Uzma Jamal

Mobile 0333 5047238
Email: uzmajamalibge@gmail.com
Address: Abu-Bakar Block, Phase 8, Bahria Town, Rawalpindi.

PROFILE

I am a passionate biotechnology researcher and educator with solid experience in microbiology, molecular biology, and plant-microbe interactions. I am skilled in both laboratory work and teaching, with a focus on simplifying complex ideas for students. Dedicated to academic excellence and student growth through supportive, interactive, and practical learning approaches.

ACADEMIC QUALIFICATION

Degree	Year	Marks %/GPA	Board/University
Ph.D Biotechnology PCD # 37550	2017-2025	90.64%	IBGE, The University of Agriculture Peshawar
M.phil Biotechnology	2014-2016	3.80	IBGE, The University of Agriculture Peshawar
B.Ed	2015-16	71%	Allama Iqbal Open University Islamabad
B.Sc. (Hons) Biotechnology	2010-2013	3.90	IBGE, The University of Agriculture Peshawar
F.Sc	2009	81%	BISE Peshawar
Matric	2007	84%	BISE Peshawar

RESEARCH EXPERIENCE

Ph.D. Research Project

Identification of beneficial endophytes and determining the plant-microbe synergism to sustain crop production under changing climate

- Isolated and characterized 206 endophytic bacterial strains from *Phoenix dactylifera*, *Ziziphus mauritiana*, and *Tamarix dioica*.
- Identified multiple plant growth-promoting traits (PGPT) including IAA production, phosphate solubilization, nitrogen fixation, and biocontrol activity.
- Sequencing revealed *Bacillus safensis* as the most dominant genus (22%).
- PS4 (*Bacillus paranthracis*) significantly increased tomato plant height and yield under stress conditions.

Additional Achievement:

Successfully identified 45 endophytic bacterial strains through molecular characterization and submitted their 16S rRNA sequences to the National Center for Biotechnology Information (NCBI) under my name, contributing to the global genomic database of beneficial plant-associated microbes.

M.phil Research Project

Genetic Transformation of Brassica Napus with EaDAcT Gene for Low Viscosity Biodiesel Production

- Developed efficient Agrobacterium-mediated transformation protocol.
- Achieved a transformation efficiency of 5.5%.

B.Sc. (Hons) Research Project

The Efficacy of Natural Growth Substances for Micropropagation of Basella Rubra

- Demonstrated cost-effective micropropagation using natural growth regulators.

TEACHING SKILLS AND EXPERTISE

- Student-centered teaching methodology focused on active learning
- Positive classroom management and safe learning environment
- Collaboration and reflective practice
- Training and mentoring of students and peers
- Flexible, adaptive, and enthusiastic educator

WORK EXPERIENCE

- **Research Assistant (One year and 8 months)**:
  Jan 2015 – Aug 2016, under Prof. Dr. Iqbal Munir, University of Agriculture Peshawar

- **Internship (3 months)**:
  Pakistan Council of Scientific & Industrial Research (PCSIR), Science & Technology Internship Program (Govt. of Khyber Pakhtunkhwa)

PUBLICATIONS

Published

Identification and characterization of plant growth-promoting bacterial endophytes from different parts of Phoenix dactylifera (Pakistan Journal of Botany)

Under Review / In Process:

- *Molecular Characterization and Growth-Promoting Effects of Endophytic Bacteria from Tamarix dioica*
- *Isolation and Functional Analysis of Endophytic Bacteria from Ziziphus mauritiana: Antibacterial, Antifungal, and Plant Growth-Promoting Activities*

- *In Vitro Growth Enhancement of Tomato by Endophytic Bacteria Isolated from Phoenix dactylifera and Ziziphus mauritiana*
- *Synergistic Effects of Endophytic Bacteria ZL2 and PS4 in Enhancing Tomato Growth, Yield, and Stress Tolerance to Salt and Drought*

CONFERENCES, SEMINARS & WORKSHOPS

Participated in various workshops and conferences, including:

- "Application of Tissue Culture and Molecular Techniques" (NIFA, 2014)
- "Biosafety & Risk Assessment in Agricultural Research" (PASTIC, NAYS, 2015)
- "Postgraduate Research Symposium" (IBGE, 2016)
- "Research Tools and Citation Management using EndNote" (IBGE, 2017)
- "Plant Tissue Culture Techniques" (2017, 2019)
- "International Conference on Sustainable Plant Protection" (2022)

SCIENTIFIC SKILLS

Molecular Biology Techniques

- DNA, RNA, and protein extraction and quantification
- PCR (development, optimization, and troubleshooting)
- Gel electrophoresis (Agarose and SDS-PAGE)
- Agrobacterium-mediated and in planta transformation

Microbiology and Biochemical Techniques

- Bacterial culture and isolation techniques
- Preparation of culture media
- Staining techniques for bacterial identification
- Biochemical tests for bacterial characterization
- Screening of bacterial isolates for plant growth-promoting traits (PGPT)
- Assessment of enzymatic activity (e.g., protease, amylase, cellulase, etc.)
- Antimicrobial and antifungal activity assays
- Heavy metal resistance testing

Tissue Culture Techniques

- Plant tissue culture and micropropagation
- Use of natural and synthetic growth regulators

Bioinformatics and Data Analysis

- Sequence analysis and NCBI database submission
- Use of EZBioCloud for bacterial identification

- MEGA and BLAST for phylogenetic and sequence analysis
- Statistical data analysis using Origin and Statistix 8.1

General Computer Skills

- MS Word, Excel, PowerPoint
- Internet browsing and email handling
- EndNote for reference and citation management

REFERENCES

Dr. Iqbal Munir
Professor, Ex Director IBGE
Institute of Biotechnology and Genetic Engineering, The University of Agriculture Peshawar, Pakistan.
Email: iqmunir@aup.edu.pk
Cell Phone No +92 345 9721966

Dr. Aqib Iqbal
Associate Professor
Institute of Biotechnology and Genetic Engineering, The University of Agriculture Peshawar, Pakistan.
Email: aqib72@aup.edu.pk
Cell # +92336 9086080

Dr. Jehan Bakht
Vice Chancellor, The University of Agriculture, Peshawar
Institute of Biotechnology & Genetic Engineering, The University of Agriculture, Peshawar, Pakistan.
Email: jehanbakht@yahoo.co.uk
Mobile# +92 334 9244713

*****