

Dr. Saeed Ahmad ASAD

Address: Centre for Climate Research and Development (CCRD), COMSATS University Park Road
Chak Shahzad, Islamabad-45550, Pakistan.

Email: saeed.asad@comsats.edu.pk

Ph: +92 (0) 331 761 23 73

Qualifications

- 2007-2011** **PhD Environmental Sciences** University of Nottingham, UK.
Funded by Overseas Research Student (ORS) Scholarship.
(**Thesis title** “Interactions between heavy metals and glucosinolates as defense mechanisms in *Thlaspi caerulescens*”)
- 2001-2003** **MPhil in Plant Physiology (1st class)** Quaid-i-Azam University
Islamabad, Pakistan. Funded by a University Post-Graduate
Scholarship.
(**Thesis title** “Comparative study of the effects of biofertilizers on
nodulation and yield characteristics of *Phaseolus vulgaris*”)
- 1996-2000** **BSc (Hons.) in Agronomy (1st class)** University of Agriculture
Faisalabad, Pakistan.

Employment

- Aug. 2012 - Present** **Assistant Professor.** Centre for Climate Research and
Development, COMSATS University Islamabad Pakistan.
Responsibilities include; writing grant applications and conducting
independent research.
- Mar. 2012- Aug. 2012** **Assistant Professor.** Department of Environmental Sciences,
Faculty of Biological Sciences Quaid-i-Azam University
Islamabad, Pakistan. Responsibilities included the teaching and
supervision of research students. Along with administrative tasks, I
was also responsible to revise curricula for undergraduate and
master degree program in Environmental Sciences.
- Sep.2011- Mar. 2012** **Post Doctorate.** School of Biosciences, University of Nottingham,
UK. I started this job immediately after completing my PhD in
September 2011. Worked on elemental analysis of soil and
Brassica plant samples on ICPMS in a project funded by
Biotechnology and Biological Sciences Research Council
(BBSRC) UK grant and the remit was to study the molecular
genetics of Brassica nutrition. Experience in writing grant
application, Supervision of students at master and doctorate level.
- Jun. 2003- Jun. 2005** **Research Fellow.** Institute of Natural Resources and
Environmental Sciences (INRES), National Agricultural Research
Centre (NARC), Islamabad, Pakistan. I worked on a national
project developing biofertilizers for sugarcane, maize and wheat. I

was responsible for maintaining laboratory records and writing project reports for the funding organization. I assisted the group leader in writing grant proposals.

Sep. 2001-May. 2003

Junior Research Assistant. Plant Physiology Laboratory, Biological Sciences, Quaid-i-Azam University, Islamabad, Pakistan. I developed methods for the extraction and quantification of plant growth hormones in legumes and carried out field work to collect legume samples for isolation and characterization of *Rhizobium* strains.

Scientific Techniques and Instruments Used

- ICPMS (Inductively Coupled Plasma Mass Spectrophotometry) for soil and plant elemental analysis.
- Mass Spectrophotometer and HPLC for the identification and quantification of Plant secondary metabolites.
- Spectrophotometry.
- CNS Analyser.
- Proficient in statistical analyses and experimental design.

Memberships of professional bodies/Travel grants

- Member of the Society for Experimental Biology (SEB) London, UK (since 2007).
- Member, Pakistan Botanical Society (since 2015)
- Travel grant awarded by the School of Biosciences for training at the Institute of Food Research (IFR) Norwich, United Kingdom (2010).
- Travel grant awarded by the Society for Experimental Biology to present my work at an international conference held in Glasgow United Kingdom, July 1-4, 2011. (Annual main meeting Society for Experimental Biology).
- Travel grant awarded by Higher Education Commission (HEC) of Pakistan and Society for Experimental Biology, UK to present my work in an international conference held in Valencia, Spain July 3-6, 2013.

Publications/Book chapters/Conference proceedings

1. Asad, SA*. Ahmad, R. Shahzad, M. (2018). Heavy metals and glucosinolates based defence mechanisms in metal accumulating plants and counter adaptations by insect herbivores: A Review. *International Journal of Agriculture and Biology*. 20: 811-820
2. Asad, SA*. Rehman, M. Ahmad, R. Umer, M. (2018). Differential uptake of Cd and Cr in Brassica oleraceae in response to application of plant growth promoting rhizobacteria. *International Journal of Agriculture and Biology*. DOI: 10.17957/IJAB/15.0682
3. Mumtaz, MZ. Ahmad, M. Jamil, M. Asad, SA. Hafeez, F. (2018). *Bacillus* strains as potential alternate for zinc biofortification of maize grains. *International Journal of Agriculture and Biology*. DOI: 10.17957/IJAB/15.0690

4. Arif, K. Ahmad, R. Khan, SA. Asad, SA. Ahmad, T. Abbasi, GH. Shahzad, M. (2017). Molecular characterization of growth and proteolysis related genes in maize under drought stress. *Pakistan Journal of Botany*. 49: 2127-2132
5. Ullah, A. Farooq M. Nadeem, A. Rehman, A. Asad, SA. Nawaz, A. (2017). Manganese nutrition improves the productivity and grain biofortification of fine grain aromatic rice in conventional and conservation production systems. *Paddy and Water Environment*. 15: 563-572
6. Asad, SA. Young, S. and West, H. (2015) Effect of zinc and glucosinolates on nutritional quality of *Noccaea caerulescens* and infestation by *Aleyrodes proletella*. *Science of the Total Environment*. 511: 21–27.
7. Asad SA. Muhammad, S. Farooq, M. Afzal, A. Broadley, M. Young, S and West, H. (2015). Anthocyanin production in the hyperaccumulator plant *Noccaea caerulescens* in response to herbivory and zinc stress. *Acta Physiologiae Plantarum*.37: 1715.
8. Ahmad, R. Tehsin, Z. Malik, S. Asad, SA. Shahzad, M. Shah, MM. and Khan, SA. (2016). Phytoremediation potential of hemp (*Cannabis sativa* L.): Identification and characterization of heavy metals responsive genes. *CLEAN Soil Air Water*. 44: 195-201.
9. Shahzad, M. Saqib, ZA. Hafeez, F. Bilal, M. Khan, SA. Asad, SA. Akhtar, J. (2016). Growth-related changes in wheat (*Triticum aestivum* L.) genotypes grown under salinity stress. *Journal of Plant Nutrition*. 39: 1257-1265.
10. Asad, SA. Tabassum, A. Hameed, A. Hassan, F. Afzal, A. Khan, SA. Ahmad, R. and Shahzad, M. (2015). Determination of lytic enzyme activities of indigenous *Trichoderma* populations in Pakistan. *Brazilian Journal of Microbiology*. 46: 1053-1064.
11. Jamil, S. Khan, SA, Ahmad, R. Asad, SA. Irshad, U. Shahzad, M. and Khan, N. (2016). The effects of different levels of salinity on growth and proline accumulation in three pea varieties. *Minerva Biotechnologica*. 28: 95-103
12. Shah, TM. Ara, J. Muhammad, S. Khan, S. Asad, SA and Liaqat Ali. (2014). Potential heavy metal accumulation of indigenous plant species along the mafic and ultramafic terrain in the mohmand agency, Pakistan. *CLEAN Soil Air Water*. 42: 339–346.
13. Asad, SA. Ali, N. Hameed, A. Khan, SA. Ahmad, R. Bilal, M. Shahzad, M and Tabassum, A. (2014). Biocontrol efficacy of different isolates of *Trichoderma* against soil borne pathogen *Rhizoctonia solani*. *Polish journal of Microbiology*. 63: 95-103.
14. Afzal, A. Saleem, S. Iqbal, Z. Jan, G. Malik, MF and Asad SA. (2014). Interactions of *Rhizobium* and *Pseudomonas* with wheat (*Triticum aestivum* L.) in potted soil with or without P₂O₅. *Journal of Plant Nutrition*. 37: 2144–2156.
15. Asad, SA. Young SD and West HM. (2013). Effect of Ni and Cd on glucosinolate production in *Thlaspi caerulescens*. *Pakistan Journal of Botany*. 45: 495-500.
16. Alia, Jabeen B. Khokhar SN. Afzal A and Asad SA. (2013). Phosphate solubilizing bacteria associated with vegetables roots in different ecologies. *Pakistan Journal of Botany*. 45: 535-544.
17. Farooq, M. Wahid, A. Ahmad, N and Asad, SA. (2010). Comparative efficacy of surface drying and re-drying seed priming in rice: changes in emergence, seedling growth and associated metabolic events. *Paddy and Water Environment*. 8:15–22.
18. Farooq, M. Basra, SMA and Asad, SA. (2008). Comparison of conventional puddling and dry tillage in rice-wheat system. *Paddy and Water Environment*. 6:397–404.
19. Afzal, A. Ashraf, M. Asad, SA and Farooq, M. (2005). Effect of phosphate solubilizing microorganisms on phosphorus uptake, yield and yield traits of wheat

(*Triticum aestivum* L.) in rain fed area. International Journal of Agriculture and Biology.7:207-209.

20. Asad, SA. Bano, A. Farooq, M. Aslam, M and Afzal, A. (2004). Comparative study of the effects of biofertilizers on nodulation and yield characteristics of Mung bean (*Phaseolus vulgaris* L.). International Journal of Agriculture and Biology. 6: 837-843.

Book Chapters

1. Raza, A. Asad, SA. Mohammad, W. (2018). Organic agriculture for food security in Pakistan. In: Sustainable Agriculture Reviews. Lichtfouse, E. (Ed.). Springer International Publishing. (In Press).
2. Asad, SA. (2017). Soils-PCBs-PGPRs interactions in changing climate scenarios. In: Xenobiotics in the Soil Environment. Hashmi, MZ. Kumar, V. Varma A. (Eds.). Soil biology series, pp 281-298. Springer International Publishing.
3. Khan SA. Ahmad, R. Asad, SA. Shahzad, M. (2014). Citrus flavonoids: their biosynthesis, functions and genetic improvement. In: Citrus: Molecular Phylogeny, Antioxidant Properties and Medicinal Uses. pp 31-50. Hayat, K. (Edn.) Nova Science Publishers INC, New York.

Conference Proceedings

1. Asad, SA. Abid, M. Vulnerability of Pakistan, s water sector to the impacts of climate change and its implications for agriculture sector (P.C24). Impacts World Conference, October 11-13, 2017 Potsdam, Germany.
2. Asad, SA. Young, SD. West, HM. Effective defence for *Noccaea caerulescens* against *Brassica* specialist herbivores-zinc or glucosinolates. Society for Experimental Biology, Valencia Spain. July 3-6, 2013. Pp. 180. (oral presentation)
3. Asad, SA. Young, SD. West, HM. Broadley, M. Heavy metal hyper accumulation in *Thlaspi caerulescens* and “trade off” hypothesis. International conference “crop management in changing climate. University of agriculture, Faisalabad, Pakistan. February, 2013. Pp.32. (oral presentation).
4. Asad, SA. Young, SD. West, HM. Broadley M. Heavy metal hyper accumulators-their defence strategy? SEB, Salzburg, Austria. July, 2012. Pp.254. (oral presentation)
5. Asad, SA. Young, SD. West, HM. Broadley, M. Heavy metal hyper accumulation in *Thlaspi caerulescens* and “trade off” hypothesis. International conference “crop management in changing climate. University of agriculture, Faisalabad, Pakistan. February, 2013. Pp.32. (Oral presentation).
6. Asad, SA. Young, SD. West, HM. Effect of Ni and Cd on Glucosinolate production in *Thlaspi caerulescens*. 12th National and 3rd International Conference of Botany, Quaid-I-Azam University Islamabad, Pakistan. Sep. 1-3, 2012 (Oral presentation).

Scientific Reports/Popular articles

Scientific reports

1. Saeed A. Asad. (2016). Impacts of Climate Change on Water Resources of Pakistan. Development Advocate Pakistan (DAP), United Nations Development Programme (UNDP), 3 (4): 18-21. ISBN: 969-978-8736-16-3.

http://www.pk.undp.org/content/pakistan/en/home/library/hiv_aids/development-advocate-pakistan--volume-3--issue-4.html

2. Saeed A. Asad. (2016). The vulnerability of Pakistan, s water sector to the impacts of climate change; Identification of gaps and recommendations for action. Funded by; Govt. of Italy and United Nation Development Program (UNDP). Pp: 1-212 (Lead author from CCRD).
http://www.pk.undp.org/content/pakistan/en/home/library/environment_energy/PakistanWaterSectorReport.html

Popular (public) articles

1. Saeed A. Asad, Jo-Ellen Parry. Development: Making every drop of water count. Daily Dawn, January 01, 2017.
<http://www.dawn.com/news/1305382>
2. Jo-Ellen Parry, Anika Terton, Saeed A. Asad, Hisham Osman, Christian Ledwell. Making Every Drop Count: Pakistan’s growing water scarcity challenge. September 29, 2016.
<http://www.iisd.org/blog/making-every-drop-count-pakistan-s-growing-water-scarcity-challenge>
3. Saeed A. Asad. Toqeer Ahmed. Green Buildings: Minimising environmental impact. Daily Dawn, November 01, 2015.
<http://www.dawn.com/news/1216437>
4. Toqeer A. Saeed A. Asad. Safe water: Is your plastic container poisoning your water. Daily Dawn, April 05, 2015.
<http://www.dawn.com/news/1173628>
5. Saeed A. Asad. Cancer – fighters in your kitchen. Daily Dawn, May 12, 2013.
<http://www.dawn.com/news/1027036>

Research Projects/ Logistic and administrative experience

- 1). Sustainable food systems under climate change in South Asia.
Funding agency: Federal Ministry of Education and Research (BMBF), Germany.
Total Amount; Euros (€). 45,000
Duration: July 2017- June 2019
Principal Investigator (PI). Dr. Saeed A. Asad
Status: ongoing
- 2). Mitigation strategies for enhanced Soybean production under changing climate scenarios in the Pothwar and Khyber Pakhtunkhwa.
Funding agency: Agricultural Linkages Programme (ALP), Pakistan Agricultural Research Council (PARC) Islamabad, Pakistan.
Total Amount; Pak.Rs. 3.786 Million
Duration: May 2018- April 2021
Principal Investigator (PI). Dr. Saeed A. Asad
Status: ongoing

3). Public perception and valuation of climate-related risks and willingness-to-pay for policy interventions in metropolitan cities of Punjab, Pakistan

Funding agency: Higher Education Commission (HEC) of Pakistan.

Total Amount; Pak. Rs. 0.335 Million

Duration: June 2017- July 2018

Co-Principal Investigator (Co-PI). Dr. Saeed A. Asad

Status: ongoing

4). The Vulnerability of Pakistan's Water Sector to the Impacts of Climate Change: Identification of gaps and recommendations for action.

Funding Agency: Govt. of Italy and United Nation Development Program (UNDP).

Total Amount; Euros (€). 23,000

Duration: July 2015/ October 2017

Principal Investigator (PI). Dr. Saeed A. Asad

Status: Completed

Honours/awards

- To appreciate and recognize my contribution in research, I am the recipient of annual Research Productivity Award (RPA) continuously since I joined COMSATS. The award is being conferred by the COMSATS University Islamabad, Ministry of Science and Technology, Government of Pakistan.