MUHAMMAD ABID, PhD

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PROFESSIONAL PROFILE

Professor of Plant Pathology and microbial ecologist with 13+ years of post-PhD university teaching, research, graduate supervision, and academic leadership. Expertise spans plant disease diagnostics and management, mycology and fungal biology, soilborne pathogen ecology, plant disease ecology and epidemiology, and plant–soil–microbe systems. Research integrates pathogen biology and ecology, beneficial microorganisms, host defense, rapid molecular diagnostics, epidemiological analysis, and replicated laboratory, greenhouse, and field experimentation. Teaching emphasizes active learning, authentic diagnostic cases, laboratory and field experience, scientific reasoning, and research-based student mentoring.

60+	**6**	**2 + 3**	**25 + 2**
Peer-reviewed articles + book chapters	Funded projects as PI/Co-PI	PhDs completed + ongoing	MSc/MPhil completed + ongoing

ACADEMIC APPOINTMENTS

- Professor of Plant Pathology (Tenured), Bahauddin Zakariya University (BZU), Multan, Pakistan | 20 Dec 2023-present
- Associate Professor of Plant Pathology (Tenured), BZU | 20 Dec 2019-19 Dec 2023
- Assistant Professor, Tenure Track System, BZU | 28 Aug 2014-19 Dec 2019
- Assistant Professor, Interim Placement of Fresh PhDs Program, BZU | 19 Apr 2013-18 Apr 2014

EDUCATION

- PhD, (Ecology / Plant Pathology) | Université de Bourgogne, Dijon, France, with INRA (now INRAE) | 2009-2012. Thesis defended 11 Dec 2012; distinction: Très Honorable. Thesis: Ecological role of mycotoxins produced by *Fusarium graminearum*: consequences of deoxynivalenol in crop residues for soil microflora and soil fauna.
- Master 2, Life Sciences / Microbial Ecology (plant pathology research) | Université de Bourgogne, Dijon, France, with INRA | 2008-2009. Research: population dynamics of *Rhizoctonia solani* in relation to *Trichoderma gamsii*.
- MSc (Hons.) Agriculture, Plant Pathology | University of Agriculture Faisalabad, Pakistan | 2005-2007. Research: epidemiology and phenolics associated with resistance to citrus canker.
- BSc (Hons.) Agriculture, Plant Pathology | University of Agriculture Faisalabad, Pakistan | 2001-2005.

TEACHING PORTFOLIO

Level	Selected courses
BSc	PLP-201 Introduction to Plant Pathogens; PLP-202 Introductory Plant Pathology; PLP-308 Plant Disease Assessment; PLP-311 Biological Organisms for Sustainable Agriculture; PLP-401 Integrated Plant Disease Management; PLP-406 Research Techniques; Molecular Plant Pathology; Histopathology
MSc/MPhil	PLP-709 Biochemistry and Physiology of Diseased Plants; research methods and thesis supervision
PhD	PLP-718 Molecular Plant-Microbe Interactions; PLP-719 Biological Control of Plant Pathogens

STUDENT MENTORING AND RESEARCH TRAINING

- PhD supervision: 2 completed and 3 ongoing. Completed research includes biological control of tomato early blight and induced resistance/bioprotection against chickpea *Ascochyta* blight.
- MSc/MPhil supervision: approximately 25 completed and 2 ongoing.

- Mentoring includes question development, literature evaluation, experimental design, laboratory/field methods, data analysis, scientific writing, presentation, and publication.

RESEARCH FUNDING AND PROJECT LEADERSHIP

Six funded projects as Principal Investigator or Co-Principal Investigator; total approximately PKR 6.2 million.

Role	Year	Project	Funder	Amount
PI	**2019**	Biological control of tomato early blight using indigenous rhizobacteria / soil-associated microbial resources	HEC Pakistan	PKR 2.60 M
Co-PI	**2019**	Induction of disease resistance in pulses using essential oils against seed-borne mycoflora	HEC Pakistan	PKR 2.60 M
Co-PI	**2015**	Molecular characterization and management of bacterial blight of cotton	HEC Pakistan	PKR 0.48 M
PI	**2024**	Biocontrol potential of essential oils against Ascochyta blight of chickpea	ORIC, BZU	PKR 0.20 M
PI	**2017**	Molecular characterization and management of *Ceratocystis fimbriata* in mango	DREL, BZU	PKR 0.15 M
PI	**2015**	Biocontrol potential of endophytes against fungal plant pathogens	DREL, BZU	PKR 0.14 M

SELECTED RESEARCH CONTRIBUTIONS

Soilborne pathogen and residue ecology: Investigated *Fusarium graminearum* survival, deoxynivalenol fate, crop residues, soil microflora, and soil fauna using field, microcosm, molecular, and chemical approaches.

Beneficial microbiota and biological control: Developed isolation-to-field-validation pipelines for indigenous rhizobacteria; investigated *Trichoderma*, endophytes, chitinolytic bacteria, and microbial antagonism.

Plant defense and induced resistance: Linked disease suppression with defense enzymes, phenolics, and targeted gene-expression responses following microbial and plant-derived treatments.

Fungal biology and pathogen characterization: Worked with *Fusarium*, *Alternaria*, *Rhizoctonia*, *Colletotrichum*, *Coniella*, *Epicoccum*, *Botryosphaeria*, *Ascochyta* and other plant-associated fungi across diagnostic and experimental systems.

Molecular diagnostics: Applied PCR, qPCR, sequence-based identification and contributed to LAMP and RPA-CRISPR/Cas12a diagnostic research.

Translation across scales: Designed replicated laboratory, greenhouse, and multi-season field studies integrating pathogen biology, microbial function, host responses, epidemiology, and management.

INTERNATIONAL EXPERIENCE, PROFESSIONAL DEVELOPMENT, AND KNOWLEDGE EXCHANGE

- France - Université de Bourgogne / INRA, Dijon: Master 2 and PhD research in microbial ecology and plant pathology.
- China - Talented Young Scientist Program Fellowship, Ministry of Science and Technology, 2018-2019; collaborative plant pathology and molecular diagnostics research.
- ASM Microbiology Educator Exchange - selected educator, 2026; ASM Future Leaders Mentorship Fellowship, 2024-2026.
- Technical Expert, CABI PlantwisePlus Pest Management Decision Guides and biopesticide-registration activities, 2025.

EDITORIAL, PEER-REVIEW, AND PROFESSIONAL SERVICE

- Editor: International Journal of Phytopathology; Phytopathogenomics and Disease Control. Former Editor: PeerJ.
- Reviewer for Plant Disease, Physiological and Molecular Plant Pathology, Archives of Phytopathology and Plant Protection, and additional plant pathology/agriculture journals and book chapters.

- Professional affiliations: American Society for Microbiology; Pakistan Phytopathological Society (lifetime member); former member, American Phytopathological Society; Société Française de Phytopathologie.
- Languages: Urdu (native); English (fluent/professional); French (good working proficiency).

SCHOLARLY OUTPUTS

58 peer-reviewed journal articles | 3 book chapter | 1 edited international conference volume | 25+ conference presentations/proceedings. Representative journals include Agronomy for sustainable development, Pest Management Science, Applied Soil Ecology, Plant Disease, Crop Protection, Functional Plant Biology, Tropical Plant Pathology, South African Journal of Botany, and Journal of Plant Pathology.