

CURRICULUM VITAE

Prof. Dr. Muhammad Ajmal Khan, S.I.
(Vice-Chancellor, University of Karachi)
Distinguished National Professor
Meritorious Professor
Presidential Award of *Sitara-i-Imtiaz* (S.I.)
Presidential Award of *Pride of Performance*
Fellow of the Pakistan Academy of Sciences (PAS)
Fellow of The World Academy of Sciences (TWAS)
Fellow of the Islamic World Academy of Sciences (IAS)



Mailing address

Institute of Sustainable Halophyte Utilization, University of Karachi. Phone: +92-321-3776930,
E-mail. majmalk@uok.edu.pk

Major Research Interests

Dr. Khan's research interest deals with the food and water security for the drylands where high quality water is scarce and ways and practices needed to produce food using non-conventional way in a sustainable manner. This also involves the ecological management of inter-tidal, coastal and inland saline ecosystems. Screening and development of cash-crop halophyte. The laboratory and field experiments to develop fodder plant with brackish water irrigation. Specific research interest includes differential effect of light, salinity and temperature on the germination; role of dormancy relieving compounds on the release of salinity induced seed dormancy of halophytes. Seed bank, primary dormancy and demography of halophytes. Salinity effects on the growth and salt tolerance of halophytes both under laboratory and greenhouse conditions.

Education

- 2010 D.Sc. Halophyte Biology. Awarded by University of Karachi.
- 1985 Ph.D. Botany/Environmental Biology. Ohio University, Athens, Ohio. USA. Dissertation: Germination, growth, reproduction and population dynamics of *Atriplex triangularis* Willd. Advisor: Prof. Dr. Irwin A. Ungar.
- 1974. M. Sc. Botany/Plant Physiology. University of Karachi, Karachi. Thesis: Effect of light and temperature on the growth of NaCl-treated plants. Advisor: Prof. Dr. M. Ishaq Khan.
- 1973 B.Sc. (Hons), Botany. University of Karachi, Karachi, Pakistan.

Professional Societies

- 2011-Life Fellow, Islamic Academy of Sciences (IAS)
- 2006-Life Fellow, The World Innovation Foundation, Switzerland (FWIF)
- 2006-Life Fellow, Fulbright Academy of Sciences, USA (FFAS)
- 2004-2006 Vice-President, International Society for Halophyte Utilization
- 2003-life Fellow, Academy of Sciences for the Developing World (FTWAS)
- 2001-life Member International Society for Halophyte Utilization
- 2001-life Fellow, Pakistan Academy of Sciences (FPAS)
- 1995 -1997 American Association for Advancement of Science (AAAS)
- 1989 -1995 Bangladesh Botanical Society
- 1982 - life Botanical Society of America
- 1995 -1997 Coastal Environmental Research Foundation (CERF)
- 1998 -1999 Ecological Society of America
- 1997 - International Ecological Society (INTECOL)
- 1988 -1997 International Society for Mangrove Ecosystem (ISME)
- 1995 -1997 Ohio Academy of Science
- 1983- 1987 Sigma-Xi
- 1973- life Pakistan Botanical Society
- 1987-1990 Pakistan Weed Science Society
- 1988-1995 World Wildlife Fund of Pakistan

Professional Experience

- 2017 onward Vice Chancellor, University of Karachi, Karachi, Pakistan
- 2013 – 2016 Professor and Full time Research Area Coordinator for Food Security, Center for Sustainable Development, College of Arts and Sciences, Qatar University, Doha, Qatar.
- 2012 - 2016 Qatar Shell Professorial Chair in Sustainable Development, College of Arts and Sciences, Qatar University, Doha, Qatar.
- 2011-2012: Meritorious & Tenured Professor, Institute of Sustainable Halophyte Utilization, University of Karachi.
- 2011-2012: Visiting Professor under Distinguished Scientist Fellowship Program, King Saud University, Saudi Arabia.
- 2011–2012: Scientific Advisor, Vice Chairperson, Board of Directors, Qatar Foundation, Doha, Qatar
- 2007 – 2012: Professor & Director, Institute of Sustainable Halophyte Utilization, University of Karachi
- 2005-present: Honor Professor (Adjunct Professor), Institute for Agriculture Modernization, Chinese Academy of Sciences, Shijiazhuang, Hebei, P.R. China.
- 2004-2012: Project Director, Institute for Sustainable Halophyte Utilization, University of Karachi.
- 1997-1998: Adjunct Professor, Department of Botany and Range Science, and Visiting professor, Department of Chemistry and Biochemistry, Brigham Young University, Utah, USA.
- 1996- 2007: Professor, Department of Botany, and University of Karachi, Pakistan.
- 1995-1996: Visiting Professor sponsored by Ohio University, USA along with an additional grant from US-Pakistan Educational Foundation, Islamabad, Pakistan and Council for International Exchange of Scholars, Washington, USA. Worked with Dr. Irwin A. Ungar and Dr. Allan M. Showalter.
- 1994-1995: Fulbright Visiting Scholar, at Ohio University, Athens, Ohio, USA awarded by Council for International Exchange of Scholars, Washington, D.C. Worked with Irwin A. Ungar.
- 1994:1994 DADD study visit in the Institute of Applied Botany, University of Münster, Münster, Germany with Prof. Dr. Marianne Popp from May 1 to July 30.
- 1989-1994: Associate Professor, Department of Botany, University of Karachi.
- 1985-1989: Assistant Professor, Department of Botany, University of Karachi.
- 1984-1985: National Science Foundation (USA) postdoctoral fellow in the Department of Botany and Range Science, Brigham Young University, USA worked with Prof. D. J. Weber.
- 1980-1984: Graduate student at Department of Botany, Ohio University, Athens, Ohio, USA, worked on my doctoral dissertation entitled "Germination, growth, reproduction, and population dynamics of *Atriplex triangularis*" under the guidance of Dr. Irwin A. Ungar.
- 1977-1980: Lecturer, Department of Botany, and University of Karachi.
- 1975-1977: Research officer in Pakistan Science Foundation research project at the Department of Botany, University of Karachi, Karachi, worked with Prof. Dr. M. Ishaq Khan.

Professional Activities

- 2016 Co-organized the "International Synergy Meeting on the Sustainable Utilization of Saline Resources In Support of United Nations Sustainable Development Goals with Special Emphasis on Renewable Energy based on Biofuels", 5-7 December, 2016.
- 2016 Organized the "International Workshop on Sustainable Development and Environment Protection", December 3-4, 2016. Institute of Sustainable Halophyte Utilization, University of Karachi, Karachi, Pakistan.
- 2015 Organized the 2nd International Conference on Physiological, Biochemical and Molecular Arguments for Salt tolerance" October 12 – 14, 2015 in Qatar University, Doha, Qatar.
- 2014 Organized an International Conference on Halophytes for Food Security in Dry Regions during May 12-14, Qatar University, Doha, Qatar.
- 2013 Creation of Environmental Sciences Club for the students October 2013.
- 2013 Creation of the Qatari Chapter for International Council for Life Sciences at Qatar University.
- 2012 Development of the initial papers for the creation of the Centre for Sustainable Development at CAS, Qatar University.
- 2012 Development of a short and long term plan for "Qatar Shell Professorial Chair in Sustainable Development, College of Arts and Sciences, Qatar University, Doha, Qatar
- 2005 Member, Local Advisory Board for Proceeding of the Pakistan Academy of Sciences, 2005 - present.

- 2004 Member, Core Group of Life sciences, HEC, 2004.
- 2004 Focal person for Botany to Higher Education Commission.
- 2004 Focal person for HEC Ph. D. scholarship program for University of Karachi, 2004.
- 2004 Chairman, Ecophysiology of Halophyte section, in International Conference on Bio-saline Agriculture & High Salinity Tolerance, January 9 – 14, 2004, Mugla, Turkey.
- 2004 Chairman, Halophyte seed germination section. US-Pakistan Joint Workshop on the Biology of Halophytes, Provo, Utah, USA, May 2004.
- 2004 Co-organizer of US-Pakistan Joint Workshop on the Biology of Halophytes, Provo, Utah, USA, May 2004.
- 2004 Member, Core Group in Life Sciences, Higher Education Commission, Pakistan, 2004.
- 2003 Member, Advisory Board, Pakistan Journal of Life and Social Sciences, The Elite Scientific Forum, Pakistan, 2003.
- 2002 Member, Advisory Council for Journal of Natural History and Wildlife, University of Karachi, Pakistan, 2002.
- 2002 Member, Editorial Board, Egyptian Journal of Science, Cairo, 2002.
- 2001 Member, Technical Committee for Biology, Pakistan Science Foundation, Islamabad, 2001.
- 2001 Member organizing Committee (Commissioner) for the International Symposium on Halophyte Utilization and Regional Sustainable Development of Agriculture, Huanghua, China, 15 -22 September, 2001.
- 2001 Secretary/Treasurer, Pakistan Botanical Society for the years 2001 and 2002.
- 2001 Guest Editor of a special issue (Halophytes: A resource for the future) for the Wetlands Ecology and Management, Australia, December 2001.
- 2000 Chairman, Ecophysiology of Cash Crop Halophytes section, Sustainable Utilization of Cash Crop Halophytes" Osnabrüeck, Germany May 28-June 2, 2000.
- 1999 Organizing secretary of an International Conference on Technology and Development in the New Millennium held on April 2000, at the Avari Towers, organized by STD forum, UK and University of Karachi, Pakistan.
- 1996 Chairman, Secondary Metabolites of Halophytes section, Biochemical and Physiological Aspects of Halophyte Utilization" Osnabrüeck, Germany October 3-6, 1999.
- 1995 Member of student presentation award evaluation committee for Botanical Society of America for the year 1995 at San Diego, California and 1996 at Seattle, Washington.
- 1994 Vice President (Sindh), Pakistan Botanical Society 1994-1995.
- 1994 Convener of an International Symposium on High Salinity Tolerant Plants held on December 1994, at the Department of Botany, University of Karachi, Pakistan.
- 2005 Member, Advisory Council for Journal of Ekolojje, Izmir University, Turkey, 2005.
- 2005 Member, council of the Pakistan Academy of Sciences, 2004 - 2012.
- 2005 Vice President, International Society for Halophyte Utilization.
- 1990 Chairman, Halophyte Biology Section, International Symposium on Environmental Influences on SeedGermination Mechanism - Recent Advances in Research and Technology, Jodhpur, India. Jan, 1990.

Academic awards and honors

- 2016 Life-time Achievement Award by the Pakistan Botanical Society.
- 2011 Elected fellow of Islamic Academy of Sciences (IAS).
- 2009 Chairholder of the UNESCO chair in Sustainable Halophyte Utilization at the Institute of Sustainable Halophyte Utilization, University of Karachi
- 2008 Distinguished Scientist of the year 2008 by Pakistan Academy of Sciences.
- 2008 Ranked 2nd among the biologist by Pakistan Council of Science and Technology, Islamabad in a publication entitled "Productive Scientists of Pakistan, 2008".
- 2008 Award of the "Sitara-i-Imtiaz" by President of Pakistan on August 14, 2008.
- 2006 Elected fellow of The World Innovation Foundation, Switzerland (FWIF)
- 2006 Elected fellow of Fulbright Academy of Sciences and Technology, USA.
- 2005 Ranked 2nd among the biologist by Pakistan Council of Science and Technology, Islamabad in a publication entitled "Productive Scientists of Pakistan, 2005".
- 2005 Distinguished National Professor, Higher Education Commission, Pakistan.

- 2005 Honor Professor, Institute of Agricultural Modernization, Shijiazhuang, China.
- 2004 Cash Award of Research productivity allowance (Rs. 210,000).
- 2004 Ranked as best biologist by Pakistan Council of Science and Technology, Islamabad in a publication entitled "Productive Scientists of Pakistan".
- 2003 Cash Award of Research productivity allowance (Rs. 120,000).
- 2003 Elected fellow of Third World Academy of Sciences.
- 2000 Cash Award of Research productivity allowance (Rs. 210,000).
- 2001 Presidential award of the "Pride of Performance" on August 14, 2001.
- 2001 Elected fellow of Pakistan Academy of Sciences.
- 2001 Nishan-e-Azmat-e-Danish by Karachi, University Teachers Society.
- 2001 Shield presented by College Teachers Botanical Society, Karachi in recognition of the award of "Pride of Performance" by President of Pakistan.
- 2001 Shield presented by College Sindhi Language Authority, Pakistan in recognition of the award of "Pride of Performance" by President of Pakistan.
- 2001 Ranked among the leading biologist by Pakistan Council of Science and Technology, Islamabad based on Information Science Institute, Baltimore, US "Journal Citation Report (JCR)" and citations of published papers for the year 2000.
- 2000 Nishan-e-Azmat-e-Danish by Karachi, University Teachers Society.
- 2000 Award of Pakistan Academy of Science and INFAQ Foundation Joint gold medal (1999) in the field of Botany.
- 1999 Ranked among the leading biologist by Pakistan Council of Science and Technology, Islamabad based on Information Science Institute, Baltimore, US "Journal Citation Report (JCR)" for the year 1999.
- 1997 Adjunct professor in the Department of Botany and Range Science, Brigham Young University, Provo, Utah, USA.
- 1995 Postdoctoral fellowship award from Ohio University, USA.
- 1995 Extension of Fulbright visiting scholar fellowship by US-Pakistan Educational Foundation, Islamabad, Pakistan and Council for International Exchange of Scholars, Washington, USA.
- 1994 Fulbright visiting scholar fellowship at Ohio University, USA from Council for International Exchange of Scholars, Washington, D.C. USA.
- 1994 German Academic Foundation award of DADD study visit.
- 1991 Regular Associateship from the Abdus Salam ICTP, Trieste, Italy.
- 1985 Post doctoral fellowship from National Science Foundation, USA.
- 1980 Teaching Assistantship, Department of Botany, Ohio University, USA.
- 1974 Obtained first position in M. Sc. at University of Karachi, Pakistan

Committee Services

- 2014-2015 Appointed as a member of graduate faculty and the seminar committee for the Department Biological and Environmental Sciences, Qatar University.
- 2014-2015 Chair, Committee for Social Activities and Strategic Planning and the member of Research committee of Centre for Sustainable Development, CAS, Qatar University, Doha, Qatar.
- 2013 – 2014 Chair, Committees for the development of research plan for Food and Water Security Program, College of Arts and Sciences, Qatar University.
- 2013 – 2014 Chair, Committees for the development of research plan for Food and Water Security Program, College of Arts and Sciences, Qatar University.
- 2013 – 2016 Advisor, Student's Environmental Club, Qatar University.
- 2013 – 2014 Member, Events Committee, Department of International Affairs, College of Arts and Sciences, Qatar University.
- 2013 – 2016 Head, Committee for the Sustainable Development Centre, College of Arts and Sciences.
- 2012 – 2013 Member, Energy and Environmental Science Research Committee, College of Arts and Sciences, Qatar University.
- 2012 – 2014 Member, Research and Scholarship Committee, Department of International Affairs.
- 2012 – 2013 Member, Research Committee, College of Arts and Sciences,
- 2012 – 2013 Appointed as a member of graduate faculty for the Department Biological and Environmental Sciences, Qatar University.
- 2012 – 2013 Member of Qatar Shell Sustainable Development Committee to oversee its implementation.

2005 – 2008	Focal person for Botany to review projects submitted to HEC.
2004 – 2009	Member, Core Group in Life Sciences, HEC, Pakistan.
2004 – 2005	Member of Crop Physiology Curriculum Revision Committee, HEC, Pakistan.
2001 – 2004	Member of Botany Curriculum Revision Committee, HEC, Pakistan.
2001 – to date	Member, Technical Committee for Biology, Pakistan Science Foundation.
1999 – 2005	Member of the board of advanced studies in Agriculture at University of Karachi.
1996 – 1997	Member of Library committee, University of Karachi, Pakistan.
1996 – 2012	Member of the University of Karachi senate, faculty and academic council.
1990-1994	Member of Library committee, University of Karachi, Pakistan.
1985-1986	Member of the Board of Faculty of Science, University of Karachi.
1983-1984	Member of the Graduate Committee, Department of Botany, Ohio University, USA.
1978-1980	Member of the board of advanced studies in Botany, University of Karachi.

Manuscript reviewer

Pakistan Journal of Botany (1985-present), Plant ecology, Netherlands (1992- present), International Journal of Plant Science, USA (1995 – Present), Journal of the Torrey Botanical Society (1996-present), Canadian Journal of Botany (1996-present), Journal of Science: Islamic Republic of Iran (1998-present), Australian Journal of Experimental Agriculture (2000-present), Journal of Environmental and Experimental Ecology (2004- present), Egyptian Journal of Science (2002 – present), Turkish Journal of Ecology (2005 – present), Annals of Botanici Finnici (2005 – present), International of Biology and Biometry (2006 – present).

Research Awards

2015	Oxidative Stress Signalling in halophytes. NPRP8, QNRF, Qatar (US\$ 756,000).
2015	International Conference on the Molecular and Cellular argument for food security. CWSP, QNRF, Qatar (US\$ 39,310).
2014	Restoration options of Mangrove ecosystems in Qatar, CAS, Qatar University (QR = 10,000).
2014	To determine the protocol for the rehabilitation of Mangroves on barren wetlands of Qatar, CAS, Qatar University (QR = 10,000).
2014	Rehabilitation potential and seedling mortality to herbivory in forest's gaps of mangrove ecosystems in Qatar, CAS, Qatar University (QR = 10,000).
2014	Habitat requirements and demographic attributes of the halophytes of Qatar, Faculty research grant, CAS, Qatar University (QR = 146,000).
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).
2010	Antioxidant responses of halophyte seeds and seedlings to salinity induced oxidative stress. Higher Education Commission (Rs. 3.223 Millions).
2010	Antioxidant properties of medicinal plants from coastal areas of Pakistan. Pakistan Academy of Sciences (Rs. 1.910 Millions).
2009	Biochemical, eco-physiological, anatomical and morphological stress responses of cash crop halophytes. Pak-Ger Joint Academic & Research Program, Higher Education Commission (Rs. 15. 110 Millions).
2007	Conversion of traditional knowledge and resources into modern sciences, industries and environmental protection using Pakistan indigenous (Plant) genetic resources. Higher Education Commission (Rs. 31.992 Millions).
2007	Screening and eco-physiological studies of halophytic grasses for utilization as forage. Higher Education Commission (Rs. 6.65 Millions).
2007	Use of halophytic shrubs as alternate source of cattle fodder. Pakistan Academy of Sciences (Rs. 2.632 Millions).
2006	Oxidative stress in salt tolerant plants. Higher Education Commission (Rs. 5.345 M).
2005	Laboratory improvement grant by Pakistan Science Foundation (Rs. 1 Million).
2005	International Linkages of Pakistani Universities with Foreign Universities. 16th Protocol of Pak-China Science and Technology Collaboration. Funded by Ministry of Science and Technology - Government of Pakistan (Rs. 12. 710 Millions).

- 2004 Institute for sustainable halophyte utilization, Higher Education Commission and University of Karachi (Rs. 31.088 Millions).
- 2004 Effect of Na-hypochlorite on seed germination of *Limonium stocksii*. University of Karachi, (Rs. 60,000).
- 2003 Effect of salinity and temperature on the germination of *Aeluropus lagopoides*. University of Karachi, (Rs. 60,000).
- 2003 Sustainable halophyte utilization, Pak China Collaboration protocol. Government of Pakistan and China. US\$60,000.0
- 2003 Seed dormancy mechanisms in coastal halophytes of Karachi, Pakistan. Pakistan Science Foundation, (Pak Rs. 1 Million).
- 2002 Effect of salinity and temperature on the germination of *Sporobolus ioclados*. University of Karachi, (Rs. 40,000).
- 2001 Seed germination of a halophytic grass *Aeluropus lagopoides*. Univ. of Karachi (Rs. 40,000).
- 2000 Germination ecology of coastal halophytes. University of Karachi (Rs. 40,000).
- 1999 Sustainable growth of halophyte in dry regions of Pakistan. University of Karachi (Rs. 40,000).
- 1998 Eco-physiological study of coastal halophytes of Pakistan. National Science Foundation, USA Research Grant No. INT-9730882, (US\$ 30,000).
- 1997 Growth of halophyte in dry regions of Pakistan. University of Karachi (Rs. 48,000).
- 1996 Sustainable halophyte utilization in the Mediterranean and subtropical dry regions. European Economic Concerted action program proposal No.ERB 3514PL50525. This is a multinational research project in which researchers from 7 different countries are involved.
- 1996 Mechanism of osmoregulation in response to salinity and sewage pollution in three mangrove species. The IFS, Sweden Research Grant No D/2004-2F (\$ 12,000).
- 1996 Genetic engineering of crop plants for salt tolerance: Cloning and sequencing the Betaine Aldehyde Dehydrogenase (BAD) gene from the halophyte *Atriplex triangularis*. Ohio University postdoctoral fellowship from September 1995 to September 1996 (US\$ 20,000).
- 1995 The United States Educational Foundation in Pakistan and Council for International Exchange for Scholars award of Post Doctoral Fellowship (\$ 13,300).
- 1995 *International Symposium on High Salinity Tolerant Plants*. National Science Foundation, USA (US\$ 33,000), Australian International Development Assistance Bureau (Pak. Rs. 91,958), The Commonwealth Foundation. (Pak. Rs. 120,000), Pakistan Science Foundation (Pak. Rs. 25,000), Pakland Cement Limited, Pakistan (Pak. Rs. 100,000), Muslim Commercial Bank Limited (Pak. Rs. 50,000), Pakistan Automobile Corporation (Pak. Rs. 50,000), Atomic Energy Commission (Pak. Rs. 25,000), Ahmad Food Industries (Pak. Rs. 50,000), United Nations Educational Scientific and Cultural Organization (\$ 1,200), Third World Academy of Sciences (\$ 617).
- 1994 Seed bank ecology of halophytes. Fulbright Foundation award of a postdoctoral fellowship in the Department of Environmental and Plant Biology, Ohio University, (\$ 50,000).
- 1994 Osmotic relations in woody halophytes from Pakistan. The German Academic Foundation, DADD. (DM 12,000).
- 1994 Physiological Ecology of Inland and Coastal Halophytes, University of Karachi, (Rs 40,000).
- 1993 Award of grant from International Foundation of Science, Sweden to attend the Asia-Pacific Symposium on Mangrove Ecosystems (Sept 1-3) and post symposium workshop (Sept 5-18) in Hong Kong (US\$3000).
- 1993 Population Biology of Coastal Halophytes. University of Karachi (Pak. Rs 20,000).
- 1992 Ecophysiology of Indus Delta Mangroves. The International Foundation for Science, Sweden Research Grant No D/2004-1, (US\$ 12,000).
- 1992 Ecophysiology of Mangroves along Karachi coast. Pakistan Science Foundation Research Grant No S-KU/BIO (201) (Pak. Rs. 3,79,900).
- 1992 Ecological Investigations of Halophytes. The Third World Academy of Sciences, Italy Research Grant No. BC90-088 (US\$ 3000).
- 1991 Ecological Investigations of Halophytes. ODA/British Council Grant for equipment, and research training (£10,000).
- 1990 University of Karachi Research Grant to buy electrodes for ion analyzer (Pak. Rs.100, 000).
- 1989 Ecological investigation of halophytes as feed, food, and fiber resource. National Scientific Research and Development Board UGC grant for 3 years duration (Pak. Rs. 675,000).
- 1989 University of Karachi Research Grant to buy ion analyzer (Pak. Rs. 100,000).

- 1988 Reproductive biology of some perennial plants. University of Karachi (Pak. Rs 12,500).
 1987 Germination ecology of halophytes. University of Karachi (Pak. Rs 12,500).
 1984 Ion compartmentalization in *Salicornia pacifica* var. *utahensis*. National Science Foundation, USA, Research Grant No. INT 8403768 (\$ 20,000).

Research Supervised

- 2016 Yosuf Adnan Chemical characterization of halophytic fodder/forage (Ph.D.)
 2015 M. Qasim Halophyte: A source of medicinal compounds (Ph.D.)
 2015 Zain-ul-Abidin Sustainable alternative and renewable fuel from halophytes (Ph.D.)
 2015 Tabassum Hussain The effect of salinity on morphological, physiological and biochemical responses of *Panicum turgidum* Forssk. (Ph.D.)
 2012 Haibat Ali Optimizing fodder/forage production using brackish water irrigation (Ph.D.)
 2012 M. Zaheer Ahmed Seed germination of halophytes of upper Hunza, Pakistan (Ph.D.)
 2012 Abdul Hameed Salinity-induced oxidative stress and protective antioxidant activities in halophytes(Ph.D.)
 2010 Zamin S. Siddiqui Germination physiology of the dimorphic seeds of *Halopyrum mucronatum* (Ph.D.)
 2010 Saira Saeed Salt tolerance of *Arthrocnemum indicum*: a coastal coastal salt marsh halophyte (Ph.D.)
 2009 Beena Naqvi Distribution plant-soil relationship and dormancy mechanisms of coastal halophytes (Ph.D.)
 2009 Afsheen Zahra Salt tolerance of halophytic grass *Phragmites karka* (Ph.D.)
 2009 Faiza Shaikh Seed dormancy mechanism in salt tolerant grasses (Ph.D.)
 2006 M. Yousuf Adnan Osmotic and ionic effects of salts on seed germination of halophytes (M.Sc.)
 2006 M. Qasim Comparison of NaCl, Seasalt and PEG on seed germination of halophytes (M.Sc.)
 2006 Aysha Rasheed Comparative effect of NaCl, seasalt and PEG-6000 on the early events of the seed germination of *Haloxylon stocksii* (M.Sc.)
 2006 Tabasum Hussain Effect of seasalt on growth, water relation and photosynthesis of *Panicum turgidum* (M.Sc.)
 2006 Farhat Agha Productivity of perennial halophytes, *Cressa cretica*, *Cyperus arenarius* and *Atriplex stocksii* at Arabian Sea coast (Ph.D.)
 2004 Sabahat Zia Salt tolerance and Life history strategies of *Limonium stocksii* (Ph.D.)
 2003 Abdul Hameed Effects of L-ascorbic acid (Vitamin C) pretreatments on seed germination of subtropical perennial halophytes (M.Sc.)
 2003 M. Zaheer Ahmed Alleviation seawater salinity effect on the seed germination of perennial halophytes using L-ascorbic acid (Vitamin C) (M.Sc.)
 2003 Razia Minhas Effect of pH on the salinity tolerance during germination of halophytes (M.Sc.)
 2003 Azra Yonus Effect of seawater on the germination of coastal halophytes (M.Sc.)
 2002 Saira Saeed Effect of chloride and sulfate salts on seed germination and growth of inland and coastal populations of *Salsola imbricata* and *Cressa cretica*. (M.Sc.)
 2002 Faiza Shaikh Alleviation of salinity effects using calcium on the germination of *Urochondra setulosa* (M.Sc.)
 2002 Afsheen Zahra Effect of various salts on seed germination of *Haloxylon stocksii* (M.Sc.)
 2002 Salman Gulzar Effect of salinity on germination, dormancy, growth, and osmoregulation of perennial halophytes (Ph.D.)
 2001 Irfan Aziz Structure, Life history strategies and ecophysiology of Indus delta mangrove (Ph. D.)
 2001 Mehrunnisa Effect of seawater, NaCl, temperature, light and growth regulators on the germination of *Salsolaimbricata* (M.Sc.)
 2001 Ambreen Atayat Comparative effects of NaCl and seawater on the germination of halophytes (M.Sc.)
 2000 Quratulain Effect of NaCl, MgCl & MgSO₄, on the germination of various halophytes (M.Sc.)
 1995 Farah Naz Comparative account of the seed bank of some inland desert communities. (M.Sc.)
 1995 Bilquees Gul Demography, productivity, seed bank, competition and osmoregulation in the various zones of coastal salt marsh population of *Arthrocnemum macrostachyum* (post doc)
 1995 Mehar Noor Demography of a coastal sand dune grass *Halopyrum mucronatum* (pre doc)
 1995 Mehar Noor Temporal variation in allelopathic potential of *Prosopis juliflora*(M.Sc.)

1993	Kehkashan Shariff	Salt tolerance of inland salt desert shrubs, <i>Suaeda fruticosa</i> , <i>Haloxylon recurvum</i> , <i>Atriplex griffithii</i> and <i>Heliotropium curassavicum</i> (M.Sc.)
1993	Beena Naqvi	Osmotic relations of the desert shrubs in response to water stress (M.Sc.)
1992	Uzma Salam	Allelopathic potential of <i>Albizzia saman</i> (M.Sc.)
1992	Mehar Noor	Allelopathic potential of <i>Prosopis juliflora</i> (M.Sc.)
1992	Bilquees Gul	Demography, ecophysiology and seed bank of <i>Arthrocnemum indicum</i> (M.Sc.)
1992	Seemi Aziz	Population biology of a desert perennial halophyte <i>Cressa cretica</i> (M. Phil.)
1991	Irfan Aziz	Reproductive biology of <i>Senna holosericea</i> , <i>S. italica</i> , and <i>S. alexandrina</i> . (M.Sc.)
1991	Salman Gulzar	Seed banks of coastal shrub communities (M.Sc.)
1991	Yasmeen Rizvi	Seed germination studies of <i>Atriplex griffithii</i> var. <i>stocksii</i> (M.Sc.)
1991	Tarana Shaheen	Effect of salinity, temperature, and growth regulators on the germination and early seedling growth of <i>Suaeda fruticosa</i> (M.Sc.)
1990	Shahana Naqvi	Seed bank dynamic of two saline desert communities (M.Sc.)
1989	Arif-uz-Zaman	The relationship between seed bank and vegetation in saline desert community (M.Sc.)

Co-supervisor

Sumera Manzoor	Completed	Seeds germination responses of <i>Zygophyllum propinquum</i> to different ionic, osmotic (M.S./Ph.D.) and chemical treatments
Saba Nazir	Completed	Effect of salinity on phenolic composition and antioxidant activity of halophytes. (M.S./Ph.D.)
Shahjahan Jilani	Completed	Photoblastic responses of halophyte seeds during germination (M.S./Ph.D.)
Syed Zaheer Shah	on going	Spatial and temporal variations in seed germination, longevity and antioxidant responses of a cash crop halophyte <i>Suaeda fruticosato</i> various abiotic stresses (M.S./Ph.D.)

Seminar, Summer School, or Conference

2017	"International Symposium on High-efficient Utilization of Saline Resources" at Center for Agricultural Resources Research, Institute of Genetics and Developmental Biology, Chinese Academy of Sciences. September 21-24, 2017 Shijiazhuang, Hebei, China.
2016	14 th National and 5 th International Conference of Botany – Climate Change and phytodiversity: Challenges and Opportunities. January 15-18 2016, University of Karachi, Karachi, Pakistan
2016	"International Synergy Meeting on the Sustainable Utilization of Saline Resources In Support of United Nations Sustainable Development Goals with Special Emphasis on Renewable Energy based on Biofuels", 5-7 December, 2016.
2016	"International Workshop on Sustainable Development and Environment Protection", December 3-4, 2016. Institute of Sustainable Halophyte Utilization, University of Karachi, Karachi, Pakistan.
2015	Halophyte and Conservation Biodiversity. International Training Workshop on Conservation and Biodiversity and Ecosystem. Regional Chair for IUCN, CEM for West Asia and Centre for Sustainable Development, Qatar University Nov 25-27.
2015	Developing future work force. International workshop by CSR Qatar, Doha in Hilton hotel from Nov. 24 – 25.
2015	A perspective for food security in dry lands. The world Academy of Sciences (TWAS) 26th General Meeting at Vienna, Austria in the Austrian Academy of Sciences Nov. 18 – 23.
2014	Food security: A new paradigm for the Dry regions, OPW Efficiency and Conservation Conference, May 18, Public Authority of Electricity and Water, Al-Bustan Palace, Muscat, Oman.
2014	Food security in Qatar perspectives. International Conference on Halophyte for Food Security in Dry Regions. Centre for Sustainable Development, CAS, Qatar University. May 12-13.
2014	Biodiversity issues relevant to Qatar. Centre for Sustainable Development, CAS, Qatar University, March 10.
2014	International Conference on Emerging Trends in Life Sciences for Sustainable Development at this Forman Christian College(a chartered American University) in Lahore, Pakistan, October 9-13, 2014.
2014	Seed germination strategies of halophytes. Department of Biological and Environmental Sciences, October 13th.

- 2014 International Conference on "Creating Food Self Sufficiency in Thar Utilizing Indigenous Groundwater Resources" organized by Dawood University of Engineering & Technology's Centre of Innovation, Research, Creativity, Learning and Entrepreneurship (CIRCLE), at Hotel Pearl Continental, Karachi, September 13-14, 2014.
- 2014 Hand on training workshop on the eco-physiology of halophytes, Institute of Sustainable Halophyte Utilization, University of Karachi, Karachi, Pakistan, April 12 – 15, 2014.
- 2014 COST FA0901 Final Conference on Putting halophytes to work – from genes to ecosystem" University of Coimbra, Coimbra, Portugal, April 9-10, 2014.
- 2014 Diversity of halophytes of Qatar. International Training Workshop on Conservation and Biodiversity and Ecosystem. Regional Chair for IUCN, CEM for West Asia and Qatar Shell Professorial Chair in Sustainable Development, Qatar University March 24-27.
- 2014 International Workshop on Mechanisms of Plant Stress Tolerance and Sustainable Use of Saline Resources. Institute of Genetics and Developmental Biology, Chinese Academy of Sciences, Shijiazhuang, China, October 14-20, 2013.
- 2013 Achieving Socioeconomic Development in the Islamic World through Science, technology and Innovation, Islamic World Academy of Sciences and Government of Bangladesh, Dhaka, Bangladesh, May 4-9, 2013.
- 2013 Halophytic argument for sustainable development, Department of Biological and Environmental Sciences, Qatar University, Doha, April 26.
- 2012 Given a lecture entitled "Halophytes a source of sustainable green architecture" in the Department of Architect engineering Qatar University.
- 2012 Participated in a seminar "Carbon Offsetting" presented by Fardeen Desai, Mannai Travel organized by "Sustainable Qatar" at Friends of The Environment Center, Doha. Monday, February 4, 2013 at 6:30 pm.
- 2012 The Utilization of Saline Water Resources for Agricultural Productivity. International Conference on Food Security in Arab Dry Lands, at Qatar University, Doha, 14 -15th of November, 2012.
- 2012 Given a lecture entitled "Halophyte potential in coastal hot and dry deserts: The value for mankind" in the Department of Biological and Environmental Sciences, Qatar University.
- 2012 Participated in the Qur'anic garden seminar on "plants, environment and climate change" 25th November, 2012. Student Centre, HBKU, Qatar Foundation.
- 2012 An innovative approach for commercial utilization of saline-arid lands. Qatar Foundation Annual Research Forum, Qatar Foundation, at Qatar National Convention Centre (QNCC) Doha, From : October 21 - October 23. Seminar in preparation for COP18. Friends of Environment Centre, October 15, 2012.
- 2012 An Innovative Perspective on food security: Innovative crops for Arid Regions Using Saline Resources. Science and Technology in the Muslim world: Achievements and Prospects, 2012 IAS Symposium, Astana (Kazakhstan), 22-23 May 2012
- 2012 "Germination under salinity: how do plants do it?". Sustainable cultivation and exploitation of halophytic crops in a salinizing world, COST Action FA9001 Meeting, Amsterdam, Netherlands, April 19-20, 2012.
- 2011 Potential cash crop using saline resources. Pakistan-US Science and Technology Conference, USAID, 21-24 March, 2011, Dubai, UAE.
- 2011 International Conference on management of soil and groundwater salinization in Arid regions, Department of Environment, Muscat,– Oman, 23 – 26 January, 2011
- 2011 2nd international Conference of Plant Scientist, Department of Botany, GC-University, Lahore.
- 2011 2-Day workshop on "The Conduct of Responsible Science, Safety Security and Ethics" on 31st January and 1st February 2011 at Forman Christian College, Lahore.
- 2010 International Conference on "The Conduct of Responsible Science, Safety Security and Ethics" on 9th and 10th June 2010 at COMSTECH Secretariat Islamabad.
- 2010 Pakistani and German Universities – Joining forces for a better future, Islamabad - DAAD ALUMNI Seminar - 29-31 October.
- 2009 TWAS 11th General Conference and 20th General Meeting, Durban, South Africa from 19th October to 23th October 2009.
- 2009 International workshop on urbanization, land use, lands degradation an environment form 28th September to 2nd October 2009 at Pamukkale University Denizli, Turkey.

- 2009 Launching of ISAAA Brief 39 and Scientific Communication Workshop on "Implementation of the strategy for development of biotechnology in Pakistan" at LEJ University of Karachi, Karachi, Pakistan.
- 2009 Halophytes of coastal Pakistan: Potential energy source. Regional symposium on oil trees for energy production and for valorization of marginal land and water resources in the near east. Luxor, Egypt. February 10-13, 2009. Organized by, Food and Agriculture organization of United Nations.
- 2008 Halophytes: a new hope for future saline agriculture. International Conference on recent Advances in Agriculture Biotechnology. 18-19th March, 2008, Islamabad.
- 2005 Forage Production on Balochistan Coast. Workshop on the "Modern Concepts in Botany". 22-23 August, 2005, Kohat University of Science and Technology, Kohat.
- 2005 Sustainable management of coastal Balochistan. Impact of Environmental Pollution on Health, Economy and Natural Resource Management. KU-PSM Seminar April 2-5, Karachi.
- 2005 Forage Production on Balochistan Coast using Brackish Water Irrigation. International Conference on Biotechnology for Salinity and Drought Tolerance in Plants. 28-31 March, 2005, Islamabad.
- 2005 Utilization of brackish water for forage production in Balochistan. 2nd National Conferences on "Biotechnology and Emerging Sciences in Pakistan", March 15-17, 2005, Quetta, Pakistan.
- 2005 Effect of plant growth regulators on halophyte seed germination, International conference on Biosaline Agriculture & High Salinity Tolerance, January 9 – 14, Mugla, Turkey.
- 2004 Sustainable halophyte utilization. Pak-China Scientific Collaboration. 15-31, December.
- 2004 TWAS 15th General Body Meeting in Trieste, Italy. November 24 – 26.
- 2004 Regional meeting of TWASROCASA on "Science, Development and Education" in Banglore, India, September 27-28.
- 2004 Sustainable halophyte utilization. Pak-China technical collaboration. Visit to China. June.
- 2004 Halophyte seed germination. US-Pakistan Joint Workshop on the Biology of Halophytes, Provo, Utah, USA, May 2004.
- 2003 Biodiversity of halophytes from Northern Mountains. International Symposium on Biodiversity in Northern Areas, September 8-10, 2003, Islamabad.
- 2002 Salt Stimulation and Tolerance in the Intertidal Stem Succulent Halophyte *Arthrocnemum macrostachyum*. The annual meeting of the Ecological Society of America in Tucson, Arizona, USA in August 2002
- 2002 Halophyte seed germination: success and pitfalls. International Symposium of the "The Optimal Resources Utilization in Salt-Affected Ecosystems in Arid and Semi-Arid Regions" Cairo.
- 2002 Biodiversity in Pakistan. Training Workshop on "Management and Conservation of Protected Areas" Department of Zoology, University of Karachi and Zoological Survey Department, Government of Pakistan, February 28-March 9.
- 2002 Utilization of seawater for cash-crop production. Symposium on Marine Environment 2002: Food, Health and Habitat, Karachi, Pakistan.
- 2001 Some ecophysiological aspects of seed germination in halophytes. International Symposium of the Halophyte Utilization and Regional Sustainable Development of Agriculture, 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.
- 2000 Germination responses of coastal halophytes from Pakistan. 7th National Conference of Plant Scientists, Lahore Pakistan.
- 2000 Germination responses in a coastal grass *Urochondra setulosa*. 7th National Conference of Plant Scientists, Lahore.
- 2000 Salt tolerance in *Rhizophora mucronata* Lam. From the Pakistani coast. 7th National Conference of Plant Scientists, Lahore.
- 2000 Seed germination in *Sarcobatus vermiculatus*. 7th National Conference of Plant Scientists, Lahore
- 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, Pakistan.
- 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 in a coastal grass *Urochondra setulosa*. "Sustainable Utilization of Halophytic Cash crops" Osnabrueck, Germany.
- 1999 Meeting of European Economic Community concerted action group "Sustainable Halophyte Utilization in the Mediterranean and Subtropical Dry Regions. Agadir, Morocco.
- 1999 Meeting of National Science Foundation collaboration project entitled Ecophysiology of coastal halophytes from Pakistan. Athens, USA.
- 1999 Fatty acid composition of seeds of halophytes. International Botanical Congress, USA.
- 1999 Salt tolerance of *Halopyrum mucronatum* (Gramineae) from coastal dunes of Karachi, Pakistan. Biochemical and Physiological Aspects of Halophyte Utilisation", Germany.
- 1998 Effects of salinity and temperature on respiratory metabolism of *Salicornia utahensis*, an inhabitant of Great Basin Playas. Biochemical Society meeting at Provo, USA.
- 1998 Meeting of European Economic Community concerted action group "Sustainable Halophyte Utilization in the Mediterranean and Subtropical Dry Regions. Catania, Italy.
- 1998 Germination ecology of perennial halophytes from Pakistan. International Ecological Society meeting, Florence, Italy.
- 1997 Population ecology of a subtropical coastal halophyte *Arthrocnemum indicum*. International Conference on the Biology of Coastal Environments. Bahrain.
- 1997 Effect of intraspecific competition and inundation regime on the growth of *Arthrocnemum indicum* population. 1st Annual Intermountain paper and poster symposium, Logan, USA.
- 1997 Plant water relations in halophytes from coastal and inland salt marshes of Pakistan. International Conference on the Biology of Coastal Environments. Bahrain.
- 1996 Effect of salinity and temperature on the germination of *Suaeda fruticosa*. 105th Annual Meeting of the Ohio Academy of Sciences, held at Malone College, Canton, USA.
- 1996 Recovery of seed germination of halophytes from salt stress as affected by thermoperiod. Botanical Society of America annual meeting at Seattle, Washington, USA.
- 1996 Seed dimorphism in *Arthrocnemum indicum* from Karachi, Pakistan. American Institute of Biological Science and Botanical Society of America annual meeting at Seattle, USA.
- 1996 Ecophysiological studies of *Suaeda fruticosa* from coastal dunes of Karachi, Pakistan. Conservation of Mangal Ecosystems, Al-Ain, U.A.E.
- 1996 Meeting of European Economic Community concerted action group "Sustainable Halophyte Utilization in the Mediterranean and Subtropical Dry Regions. Al-Ain, U.A.E.
- 1995 104th annual meeting of the Ohio Academy of Sciences, held at Columbus, Ohio.
- 1995 Osmoregulation in *Avicennia marina*: a salt secreting mangrove. The first western Pennsylvania symposium of ecologists, evolutionary biologists and systematists from Powdermill Biological Station, Rector, Pennsylvania.
- 1995 Seed bank of subtropical maritime desert habitats: relationship to vegetation. American Institute of Biological Science and BSA annual meeting at San Diego, California, USA.
- 1994 Ecophysiology of Indus Delta Mangroves. Asia-Pacific Symposium on Mangrove Ecosystems and post symposium workshop in Hong Kong.
- 1994 Mechanisms of osmoregulation in *Avicennia marina*. Regional Conference on Environment and Biodiversity. Department of Botany, Tribhuan University, Kathmandu, Nepal.
- 1994 Growth and Water Relations of Salt Secreting and Excluding Mangrove species under saline conditions. International Symposium on High Salinity Tolerant plants, Karachi, Pakistan.
- 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.
- 1994 Diurnal osmoregulation in two halophytes from coastal and inland populations. International Symposium on High Salinity Tolerant plants, Karachi, Pakistan.
- 1994 The effect of salinity, temperature and thiourea on winter and summer seeds of *Halopyrum mucronatum*. International Symposium on high Salinity Tolerant plants, Karachi, Pakistan.
- 1994 Demography of a coastal desert halophyte *Cressa cretica* Linn. International Symposium on High Salinity Tolerant plants, Karachi, Pakistan.
- 1992 Overseas Development Administration, UK exchange program at Reading. UK.
- 1992 College on methods and experimental techniques in biophysics. International Center for Theoretical Physics, Trieste, Italy.

- 1992 Conference on chemical evolution and the origin of life. International Center for Theoretical Physics, Trieste, Italy.
- 1992 Second autumn workshop on Mathematical Ecology. International Center for Theoretical Physics, Trieste, Italy..
- 1991 Screening of halophytes and seed crops for cultivation in deserts of Makran coast using seawater. Three-day national conference on "Problems and Resources of Mekran Coast and Plan of Action for its Development". Quetta, Pakistan.
- 1991 Weed seed bank dynamics in desert communities. Third all Pakistan Weed Science Conference. Peshawar, Pakistan.
- 1991 Seed bank dynamics of saline desert communities. First International Symposium on Contemporary Biology. Islamabad.
- 1990 The relationship between seed bank and to the vegetation type in saline desert community. International Symposium on Environmental Influences on Seed Germination Mechanisms - Recent Advances in Research and Technology. Jodhpur, India.
- 1990 The seed bank dynamics and its relation to vegetation in a saline desert community. International Symposium on Plant Life of South Asia. Karachi, Pakistan.
- 1990 Rehabilitation of Degraded Arid Land Ecosystems. Regional training course sponsored by Central Arid Zone Research Institute and UNESCO at Jodhpur, India
- 1990 Third autumn course on Mathematical Ecology. International Center for Theoretical Physics, Trieste, Italy.
- 1990 Spatial and temporal patterns in the seed bank and vegetation of a halophytic desert community. International conference on high salinity tolerant plants in Arid regions, Al-Ain, U.A.E.
- 1988 Fourth Summer College in biophysics. International Center for Theoretical Physics, Italy.
- 1985 Salinity effects on stress-induced ethylene and ethane assay. 12th Annual Plant Growth Regulators Society of America meeting at Boulder, Colorado.
- 1985 The annual seed cycle in *Atriplex triangularis*. Botanical Society of America. Florida.
- 1985 Ion distribution in seeds of halophytes. Botanical Society of America. Gainesville, Florida.
- 1985 Ion distribution in the shoots of *Salicornia pacifica* var. *utahensis* as determined by energy dispersive x - ray microanalysis using a cryochamber. BSA, Gainesville, Florida.
- 1984 Germination responses to salinity stress in *Atriplex triangularis*. Ohio Academy of Sciences, Cleveland Ohio.
- 1983 Factors effecting the growth of *Atriplex triangularis* in an Ohio salt marsh. Ohio Academy of Science, Bowling Green, Ohio.
- 1983 Seed polymorphism and germination responses to salinity stress in *Atriplex triangularis*. Botanical Society of America. Grand Forks, North Dakota.
- 1976 Growth inhibitors from the species differing in salt tolerance. Symposium on "Plant Production under Saline Conditions". Adana, Turkey.

Collaborators (last 48 months)

Prof. Dr. Brent L. Nielsen	(USA)
Prof. Dr. Todd Egan	(USA)
Prof. Dr. Hans –Werner Koyro	(Germany)
Prof. Dr. Bernhard Huchzermeyer	(Germany)
Prof. Dr. Rainer Hedrich	(Germany)
Prof. Dr. Segey Shabala	(Australia)
Prof. Dr. Yoshiharu Fujii	(Japan)

Invited Lectures

- 2017 Invited Speaker at the "International Symposium on High-efficient Utilization of Saline Resources" at Center for Agricultural Resources Research, Institute of Genetics and Developmental Biology, Chinese Academy of Sciences. September 21-24, 2017 Shijiazhuang, Hebei, China.
- 2011 Utilization of saline resources to reduce pressure on good quality water, International Conference for Sustainable Development in support of Cultural Rapprochement and Biodiversity, 24-26 January 2011. Muscat, Sultanate of Oman.

- 2010 Three Days Academic Retreat for HEC Approved PhD Supervisors 29-31st July 2010 at HEC Regional Centre Karachi.
- 2009 Potential cash crops using saline resources. Pakistan Academy of Sciences lecturer series, Karachi.
- 2009 Cash Crop Halophytes at Launching of ISAAA Brief 39 and Scientific Communication Workshop on "Implementation of the strategy for development of biotechnology in Pakistan" at LEJ University of Karachi, Karachi, Pakistan.
- 2008 Halophytes: non-conventional crop for saline conditions. Invited lecture at Rotary Club of Karachi East. April 1, 2008.
- 2007 Domestication of halophytes: pitfall and successes. Invited lecture at Department of Microbiology and Molecular Biology, Brigham Young University, Provo, Utah 84602.
- 2005 Utilization of brackish water for forage production in Baluchistan. 2nd National Conferences on "Biotechnology and Emerging Sciences in Pakistan" March 15-17, 2005, Quetta Pakistan.
- 2005 Bio-saline agriculture: a modern approach, International Conference on Biosaline Agriculture & High Salinity Tolerance, January 9 – 14, 2004, Mugla, Turkey.
- 2004 Seed Germination of Halophytes, National Institute for Agriculture Modernization, Shijiazhuang, Hebei, China.
- 2004 Halophytic cash crops. Pakistan Academy of Sciences lecturer series, Karachi.
- 2003 Biodiversity of halophytes from Northern mountains. International Symposium on Biodiversity in Northern Areas, September 8-10, 2003, Islamabad.
- 2003 Halophyte Biodiversity of Coastal Wetlands and its Economic Importance. Training Workshop on "Management and Conservation of Protected Areas" Department of Zoology, University of Karachi and Zoological Survey Department, Govt of Pakistan, Feb. 28-Mar 9.
- 2002 Cash-Crop Production under Saline Conditions. Pakistan Agricultural Research Council, Islamabad, June 17.
- 2002 Biodiversity in Pakistan. Training Workshop on "Management and Conservation of Protected Areas" Department of Zoology, University of Karachi and Zoological Survey Department, Government of Pakistan, February 28-March 9.
- 2002 Utilization of seawater for cash-crop production. Symposium on Marine Environment 2002: Food, Health and Habitat, Karachi, Pakistan.
- 2000 Salt tolerance in coastal halophytes. 7th National Conference of Plant Scientists, Lahore.
- 1999 Pakistan's Experience in the Agricultural Use of Halophytes. Advanced short course on "Halophyte and Saline Agriculture", Agadir, Morocco.
- 1997 Sustainable halophyte utilization. Department of Soil Science, Texas A & M University, College Station, Texas, USA.
- 1995 Seed bank dynamics in desert communities. Department of Plant Sciences, University of Western Ontario, London, Ontario, Canada.
- 1995 Mechanism of osmoregulation in the desert halophytes of Pakistan. Department of Botany and Range Sciences, Brigham Young University, Provo, Utah, USA.
- 1993 Distribution of osmolytes in the woody halophytes from Pakistan. Wetland Biogeochemistry Institute, Louisiana State University, Baton Rouge, USA.
- 1994 Seed bank ecology of subtropical maritime desert communities. Department of Environmental and Plant Biology, Ohio University, Athens, Ohio, USA.
- 1994 Seed bank ecology of some desert plant communities. Department of Botany and Range Sciences, Brigham Young University, Provo, Utah, USA.
- 1992 Seed bank ecology of halophytic communities of Karachi, Pakistan at University of Munster, Germany.

LIST OF PUBLICATIONS (April, 2019)

Total Impact Factor: 250; Total Citations: 15086

H-index: 62, i10-index 200, RG factor 40.65

<http://orcid.org/0000-0003-2837-0794>

https://scholar.google.com/citations?view_op=list_works&hl=en&user=1b82otgAAAAJ

https://www.researchgate.net/profile/M_Khan20/contributions?sorting=recentlyAdded

Web page: www.halophyte.org

Books and Journals Edited

1. Gul, B.B. Boer, **M. A.Khan**, M. -C. Godt, and A. Hameed (Editors), 2019. Sabkha Ecosystems - Volume VI: Asia/Pacific, Tasks for Vegetation Science 49, Tasks for Vegetation Science 48, DOI 10.1007/978-3-319-27093-7, Hardcover ISBN 978-3-030-04416-9; Springer International Publishing, Springer Nature Switzerland AG.
2. **Khan, M. A.**, B. Boer, M. -C. Godt, S. Breckle, B. Gul, and M. Ozturk (Editors), 2016. Sabkha Ecosystems: Volume V: The Americas, Tasks for Vegetation Science 48, Tasks for Vegetation Science 48, DOI 10.1007/978-3-319-27093-7, Hardcover ISBN 978-3-319-27091-3; Springer International Publishing Switzerland.
3. **Khan, M. A.**, M. Ozturk B. Gul, and M.Z. Ahmed (Editors). 2015. Halophytes for Food Security in Dry Lands. Academic Press.
4. **Khan, M. A.**, B. Boer, T. Abdelsalaam, M. -C. Godt, B. Gul, and M. Ozturk (Editors), 2014. Sabkha Ecosystems: Volume IV: Cash Crop Halophyte and Biodiversity Conservation, Tasks for Vegetation Science 47, DOI 10.1007/978-94-007-7411-7_26, © Springer Science+Business Media Dordrecht 2014.
5. Ozturk, M., B. Boer, H. Barth. S. -W. Breckle, M. -C. Godt and **M. A. Khan** (Editors), 2010. Sabkha Ecosystems: Volume III: Africa and Southern Europe. Springer, (Netherlands).
6. Kafi, M and **M.A. Khan** (Editors), 2008. Crop and Forage Production using Saline Waters. NAM S&T Centre. Daya Publishing House, Delhi.
7. **Khan, M. A.**, H. Barth. G. C. Kust and B. Boer (Editors), 2006. *Sabkha Ecosystems: Volume II: The South and Central Asian Countries*. Springer, Netherlands.
8. Ozturk, M., Y. Waisel, **M.A. Khan**, and G. Gork(Editors), 2006. *Biosaline Agriculture and Salinity Tolerance in Plants*. Birkhauser, Germany.
9. **Khan, M.A.** and D. J. Weber (Editors), 2006. *Ecophysiology of High Salinity Tolerant Plants*. Springer, Netherlands.
10. **Khan, M.A.** and M. Shameel. (Guest Editors) 2003. *Pakistan Journal of Botany: Proceeding of the Eighth National Conference of Plant Scientists*. Volume 35, No. 5 Special issue. Pakistan Botanical Society, Karachi.
11. Azhar, A., M. Huq, **M.A. Khan**, C. Lewis, A. Shibli, A. Siddiqui, and S.H. Zaidi (Editors), 2003. *Technology and Development in New Millennium*. Karachi University Press, Karachi. (Pakistan) pp. 320.
12. **Khan, M.A.** and N.C. Duke. (Guest Editors). 2001. *Wetland Ecology and Management, Special Issue: Halophytes - A resource for the future*. Volume 9, No. 6. Kluwer Academic Press (Netherlands).
13. **Khan, M.A.** and I. A. Ungar (Editors), 1995. *Biology of Salt Tolerant Plants*. Book Crafters, Michigan, USA, pp. 424.

Published peer reviewed articles

14. Nisar, F., Gul, B., **Khan, M.A.**, and Hameed, A., 2019. Germination and recovery responses of heteromorphic seeds of two co-occurring *Arthrocnemum* species to salinity, temperature and light. *South African Journal of Botany*, 121, 143-151.
15. Muhammad Qasim, Yoshiharu Fujii, Muhammad Zaheer Ahmed, Irfan Aziz, Kazuo N. Watanabe & **M. Ajmal Khan**. 2019. Phytotoxic analysis of coastal medicinal plants and quantification of phenolic compounds using HPLC. *Plant Biosystems*; <https://doi.org/10.1080/11263504.2018.1549607>.
16. Rasheed, A., Nisar, F., Gul, B., **Khan, M.A.**, and Hameed, A., 2019. Ecophysiology of Seed Heteromorphism in Halophytes: An Overview. In: M. Hasanuzzaman, S. Shabala and M. Fujita (eds.), *Halophytes and Climate Change: Adaptive Mechanisms and Potential Uses* (ISBN-13:9781786394330). CAB International, UK. pp. 104-114.
17. Aysha Rasheed, M. Zaheer Ahmed, Bilquees Gul, **M. Ajmal Khan**, and Abdul Hameed. 2019. Comparative Seed Germination Ecology of Sabkha and Playa Halophytes of Pakistan. In: Gul B., Boer B., Khan M.A., Godt M.-C., and A. Hameed (Eds.) *Sabkha Ecosystems - Volume VI: Asia/Pacific*, Hardcover ISBN 978-3-030-04416-9; Springer International Publishing, Springer Nature Switzerland AG. pp. 41-54.
18. Sarwat Ghulam Rasool, Hina Siddiqui, Abdul Hameed, Tabassum Hussain, Irfan Aziz, **M. Ajmal Khan**, and Salman Gulzar. 2019. Temporal Variations in Water and Ion Relations in Coastal Halophytes. In: Gul B., Boer B., Khan M.A., Godt M.-C., and A. Hameed (Eds.) *Sabkha Ecosystems - Volume VI: Asia/Pacific*, Hardcover ISBN 978-3-030-04416-9; Springer International Publishing, Springer Nature Switzerland AG. pp. 447-458.

19. Toqeer, S., Qasim, M., Abideen, Z., Gul, B., Rasheed, M., & **Khan, M. A.** 2018. Chemical Composition and Antioxidant Activity of Seeds of Various Halophytic Grasses. *Journal of the American Oil Chemists' Society*, 95(10), pp.1285-1295.
20. Abideen, Z., Qasim, M., Hussain, T., Rasheed, A., Gul, B., Koyro, H.W., Ansari, R. and **Khan, M.A.** 2018. Salinity improves growth, photosynthesis and bioenergy characteristics of *Phragmites karka*. *Crop & Pasture Science*. DOI:10.1071/CP18154.
21. Hadi, S. M. S., Ahmed, M. Z., Hameed, A., **Khan, M. A.**, & Gul, B. 2018. Seed germination and seedling growth responses of toothbrush tree (*Salvadora persica* Linn.) to different interacting abiotic stresses. *Flora*, 243, 45-52.
22. Shoukat, E., Aziz, I., Ahmed, M.Z., Abideen, Z. and **Khan, M.A.** 2018. Growth patterns of *Phragmites karka* under saline conditions depend on the bulk elastic modulus. *Crop and Pasture Science*. <https://doi.org/10.1071/CP17195>.
23. Asrar, H., Hussain, T., Gul, B., **Khan, M.A.** and Nielsen, B.L., 2018. Differential protein expression reveals salt tolerance mechanisms of *Desmostachya bipinnata* at moderate and high levels of salinity. *Functional Plant Biology*. <https://doi.org/10.1071/FP17281>.
24. Saba Nazir, Muhammad Qasim, Bilquees Gul and **M. Ajmal Khan**. 2018. Antioxidant Properties and Phenolic Composition of Coastal Halophytes Commonly Used as Medicines. *INT. J. BIOL. BIOTECH.*, 15 (3): 473-482.
25. Rasool, S.G., Hameed, A., **Khan, M.A.** and Gul, B., 2017. Seeds of *Halopeplis perfoliata* display plastic responses to various abiotic factors during germination. *Flora*. DOI: <https://doi.org/10.1016/j.flora.2017.09.010>.
26. Abideen, Z., H.-W.Koyro, B. Huchzermeyer, B. Gul, and **M. A. Khan**. 2017. Impact of a Biochar or a Compost-Biochar Mixture on Water relation, Nutrient uptake and Photosynthesis of *Phragmites karka*. *Pedosphere*, [http://dx.doi.org/10.1016/S1002-0160\(17\)60362-X](http://dx.doi.org/10.1016/S1002-0160(17)60362-X).
27. Manzoor, S., A. Hameed, **M. A. Khan** and B. Gul. 2017. Seed germination ecology of a medicinal halophyte *Zygophyllum propinquum*: responses to abiotic stresses. *Flora – Morphology, Distribution, Functional Ecology of Plants*. 233, 163-170.
28. Ehsen, S., R. F. Rizvi, Z. Abidine, I. Aziz, S. Gulzar, B. Gul, **M.A. Khan** and R. Ansari. 2017. Physiochemical responses of *Zaleya pentandra* (L.) Jeffrey to NaCl treatments. *Pak. J. Bot.* 49: 801-808.
29. **Khan, M.A.**, F. Shaikh, A. Zehra, M. Z. Ahmed, B. Gul, and R. Ansari. 2017. Role of chemicals in alleviating salinity and light related seed dormancy in sub-tropical grasses. *Flora - Morphology, Distribution, Functional Ecology of Plants* 233:150–155. <http://dx.doi.org/10.1016/j.flora.2017.06.001>
30. Moinuddin, M., S. Gulzar, A. Hameed, B. Gul, G.E. Edwards and **M.A. Khan**. 2017. Differences in photosynthetic syndromes of four halophytic marsh grasses in Pakistan. *Photosynthetic Research*. 131: 51-64.
31. Asrar, H., T. Hussain, S. M. S. Hadi, B. Gul, B. L. Nielsen and **M. A. Khan**, 2017. Salinity induced changes in light harvesting and carbon assimilating complexes of *Desmostachya bipinnata* (L.) Stapf. *Environmental and Experimental Botany*. 135: 86–95.
32. Qasim, M., Z. Abideen, M. Y. Adnan, S. Gulzar, B. Gul, M. Rasheed and **M. A. Khan**. 2017. Antioxidant properties, phenolic composition, bioactive compounds and nutritive value of medicinal halophytes commonly used as herbal teas. *South African Journal of Botany*. 110: 240-250.
33. Adnan, M.Y., T. Hussain, H. Asrar, A. Hameed, B. Gul, B. L. Nielsen and **M. A. Khan**. 2016. *Desmostachya bipinnata* manages photosynthesis and oxidative stress at moderate salinity. *Flora*. 225: 1-9.
34. Sarwat, G. R., A. Hameed, M. Z. Ahmed, **M. A. Khan** and Bilquees Gul. 2016. Comparison of seed germination and recovery responses of a salt marsh halophyte *Halopeplis perfoliata* to osmotic and ionic treatments. *Pakistan Journal of Botany*, 48: 1335-1343.
35. Böer, B., **M. A. Khan**, H. –W. Koyro and K. B. Marcum. 2016. Prospects of environmentally friendly farms for food security in hot and dry coastal areas based on seawater irrigation and waste products. *Sabkha Ecosystem V. The Americas*.
36. 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*.
37. 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. *Pak. J. Agri. Sci.*, <http://dx.doi.org/10.21162/PAKJAS/16.2580>
38. Ehsen, S., M. Qasim, Z. Abideen, F. Rizvi, B. Gul, R. Ansari, and **M.A. Khan**. 2016. Secondary metabolites as anti-nutritional factors in locally used halophytic forage/fodder. *Pakistan Journal of Botany* 48: 629-636.
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Patents/Gene Bank Record

Patent No. 141125:M. A new cropping system for fodder production by using saline resources.

Ajmal Khan, Haibat Ali, Bilquees Gul and Raziuddin Ansari

NCBI: *Aeluropus lagopoides* putative vacuolar Na⁺/H⁺ antiporter (NHX) mRNA, complete cds (AlaNHX; GenBank: GU199336)

Ahmed, M.Z., Shimazaki, T., Kikuchi, A., Khan, M.A. and Watanabe, K.N.

<http://www.ncbi.nlm.nih.gov/nuccore/272972706>

[http://srs.ebi.ac.uk/srsbin/cgi-bin/wgetz?-e+\[EMBL:GU199336\]+-newld](http://srs.ebi.ac.uk/srsbin/cgi-bin/wgetz?-e+[EMBL:GU199336]+-newld)

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>

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>

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>

NCBI: *Aeluropus lagopoides* H⁺PPase (Soluble Inorganic Pyrophosphatase/ pyrophosphate Phosphohydrolase), 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>
