

**Dr. Hina Jabeen**  
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**Department of Microbiology, Women University Mardan**  
**(February 2017 – Present)**  
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## **Brief Background**

With academic & research background in **Environmental Microbiology and Biotechnology**, I completed my **Ph.D** from **National Institute for Biotechnology & Genetic Engineering (NIBGE)**, Faisalabad, an affiliated institute of Pakistan Institute of Engineering and Applied Sciences (PIEAS), Islamabad. My distinct focus has been on **microbial and phytoremediation of pesticides**. A part of my Ph.D research was conducted at **University of California, Davis, USA** and the rest was carried out at **NIBGE** under the title **“Physiological and molecular characterization of organophosphate pesticide degrading bacterial strains”**. I possess a wide range of expertise in **Biotechnology research** such as: **Microbiology, Bioinformatics and molecular biology tools: PCR, Southern blotting and gene cloning, techniques used in determination of pesticide biodegradation, extraction of pesticide residues from liquid cultures and soils and determination of metabolic pathways of pesticide degradation through soil microbial metabolism**. I have attended and organized high-level seminars and workshops to assist my knowledge in research. My current assignments include the investigation of **potential of aquatic plants waste in producing bio-fertilizers/high quality compost and wastewater treatment through aquatic plants** which are being conducted by my **five graduate students** at NARC, Islamabad.

## **International Fellowships and Trainings**

Pre-doctoral Fellowship at **“Department of Microbiology, School of Biological Sciences, University of California, Davis, USA.**

## **Education**

<b>Degree/courses</b>	<b>Institute</b>	<b>Subject</b>	<b>Year</b>
<b>M. Phil leading PhD</b>	NIBGE, PIEAS, Islamabad, Pakistan	Microbiology and Biotechnology	2015
<b>M.Sc.</b>	University of Agriculture, Faisalabad	Zoology	2007
<b>B. Sc.</b>	University of Punjab	Zoology, Botany, Chemistry	2005
<b>F.Sc. (Pre-Medical)</b>	Federal Board, Islamabad	Pre-Medical	2002
<b>High School (Matric)</b>	Rawalpindi Board	Science	2000

## **EDUCATIONAL HONORS AND AWARDS:**

- Indigenous Award for M.Phil Leading to PhD, Higher Education Commission (HEC)
- International Research Support Initiative Program (IRSIP, HEC) for research training at University of California, Davis, United States America (July, 2011- July, 2012).
- Merit Scholarship in M.Sc. Zoology, University of Agriculture.
- Highest Marks in PhD course work (GPA 4/4%)

## **NATIONAL TRAININGS/WORKSHOPS:**

- 7<sup>th</sup> One Day Workshop on the “**Significance of Bioinformatics in Life Sciences**” Organized by the Department of Bioinformatics and Biosciences, Capital University of Science and Technology (CUST) Islamabad on May 07, 2016.
- 4<sup>th</sup> National Training Workshop on “**Electron and Confocal Microscopy**”, National Institute for Biotechnology and Genetic Engineering (NIBGE), Faisalabad, 4-14 December, 2012.
- Five days workshop on “**LCMS, GCMS and AAS**”, National Institute for Biotechnology and Genetic Engineering (NIBGE), Faisalabad, 25-29 April, 2011
- One day seminar on “**Trends in Environmental Biotechnology**”, National Institute for Biotechnology and Genetic Engineering (NIBGE), Faisalabad, 18<sup>th</sup> April, 2011
- One day research workshop on “**Survey Design & Sampling Techniques**”, COMSATS Institute of Information & Technology, Lahore, Pakistan, 6<sup>th</sup> March, 2010.

## **JOB EXPERIENCE**

- Assistant Professor (IPFP) at Department of Environmental Sciences, International Islamic University, Islamabad (IIUI), Pakistan (**August, 2015–August 2016**)
- Short period experience of teaching at **Fazaiya Degree College** (2007)
- Short period experience of teaching **Genetics and Biochemistry (M.Sc) at Punjab College Attock Campus**

### **Contributions at present position**

- To educate students in various subjects of Microbiology
- **and leadership** Supervising and mentoring five graduate students in final research projects
- Collaborating with various national and international research institutes
- Organising and arranging study and research visits, field studies and special activities connected with the teaching of the subject
- Write and establish high-tech projects and publishing research results in high impact journals for improving research environment of the department/University
- Member, Scholarship Committee, Women University Mardan
- Member, F & PC Women University Mardan
- Preparing and publishing high impact manuscripts for publishing in quality journals for improving research environment of the department/University

## **THESIS SUPERVISOD (UNDERGADUATE STUDENTS) at IIUI**

1. **Thesis Title: Production of quality compost of pennywort (*Hydrocotyle umbellata*) and its nutrient analysis**  
(Students: Arooj Anwar, Sidra Butt, Farah Masood)

**2. Thesis Title: Phytoremediation of wastewater by two aquatic plants: duckweed (*Lemna minor*) and watercress (*Nasturtium officinale*)**

(Students: Aqsa Aftab, Fatima Waleed):

**SCIENTIFIC PROJECTS**

Project title	Role	Funding Agency	Status
1. Microbe assisted phytoremediation of organophosphate pesticide (methyl parathion) of contaminated soil under the HEC program "Startup Research Grant Program (SRGP)"	PI	Higher Education Commission, Pakistan	Funding Received

**PUBLICATIONS:**

- **Jabeen, H.,** Iqbal, S., Anwar, S., Firdous, S., Rasool, A., 2016. Biodegradation of 3, 5, 6-trichloro-2-pyridinol by *Mesorhizobium* sp. HN3: a proposed metabolic pathway for its degradation. *Journal of Applied Microbiology*. Submitted
- Firdous, S., Iqbal, S., Anwar, S., **Jabeen, H.,** 2016. "Identification and Computational Analysis of 5-Enolpyruvylshikimate-3-Phosphate Synthase from Glyphosate Tolerant Bacterial Isolate. *Pedosphere* (**Submitted**)
- **Jabeen, H.,** Iqbal, S., Ahmad, F., Afzal, M., Firdous, S., 2016. Enhanced remediation of chlorpyrifos by ryegrass (*Lolium multiflorum*) and a chlorpyrifos degrading bacterial endophyte *Mesorhizobium* sp. HN3. *International Journal of Phytoremediation*, 18 (2): 126-133
- **Jabeen, H.,** Iqbal, S., Anwar, S., Parales, R.E., 2015. Optimization of profenofos degradation by a novel bacterial consortium PBAC using response surface methodology. *International Biodeterioration and Biodegradation*, 100: 89-97
- **Jabeen, H.,** Iqbal, S., Anwar, S. 2015. Biodegradation of chlorpyrifos and 3, 5, 6-trichloro-2-pyridinol by a novel rhizobial strain *Mesorhizobium* sp. HN3. *Water and Environment Journal*, 29 (1): 151-160

**CONFERENCES AND ABSTRACTS:**

- **"30<sup>th</sup> International Pakistan Congress of Zoology"**, University of Agriculture, Faisalabad, Pakistan on 2-4 march, 2010.
- 13<sup>th</sup> Congress of Soil Science Society on **"Efficient Resource Management for Sustainable Agriculture"**, Faisalabad, Pakistan.
- **"Biodegradation of Chlorpyrifos by a *Mesorhizobium* sp strain CP3"**(Poster), **2<sup>nd</sup> International conference of Plant Scientists"** Department of Botany, GC University Lahore, 22-24 February, 2011.
- **"Identification of organophosphate degrading *opdA* gene in chlorpyrifos degrading *Mesorhizobium* sp. CP3"** (oral), International Science Conference on **"Agriculture and Food Security Issues in Global Environmental Perspectives"**, Faculty of Agriculture, The University of Poonch, Rawalakot, 11-13 July, 2012.

- “Biodegradation of Profenofos by a bacterial consortium isolated from Profenofos contaminated soil” (Poster), International conference on “**Biotechnology: Prospects & Challenges in Agriculture, Industry, Health & Environment**” National Institute for Biotechnology and Genetic Engineering (NIBGE), Faisalabad, 22-26 April, 2013.
- “Biodegradation of 3, 5, 6-trichloro-2-pyridinol by a novel rhizobial strain *Mesorhizobium* sp. HN3” (Oral), “**1<sup>st</sup> National Student Conference on Biooical Sciences**” National Institute for Biotechnology and Genetic Engineering (NIBGE), Faisalabad, 27-28 March, 2014.

### **NATIONAL AND INTERNATIONAL COLLABORATION**

- National Institute of Bioremediation, NARC, Islamabad, Pakistan
- National Institute for Biotechnology and Genetic Engineering (NIBGE), Faisalabad
- Department of Microbiology, School of Biological Sciences, University of California Davis, USA

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### **EXPERIENCE IN RESEARCH TECHNIQUES**

- Hands on experience on various sophisticated instruments;
- High Performance Liquid Chromatography (HPLC)
- Thin Layer Chromatography (TLC), Gas Chromatography Mass Spectrometry (GCMS)
- Confocal Laser Scanning Microscopy (CLSM)
- Molecular biology techniques: PCR, Southern blotting and gene cloning
- Various microbiological techniques
- Techniques used in determination of pesticide biodegradation
- Extraction of pesticide residues from liquid cultures and soils
- Determination of metabolic pathways of pesticide degradation through soil microbial metabolism

### **AREAS OF INTERESTS:**

- Soil and environmental microbiology
- Microbial remediation of environmental pollutants particularly pesticides in soil and water
- Plant microbe interactions for pollutants bioremediation with focus on PGPRs
- To explore the metabolic pathways of biodegradation of pollutants
- Studying the bacterial genes and enzymes involved in the pollutants metabolism
- Bio-composting from potential aquatic plant wastes for crop improvement
- Wastewater treatment through plants (phytoremediation)

### **Laboratory Management**

- Excellent and successful experience of lab management during PhD (NIBGE)
- Management of lab clean-up, instruments working
- Maintaining all time use solutions preparation
- Optimizing different protocols for lab experiments

### **Computer and Statistical Skills**

- Response Surface Methodology (RSM) using Design Expert® all versions
- ANOVA and basic statistical tools for the analysis of the biological/microbiological research data
- Command in MS Office (2003, 2007, 2010, 2013)
- Command in Symaxdraw and Chemdraw (For chemical structures drawing and identification)