential and health benefits.
04:30 – 04:45	Zaki Ul Rahman	Ecological risks due to leather tanneries with special focus on heavy metal contamination in water, soil, and selected crops (Kasur, Pakistan).
04:45 – 05:00	M. Ajmal Shah	Green extraction and enrichment of bioactive phytochemicals for sustainable development of phytomedicines.
05:00 – 05:15	Noureen Rehan	The Impact of Plant Growth-Promoting Microbes on Biocide Action and the Nutritional Profile of Okra (<i>Abelmoschus esculentus</i>).
05:15 – 05:30	Neelma Munir	Eco-smart biochar solutions: Enhancing crop resilience to salinity and drought.

Day1, Session 2B: Molecular and Smart Approaches for Climate-Resilient Food Systems
(04:00 pm to 05:45 pm) (Conference room - Ground Floor)

Chair: Qamar Abbas / **Co-Chair:** Musarrat Ramzan

INVITED PRESENTATIONS		
Time	Name of the Presenter	Title
04:00 – 04:30	Asad Jan	Comprehensive Functional Characterization of of CCCH Tandem Zinc Finger Protein Genes in Rice
04:30 – 04:45	Kausar Hussain Shah	Climate Change Mitigation Toolkit For Sustainable Agriculture: Half Decade Of Strategic Research
04:45 – 05:00	Muhammad Kazim Ali	Trichome Development Genes as Key Regulators of Plant Stress Resistance: Mechanisms and Applications
05:00 – 05:15	Saddia Galani	Rice for Food Security: Integration of Aroma, Quality and Sustainable Rice Production Addressing Climate Change
05:15 – 05:30	Khadija Siddiqui	Restriction of arsenic uptake and translocation: The modulation of OsLsi1 arsenic influx transporter through silicon application in rice seedlings
05:30 – 05:45	Kamran Yaqoob	Genetic Analysis of Starch Composition, Eating Quality and Glycemic Index in Pakistani Rice for Climate-Resilient Breeding

Day 2: Technical Sessions (January 29, 2026; Thursday)
Session 3: Expert opinion - Online session (09:30 am to 11:30 am)
 (Conference room - First Floor)

Chair: Ali EL-Keblawy/ **Co-Chair:** Wang Yongdong

INVITED ONLINE PRESENTATIONS		
Time	Name of the Presenter	Title
09:30 – 10:00	Xiaojing Liu	Living with Saline Lands in Harmony: Efficient Utilization of Saline Resources
10:00 – 10:30	Sergey Shabala	Cell-based phenotyping for breeding crops for future climates
10:30 – 11:00	Jin Lin Zhang	Iron nanomaterials enhance nitrogen fixation by modulating root metabolites and rhizosphere microbiome assembly in alfalfa
11:00 – 11:30	Hans Werner Koyro	Primary and Secondary Reaction of Photosynthesis as Non-Invasive Indicators for the Stress Status of Plants
TEA BREAK		

Day2, Session 4: Microbiome Engineering for Global Food Stability
(12:00 am to 1:30 pm) (Conference room - First Floor)

Chair: Asad Jan / **Co-Chair:** Kausar Hussain Shah

INVITED PRESENTATIONS		
Time	Name of the Presenter	Title
12:00 – 12:25	Aqeel Ahmed	Importance of Microbial diversity in Health, diseases and stability of Ecosystem
12:25 – 12:50	M. Sohail	Exploring <i>Arthrocnemum macrostachyum</i> associated <i>Bacillus cereus</i> for bioemulsifier production and climate-resilient agriculture
12:50 – 01:00	Samuel Goll	Protecting agriculture with structural biology: functional insights into conserved type II secretion systems of plant-pathogenic bacteria
01:00 – 01:10	Uroosa Ejaz	Synthesis of methylcellulose-polyvinyl alcohol composite, biopolymer film and thermostable enzymes from sugarcane bagasse
01:10 – 01:20	Neha Farid	Green synthesis of ZnO nanoparticles using <i>Mentha piperita</i> (Peppermint) extract and evaluation of their antimicrobial potential against <i>Listeria monocytogenes</i>
01:20 – 01:30	Khair Bux	Development, evaluation, and molecular dynamics study of ampicillin-loaded chitosan-hyaluronic acid films as a drug delivery system
LUNCH AND PRAYER BREAK		

Day 2, Session 5: Sustainable Food Systems & Next-Generation Crops
(02:00 pm to 03:30 pm) (Conference room - First Floor)

Chair: Zamin Shaheed Siddiqui / **Co-Chair:** Haibat Ali

INVITED PRESENTATIONS		
Time	Name of the Presenter	Title
02:00 – 02:30	Wang Yongdong	Integrating ecological vulnerability and economic forestry potential for climate-resilient desert landscapes
02:30 – 02:45	Tahira Mohsin Ali	White Sorghum: A food security crop with commercial potential to replace corn starch in food systems.
02:45 – 03:00	Marium Shaikh	Exploring the functionality of starch from climate resilient Pearl millet: A comparative study with corn starch for food security.
03:00 – 03:15	Sujjad Haider	Inventorying and economic potential of some selected halophytes found in Gilgit, Pakistan.
03:15 – 03:30	Taseer Ahmed Khan	Eco-Smart Poultry Agriculture: Opportunities and Challenges in Pakistan.
TEA BREAK		

Day 2, Session 6: Panel Discussion (04:00 pm to 05:30 pm)
 (Conference room - First Floor)

INVITED PRESENTATIONS	
Time	Name of the Presenter
04:00 – 05:00	Panel Discussion
05:00 – 05:30	Report and Recommendation of the conference

Day 3: (January 30, 2026; Friday)

Concluding Session
(03:00 pm to 03:50 pm) (Conference room - First Floor)

Time	Activity
03:00 – 03:05	Recitation from Holy Quran
03:05 – 03:10	Na'at
03:10 – 03:30	Certificate Distribution
03:30 – 03:45	Address by the Chief Guest
03:45 – 03:50	Vote of Thanks