

Namrata

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Education

Katholieke Universiteit (KU), Leuven

Master of Bioinformatics

2022 - Present

Thesis: Microproteins - What are they really?

Result (1st year): 79.02% (Magna cum laude)

Kirorimal College, University of Delhi

Master of Science, Zoology

2015 - 2017

Thesis: Metabolic reprogramming and epigenetic regulation in cancer

Result: First Division (79.8%) (awarded Gold Medal for best academic record)

GPA: 4.00/4.00 (World Education Services iGPA Calculator)

Deshbandhu College, University of Delhi

Bachelor of Science (Honours), Zoology

2012 - 2015

Result: First Division (90.02%) (awarded Gold Medal for best academic record)

GPA: 4.00/4.00 (World Education Services iGPA Calculator)

Experience

Integrated Bioinformatics Project

Team member

Oct - Dec, 2023

Project: Analysis of matrix deformation from cortical laser ablation images

Center for Sustainable Agriculture

Bio Lab Manager

2020 - 2021

Projects:

1. Building resilient farm livelihoods of 20,000 farmers to adapt to climate change. (Funding from Azim Premji Philanthropy Initiative), 2020 - 2021
 - Establishment of CSA Biolab for production and maintenance of biofertilizer mother-cultures and quality testing of biofertilizers.
 - Microbial profiling of *Jeevamrutham* and *SMJ* (Simple Microbial preparation using *Jeevamrutham* as Inoculum) by Shotgun metagenome sequencing
2. COVID Livelihood Grant (Funded by Azim Premji Philanthropy Initiative), June 2020 - March 2021.
 - Training farmers to become bio-entrepreneurs by self-producing and marketing of biofertilizers across 3 districts of Andhra Pradesh, India.

CSIR - IGIB (Institute of Genomics and Integrative Biology)

Project Assistant

2017 - 2019

Project: Sick Cell Anemia Mission

Advisor: Dr. Debojyoti Chakraborty (Senior Scientist)

Department of Zoology, Deshbandhu College

Project Student

2013-2015

Project: Influence of plant extracts on reproductive physiology and behavior of *Aedes aegypti*

Advisors: Dr. Ranjana Seth (Associate Professor), Dr. Meenakshi Prajneshu (Associate Professor), Dr. Varsha Baweja (Associate Professor)

Publications, Patents, and Presentations	<p>Note: Also publishes as “Namrata Sharma”</p> <p>Mohd Azhar <i>et al.</i> Rapid and accurate nucleobase detection using FnCas9 and its application in COVID-19 diagnosis, DOI: 10.1016/j.bios.2021.113207, Biosensors and Bioelectronics, 2021. [Impact Factor: 10.257]</p> <p>Sundaram Acharya <i>et al.</i> Francisella novicida Cas9 interrogates genomic DNA with very high specificity and can be used for mammalian genome editing, DOI: 10.1073/pnas.1818461116, Proceedings of National Academy of Sciences of the USA (PNAS), 2019. [Impact Factor: 9.412]</p> <p>Chakraborty <i>et al.</i> CRISPR Effector System Mediated Detection of Nucleic Acid Variants in DNA US Patent (in process – Prov. No. 201911049432)</p> <p>Namrata Sharma, Influence of plant extracts on reproductive physiology and behavior of Aedes aegypti, Oral Presentation at INSCR International Conference (IIC), 2017.</p>
Conferences and Workshops	<ul style="list-style-type: none"> – Organized CRISPR-Cas9 based precision genome editing workshop, CSIR-IGIB, 2018 – Participated in INSCR International Conference on Role of Microbe-Plant-Animal Interactions in Human Health, University of Delhi, 2017 – Attended workshop on Microbial Genomics and Metagenomics, Department of Zoology, University of Delhi, 2016 – Attended National Symposium on Vector Biology and Vector Management, Deshbandhu College, University of Delhi, 2015 – Attended National Symposium on Vector Biology and Vector Management, Deshbandhu College, University of Delhi, 2013 – Attended National Seminar on Natural Products: Application in Human Welfare, Ramjas College, University of Delhi, 2013 – Participated in the INSPIRE Internship Program organized by Deshbandhu College, University of Delhi, 2012
Awards, Fellowships, and Honours	<ul style="list-style-type: none"> – Received certificate of appreciation from Telangana Social Impact Group, Government of Telangana for my volunteer work during Covid-19 pandemic. – Secured All India Rank 66 in CSIR-UGC NET (Life Sciences) exam and qualified for Junior Research Fellowship, 2017 – Secured 3rd rank in University and 1st rank (Gold Medal) in Kirorimal College in M.Sc. Zoology, University of Delhi, 2017 – Received merit grant from Faculty of Science, University of Delhi for securing 3rd rank in University in M.Sc. Zoology, 1st year, 2016 – Secured 3rd rank in University and 1st rank (Gold Medal) in Deshbandhu College in B.Sc. (Hons.) Zoology, University of Delhi, 2015 – Received merit grant from Faculty of Science, University of Delhi for securing 3rd rank in University in B.Sc. (Hons.) Zoology, 2015 – Received Shri P.M. Kaul Memorial Award for Outstanding Academic Performance in B.Sc. (Hons.) Zoology, 2015
Students Advised	<hr style="width: 20%; margin-left: 0;"/> <ul style="list-style-type: none"> – Katharina Kirchhof (co-advised by Dr. Debojyoti Chakraborty, CSIR-IGIB) Project: Purification and quantity estimation of Cas9 proteins.

- Abhinav Pujar (co-advised by Dr. Debojyoti Chakraborty, CSIR-IGIB)
Project: Purification and characterization of CRISPR-Cas9 components and demonstration of *In Vitro* Cleavage assay.

Skills and Techniques

- Electrophoretic Techniques (Agarose, SDS-PAGE, etc.)
- Protein Purification (Cas9 variants) by Affinity & Size-Exclusion Chromatography
- Genomic DNA & Plasmid Isolation from bacterial cells
- RNA extraction
- PCR (Polymerase Chain Reaction) and Cloning
- Bacterial cells transformation by Heat shock Method & Electroporation
- CRISPR based *In Vitro* techniques like *In Vitro* Transcription (IVT) and *In Vitro* Cleavage Assay (IVC)
- Protein quantity Estimation by BCA (Bicinchoninic Acid Assay) and Bradford assay
- Mammalian Cell Culture (Passaging, Transfection, Genomic DNA Isolation)
- Primer & single guide RNA (sgRNA) designing
- Quality testing of bio-fertilizers using colony count method
- R, Python, SQL, Bash, High performance computing, Git, Machine Learning
- Next-generation sequencing data analysis (Bulk RNA seq, TF-ChIP seq, sc-ATAC seq, etc.)
- Cortical Laser ablation image analysis using optical flow technique

Extra Curricular Activities

- Trained in *Kathak Dance* (Indian Classical Dance form) for 4 years
- Trained in Indian Classical Music (Vocal) for 2 years
- Trained in *Hip Hop* (Western Dance) for 4 months
- Member of NGO “Umeed - A Drop of Hope”

Referee’s Details

1. Joost Schymkowitz (Principal Investigator)
 - Switch Laboratory (VIB-KU Leuven), ON1-bis Herestraat 49, room - 08.1235, 3000, Leuven, Belgium
 - Email : joost.schymkowitz@kuleuven.be
 - Tel no. +3216372573
 - Website : <https://switchlab.org>
2. Neha Niharika (Assistant Professor)
 - Department of Zoology, Daulat Ram College, Patel Marg, University of Delhi, 110007, New-Delhi, India
 - Email : nehaniharika@dr.du.ac.in
 - Tel no. +919810547222