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RESEARCH OBJECTIVES

Employ classical and advanced biotech tools for improved crop productivity and stress tolerance through plant-microbe interaction

ACADEMIC RECORD

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|------------------------------------|---|--------|
| 1. PhD (Biological Sciences) | The University of Auckland, New Zealand | (2021) |
| 2. M. Phil (Biotechnology) | The University of Agriculture, Peshawar | (2007) |
| 3. B. Sc (Hons.) Agriculture (PBG) | The University of Agriculture, Peshawar | (2005) |

RESEARCH / CONFERENCE PUBLICATIONS

- Ahmad, W.,** N.U. Khan, M.R. Khalil, A. Parveen, U. Aimen, M. Saeed, Samiullah, and S.A. Shah. 2008. Genetic variability and correlation analysis in upland cotton. *Sarhad J. Agric.* 24(4): 573-580.
- Ahmad, W.,** H. Ziebell, K.M. Chooi, and R.M. MacDiarmid, (2019). Viral suppressors of RNA silencing in grapevine leafroll-associated virus 3. Australasian Plant Pathology Society, November 2019, Melbourne, Australia.
- Ahmad, W.,** H. Ziebell, K.M. Chooi, and R.M. MacDiarmid, (2018). Identifying potential viral suppressors of RNA silencing in grapevine leafroll-associated virus 3. Australasian Plant Virology Workshop, Onetangi, Auckland, New Zealand
- Ali, M., Bari, A., Ibrahim, M., Ahmed, I., Ahmed, U., Zafar, R., **Ahmad, W.,** Saeed, M. and Khalid, M., **2024.** Impact of irrigation schedule and integrated nutrient management on wheat yield and nutrients uptake under semi-arid regions. *Irrigation Science*, pp.1-14.
- Saeed, M., Ullah, F., Shah, L., **Ahmad, W.,** Ali, M., Munsif, F., Zubair, A., Ibrahim, M., Shah, S.M.A., Uddin, H. and Can, C., **2022.** Identification of Three Novel QTLs Associated with Yellow Rust Resistance in Wheat (*Triticum aestivum* L.) Anong-179/Khaista-17 F2 Population. *Sustainability*, 14(12), p.7454.
- Saeed, M., Ibrahim, M., **Ahmad, W.,** Tayyab, M., Attacha, S., Khan, M.N., Jadoon, S.A., Shah, S.J., Zeb, S., Shah, L. and Munsif, F., 2022. Molecular Characterization of Diverse Wheat Genetic Resources for Resistance to Yellow Rust Pathogen (*Puccinia striiformis*). *Agronomy*, 12(12), p.2951.
- Saeed, M., **Ahmad, W.,** Ibrahim, M., Khan, M., Ullah, F., Bari, A., Ali, S., Shah, L., Ali, M., Munsif, F. and Zubair, A., 2022. Differential Responses to Yellow-Rust Stress Assist in the Identification of Candidate Wheat (*Triticum aestivum* L.) Genotypes for Resistance Breeding. *Agronomy*, 12(9), p.2038.
- Ali, M., A. Bari, M. Ibrahim, I. Ahmed, U. Ahmed, R. Zafar, **W. Ahmad,** M. Saeed and M. Khalid. 2025. Impact of irrigation schedule and integrated nutrient management on wheat yield and nutrients uptake under semi-arid regions. *Irrigation Science*. 43(3): 519-532

- Ibrahim, M., S. Ahmad, I. Ud Din, **W. Ahmad**, I. Ahmad, S.H. Khan, I. Ul Haq, J. Zeb and O.A. Sparagano. 2022. Microsatellite analysis revealed potential DNA markers for gestation length and sub-population diversity in Kari sheep. *Animals*. 12(23): 3292
- Khan, N.U., G. Hassan, M.B. Kumbhar, A. Parveen, U.-e.-A. Um-e-Aiman, **W. Ahmad**, S.A. Shah and S. Ahmad. 2007. Gene action of seed traits and oil content in upland cotton (*Gossypium hirsutum* L.).
- Khan, N.U., G. Hassan, K.B. Marwat, S.B. Farhatullah, K. Makhdoom, I. Khan, I.A. Khan and **W. Ahmad**. 2009. Genetic variability and heritability in upland cotton. *Pak. J. Bot.* 41(4): 1695-1705
- Khan, N.U., K.B. Marwat, G. Hassan, S.B. Farhatullah, K. Makhdoom, **W. Ahmad** and H.U. Khan. 2010. Genetic variation and heritability for cotton seed, fiber and oil traits in *Gossypium hirsutum* L. *Pakistan Journal of Botany*. 42(1): 615-625
- Pandey, N., **W. Ahmad**, C.K. Chooi KarMun, S. Karunairetnam, A.G. Blouin, H. Ziebell and R.M. MacDiarmid. 2015. PP 06-Characterising the suppressors of silencing encoded by Grapevine leafroll-associated virus 3 and their activity in New Zealand genetic variants [Conference poster].
- Shah, L., M. Saeed, M. Ibrahim, **W. Ahmad**, A.R. Umar, A. Sohail and H. Si. 2025. Over-expression analysis of TaDWF4- 4B in mutant wheat lines identifies a candidate regulator of heat stress tolerance. *Plant Stress*. 16: 100822
- Shah, S.J., S. Bibi, S. Attacha, S.T. Shah, N. Asim, **W. Ahmad**, M.S. Khan, I. Naz, M. Ibrahim and A. Jamal. 2026. Isolation and molecular characterization of plant growth-promoting rhizobacteria for biocontrol of Fusarium head blight in wheat. *Cereal Research Communications*. 54(1): 503-518
- Afridi, R., M. Ibrahim, M. Yaqoob, and **W. Ahmad** (2026). Synergistic Effect of Glyphosate and Polyethylene Microplastics on Culturable Gut Microbiota Alterations in zebrafish. *Environmental Toxicology* : 1–15, <https://doi.org/10.1002/tox.70091>.

M. PHIL THESIS SUPERVISED:

1. Sumbal Naseer and Waqas Ahmad, September, 2023. Characterization of endophytes from yellow rust resistant wheat germplasm as potential bio-control of *Puccinia Striiformis*,
2. Hifsa and Waqas Ahmad, May 2024. Assessment of the polyethylene microplastic induced gut microbiota dysbiosis in developing zebrafish
3. Muazam ul Islam and Waqas Ahmad, September, 2024. Molecular, morphological and host-pathogen histo-compatibility studies of wheat yellow rust.
4. Atif Jamal and Waqas Ahmad, March, 2025. Isolation and *in-vitro* evaluation of lytic bacteriophages cocktail against colibacillosis associated avian pathogenic *Escherichia coli*
5. Sumbal Ali and Waqas Ahmad, May 2025. Isolation and characterization of lactic acid fermenting bacteria from milk of the local and exotic cow breeds.
6. Hilal Ahmad and Waqas Ahmad, November, 2025. Evaluating genetic diversity in selected hexaploid wheat (*Triticum aestivum* L.) Germplasm via phenotypic parametric data and associated molecular markers.
7. Balqees Bibi and Waqas Ahmad, November, 2025. Optimization of *Salvadora persica* derived zinc and silver green nanoparticles for enhanced antimicrobial activity.
8. Sana and Waqas Ahmad, 2025. Assessing the effect of low-density polyethylene microplastics on the adult zebrafish gut morphology and microbiota composition.

9. Hafsa Shah and Waqas Ahmad, 2025. *In-vitro* analysis of the antimicrobial potential of *Argemone mexicana* – based zinc oxide nanoparticles against clinically prevalent uropathogenic bacteria.
10. Mehreen Arif Afridi and Waqas Ahmad, December, 2025. Characterization of colibacillosis associated lytic bacteriophage using electron microscopy and antibiotics synergy assays.
11. Usama Khan and Waqas Ahmad, April 2026. The prevalence and characterization of multidrug-resistant *Escherichia coli* on currency notes in the Malakand region.
12. Mudasser Ali Shah and Dr. Waqas Ahmad, June 2026. Assessing the effect of commercial probiotics on zebrafish growth and gut microbiota profile

PHD THESIS SUPERVISION (IN PROGRESS)

1. Evaluating the Potential of Plant Biochar as a Microbial Carrier for Enhanced Plant Growth-Promotion in Tomato under Drought Stress Regime
2. Exploiting wheat microbiome for development of stress tolerant microbial consortia to mitigate drought and heat stress

ADMIN EXPERIENCE

1. Field Manager at the IBGE, the University of Agriculture, Peshawar
2. Member Academic Council at the University of Agriculture, Peshawar
3. Member proctorial Board, at the University of Agriculture, Peshawar
4. Member Intellectual Property Committee with the ORIC

REFERENCES

- *Prof. Dr Asad Jan*
Director, Institute of Biotechnology and Genetic Engineering
- *Prof. Dr Iqbal Munir*
Dean, Faculty of Molecular and Biological Sciences