

Curriculum Vitae

Name: **Dr. Fatima Muccee**
Domicile: Lahore
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A. EDUCATIONAL QUALIFICATIONS

- **PhD Biotechnology, (2019) CGPA 3.18/4**
Topic: Isolation and Molecular Characterization of Persistent Organic Pollutants Metabolizing Bacteria under supervision Dr. Samina Ejaz, Assistant Professor, Department of Biochemistry and Biotechnology, The Islamia University of Bahawalpur, Pakistan.
- **M.Phil Molecular Biology and Biotechnology (2014) CGPA 3.91/4**
Topic: Genetic effect of leptin gene polymorphisms on silent estrus behaviour in Nili-Ravi Buffaloes under supervision Dr. Maryam Javed, Lecturer, Institute of Biochemistry & Biotechnology, University of Veterinary and Animal Science, Lahore
- **M.Sc. Zoology (2007) CGPA (3.27/4)**
Department of Zoology, University of the Punjab, Lahore
- **B.Sc. Pre-medical (2005) 1st Division (482/800)**
Govt. College for women, Gulberg, Lahore / University of the Punjab, Lahore
- **F.Sc Pre-medical (2003) 1st Division (782/1100)**
Govt. College for women, Wahdat Road, Lahore / Board of Intermediate & Secondary Education, Lahore.
- **Matriculation Science (2000) 1st Division (645/850)**
Govt. Pilot Secondary School for Girls, Wahdat Road, Lahore / Board of Intermediate & Secondary Education, Lahore.

B. TEACHING EXPERIENCE

- Working as Assistant Professor at Department of Biotechnology, **Virtual University of Pakistan**, Lahore.
- Worked as Lecturer at Department of Biology, **Punjab Group of Colleges**, City Campus, Lahore since 13th October 2020 to 8th November 2021.
- Working as Visiting Assistant Professor in Department of Biochemistry & Biotechnology, **The Islamia University of Bahawalpur** since 01st October 2019 to till date.
- Working as Visiting Assistant Professor in Department of Zoology, **The Islamia University of Bahawalpur** since 01st October 2018 to till date.
- Worked as Lecturer, **Punjab Group of Colleges**, Lahore since 1st August 2008 to 7th January 2014.

C. AREA OF INTEREST

- My areas of interest are the latest research techniques of Molecular and Microbiology, Gene manipulation and Genetic Engineering and in-silico analysis of gene mutations.

D. PUBLICATIONS (Impact factor = 21.5)

- Muhammad Usman, Muhamamd K Okla, Hafiz Muhammad Asif, Gehad Abdelgayed, **Fatima Muccee**, Shakira Ghazanfar, Mukhtiar Ahmad, Muhammad Junaid Iqbal, Amina Murad Sahar, Ghania Khaliq, Rabbia Shoaib, Hira Zaheer, Yasir Hameed “**A pan-cancer analysis of GINS complex subunit 4 to identify its potential role as a biomarker in multiple human cancers**” American Journal of Cancer Research, Volume No. 12, Issue No. 3, 2022. PP. 986-1008. <https://pubmed.ncbi.nlm.gov/35411239/> (Impact factor = **6.166**)
- **Fatima Muccee**, Samina Ejaz “**Whole Genome Shotgun Sequencing of POPs Degrading Bacterial Community Dwelling Tannery Effluents and Petrol Contaminated Soil**” Microbiological Research, 2020. Doi: [10.1016/j.micres.2020.126504](https://doi.org/10.1016/j.micres.2020.126504) (Impact factor = **5.414**)
- **Fatima Muccee**, Samina Ejaz, Naheed Riaz “**Molecular and functional analysis of naphthalene-degrading bacteria isolated from the effluents of indigenous tanneries**” Journal of Basic Microbiology, Volume No. 61, Issue No. 7, 2021. PP. 627-641. Doi: [10.1002/jobm.202100123](https://doi.org/10.1002/jobm.202100123) (Impact factor = **1.909**)
- **Fatima Muccee**, Samina Ejaz, “**Characterization of Multi-Potential Toluene Metabolizing Bacteria Isolated from Tannery Effluents**” Microbiology, 2020. PP. 626-636. <https://link.springer.com/article/10.1134/S0026261720050161>. (Impact factor = **2.7**)
- **Fatima Muccee**, Samina Ejaz & Naheed Riaz “**Toluene degradation via a unique metabolic route in indigenous bacterial species**” Archives of Microbiology, Volume 203, 2019. PP. 1-15. <https://link.springer.com/article/10.1007/s00203-019-01705-0>. (Impact factor = **2.552**)
- **Fatima Muccee**, Samina Ejaz, “**An investigation of petrol metabolizing bacteria isolated from contaminated soil samples collected from various fuel stations**” Polish Journal of Microbiology, Volume No. 68, Issue No. 2, 2019. PP. 193-201. Doi: [10.33073/pjm-2019-019](https://doi.org/10.33073/pjm-2019-019). (Impact factor = **1.28**)
- Sana Imran, Maryam Javed, Tahir Yaqub, Madiha Iqbal, Asif Nadeem, Nadia Mukhtar, **Fatima Muccee** “**Genetic Basis of Estrous in Bovine: A Review**” International Journal of Advance Research (IJAR), Volume No. 2, Issue No. 4, 2014. PP. 962-966. <https://www.journalijar.com/article/1844/genetic-basis-of-estrous-in-bovine:-a-review> (Impact factor = **1.48**)

E. PROFESSIONAL TRAINING / CERTIFICATE

One-month Teachers Training Course at the Punjab Group of Colleges, Lahore (23rd May 2008 to 21st June 2008)

F. RELATED COURSE WORK

Proteomics, RNA Biology, Statistics, Fermentation and Biotransformation, Molecular Biology of Cancer, Advance Lab Techniques, Gene manipulation and Genetic Engineering, Principles of Biotechnology, Advanced Molecular Biology Research Techniques, Principles of Biochemistry, Molecular Biology, Enzyme Biotechnology, Medical Biochemistry, Basic

Molecular Biology Research Techniques, Immunogenetics, Biochemistry of Cancer.

G. RESEARCH EXPERIENCE

- Conducting in-silico analysis of effect of mutations (reported in HAPMAP project) on encoded proteins in the ob gene, FTO gene, CYP11A1 gene, CYP21 gene, CYP19A1 gene, GCK gene, EPCAM gene and IL1A gene, Virtual University of Pakistan, Lahore in 2022
- Conducted research on Genetic effect of leptin gene polymorphisms on silent oestrus behaviour in Nili-Ravi buffalo at University of Veterinary and Animal Science, Lahore in 2013.
- Conducted research on Isolation and molecular characterization of persistent organic pollutants (POPs) metabolizing bacteria at The Islamia University of Bahawalpur (2014-2019).
- Conducted research on purification and characterization of arginine dehydrolase enzyme isolated from petrol metabolizing bacteria at The Islamia University of Bahawalpur (2018-2019).

H. CONFERENCES ATTENDED

- Participated in “Undergraduate Faculty Training STEM Education in Pakistan”, organized by Office of Research, Innovation and Commercialization (ORIC), Virtual University of Pakistan. (14-18 March, **2022**)
- Participated in Workshop on “Useful Tools and Tips to Boost Student Engagement on VULMS”, held at Department of Statistics, Virtual University of Pakistan. (1 December **2021**).
- Participated in Webinar “R Discovery Global Symposium for Literature Search”, powered by R Discovery. (28 May **2021**).
- **Oral Presenter**, 1st One Day International Conference on “Genomics of Beneficial Microbes”, held online at NIGAB, NARC, Islamabad. (23rd December **2021**).
- Participated and organized “4th International Workshop on X-ray Crystallography in Structural Biology”, held at The Islamia University of Bahawalpur. (25-27 February **2020**).
- Participated in 2nd International Pharmacy Conference & Exhibition “New Paradigms of Pharmacy Education & Practice in Pakistan”, held at The Islamia University of Bahawalpur. (20-21 February **2020**)
- Participated in “3rd National Conference on Emerging Trends in Bioinformatics & Biosciences”, held at Hazara University Mansehra. (3-5 October **2019**)
- **Poster Presenter**, 1st International Conference on Applied Zoology (ICAZ- 2018), held at Govt. College University Faisalabad. (10-11 October **2018**)
- **Oral Presenter**, “Isolation and Molecular Characterization of Toluene Metabolizing Bacteria from Tannery Effluent” in Conference on Microbiology and Molecular Genetics (MMG2018), held at University of the Punjab Lahore. (7-9 February **2018**)
- Participated in “1st International Conference on Climate Change & Biodiversity (IC³B-

2017), held at The Islamia University of Bahawalpur (2-4 May 2017)

- Participated in “Recent Advances & Challenges in Molecular Biology, Biochemistry & Biotechnology” held at Comsats Institute of Information Technology, Abbottabad. (25-27 August 2016)
- **Oral Presenter**, (Genetic Effect), The Era of OMICS: Challenges and Solution, 12th “International Conference Pakistan Society for Biochemistry and Molecular Biology PSBM”, held at The Islamia University of Bahawalpur. (04-07 December 2014)
- Participated in “World Mango Conference & Exhibition”, held at The Islamia University of Bahawalpur. (24-25 June 2014)
- Participated in “Biosafety Training workshop for young Scientists”, held at The Islamia University of Bahawalpur. (23 April 2014)
- Participated in “International Camel Conference-2013”, held at The Islamia University of Bahawalpur. (19-21 December 2013)
- Participated in “Recombinant Enzymes for the Local Industry of Pakistan”, held at University of Veterinary & Animal Sciences Lahore. (25 September 2013)
- Participated in “International Conference on Date Palm: Present Status and Future Prospects”, held at The Islamia University of Bahawalpur. (2-3 September 2013)
- Participated in “27th Pakistan Congress of Zoology (International)”, held at Bahuddin Zakria University Multan. (27th February to 01st March 2007)
- Participated in “26th Pakistan Congress of Zoology (International)”, held at University of the Punjab Lahore. (4-6 April 2006)

I. SERVICES AS A REVIEWER

Awarded **Certificate of Excellence in Reviewing** (Certificate No. SDI/HQ/PR/Cert/72764/FAT) by International Journal of Plant and Soil Science, 2021.

J. TECHNICAL SKILLS

I have performed and practiced following techniques during my PhD research;

1. Microbiology techniques

Enrichment and serial dilution experiments for isolation of bacteria, growth curve analysis, analysis of aromatic compound degradation efficiencies of bacteria, antibiotic sensitivity profiling, biochemical characterization of bacteria using RapID STR system.

2. Molecular techniques related to DNA analysis

Bacterial genomic DNA extraction by organic method, agarose gel electrophoresis, quantification of DNA using ELISA Reader, primer designing, PCR optimization, polymerase chain reaction, gel-elution of PCR products for sequencing.

3. Bacterial metabolomics techniques

Extraction of bacterial extracellular and intracellular metabolites, GC-MS and LC-MS analysis of metabolites.

4. Proteomics

Extraction of bacterial proteins, LC-MS analysis, SDS-PAGE, protein quantification by

Bradford assay.

5. Next Generation Sequencing

16S rRNA metagenome sequencing and shotgun metagenome sequencing.

6. Bioinformatics analysis of data

My expertise in bioinformatics are;

- **BLAST analysis** of bacterial 16S rRNA gene sequencing
- **CLUSTAL omega multiple sequence alignment tool**
- Phylogenetic tree construction using **MEGA version 7 software**
- Submission of bacterial 16S rRNA gene sequences to NCBI
- **Submission of sequences** obtained through 16S rRNA metagenome sequencing of bacteria to **Sequence Read Archives (SRA) NCBI.**
- **Submission of sequences** obtained through Whole Genome Sequencing (WGS) analysis of bacteria to **Sequence Read Archives (SRA) NCBI.**
- Analysis of GC-MS chromatogram and spectra through **Turbo Mass software**
- **Mascot software** for identification of proteins and peptides using LC-MS analysis raw data
- **CELLO2GO tool** for analysis of sub-cellular localization of proteins.
- **PHYRE2 tool** to analyze effect of mutations on 3D protein structure, secondary structure and topology.
- **HOPE server** to analyze the effect of missense mutations on protein structure.
- **ProtParam tool** to analyze different physicochemical parameters of proteins.
- **EXPASY tool** of protein translation.
- **STING tool** to analyze protein-protein interactions.
- **DAVID tool** to predict pathways.

7. Submission of bacterial 16S rRNA gene sequences to NCBI

Sequences of total 41 bacteria have been submitted to NCBI and are publicly available.

Sequences (Fastq files) of persistent organic pollutants metabolizing bacteria have been submitted to Sequence Read Archives (SRA) NCBI and are publicly available.

Submission of novel aromatic compounds metabolizing bacteria to American Tissue Culture Collection (ATCC) is in process.

K. PERSONAL SKILLS

I am a fast learner having self-confidence and positive attitude. I have ability to easily adapt to new situations. I am an energetic individual with good technical and management skills. I have excellent verbal and writing skills.

Computer:

Proficiency in operation of personal computers and software packages like Microsoft Office. Use of MS Excel and origin to create spreadsheets, graphs and statistically analyze data (i.e. averages and standard deviation).

Literature searches through programs such as PubMed Use

of bibliography management tools like EndNote.

L. REFERENCES

Dr. Tanveer Hussian, Associate Professor, Dept. of Molecular Biology, Virtual University of Pakistan, Lahore.

Dr. Sana Zahoor, Assistant Professor, Dept. of Biotechnology, Virtual University of Pakistan, Davice Road Campus, Lahore.

Dr. Samina Ejaz, Assistant Professor, Dept. of Biochemistry & Biotechnology, The Islamia University of Bahawalpur, Baghdad Campus, Bahawalpur.

Prof. Dr. Muhammad Ashraf, Chairman Dep't of Biochemistry & Biotechnology, The Islamia University of Bahawalpur, Baghdad Campus, Bahawalpur.

Prof. Dr. Nuzhat Sail, Chairperson, Dep't of Zoology, The Islamia University of Bahawalpur, Baghdad Campus, Bahawalpur.