

CURRICULUM VITAE

BILQUEES GUL Ph. D.,

Member of Pakistan Academy of Sciences
UNESCO Chair holder
Director & Professor, Institute of Sustainable Halophyte Utilization
University of Karachi. <http://www.halophyte.org/>

Mailing address

Institute of Sustainable Halophyte Utilization, P. O. Box 8452, University of Karachi, Karachi-75270, Pakistan,
Tel: (9221) 03218943440, Fax: (9221)34820258. E-mail: bilqueesgul@uok.edu.pk

Major Research Interests

Dr. Gul's research deals with the ecological management of inter-tidal, coastal and inland ecosystems. Her research interest is to focused on questions related to halophytes because like all other plants halophyte are heavily rely on high sensitivity detection and adaptation mechanisms to environmental perturbations. The goals of her research is to understand the molecular mechanisms of how halophytes sense, transduce and adapt to changes in environmental conditions such as light, temperature, salinity, drought, pests and pathogens. Her research work deals with how plants perceive and transmit stress signals, how plants regulate stress gene expression, and what function stress metabolites and protein products have in conferring stress tolerance. She believe that a thorough understanding of these processes will provide a solid basis to use halophyte plants and saline lands for the benefit of humans as well as to secure agriculture and environment under changing global conditions.

Educational History:

<u>Name of Institution</u>	<u>Years</u>	<u>Major</u>	<u>Degree</u>
Brigham Young University	2011-12	Molecular Biology	Visiting Professor
Brigham Young University	2007	Molecular Biology	Post Doctoral Fellow
University of Karachi	1999	Eco-physiology	Post Doctoral
Brigham Young University	1995-98	Botany & Range Sciences	Ph.D
University of Karachi	1990-93	Ecology/Botany	MS.c

Professional Societies

1995-	Botanical Society of America (BSA)
1996-	Ecological Society of America (ESA)
1997-	Plant Population Biologist Group
1998-	Pakistan Botanical Society (PBS) Life Member
2006-	Member, Third World Organization for Women in Science (TWOWS)
2006	Member, Organization for Women in Science for the Developing World (OWSD)
2007	Member Pakistan Academy of Sciences (PAS)
2011	American Society of Plant Biologists (ASPB)
2012	American Society for Biochemistry and Molecular Biology (ASBMB)
2012	United Nations Educational, Scientific and Cultural Organization (UNESCO), Chair-holder
2012	Member Non-European, COST-Action
2011	Member, Pakistan Society for Biochemistry and Molecular Biology
2014	American Society for Microbiology (ASM)
2015	Member, Quest4Africa

Professional Experience

- 2015 – todote** Professor (TTS), Institute of Sustainable Halophyte Utilization, University of Karachi.
- 2013 – todote** Professor, Institute of Sustainable Halophyte Utilization, University of Karachi.
- 2012 – todote** Director, Institute of Sustainable Halophyte Utilization, University of Karachi, Karachi.
- 2011-2012** Visiting faculty in the Department of Microbiology and Molecular Biology, Brigham Young University, Provo, Utah, USA worked with Prof Brent Nielson.
- 2011-** TRAC25: Proteomics: Principles and Methods. FAES, Graduate School, Training program. The Foundation for Advanced Education in the Sciences, Inc. at the National Institute of Health (NIH).
- 2009-** Associate Professor, Institute of Sustainable Halophyte Utilization, University of Karachi.
- 2007-2009** Associate Professor, Department of Botany, University of Karachi. Teaching ecology, general botany to undergraduates and population biology and physiological ecology to graduate students. Continuing research on the ecophysiology of local halophytic species of Karachi, Pakistan.
- 2007** Postdoctoral fellow in the Department of Microbiology and Molecular Biology, Brigham Young University, Provo, Utah, USA worked on Mitochondrial DNA Recombination Proteins in Arabidopsis with Prof Brent Nielson, NIH AREA Program. .
- 2002-2007** Assistant Professor, in the Department of Botany, University of Karachi.
- 2001-2002** Full-time co-operative teacher in the Department of Botany, University of Karachi.
- 1998-2001** Conducting a postdoctoral research in the Halophyte Biology Laboratory, Department of Botany, University of Karachi, on a National Science Foundation, USA research project.

- 1995-1998** Graduate student in the Department of Botany and Range Science, Brigham Young University, Provo Utah, 84602, USA.
- 1993-1994** Lecturer of Plant Ecology at Jinnah University for Women, Karachi. Pakistan.
- 1993-1995** Research student in the Department of Botany, University of Karachi, Pakistan worked for the M. Phil.
- 1991-1993** MS.c., Graduate student in the Department of Botany, University of Karachi.
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Professional Activities

1. Joint Secretary/Pakistan Botanical Society for the years 2003 and 2004.
2. Manuscript reviewer of Pakistan Journal of Botany (2002-present), Annals of Botany, England (2004 - present), Annals of Applied Botany, South Africa (2004 – Present), Egyptian Journal of Science (2002 – present).
3. Project reviewer for South African National Research Foundation (2004– present).
4. Chairperson of a session in High Saline Tolerant Plants International Symposium, May 11-13, 2004. Brigham Young University, Provo, Utah, USA.
5. Chairperson, Eco-physiological section in International Conference of Bio-saline Agriculture and High Salinity Tolerance. January (9-14, Mugla-Turkey). 2005.
6. Chairperson, International conference on Biosaline Agriculture and High Salinity Tolerance, Tunisia, 2006.
7. International Linkage Program of Pakistani Universities with foreign University. RIKEN, Yokohama, Japan.
8. International Linkage Program of Pakistani Universities with foreign University. University of Tsukuba, Japan.
9. Chairperson, International symposium on Halophyte Utilization, Nanpi Field Station, Nanpi, China.
10. Member of the curriculum revision committee, Higher Education Commission of Pakistan. 2008-2010.
11. Ecology Sectional Head, Department of Botany, University of Karachi. 2007-2010.
12. Chairperson, Quest 4 Africa meeting, organized by UNESCO, Addis Ababa. 2015
13. Ph.D . Supervisor External. University of South Africa. 2015
14. Reviewer of the various international impact journals.
15. Chairperson, 2nd International Conference on “Physiological, Biochemical and Molecular Arguments for salt Tolerance, Qatar University. 2015.
16. TWAS 13th General Conference and 26th General Meeting, Austrain Academy of Sciences (OeAW) Vienna, November 17-22, 2015.
17. Co-Organizer, 4th International Conference of Environmental Horizon, ICEH, 2016.
18. Chairperson, 4th International Conference of Environmental Horizon, ICEH, 2016.
19. Co-Organizer, 14th National and 5th International Conference of Pakistan Botanical Society, “Climate Change and Phytodiversity: Challenges and Oppertunities. January, 15-18, 2016.
20. Chairperson, 14th National and 5th International Conference of Pakistan Botanical Society, “Climate Change and Phytodiversity: Challenges and Oppertunities. January, 15-18, 2016.

21. Project Evaluation committee member, Pakistan Science Foundation (PSF), Natural Sciences Linkage Programme (NSLP) ongoing-projects in Karachi and Tandojam. Meeting at PASTIC Sub Center Karachi, 2016.
 22. Invited Speaker at the workshop on “Drylands” presenting “Food Security in drylands”, 4th Congress of Biosphere Reserves, 2016.
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Academic awards and honors

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| 2015 | FLORA, Certificate of Outstanding Contribution in Reviewing, in recognition of the contribution made to the quality of the journal. |
| 2015 | Certificate of Appreciation on World Environment Day, UNEP |
| 2015 | Climate Change Resilience Committee Head, Quest 4 Africa, Science for Sustainable Human Living, UNESCO, Addis Ababa |
| 2015 | Co-director and Technical advisor, of the research project on “Mangroves along the Cameroon’s Coast and Maritime Zone”. African Mangrove Network |
| 2014 | FLORA, Certificate of Reviewing, in recognition of the review made for the journal. |
| 2014 | Co-Chair meeting with Dr. Gebisa Ejeta, on “Task Force on Grand Challenges”, Organized by International Board, American Society for Microbiology |
| 2013 | World Environment Day, Certificate of Appreciation, UNESCO |
| 2012 | Member Academic Council, University of Karachi |
| 2012 | Member Senate, University of Karachi |
| 2012 | Member Faculty of Science, University of Karachi |
| 2012 | UNESCO/UNITWIN Chair holder, Program promotes international interuniversity cooperation and networking to enhance institution |
| 2011-12 | Visiting Professor |
| 2011 | Elsevier Reviewer from Pakistan |
| 2011 | Member Food and Agriculture COST Action, International Partner Countries, EU-COST European Union of Science and Technology |
| 2013 | Research Productivity Award, Pakistan Council for Science and Technology, Pakistan |
| 2012 | Research Productivity Award, Pakistan Council for Science and Technology, Pakistan |
| 2011 | Research Productivity Award, Pakistan Council for Science and Technology, Pakistan |
| 2011 | Microbiology and Molecular Biology of halophytes, Postdoctoral fellowship at Brigham Young University, USA. |
| 2009 | Research Productivity Award, Pakistan Council for Science and Technology, Pakistan |
| 2008 | Research Productivity Award, Pakistan Council for Science and Technology, Pakistan |
| 2007 | Postdoctoral fellowship at Brigham Young University, USA. |
| 2006 | Member, Organization for Women in Science for the Developing World (OWSD) |
| 2006 | Member, Pakistan Academy of Sciences. |
| 2005 | Pakistan Academy of Sciences Gold medal of Botany |
| 2004 | Research Productivity Award, Pakistan Council for Science and Technology, Pakistan |

- 2004 Ranked 30th among biologist by Pakistan Council of Science and Technology, Islamabad in a publication entitled “Productive Scientists of Pakistan”
- 2003 HEC-Pakistan Recognized Ph.D Supervisor
- 2003 Women Scientist in Pakistan, Pakistan Council for Science and Technology.
- 2003 Shakoori gold medal for best young plant biologist awarded by Pakistan Zoological Society.
- 2002 Approved Ph. D. supervisor under the Scholarship Programs of the Ministry of Science and Technology.
- 2003 Research Productivity Award, Pakistan Council for Science and Technology, Pakistan
- 2000 Research Productivity Award, Pakistan Council for Science and Technology, Pakistan
- 1999 “Support to Scientific Talent” Award, University Grants Commission, Pakistan
- 1998 Winter semester tuition award, Brigham Young University, Utah, USA.
- 1998 Science scholarship, Brigham Young University, Utah, USA.
- 1997 Fall tuition award, Brigham Young University, Utah, USA.
- 1997 University honor scholarship, Brigham Young University, Utah, USA.
- 1996 Tuition award from Brigham Young University, Utah, USA.
- 1995-1998 Teaching and research assistantship, Department of Botany and Range Science, Brigham Young University, Provo Utah, USA.
- 1995 Botany Scholarship from Botany and Range Science Department, Brigham Young University.
- 1994 Chiniote Biraderey Scholarship
- 1993 Infaq Foundation Scholarship
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Committee Services

- 2010 Member of the board of Science Faculty, University of Karachi.
- 2014 Member of Academic council, University of Karachi
- 2012 Member Senate, University of Karachi
- 2012 Head, Departmental Research Committee (DRC)
- 2012 Member Faculty of Science, University of Karachi
- 2012 UNESCO environmental protection volunteering activities
- 2013 Judge for HEC Outstanding Research Awards
- 2013 Shaukat Khanam Cancer Hospital, volunteering activities
- 2014 SIUT volunteering activities
- 2013 Offer free research internship for O and A level students
- 2015 Member Quest 4 Africa, Ethiopia
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Research Awards / Research Grant

- 2002 Effect of different salts on the germination of Suaeda fruticosa. Faculty of Science.

- 2003 Seawater tolerance of *Halosarchia indica* from Gadani Coast. Pakistan Science Foundation.
- 2004 Influence of calcium on seed germination of *Arthrocnemum macrostachyum* under saline conditions. Faculty of Science.
- 2005 Effects of potassium, magnesium and calcium of *Arthrocnemum macrostachyum*. Faculty of Science.
- 2006 Exploiting the potential of halophytes as source of edible oil. Higher Education Commission.
- 2008 Proteomic studies in Mangrove under salinity stress. Pakistan Academy of Sciences.
- 2010 A sustainable alternative fuel from halophytes. Pakistan Academy of Sciences
- 2011 Building Capabilities for the Molecular and Biochemical Characterization of Photosynthesis and Oxidative stress Gene Expression in Halophytes with Potential Use as Non-Conventional Crops. Pak-US Joint Academic & Research Program, Higher Education Commission (Rs. 14.132 Millions).
- 2013 Dean Faculty of Science research grant
- 2015 Assessing and Improving bioethanol production potential of selected halophytes. Higher Education Commission.
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Editorial Board:

Scientific Pages of Botany
Scientific pages of Soil Sciences

Manuscript Reviewer

Biofuels
Annals of Botany
Scientia Horticulturae
Environmental and Experimental Botany
Acta Physiologia Plantarum
Environmental Science and Pollution Research
Estuarine coastal and shelf science
Ecolind
Pakistan Journal of Botany
African Journal of Biotechnology
International Journal of Plant Sciences
Journal of Arid Environment
Biologia Plantarum
Ecologia
Elsevier Editorial System (EES)
BMC Plant Biology

Collaborative research projects:

- 1- Production of xylanase from halophytic biomass. Department of Microbiology, University of Karachi.

- 2- Biofuel production from non-conventional crops. Department of Microbiology, University of Karachi.
- 3- Plant cell wall degrading enzymes from locally isolated fungi grown on natural substrate. Department of Microbiology, University of Karachi.
- 4- Restore saline soils using microorganisms. Qatar University
- 5- Building Capabilities for the Molecular and Biochemical Characterization of Photosynthesis and Oxidative stress Gene Expression in Halophytes with Potential Use as Non-Conventional Crops. Pak-US Joint Academic & Research Program, Higher Education Commission

Research supervised

S.No.	Name	Year	Level
01	Ms. Aysha Rasheed	2007	Ph.D. Awarded
02	Ms. S. Midhat Sabahat Hadi	2010	Ph.D.
03	Ms. Hina Asrar	2010	Ph.D.
04	Ms. Sadaf Tauqeer	2010	Ph.D.
05	Ms. Sumaira Manzoor	2010	Ph.D.
06	Ms. Sonia Bano	2010	Ph.D.
07	Ms. Sarwat Ghulam Rasool	2011	Ph.D.
08	Ms. Saba Nazir	2011	Ph.D.
09	Ms. Shahjahan Jilani	2011	Ph.D.
10	Ms. Shazia Anjum Qadri	2012	M.Phil.
11	Ms. Rabab Fatima Rizvi	2014	Ph.D.
12	Ms. Noor Fatima	2014	Ph.D.

Research Supervised M.Sc thesis

So. No.	Name	Year
1-	Hina Asrar	2008
2-	Midhat S. Hadi	2008
3-	Faiza Khan	2006
4-	Sumaira Suleman	2006

- 5- Fazila Yousuf 2006
- 6- Zulfiqar Mehdi 2006
- 7- Saba Nazir 2005
- 8- Aziz Fatima 2005
- 9- Faiza Sheikh 2003

PATENTS

1. Patent No. 141125:M. A new cropping system for fodder production by using saline resources.
Ajmal Khan, Haibat Ali, Bilquees Gul and Raziuddin Ansari
2. NCBI: *Aeluropus lagopoides* Plasma memberane Na⁺/H⁺ antiporter (SOS1), mRNA sequence
(ISHU-Ala-4; GenBank: GW796824.1 GI: 293626647)
Ahmed, M.Z., Shimazaki, T., Gulzar, S., Kikuchi, A., Gul, B., Watanabe, K.N., Khan, M.A.
<http://www.ncbi.nlm.nih.gov/nucest/GW796824.1>
3. NCBI: *Aeluropus lagopoides* H⁺-ATPase, mRNA sequence
(ISHU-Ala-3; GenBank: GW796823.1 GI: 293626646)
Ahmed, M.Z., Shimazaki, T., Gulzar, S., Kikuchi, A., Gul, B., Watanabe, K.N., Khan, M.A.
<http://www.ncbi.nlm.nih.gov/nucest/GW796823.1>
4. NCBI: *Aeluropus lagopoides* beta actin like, mRNA sequence
(ISHU-Ala-2; GenBank: GW796822.1 GI: 293626645)
Ahmed, M.Z., Shimazaki, T., Gulzar, S., Kikuchi, A., Gul, B., Watanabe, K.N., Khan, M.A.
<http://www.ncbi.nlm.nih.gov/nucest/GW796822.1>
5. NCBI: *Aeluropus lagopoides* H⁺PPase (Soluble Inorganic Pyrophosphatase/ pyrophosphate Phospho-hydrolase), mRNA sequence
(ISHU-Ala-1; GW796821.1 GI: 293626644)
Ahmed, M.Z., Shimazaki, T., Gulzar, S., Kikuchi, A., Gul, B., Watanabe, K.N., Khan, M.A. <http://www.ncbi.nlm.nih.gov/nucest/GW796821.1>

cDNA libraries:

- 1- A cDNA library of *Suaeda fruticosa* a highly salt tolerant plant were made for identifying and isolating salt tolerant genes.
- 2- cDNA libraries of *Panicum turgidum* and *Salvadora persica* are under construction.

Seminar, Workshops, Summer School, or Conference

- 1994 Variation in productivity as affected by monsoon rains and periodic differential inundation in coastal salt marsh community. International Symposium on High Salinity Tolerant plants, Karachi, Pakistan, December 12-16.
- 1996 Productivity of a coastal salt marsh dominated by *Arthrocnemum indicum*. Fourth Symposium on Biogeochemistry of Wetlands, New Orleans, LA, USA, March 4-6.
- 1996 Seed dimorphism in *Arthrocnemum indicum* from Karachi, Pakistan. Botanical Society of America annual meeting at Seattle, Washington, USA, August 6-10
- 1997 Population ecology of sub-tropical coastal halophytes *Arthrocnemum indicum*. International conference on the Biology of coastal Environments. Bahrain 6-9.
- 1997 Effect of salinity and thermoperiod on the seed germination of *Allenrolfea occidentalis* (S. Wats.) Chenopodiaceae. Botanical Society of America annual meeting at Montreal, Quebec, Canada, August 3-9.
- 1997 Chemical components in the South African lichen, *Pseudocyphellaria aurata*. Botanical Society of America annual meeting at Montreal, Quebec, Canada, August 3-9.
- 1998 Action of osmotica, growth regulators and nitrogenous compounds in alleviating the effect of salinity on the germination of *Allenrolfea occidentalis* seeds. 1998, student research poster presentation at College of Biology and Agriculture, Brigham Young University, Provo, USA. March 9-13.
- 1998 Seed bank dynamics in a Great Basin salt playa. 1st annual intermountain paper and poster symposium, Logan, Utah. April 1-3.
- 1998 Effect of intra-specific competition and inundation regime on the growth of *Arthrocnemum indicum* population. 1st annual intermountain paper and poster symposium, Logan, Utah. April 1-3.
- 1998 Alleviation of seed dormancy in *Allenrolfea occidentalis*. Botanical Society of America annual meeting at Baltimore, Maryland, August 2-6.
- 1998 Effect of salinity and temperature on the germination of dimorphic seeds of *Suaeda torreyana*. Botanical Society of America annual meeting at Baltimore, Maryland, August 2-6.
- 1998 Population dynamics of a perennial halophyte *Allenrolfea occidentalis*. The Tenth Wildland Shrub Symposium: Shrubland Ecotones, Ephraim, Utah. August 12-14.
- 1998 Seed bank strategies of coastal populations at Arabian Sea coast. Tenth Wildland Shrub Symposium: Shrubland Ecotones. Ephraim, Utah, USA. Aug. 9 – 13.
- 1998 Halophytic fungi from inland salt playa. 6th International mycological conference, 23-28 August, Jerusalem, Israel,
- 1998 Comparison of chemical composition of *Pseudocyphellaria aurata* from South Africa and Argentina. 4th African Mycological congress, RMC4 (Regional mycological congress), August, 16-19, Nairobi, Kenya.
- 1998 Fatty acid composition of seeds of halophytes. International Botanical Congress, St. Louis, USA.
- 2000- *Arthrocnemum macrostachyum*: a potential case for agriculture using above seawater salinity. International Seminar on Prospects of Saline Agriculture” Islamabad, Pakistan
- 2000- Potential uses of *Allenrolfea occidentalis*. International Seminar on Prospects of Saline Agriculture” Islamabad.
- 2000- Salt tolerance of *Salicornia rubra* from salt playa of Great Basin desert. International Seminar on Prospects of Saline Agriculture” Islamabad, Pakistan.

- 2000- Saline Agriculture: promises and prospects for future agriculture in degraded saline lands. Technology and Development in New Millennium. Karachi, Pakistan.
- 2000- Salt tolerance of *Sarcobatus vermiculatus*. Pakistan Botanical Society, Lahore, Pakistan.
- 2001- Some ecophysiological aspects of seed germination in halophytes. International Symposium of the Halophyte Utilization and Regional Sustainable Development of Agriculture, Huanghua, China.
- 2001- Role of temperature in affecting the salt tolerance of the halophyte seeds. International Symposium of the Halophyte Utilization and Regional Sustainable Development of Agriculture, Huanghua, China.
- 2002 Pakistan Association for the advancement of science workshop. PC hotel, Islamabad.
- 2003- Recovery of seed germination of halophytes from high salinity and temperature stress. 8th. National Meeting of Plant Scientists, Karachi, Pakistan.
- 2004 Recovery responses of halophytic seeds. US-Pakistan joint workshop on the Biology of Halophytes, Provo, Utah, USA. May 2004.
- 2004 Capacity building workshop. Annual APN IGM/SPG meeting. April, 12-14, 2004.
- 2004 Sustainable halophyte utilization. Pak-China technical collaboration visit to China. June-2004.
- 2004 Sustainable halophyte utilization. Pak-China collaborative visit to China, 15-31 December, 2004.
- 2005 Calcium induced reversal of salinity effects on seed germination of *Urochondra setulosa*. International Conference of Biosaline Agriculture and High Salinity Tolerance, January (9-14) 2005 (Mugla-Turkey).
- 2005 Calcium induced reversal of salinity effects on seed germination of *Urochondra setulosa*. International Conference on Biotechnology for Salinity and Drought Tolerance in Plants. 28-31 March, 2005, Islamabad.
- 2006 International conference on Biosaline Agriculture and High Salinity Tolerance, Tunisia, 2006.
- 2006 Seed bank dynamics. International conference on Biosaline Agriculture and High Salinity Tolerance, Tunisia, 2006.
- 2006 Workshop in teaching of modern concepts in Plant sciences. Kohat University of Science and technology, June 10-14, 2006.
- 2006 International Symposium at the Department of Botany, University of Agriculture, Faisalabad, 2006.
- 2007 Seed germination and recovery patterns of Halophytes. Brigham Young University, Provo, Utah, USA, 2007.
- 2007 International Linkage Program of Pakistani Universities with foreign University. RIKEN, Yokohama, Japan.
- 2007 International Linkage Program of Pakistani Universities with foreign University. University of Tsukuba, Japan.
- 2007 International symposium on Halophyte Utilization, Nanpi Field Station, Nanpi, China.
- 2008 International Conference of Bio-Asia: the Global Bio-Business Forum, Hyderabad, India, 2008.
- 2008 Workshop on Recent trends in Plant Sciences: Impact on biodiversity. April 16-18, ISHU.

- 2008 National Curriculum Revision Committee meeting in Botany at Higher Education Commission of Pakistan, regional center May 6-7, Lahore.
- 2009 Proteomics in health and Disease. Higher Education Commission of Pakistan-COMSTECH, Thematic workshop in Frontier Technologies. August 17-20. COMSTECH Islamabad.
- 2009 Launching of ISAAA Brief:39 Press Conference and Scientific Communication Workshop on implementation of the strategy for development of Biotechnology in Pakistan. Pakistan Biotechnology Information Center (PABIC)
- 2010 National Curriculum Revision Committee meeting in Botany at Higher Education Commission of Pakistan, regional center Karachi. March 1-3.
- 2011 2nd International Conference of Plant Sciences. Department of Botany, GC University Lahore. February 22-24.
- 2011 NIH Workshop on Proteomics, Bethesda, Maryland, USA.
- 2012 Bioinformatic software training workshop, Brigham Young University, Provo, Utah, USA
- 2012 Utah Plant Genetics Conference. Aspen Grove Utah.
- 2013 International Workshop on Mechanism of Plant Stress Tolerance and Sustainable Use of Saline Resources, at Agriculture Resource Research Center of Institute of Genetics and Development, Chinese Academy of Sciences. China. October 13-20, 2013.
- 2013 Halophytes: a source for natural antioxidants. 14th Asian symposium on medicinal plants, spices and other natural products (ASOMPS-XIV).
- 2013 Comparative phytochemical analysis and in vitro pharmacological studies among inland and coastal species of *Heliotropium curassavicum*. 14th Asian symposium on medicinal plants, spices and other natural products (ASOMPS-XIV).
- 2014 IB Task Force Grant Challenges meeting. American Society for Microbiology, Washington DC.
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- 2014 COST FA 0901- Putting halophytes to work from genes to ecosystems brought together. April 9-10, Coimbra Portugal.
- 2014 COST FA 0901- Comparative ionic and osmotic relations of salt resistant grasses. Putting halophytes to work from genes to ecosystems brought together. April 9-10, Coimbra Portugal.
- 2014 114th General Meeting/American Society for Microbiology, May 17-20, 2014, Boston, Massachusetts, USA.
- 2014 Humic acid application alleviated dark and salinity enforced dormancy in halophytes. Botanical Society of America, Botany 2014, New frontiers in botany, July 26-30, The Boise Centre, Boise, Idaho, USA
- 2014 Growth, oxidative damage and antioxidant enzyme activities in NaCl treated seedling of a leaf succulent halophyte *Salsola drummondii* (Amaranthaceae). Botanical Society of America, Botany 2014, New frontiers in botany, July 26-30, The Boise Centre, Boise, Idaho, USA
- 2015 Halophyte development in view of limited freshwater availability and ISHU. Practical guide: Science and Technology Innovation in support of the United Nations 2015, Sustainable development goals on biodiversity, climate change and water. Quest 4 Africa. May 28-29, UNESCO Liaison office Addis Ababa, Ethiopia.
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- 2015 Horizon 2020: Building a science bridge between the Europe and Pakistan. August, 19. Organized jointly by: The European Union Delegation to Pakistan, Pakistan Science Foundation and University of Karachi.
- 2015 2nd International Conference on “Physiological, Biochemical and Molecular Arguments for salt Tolerance, Qatar University. 2015.
- 2015 TWAS 13th General Conference and 26th General Meeting, Austrian Academy of Sciences (OeAW) Vienna, November 17-22, 2015.
- 2016 Co-Organizer, 4th International Conference of Environmental Horizon, ICEH, 2016.
- 2016 Co-Organizer, 14th National and 5th International Conference of Pakistan Botanical Society, “Climate Change and Phytodiversity: Challenges and Opportunities. January, 15-18, 2016.
- 2016 Invited Speaker at the workshop on “Drylands” presenting “Food Security in Drylands”, 4th Congress of Biosphere Reserves, 2016.
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Collaborators (last 48 months)

Dr. Benno Boer	(UNESCO)
Prof. Miguel Clustner	(UNESCO)
Prof. Dr. Brent L. Nielsen	(USA)
Prof. Dr. D. J. Weber	(USA)
Prof. John Prince	(USA)
Dr. Hans-Werner Koyro	(Germany)
Prof. Dr. Xiaojing Liu	(China)
Prof. Dr. Yoshiharu Fujii	(Japan)

LIST OF PUBLICATIONS

Book Edited

1. **Khan, M. A.**, B. Boer, T. Abdelsalaam, M. -C. Godt, B. Gul, and M. Ozturk, 2013. Sabkha Ecosystems: Volume IV: Biodiversity and Cash-crop. Springer, (Netherlands)-
2. **Khan, M. A.**, Ozturk, M, Gul, B, Ahmed Z. 2015. Halophytes for Food Security in Dry Lands. Elsevier Science Publishing
3. **Khan, M. A;** B. Boer, M. –C Godt, B. Gul, M. Ozturk, Breckle. 2016. Sabkha Ecosystems: Vol. V. The Americas. (in press). Springer (Netherlands)

Published peer reviewed articles (in impact factor journals)

1. M. Qasim; I. Aziz; M. Rasheed; Gul. B* and Khan, M. A. 2016. Effect of extraction solvents on polyphenols and antioxidant activity of medicinal halophytes. *Pak. J. Bot.*, 48(2): 621-627, 2016.
2. Saman E; M. Qasim; Z. Abideen; R. Fatima ; Gul. B*; R. Ansari and M. A. Khan. 2016. Secondary metabolites as anti-nutritional factors in locally used halophytic forage/fodder. *Pak. J. Bot.*, 48(2): 629-636, 2016.

3. Ali, H., B. Gul, M.Y. Adnan, M. Z. Ahmed, R. Ansari, and M. A. Khan. 2016. Potential of halophytes as cattle fodder: A case study in Pakistan. *J. Agric. Sci.*
4. Gul, B., A. Hameed, D.J. Weber and M. A. Khan. 2016. Assessing seeds germination responses of Great Basin halophytes to various exogenous chemical treatments under saline conditions. *Sabkha Ecosystem V. The Americas.*
5. Oilseed halophytes: a potential source of biodiesel using saline degraded lands
Zainul Abideen; M. Qasim; Rabab F., Gul. B; Ansari R and M. A. Khan. *Biofuels*, 2015. Vol. 6, Nos. 5_6, 241_248.
6. Diray-Arce, J., Gul, B., M.A. Khan and B.L. Nielsen. 2015. Transcriptomics of halophyte plants to understand mechanisms of salinity tolerance, in *Proceedings of the International Conference on Halophytes for Food Security in Dry Lands* (invited chapter accepted for publication, Elsevier).
7. M.A. Khan, Diray-Arce, J., M. Clement., and B.L. Nielsen., Gul, B. 2015. Optimization of de novo transcriptom assembly of the halophyte *Suaeda fruticosa* using cluster methods. *BMC Genomics.*
8. Diray-Arce, J., M.J. Clement, B. Gul, M.A. Khan, B.L. Nielsen. 2015. Transcriptome Assembly, Profiling and Differential Gene Expression Analysis of the Halophyte *Suaeda fruticosa* Provides Insights into Salt Tolerance. *BMC Genomics*
9. Hameed, A; Gulzar S; Aziz, A; Hussain, T; Gul, B. Khan, M. A. 2015. Effects of salinity and ascorbic acid on growth, water status and antioxidant system in a perennial halophyte. *AoB Plants Advance Access.* 01/2015;7.Doi:10:1093
10. Ahmed, M. Z., B. Gul, M. A. Khan, and K. N. Watanabe, B. Huchzermeyer, 2015. Characterization and function of sodium exchanger genes in *Aeluropus lagopoides* under NaCl stress. In: M.A. Khan, M. Ozturk, B. Gul, & M.Z. Ahmed (Eds): *Halophytes for Food Security in Dry Lands*. DOI: <http://dx.doi.org/10.1016/B978-0-12-801854-5.00001-7>
11. Hameed, A., B. Gul, and M. A. Khan, 2015. Exogenous chemical treatments have differential effects in improving salinity tolerance of halophytes. In: M.A. Khan, M. Ozturk, B. Gul, & M.Z. Ahmed (Eds): *Halophytes for Food Security in Dry Lands*. DOI: <http://dx.doi.org/10.1016/B978-0-12-801854-5.00001-7>
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