Dr. Waheed Akram

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Highlights:

- Research/professional experience from well-known institutes in Pakistan, USA, Japan, and China
- 114 research publications in peer-reviewed journals with a total impact factor of 329.75
- Hosted seven research projects funded by national and international funding agencies as principal/co-principal investigator.
- Multiple times honored by different institutions for excellent performance.

Certificates and Degrees:

- **Post Doctorate |** Agricultural Sciences **|** Vegetable Research Institute, Guangdong Academy of Agricultural Sciences. Guangzhou, China. **(**2020)
- **Post Doctorate |** Agricultural Sciences **|** College of Plant Sciences and Technology. Huazhong Agricultural University. Wuhan, China. **(**2018)
- **M.Sc. (Hons.) Leading to Ph.D. |** Agricultural Sciences **|** Institute of Agricultural Sciences. University of the Punjab. Lahore, Pakistan. **(**2015)
- **B.Sc. (Hons.) |** Agricultural Sciences (Plant Pathology) **|** Institute of Agricultural Sciences. University of the Punjab. Lahore, Pakistan. (2009)

Employment, Service, and Research Experience:

- **Assistant Professor |** Department of Plant Pathology. University of the Punjab. Lahore, Pakistan. (22-03-2022 to date)
- **Assistant Professor** (Visiting) **|** Department of Plant Pathology. University of the Punjab. Lahore, Pakistan. (07-06-2021 to 28-12-2021)
- **Assistant Researcher |** Vegetable Research Institute, Guangdong Academy of Agricultural Sciences. Guangzhou, China. (11-08-2020 to 30-06-2021)
- **Post Doctorate Fellow |** Vegetable Research Institute, Guangdong Academy of Agricultural Sciences. Guangzhou, China. (10-08-2018 to 10-08-2020)
- **Post Doctorate Fellow |** College of Plant Sciences and Technology. Huazhong Agricultural University. Wuhan, China. (21-07-2016 to 03-08-2018)
- **Guest Researcher |** Center for Plant Science and Resources, Okayama University. Japan. (03-07-2016 to 01-08-2016)
- **Assistant Professor |** Institute of Molecular Biology and Biotechnology, The University of Lahore, Pakistan. (16-11-2015 to 17-03-2016)
- **Ph.D. Research Fellow |** Citrus Education and Research Centre, University of Florida. Lake Alfred, USA. (11-12-2014 to 13-04-2015)

Teaching Experience:

- **As Regular Faculty Member |** Department of Plant Pathology, University of the Punjab. Lahore, Pakistan. (March-2022 to date). **|** Institute of Molecular Biology and Biotechnology, The University of Lahore. Lahore, Pakistan. (Nov-2015 to Mar-2016)
- **As Visiting Faculty Member |** Department of Plant Pathology, University of the Punjab. Lahore, Pakistan. (June- 2021 to December- 2021).

  Subjects:

  - ❖ Bioinformatics in Plant Pathology (Ph.D.)
  - ❖ Molecular Plant Microbes Interactions (M.Sc. Hons.)
  - ❖ Integrated Plant Disease Management (M.Sc. Hons.)
  - ❖ Introduction to Forest and Range Land Pathology (B.Sc. Hons.)
  - ❖ Introductory Plant Pathology (B.Sc. Hons.)
  - ❖ Management of Plant Disease (B.Sc. Hons.)
  - ❖ Biochemistry and Physiology of Diseased Plants (M.Sc. Hons.)
  - ❖ Plant Molecular Techniques. (M.Sc. Hons.)
  - ❖ Microbiology. (B.Sc. Hons.)
  - ❖ Introductory Biotechnology (B.Sc. Hons.)
  - ❖ Environmental Sciences (B.Sc. Hons.)

Awards, Distinctions and Fellowships:

- Awarded Performance Based Increment and Performance Based Honorarium for the year 2023-24 by the University of the Punjab.
- Awarded Performance Based Increment and Performance Based Honorarium for the year 2022-23 by the University of the Punjab.
- Awarded 60000 RMB reward money by Vegetable Research Institute of Guangdong Academy of Agricultural Sciences, China, in favor of excellence in research work during 2018-21.
- Twice awarded Postdoctoral Fellowship by China Postdoctoral Organization. Grant Number: 215605 & 177048. (Jul-2016 to Aug-2020)
- Meritorious scholarship holder in M.Sc. (Hons) Leading to Ph.D. from University of the Punjab.

- Reward money awarded by the worthy Vice Chancellor of the University of the Punjab in favor of role of honor in 2006.
- Meritorious scholarship holder for three times in B.Sc. (Hons). from University of the Punjab. Lahore, during 2005-09.
- Indigenous Research Grant (13.5k USD) as Principal Investigator from Higher Education Commission (HEC), Pakistan. Grant Number: 117-9012-AV7-049, 2009-15.
- Research Grant (10.2k USD) as Principal Investigator under the International Research Support Initiative Program of the Higher Education Commission, Pakistan. Grant Number: 17-5-7(Av7-049)/ HEC/Sch/2010, 2014-15.

Research Projects Completed:

- Principal Investigator. Project awarded by the University of the Punjab for the Fiscal Year 2024-25.
- Co-Principal Investigator. Project entitled "Exploring the Role of Hydrogen Peroxide in Managing Soil-Borne Diseases and Enhancing Plant Health awarded by Vital Agri Nutrients Pvt (Ltd). Pakistan. (Jan – Dec, 2024)
- Principal Investigator. Project awarded by the University of the Punjab for the Fiscal Year 2022-23.
- Principal Investigator. Project of the State Administration of Foreign Affairs. (Project Number: QN2022030024L). 2022-23.
- Principal investigator. China Science and Technology Foundation, China. (Project No: QN2020013006). 2020-21.
- Principal investigator, Science and Technology Planning Project of Guangdong Province, China. (Grant No. 2019A050508005), 2018-20.
- Principal investigator. The Guangdong Academy of Agricultural Sciences Foundation of the Dean Project (Grant No. 201816B). 2018-21.

Academic Syllabus Farmed:

- Member Involved in framing syllabi **|** National Competency Standards Level-5 for Tunnel Farming, Green House and Agri-Business **|** National Vocational and Technical Commission (NAVTTC), Government of Pakistan.

M.Sc. (Hons.) Thesis Supervised:

- Zainab Shabbir | 2024 | Use of Bacillus Strains to Suppress the Fusarium Wilt Disease and Salinity Stress in *Pisum sativum*. University of the Punjab. Lahore.
- Rameen Rafique | 2024 | The Potential of Seed Biopriming to Manage Multiple Stress in Bottle Gourd. University of the Punjab. Lahore.
- Ayesha Siddiqa Bhatti | 2024 | Enhancing Cucumber growth resilience against Fusarium wilt disease through the application of Plant Growth Promoting Rhizobacteria. Minhaj University. Lahore.
- Muhammad Usama Zaib | 2024 | Effect of Bagasse-based Zinc Oxide Nanoparticles Encapsulated with Tilt on Leaf Spot of Bottle Gourd
- Ali Hassan | 2023 | Combined Application of Beneficial Microbes and Chemical Elicitor to Manage Fusarium Wilt of Tomato. University of the Punjab. Lahore.
- Ali Raza | 2023 | Development of Seed Coating of Pae with Consortia of Beneficial Microbes to Manage Fusarium Wilt Disease. University of the Punjab. Lahore.
- Sara Waqar | 2023 | Development of Seed Crusting Method of Tomato with Beneficial Bacteria for Control of Fusarium Wilt. University of the Punjab. Lahore.
- Faiza Aslam | 2023 | Effect of Yellow Tomato Leaf Curl Virus on Metabolomic and Biological Activities in Tomato Leaves. Lahore College for Women University. Lahore.
- Iqra Saqib | 2022 | Isolation and Characterization of Plant Growth Promoting Rhizobacteria and Evaluation of their Biocontrol Efficacy against *Sclerotium rolfsii*. University of the Punjab. Lahore.
- Zoobia Basheer | 2016 | Physiological Responses of Living Cells against Environmental Factors. University of the Punjab. Lahore.

B.Sc. (Hons.) Thesis Supervised:

- Muhammad Waleed Masood | 2024 | Assessing the Efficacy of Different Agrochemicals to manage yellow stripe rust and aphid attack on wheat. University of the Punjab. Lahore.
- Mahnoor Amjad | 2024 | Evaluating the efficacy of single and combined ScU and Urea Applications against yellow stripe rust, growth and yield of wheat (*Triticum aestivum*). University of the Punjab. Lahore.

- Kanz-ul-Eman | 2023 | Isolation, characterization and exploitation of antagonistic rhizospheric Bacillus bacteria from soil. University of the Punjab. Lahore.
- Maria Shafique | 2023 | Strategies used to control Pests and Diseases. University of the Punjab. Lahore.

Reviewer of Scientific Journals:

- Chemosphere
- PlosOne
- International Journal of Phytoremediation
- Plant Disease
- Journal of Plant Interactions
- Environmental Sciences and Pollution Research
- Acta Agriculturae Scandinavica
- Scientia Horticulturae

Editorial Board Membership:

- Planta Daninha
- Frontiers in Plant Sciences
- Frontiers in Agronomy

International Collaborations:

- Prof. Dr. Xuebo Hu | College of Plant Sciences and Technology. Huazhong Agricultural University, Wuhan, China.
- Prof. Guihua Li | Vegetable Research Institute. Guangdong Academy of Agricultural Sciences, Guangzhou, China.
- Prof. Dr. Shakeel Ahmad | Instituto de Farmacia, Facultad de Ciencias, Universidad Austral de Chile, Campus Isla Teja, Valdivia, Chile.

Publications:

1. Maham Fatima, Tehmina Anjum, Mujahid Manzoor, Muzammil Aftab, Zill-e-Huma Aftab, **Waheed Akram**, Najat A. Bokhari, Humaira Rizwana, Ghulam Nabi and Guihua Li. (2025). Green synthesis and characterization of TiO_2 nanoparticles from latex of *Calatropis procera* against dusky cotton bug. Scientific Reports. 15: 11102/ Doi: 10.1038/s41598-024-82841-6. (IF 3.8)

2. Imran Khan, Areeba Rehman, **Waheed Akram**, Tehmina Anjum, Nasim Ahmad Yasin, Zill-e-Huma Aftab, Bareera Munir, Waheed Ullah Khan and Guihua Li. (2025). Unlocking salinity stress resilience in turnip plants using *Bacillus subtilis* Z-12 and

Bacillus aryabhattai Z-48. Microorganisms. 13: 359. Doi: 10.3390/microorganisms13020359 (IF 4.1)

3. Zill-e-Huma Aftab, Faisal Shafiq Mirza, Tehmina Anjum, Humaira Rizwana, **Waheed Akram**, Muzamil Aftab, Muhammad Danish Ali, and Guihua Li. 2025. Antifungal potential of biogenic zinc oxide nanoparticles for controlling Cercospora leaf spot in mung bean. Nanomaterials 15(2): 143. DOI:10.3390/nano15020143 (IF 4.4)

4. Mahrukh Haroon, Waheed Ullah Khan, Bareera Munir, Sajid Rashid Ahmad, Areeba Rehman, **Waheed Akram**, Awais Munir, Rehana Sardar, Nasim Ahmad Yasin. (2025). Seed priming with alpha-tocopherol alleviates microplastic stress in *Brassica rapa* through modulations in morphological, physiological and biochemical attributes. Chemosphere. 371: 144060. Doi: 10.1016/j.chemosphere.2024.144060

5. **Waheed Akram**, Shama Sharif, Areeba Rehman, Tehmina Anjum, Basharat Ali, Zill-e-Huma Aftab, Ayesha Shafqat, Laiba Afzal, Bareera Munir, Humaira Rizwana and Guihua Li. (2024). Exploring the potential of *Bacillus subtilis* IS1 and *B. amyloliquificiens* IS6 to manage salinity stress and fusarium wilt disease in tomato plants by induced physiological responses. Microorganisms. 12(10): 2092. DOI: 10.3390/microorganisms12102092 (IF 4.1)

6. Muhammad Iqbal, Zill-e-Huma Aftab, Tehmina Anjum, Humaira Rizwana, **Waheed Akram**, Arusa Aftab, Zahoor Ahmad Sajid, and Guihua Li. (2024). Nano-Integrated plant tissue culture to increase the rate of callus induction, growth, and curcuminoid production in *Curcuma longa.* Plants.13(13): 1819. Doi:10.3390/plants13131819 (IF 4.0)

7. Tehmina Anjum, Ahmad Umair, Zill-e-huma Aftab, **Waheed Akram**, Muhammad Shahid Saleem, Sumera Akram. (2024). Impact of vital urea (sulfur-coated urea) and plain urea with sulfur on growth and yield of wheat. Journal Plantarum. 6(2): 79-87.

8. **Waheed Akram**, Sara Waqar, Sana Hanif, Tehmina Anjum, Zill-e-Huma Aftab, Guihua Li, Basharat Ali, Humaira Rizwana, Ali Hassan, Areeba Rehman. (2024). Comparative effect of seed coating and biopriming of *Bacillus aryabhattai* Z-48 on seedling growth, growth promotion, and suppression of Fusarium Wilt disease of tomato plants. Microorganisms. 12(4): 792. Doi: 10.3390/microorganisms12040792. (IF 4.1)

9. **Waheed Akram**, Imran Khan, Areeba Rehman, Bareera Munir, Juxian Guo, and Guihua Li. (2024). A physiological and molecular docking insight on quercetin mediated salinity stress tolerance in Chinese Flowering Cabbage and increase in glucosinolate contents. Plants. 13(12): 1698. DOI: 10.3390/plants13121698. (IF 4.5)

10. Sana Ashraf, Bareera Munir, Sajid Rashid Ahmad, Muhammad Kashif Irshad, **Waheed Akram**, Sobia Ashraf, Zahra Majid, Zainab Irfan. (2024). Coupling of biochar and silicon for phyto-management of cd contaminated soil using *Brachiaria mutica*. Results in Engineering. 24: 102929. DOI: 10.1016/j.rineng.2024.102929. (IF 6.0)

11. Ghulam Nabi Ahmed, Tehmina Anjum, Zill-e-Huma Aftab, Humaira Rizwana, **Waheed Akram**. (2024). TiO_2 nanoparticles: green synthesis and their role in lessening the damage of *Colletotrichum graminicola* in Sorghum. Food Science & Nutrition. 12(10): 7379-7391. DOI: 10.1002/fsn3.4297. (IF 3.55).

12. Muhammad Atif, Tehmina Anjum, Ahmad Ali Shahid, Ahmad Hassan, and **Waheed Akram**. (2024). Inhibitory potential of *Syzygium aromaticum* against *Fusarium oxysporum* f. sp. *lycopersici*: In-vitro analysis and molecular docking studies. South African Journal of Botany. 169: 178-185. Doi:10.1016/j.sajb.2024.04.028. (IF 3.1)

13. Aqeel Ahmad, **Waheed Akram**, Rehana Sardar, Nasim Ahmad Yasin (2024) Editorial: Interactive effects of plant growth-promoting microbes and nanoparticles on the physiology, growth, and yield of crops. Frontiers in Plant Science. 15:1338470. Doi: 10.3389/fpls.2024.1338470. (IF 5.6)

14. Umar Khalid, Zill-e-Huma Aftab, Tehmina Anjum, Najat A Bokhari, **Waheed Akram**, Waheed Anwar. (2024). Harnessing the Biocontrol Potential of *Bradyrhizobium japonicum* FCBP-SB-406 to Manage Charcoal Rot of Soybean with Increased Yield Response for the Development of Sustainable Agriculture. Microorganisms. 2024; 12(2):304. (IF 4.1)

15. Ali Raza, Ali Hassan, **Waheed Akram**, Tehmina Anjum, Zill-e-Huma Aftab, Basharat Ali. (2024). Seed coating with the synthetic consortium of beneficial Bacillus microbes improves seedling growth and manages Fusarium wilt disease. Scientia Horticulturae. 325: 112645. Doi: 10.1016/j.scienta.2023.112645 (IF 4.3)

16. Saber Hussain, Shakil Ahmed, **Waheed Akram**, Rehana Sardar, Muhammad Abbas, Nasim Ahmad Yasin (2024). Selenium-Priming mediated growth and yield improvement of turnip under saline conditions. International Journal of Phytoremediation. 26(5): 710-726. Doi: 10.1080/15226514.2023.2261548. (IF 3.7)

17. Saber Hussain, Shakil Ahmed, **Waheed Akram**, Aqeel Ahmad, Nasim Ahmad Yasin, Mei Fu, Guihua Li, Rehana Sardar. (2024). The potential of selenium to induce salt stress tolerance in *Brassica rapa*: Evaluation of biochemical, physiological and molecular phenomenon. Plant Stress 11, 100331. Doi: 10.1016/j.stress.2023.100331 (IF 5.0)

18. Ali Hassan, **Waheed Akram**, Humaira Rizwana, Zill-e-Huma Aftab, Sana Hanif, Tehmina Anjum and Mona S Alwahibi. (2023). The Imperative use of Bacillus consortium and quercetin contributes to suppress Fusarium Wilt disease by direct antagonism and induced resistance. Microorganisms. 11. 2603. Doi: 10.3390/ microorganisms11102603 (IF 4.1)

19. Saman Shabir, Zill-e-Huma Aftab, Tehmina Anjum, **Waheed Akram**, Saddam Hussain, Hamza Rafiq, Guihua Li. (2023). Biological evaluation, GC–MS profiling, and molecular docking studies of some essential oils against postharvest pathogens of maize. Arabian Journal of Chemistry. 16. 105339. Doi: 10.1016/j.arabjc.2023.105339. (IF 5.6)

20. Muhammad Akbar, Safeer A Chohan, Nasim Ahmad Yasin, Aqeel Ahmad, **Waheed Akram**, Abdul Nazir. (2023). Mycorrhizal inoculation enhanced tillering in field grown wheat, nutritional enrichment and soil properties. PeerJ. 11: e15686 Doi: 10.7717/peerj.15686. (IF 2.8)

21. Saber Hussain, Shakil Ahmed, Nasim Ahmad Yasin, **Waheed Akram**, Rehana Sardar, Aqeel Ahmad, Guihua Li. (2023). *In vitro* and *in silico* study of salt stress resilience in

Brassica rapa through selenium seed priming. South African Journal of Botany. 160: 506-515. Doi: 10.1016/j.sajb.2023.07.024. (IF 2.9)

22. Sabir Hussain, Shakil Ahmed, **Waheed Akram**, Guihua Li and Nasim Ahmad Yasin. (2023). Selenium seed priming enhanced the growth of salt-stressed *Brassica rapa* L. through improving plant nutrition and the antioxidant system. Frontiers in Plant Science. 13:1050359. doi: 10.3389/fpls.2022.1050359 (IF 5.3)

23. Hamza Rafiq, Zill-e-Huma Aftab, **Waheed Akram**, Tehmina Anjum, Faisal Shafiq Mirza, Zubaida Yousuf and Guihua Li. (2023). A biological evaluation and molecular docking insight on green synthesized graphene oxide nanoparticles mediated growth promotion in mungbean. Scientia Horticulturae. 318: 112098. DOI: 10.1016/j.scienta.2023.112097. (IF 3.9)

24. Muhammad Akbar, Tayyaba Khalil, Nasim Ahmad Yasin, **Waheed Akram**, Aqeel Ahmad, Muhammad Sajjad Iqbal. (2022). Ameliorative Effects of *Calotropis procera* amended soil on Fusarium Wilt disease, enhancement in growth and nutritional qualities in Pea (*Pisum Sativum*). Scientific Papers. Series A. Agronomy, Vol. LXV, No. 2, 2022

25. Hamza Rafiq, Zill-E-Huma Aftab, Tehmina Anjum, Basharat Ali, **Waheed Akram**, Uzma Bashir, Faisal Shafique Mirza, Muzammil Aftab, Muhammad Danish Ali and Guihua Li. (2022). Bio-fabrication of Zinc Oxide nanoparticles to rescue *Mung Bean* against Cercospora leaf spot disease. Frontiers in Plant Sciences. 13: 1052984. doi: 10.3389/fpls.2022.1052984 (IF 5.6)

26. Aqeel Ahmad, Tanveer Alam Khan, Sharoon Shahzad, Sami Ullah, Iqra Shahzadi, Ali Aamir, **Waheed Akram**, Yasin Nasim Ahmad, Yusuf Mohammad. (2022). BioClay nanosheets infused with GA3 ameliorate the combined stress of hexachlorobenzene and temperature extremes in *Brassica alboglabra* plants. Frontiers in Plant Sciences. 13:964041. Doi: 10.3389/fpls.2022.964041 (IF 5.6)

27. **Waheed Akram**, Sabin Fatima, Tehmina Anjum, Basharat Ali, Guihua Li. (2022). Foliar application of leaf extracts of *Glycyrrhiza uralensis* increases growth and nutritional value of Chinese flowering cabbage plants under field conditions. Journal of Food Quality. 2022: e5539423. DOI:10.1155/2022/5539423. (IF 3.2)

28. Samavia Mubeen, Iqra Shahzadi, **Waheed Akram**, Wajid Saeed, Nasim Ahmad Yasin, Aqeel Ahmad*, Anis Ali Shah, Manzer Hussain Siddiqui, Saud Alamri (2022). Calcium nanoparticles impregnated with benzene dicarboxylic acid: A new approach to alleviate combined stress of DDT and cadmium in *Brassica alboglabra* by modulating bioaccumulation, antioxidative machinery and osmoregulators. Frontiers in Plant Science. 13: 825829. DOI: 10.3389/fpls.2022.825829. (IF 5.6)

29. Le Shi1, Yang Shu, Xiangdong Hu, **Waheed Akram**, Shuang Dong, Biaobiao Luo, Sheng Hu, Xiaohua Li, Xuebo Hu. (2022). An optimized Two-herb Chinese food as medicine formula reduces Cisplatin induced nephrotoxicity in the treatment of lung cancer in mice. Frontiers in Pharmacology. 13:827901. Doi: 10.3389/fphar.2022.827901 (IF 5.6)

30. **Waheed Akram**, Nasim Ahmad Yasin, Anis Ali Shah, Waheed Ullah Khan, Guihua Li, Aqeel Ahmad, Shakil Ahmed, Muhammad Hussaan, Muhammad Rizwan, Shafaqat Ali. (2021). Exogenous application of liquiritin alleviated salt stress and improved growth of Chinese kale plants. Scientia Horticulturae. 294: 110762. DOI: 10.1016/j.scienta.2021.110762. (IF 4.34)

31. Anis Ali Shah, Waheed Ullah Khan, Nasim Ahmad Yasin, **Waheed Akram**, Aqeel Ahmad, Muhammad Abbas, Aamir Ali, Muhammad Naeem Safdar. (2020). Butanolide alleviated cadmium stress by improving plant growth, photosynthetic parameters and antioxidant defense system of *Brassica oleracea.* Chemosphere. 261. 127728. DOI: 10.1016/j.chemosphere.2020.127728. (IF 7.08)

32. Awais Amin, Muhammad Akbar, Tayyaba Khalil, **Waheed Akram,** and Aqeel Ahmad. (2022). Antifungal activity of different organic solvent extract parts of Alternanthera philoxeroides against some pathogenic fungi. Pakistan Journal of Botany 54(1): 1-8. DOI: 10.30848/PJB2022-1(28) (IF 1.10)

33. Tehmina Anjum, Wajiha Iram, Mazhar Iqbal, Mateen Abbas, **Waheed Akram** and Guihua Li. (2021). Structure elucidation and toxicity analysis of the by-products formed after biodegradation of aflatoxins B1 and B2 using extracts of Mentha arvensis. Toxins. 14 (1): 24. DOI: 10.3390/toxins14010024 (IF 5.075)

34. **Waheed Akram**, Aqeel Ahmad, Sabin Fatima, Tehmina Anjum, Basharat Ali, Shakeel Ahmed, Mario Juan Simirgiotis, Hafiz Muhammad Khalid Abbas, Muhammad Aslam, Juxian Guo, Wenlong Luo, Mei Fu and Guihua Li. (2021). Foliar application of liquiritin protects Chinese flowering cabbage against cucumber mosaic virus and increases health-promoting compounds. Journal of Plant Interactions. 16(1): 377-384. DOI: 10.1080/17429145.2021.1963867. (IF 4.02)

35. **Waheed Akram**, Aqeel Ahmad, Nasim Ahmad Yasin, Tehmina Anjum, Basharat Ali, Sabin Fatima, Shakeel Ahmed, Mario Juan Simirgiotis and Guihua Li. (2021). Mechanical strengthening and metabolic remodulations are involved in protection against Fusarium wilt of tomato by B. subtilis IAGS174. Journal of Plant Interactions. 16 (1): 411-421. DOI: 10.1080/17429145.2021.1966107. (IF 4.02)

36. **Waheed Akram**, Waheed Ullah Khan, Anis Ali Shah, Nasim Ahmad and Guihua Li. (2021). Liquiritoside Alleviated Pb Induced Stress in *Brassica rapa* subsp. *Parachinensis*: modulations in glucosinolate content and some physiochemical attributes. Frontiers in Plant Sciences. 12: 722498. doi: 10.3389/fpls.2021.722498 (IF 6.627)

37. Aqeel Ahmad, Iqra Shahzadi, Samavia Mubeen, Nasim Ahmad Yasin, **Waheed Akram**, Waheed Ullah Khan, Tingquan Wu. (2021). Karrikinolide alleviates BDE-28, heat and Cd stressors in *Brassica alboglabra* by correlating and modulating biochemical attributes, antioxidative machinery and osmoregulators. Ecotoxicology and Environmental Safety, 213, 112047. DOI: 10.1016/j.ecoenv.2021.112047. (IF 7.129).

38. Anis Ali Shah, Nasim Ahmad Yasin, Kanwal Akram, Aqeel Ahmad, Waheed Ullah Khan, **Waheed Akram**, Muhammad Akbar. (2021). Ameliorative role of Bacillus subtilis FBL-10 and silicon against lead induced stress in Solanum melongena. Plant

Physiology and Biochemistry, 158, 486-496. DOI: 10.1016/j.plaphy.2020.11.037. (IF 5.437).

39. Aqeel Ahmad, Nasim Ahmad Yasin, Waheed Ullah Khan, **Waheed Akram**, Rui Wang, Anis Ali Shah, Muhammad Akbar, Aamir Ali, Tingquan Wu. (2021). Silicon assisted ameliorative effects of iron nanoparticles against cadmium stress: Attaining new equilibrium among physiochemical parameters, antioxidative machinery, and osmoregulators of *Phaseolus lunatus*. Plant Physiology and Biochemistry. 166: 874-886. DOI: 10.1016/j.plaphy.2021.06.016. (IF 5.437)

40. Samia Faiz, Nasim Ahmad Yasin, Waheed Ullah Khan, Anis Ali Shah, **Waheed Akram**, Aqeel Ahmad, Aamir Ali, Naima Huma Naveed, Luqman Riaz. (2021). Role of magnesium oxide nanoparticles in the mitigation of lead-induced stress in Daucus carota: modulation in polyamines and antioxidant enzymes. International Journal of Phytoremediation. 24(4): 364-372. DOI: 10.1080/15226514.2021.1949263. (IF 4.00).

41. Aqeel Ahmad, **Waheed Akram**, Rui Wang, Iqra Shahzadi, Muhammad Umer, Nasim Ahmad Yasin, Tingquan Wu (2022). Pathogenicity factors of *Phytophthora melonis* revealed by comparative proteomics. Journal of Plant Interactions. 17(1): 183-197. DOI: 10.1080/17429145.2021.2014581. (IF 3.2)

42. Aqeel Ahmad, Rui Wang, Samavia Mubeen, **Waheed Akram**, Du Hu, Nasim Ahmad Yasin, Moman Khan, Tingquan Wu (2022). Comparative transcriptomics reveals defense acquisition in *Brassica rapa* by synchronizing brassinosteroids metabolism with PR1 expression. European Journal of Plant Pathology. 162: 869–884. Doi: 10.1007/s10658-021-02443-0 (IF 1.8)

43. Iqra Shahzadi, Zulqarnain Haider Khan, **Waheed Akram**, Waheed Ullah Khan, Aqeel Ahmad, Nasim Ahmad Yasin, Liu Yujie. (2021). Heavy metal and organic pollutants removal from water using bilayered polydopamine composite of sandwiched graphene Nanosheets: One solution for two obstacles. Separation and Purification Technology. 280: 119711. DOI:10.1016/j.seppur.2021.119711. (IF 9.136).

44. Liang Jiang, **Waheed Akram**, Biaobiao Luo, Sheng Hu, Mohammad Omar Faruque, Shakeel Ahmad, Nasim Ahmad Yasin, Waheed Ullah Khan, Aqeel Ahmad, Alexander N. Shikov, Jian Chen, Xuebo Hu. (2021). Metabolomic and pharmacologic insights of aerial and underground parts of *Glycyrrhiza uralensis* Fisch. ex DC. for maximum utilization of medicinal re-sources. Frontiers in Pharmacology. 12:658670. DOI: 10.3389/fphar.2021.658670. (IF 5.98)

45. **Waheed Akram***, Taiba Saeed, Aqeel Ahmad, Nasim Ahmad Yasin, Muhammad Akbar, Waheed Ullah Khan, Shakeel Ahmed, Juxian Guo, Wenlong Luo, Tingquan Wu, Guihua Li. (2020). Liquiritin elicitation can increase the content of medicinally important glucosinolates and phenolic compounds in Chinese kale plants. Journal of the Science of Food and Agriculture. 100: 1616-1624. DOI: 10.1002/jsfa.10170. (IF 3.638)

46. Aqeel Ahmad, **Waheed Akram**, Zoobia Bashir, Iqra Shahzadi, Rui Wang, Hafiz Muhammad Khalid Abbas, Du Hu, Shakeel Ahmed, Xiaomei Xu, Guihua Li, and Tingquan Wu. (2021). Functional and structural analysis of a novel acyltransferase from

pathogenic *Phytophthora melonis*. ACS Omega. 6 (3): 1797–1808. DOI: 10.1021/acsomega.0c03186. (IF 4.13)

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Conferences, Workshops and Seminars:

- Oral Presentation. 15th Biennial International Conference Trends in Molecular Sciences. School of Biological Sciences. University of the Punjab, Pakistan. April 14-17, 2025
- Participated in Third International Conference on Science, Technology and Innovation. Kinnaird college for women. Lahore. Pakistan. 18 -20 February, 2025
- Oral Presentation. The first SLAMPP International Conference in Mycology and Plant Pathology. Faculty of Science, Eastern University, Batticaloa, Sri Lanka. 8th February 2025.
- Oral Presentation. 29th International Forestry and Environment Symposium. Department of Forestry and Environmental Science, University of Sri Jayewardenepura, Sri Lanka. 17-18 January, 2025.
- Oral Presentation. International Postgraduate Research Conference (IPRC). Faculty of Graduate Studies, University of Kelaniya. Sri Lanka. 29 November, 2024.
- Organizer. Two-Day Workshop from Molecules to Molecular Docking. Department of Plant Pathology, University of the Punjab, Pakistan. 23-24 April, 2024.
- Organizer. Two-Day Workshop Investigating on Nanostructures for Green Revolution. Department of Plant Pathology, University of the Punjab, Pakistan. 25-26 October, 2023.
- Organizer. Two-Day Workshop- Spying Bioactive Molecules. Department of Plant Pathology, University of the Punjab, Pakistan. 11-12 July, 2023.
- Oral Presentation. A biological evaluation and molecular docking insight on green synthesized graphene oxide nanoparticles mediated growth promotion in mung bean at International Symposium on Nanobiotechnology: Integrating Nanotechnology and

Microbiology for a Sustainable Future (ISNB2024). Institute of Microbiology, Government College University Faisalabad. Pakistan. 28-29 February 2024.

- Poster Presentation. International Conference on Advances in Biological Sciences. School of Biological Sciences, University of the Punjab, Pakistan. 6-8 March 2023.
- Poster Presentation. International Conference on Mitigation and Adaptation for Climate Change (Focus on Agriculture and Food Security). Forman Christian College University, Pakistan. 6-9 February, 2023.
- Oral Presentation. 1st UMT International Conference on Life Sciences: Exploring the Frontiers in Biological Sciences. School of Sciences, University of Management and Technology. 13-14 December, 2023.
- Poster Presentation. 8th International Conference of Pakistan Phytopathological Society-Sustainable Agriculture & Food Security "A Nexus of Plant Pathogens, Climate Change and Water Challenges". Department of Plant Pathology. The Islamia University of Bahawalpur, Pakistan. 26-28 November, 2023.
- Organizer. One-day Training Workshop on Smart Agriculture Transformations. Department of Plant Pathology, University of the Punjab, Pakistan. 2 November, 2023.
- Poster Presentation. Waheed Akram, Tehmina Anjum. 2023. 24-Epibrassinolide as a Promising Conformer for Tomato Receptor-Like Kinases Lysm, An In-Silico Investigation of Binding Affinity by Molecular Docking and Molecular Dynamics Simulations. In: International Conference on Advances In Biological Sciences (ICABS-2023). School of Biological Sciences, University of the Punjab. Lahore, Pakistan. March 06 - 08, 2023.
- Poster Presentation. Waheed Akram, Tehmina Anjum. 2023. Foliar Application of Leaf Extracts of *Glycyrrhiza uralensis* Increases Growth and Nutritional Value of Chinese Flowering Cabbage Plants under Field Conditions. International Conference on Mitigation & Adaptation for Climate Change. Forman Christian College. Lahore, Pakistan. February 06 - 09, 2023.
- Oral presentation, Liquiritin elicitation can increase the content of medicinally important glucosinolates and phenolic compounds in Chinese kale plants. International Horticulture Conference. February, 2020. Institute of Agricultural Sciences, University of the Punjab, Pakistan.
- Chair of the Session, One belt one road conference. December 2018. Huazhong Agricultural University. Wuhan, China.
- Poster presentation, Comparative phytochemistry and bioactivity of aerial and underground parts of *Glycerrhiza uralensis* for maximum utilization of medicinal resources. One belt one road conference. December 2018. Huazhong Agricultural University. Wuhan, China.
- Oral presentation, Genetic diversity and biogeography of *T. officinale* inferred from multi locus sequence typing approach. One belt one road conference. December 2018. Huazhong Agricultural University. Wuhan, China.
- Organizer committee member. Invited speaker in workshop on core techniques of Biotechnology held in Institute of Molecular Biology and Biotechnology. February 2016. The University of Lahore. Pakistan.

- Poster presentation. Defense responses mediated by *Bacillus subtilis* IAGS174 in tomato. Posters and Pastries. March 2014. University of Florida. USA.
- Abstract published. Induced Physiological defenses mediated by cotton mealybug. In Agriculture and food security issues in global environmental prospective. July 2012. The University of the Poonch. Rawlakot.
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- Abstract published "Studies on screening of tomato germplasm for resistance to tomato leaf curl virus and its effect on Agroeconomic performance under field conditions". In SAARC Regional Conference on New Frontiers in Agricultural Genomics and Biotechnology. May 2012. National Institute of Genomics and Biotechnology. National Agriculture Research Centre. Pakistan.
- Oral Presentation. Integrated Management of *Parthenium hysterophorus* L. In 7th International Weed Conference. December 2009. NWFP Agricultural University, Peshawar Pakistan.
- Oral presentation "Food Adulteration and Contamination. In Institute of Agriculture Sciences on December 2008. University of the Punjab. Lahore, Pakistan.

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- Areeba Rehman, **Waheed Akram**, Tehmina Anjum, Nasim Ahmad Yasin, and Zill e Huma Aftab. (2025). Elements that Control Plant Growth and Development include Light and Hydrogen Peroxide. In: Mohd Tanveer Alam Khan, Taiba Saeed, Aqeel Ahmad, Qazi Fariduddin, Mohammad Yusuf (eds) Hydrogen Peroxide Signaling Mechanisms and Crosstalk in Plant Development and Stress Responses. 1st Edition. CRC Press. Boca Raton. eBook ISBN9781032647692

- Adil Dilawar, Iqra Shahzadi, Nasim Ahmad Yasin, Faheem Adil, Shafaq Sahar, Mohd Tanveer Alam Khan, **Waheed Akram**, Aqeel Ahmad. (2025). The Interactive Prospects of H_2O_2 with Climate Extremes and Concomitant Microbial Colonization. In: Mohd Tanveer Alam Khan, Taiba Saeed, Aqeel Ahmad, Qazi Fariduddin, Mohammad Yusuf (eds) Hydrogen Peroxide Signaling Mechanisms and Crosstalk in Plant Development and Stress Responses. 1st Edition. CRC Press. Boca Raton. eBook ISBN9781032647692

- Zill-e-Huma Aftab, Tehmina Anjum, **Waheed Akram**, Najat A. Bokhari, Areeba Rehman, Shama Sharif, Humaira Rizwana and Bareera Munir. (2024). Biological Pest Control and Sustainable Agroecosystems. In: Vijay Singh Meena, Ram Swaroop Bana, Ram Kishor Fagodiya and Mohammad Hasanain (eds) Sustainable Agroecosystems - Principles and Practices. IntechOpen Limited. London, United Kingdom. DOI: 10.5772/intechopen.1006693

- Zill-E-Huma Aftab, Tehmina Anjum, **Waheed Akram,** Muhammad Faisal Shafiq, Hamza Rafiq. (2024). Carbon-Based Nanoparticles: Graphene Oxide (GO)-Biotic Stress Minimizers in Plants. In: Khan, M., Chen, JT. (eds) Nanoparticles in Plant

Biotic Stress Management. Springer, Singapore. DOI: 10.1007/978-981-97-0851-2_14

- Aqeel Ahmad, **Waheed Akram**, Rehana Sardar, Nasim Ahmad Yasin. 2024. Interactive effects of plant growth-promoting microbes and nanoparticles on the physiology, growth, and yield of crops. Lausanne: Frontiers Media SA. doi: 10.3389/978-2-8325-4624-6. ISBN: 9782832546246.

- Aqeel Ahmad, **Waheed Akram**, Nasim Ahmad Yasin. 2021. Induced defenses by non-pathogenic fungi against fungal plant diseases. Scholar's Press. Republic of Moldova, Chisinau-2068, str. A. Russo 15, of.61. ISBN 9786138950752.

- Waheed Akram, Guihua Li, Aqeel Ahmad. 2021. QTL's governing flowering and bolting time in Brassica vegetables. Scholar's Press. Republic of Moldova, Chisinau-2068, str. A. Russo 15, of.61. ISBN 9786138951872.

- Iqra Shahzadi, Aqeel Ahmad, Zarish Noreen, Waheed Akram, Nasim Ahmad Yasin & Waheed Ullah Khan. (2022). Brassinosteroid and Ethylene-Mediated Cross Talk in Plant Growth and Development. In: Khan, M.T.A., Yusuf, M., Qazi, F., Ahmad, A. (eds) Brassinosteroids Signaling. Springer, Singapore. https://doi.org/10.1007/978-981-16-5743-6_7

- Mohd Tanveer Alam Khan, Mohammad Yusuf, Waheed Akram & Fariduddin Qazi. (2022). Signal Transduction of Brassinosteroids Under Abiotic Stresses. In: Khan, M.T.A., Yusuf, M., Qazi, F., Ahmad, A. (eds) Brassinosteroids signaling. Springer, Singapore. https://doi.org/10.1007/978-981-16-5743-6_1

- Hafiz Muhammad Khalid Abbas, Syed Muhammad Hassan Askri, Sajid Ali, Ammara Fatima, Muhammad Tahir ul Qamar, Shu-Dan Xue, Zafarullah Muhammad, Waheed Akram & Yu-Juan Zhong. (2022). Mechanism Associated with Brassinosteroids Crosstalk with Gibberellic Acid in Plants. In: Khan, M.T.A., Yusuf, M., Qazi, F., Ahmad, A. (eds) Brassinosteroids signaling. Springer, Singapore. https://doi.org/10.1007/978-981-16-5743-6_6

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Technical Expertise:

- QTL analysis
- Transcriptome analysis
- Plant metabolomic analysis by GC/MS and LC/MS.
- Genomics (Gene targeting, gene expression analysis)
- Phylogenetic studies by using molecular markers

- Proteomic analysis (Extraction, characterization)
- Microbiology (Bacterial and Fungal Isolation, Purification and Identification)
- Research projects design and implementation

Countries Visited:

• China	2016-2021	Post Doctorate Fellow/Assistant Researcher
• Japan	2016	Guest Researcher
• USA	2014-15	Ph.D. Research Fellow