

Hera Naheed Khan

heranaheed.mmg@pu.edu.pk hirayousafzai22@gmail.com -

*Dept. of Microbiology & Molecular Genetics, University of the Punjab, Lahore
54590, Pakistan*

EDUCATION

1. PhD.	Microbiology & Molecular Genetics, PU	2017-2022
	Microbiology & Molecular genetics: University of Punjab, Lahore	
2. Masters		2015-2017
	Microbiology & Molecular genetics: University of Punjab, Lahore	
3. B.S.(HONS)		2011-2015
	University of Punjab, Lahore	
4. F.Sc.(Pre- Medical)	Kinnaird College for Women, Lahore (B.I.S.E Lahore)	2008-2010
5. Matriculation	Esen Foundation High School, Lahore (B.I.S.E Lahore)	2006-2008

AWARDS & HONORS

- University Gold Medal for distinction in BS (2011-2015)
- 3rd Position in Masters (2015-2017)
- PU Merit Scholarship 2011-2015, 2015-2017
- Best Poster Award & Cash price in International conference of Solid State Physics 2017

WORK EXPERIENCE

Lecturer – on Contract 3rd July 2017-30th June 2018 at the Department of Microbiology & Molecular Genetics, University of the Punjab

Lecturer – Permanent – 20th August 2018 at the Department of Microbiology & Molecular Genetics, University of the Punjab (on-going)

RESEARCH INTEREST

Nano-biotechnology, Nano-medicine & Bacterial biofilms

Research Supervision

Thesis completed

- **Graduate level**
 - i. Biosynthesis of silver nanoparticles and their characterization using bacterial sugars and their toxicity profiling **(2018-2019)**
 - ii. Bacterial carbohydrate mediated synthesis and structural characterization of non toxic Gold nanoparticles (2018-2019)
- **Masters level**

Treating Chromate allergy in cement factory workers using bio-agents (2018-2019)

Subjects taught

- Nanobiotechnology to MSc
- Nanobiotechnology to MS/MPhil
- Microbial Genetics
- Fundamentals of Microbiology Lab

Professional skills

Nanobiotechnology: Nanoparticle synthesis (chemical & Biosynthesis), characterization techniques (XRD, SEM, FTIR, UV-Vis Spectroscopy), cytotoxicity analysis, cell culturing, conjugation of nanoparticles to agents, use as delivery agents

Molecular Biology skills DNA/ plasmid isolation, PCR, Agarose and polyacrylamide gel electrophoresis, chromatographic separation, western blotting, Primer designing, Sequence alignment and similarity searching

Routine Microbiology: Bacterial Isolation and Characterization, Bacterial Culture Preservation, Antibiotic screening & testing, Susceptibility Profiling, staining, Microscopic techniques: Phase Contrast, Fluorescence, Optical, Inverted, Working experience in BSL-3 and BSC-3 and bacterial biofilms

Bioinformatics tools: Molecular Evolutionary Genetics Analysis (MEGA), Chromas, End note for Scientific referencing, GeneCards/Malacards, NCBI, 1000 genome Project, Image J, Visual molecular dynamics (VMD 1.9.1), Primer Designing (primerFox, Oligoanalyzer), orfFinder, Cap 3

Technical Skills

Microsoft Office (Word, Excel, PowerPoint), Prism, END-Note, Microsoft Windows & Macintosh OS

University Funded Research Projects

A green synthetic approach to synthesize gold nano-structures using plants and bacteria, their characterization and toxicity studies

Publications

Book Chapter: Khan, H. N., & Faisal, M. (2018). Phytoremediation of Industrial Wastewater by Hydrophytes. In *Phytoremediation* (pp. 179-200): Springer.

RESEARCH EXPERIENCE

PhD Synopsis: Repression of Angiogenic Markers in Cancer Cells using Nanoparticle Loaded miRNA mimics

MS Thesis: Research on Green Synthesis, Characterization & Toxicity of Gold Nanoparticles using bacteria and aqueous Plant extracts and their Anticancer & Antimicrobial affects

- ✓ **Thesis title:** Synthesis, characterization and *In vitro* toxicity studies of gold nanoparticles

BS Thesis: Research on *Helicobacter pylori* and related bacteria isolated from peptic ulcer Biopsy

- ✓ **Thesis Title:** Biofilm forming Capabilities of bacteria isolated from peptic ulcer under natural and synthetic Antimicrobial stress

OTHER PROJECTS

1. Selenite Reduction capability of bacterial strains & Biosynthesis of Selenium Nanoparticles from *Vibriocinnamensis* & their antimicrobial activity determination against *Enterobacteriaceae* (2015-2016)

- ✓ Screened bacteria for their capability to reduce selenium salt
- ✓ Green synthesis of selenium nanoparticles using bacteria
- ✓ Antimicrobial activity of selenium nanoparticles

2. Research on *Enterobacteriaceae* isolated from avian fecal samples (2015)

- ✓ Worked on bacterial isolated from the bird feces and characterized them as MDR

3. Identification of Unknown Microbial Strains (2014)

- ✓ Worked on identification of unknown microbial strains isolated from hospital waste.

4. Identification visualization & isolation of protozoans from fresh water samples (2014-2015)

- ✓ Isolated protists from different fresh water sources and visualized them under phase contrast microscope

5. Isolation of Streptomycetes from soil & Screening of Antimicrobial compounds from them (2014)

- ✓ Isolated streptomycetes from the soil
- ✓ Screened the streptomycetes for their antimicrobial potential
- ✓ Identified bioactive capability of the strains
- ✓ Identified the antibacterial compounds using TLC and HPLC

MEMBERSHIPS

- ✓ Member of American society of microbiology (2012-current)
- ✓ Member of Pakistan Society for Microbiology (2012-current)
- ✓ Member of PYR welfare organization that works for the poor and Needy (2014-current)
- ✓ Co-ordinator of the literature wing of Character Building Society of Microbiology & Molecular genetics Punjab university (2012-2014)

CONFERENCES & WORKSHOPS

Conference & Symposia Proceedings

- ✓ Participated in International Conference of Punjab University (ICPU) on Recent trends in Molecular Science, 6-8th Nov, 2019
- ✓ Organised and presented in MMG2018: A Conference on Microbiology & Molecular Genetics, 7-9th Feb, 2018
- ✓ Participated in Faculty Development Orientation Program, 4-7th September, 2018
- ✓ Presented (oral & poster) in International Conference on Solid State Physics, Dec 2017
- ✓ Participated in event of ASM, Diversity in Microbiology: A cross talk, (17th December, 2015)
- ✓ Presented research work in 10th Biennial International Conference of Pakistan Society for Microbiology, Exploring Microbes for Future Endeavours. (25-28TH March, 2015).
- ✓ Participated and presented research work in 38th Annual PAP conference/3rd Joint Conference of societies of Pathology in Collaboration with royal College

- of pathologists and British Association of Pakistani Pathologists (6-8th November, 2015)
- ✓ Attended symposium on "Immunogenomics, Vaccinology & infectious Disease Challenges" Karachi (November, 2014)
 - ✓ Attended First joint Conference PAP/RCPATH/AMP on "Molecular Pathology" (24th-26th November, 2014).
 - ✓ Participated and presented Research work in one day symposium on "Multi Drug Resistant Organisms-an emerging issue", Organized by Department of Microbiology & Molecular Genetics. (May, 2014)
 - ✓ Attended conference on "Bio-Physicochemical Basis for Technopreneurship" University of the Punjab Lahore (2nd – 3rd April, 2013)

Workshops Attended

- ✓ Participated in three days Hands on Training Workshop "Recombinant DNA Technology & Bioinformatics" at faculty of Life Sciences, University of Central Punjab, (25th-27th June, 2019)
- ✓ Workshop on Cell Culture Practices and applications organized by Tumor Metabolism group, Dept. of MMG, PU, 25th Oct 2018
- ✓ Pipette Clinic Workshop at University of the Punjab Organised by Eco Biosciences in collaboration with Eppendorf, 8th October, 2018
- ✓ Attended workshop on "Dual use Research of Concern" jointly organized by Dept. of Microbiology & Molecular Genetics & The Health Security Partners (18th July, 2016)
- ✓ Participated in hands on training workshop on "DNA fingerprinting: a tool to explore Genetic diversity" (25th-26th May, 2016)
- ✓ Attended Hands on training workshop on "Blood: connects us all" (May, 2016)
- ✓ Attended hands on training workshop on "Transaminases and associated factors" (May, 2016)
- ✓ Attended hands on workshop on "Biosafety" organized by Karachi University in collaboration with ASM (November, 2014)
- ✓ Attended workshop on "the art of Scientific paper writing & how to win grants in COMSATS, Lahore (17th Dec, 2014)
- ✓ Seminar on "Scientific Writing: Guideline, Issues and Solution", organized by Department of Microbiology & Molecular Genetics, University of the Punjab, Lahore. (27th March 2014).