

Sharda Bharti, PhD

Languages: Maithili (mother tongue), Hindi (C2), English (C1), Italian (A1)

About me

I am a versatile postdoctoral researcher with a PhD in Structural Biology and Biochemistry from the Free University of Bozen-Bolzano, an Erasmus Mundus Joint master's degree in plant health, and a B.Sc. in Agricultural Science. My academic and research background spans protein crystallography, plant-microbe interactions, and pathogen detection, with hands-on experience in both fieldwork and laboratory techniques. I am currently seeking an assistant professor position to share the scientific knowledge gained through education and research at top institutions across India and Europe, including EMBL Hamburg, Germany.

Education

- **PhD** in Bioorganic Chemistry and Bio-Crystallography, Free University of Bozen-Bolzano, Italy **(2020-2024)**
Thesis title: *Structural and functional characterization of proteins involved in siderophore mediated iron uptake in phytopathogen Erwinia amylovora*
- Erasmus Mundus Joint **master's degree** in plant health in Sustainable Cropping System, University of Goettingen and University of Padova **(2017-2019)** Grade: 110/110 with honor (Italian system)
Thesis title: *Effect of Naturally Occurring Compounds on Fumonisin Production and fum Gene Expression in Fusarium verticillioides*
- **B.Sc.** in Agricultural Science, Dr. Rajendra Prasad Central Agricultural University, Bihar, India **(2012-2016)** Grade: 8.01 with distinction
- High school from Jawahar Navodaya Vidyalaya, Supaul (91%)

Current Appointment

- **Post-doc** researcher at Laboratory of phytopathology, Free University of Bolzano, Italy

Project Title: Hyperspectral imaging for the detection of physiologically and parasitically induced damage on apple fruit at harvest and during postharvest (HIPPA). Project funded by the European Regional Development Fund (ERDF) Investment for Growth and Jobs Programme 2021-2027 - 1st Call

Academic Teaching Experience

- Teaching Assistant for the undergraduate course “Fundamentals of Chemistry and Plant Pathology”, Free University of Bozen-Bolzano
- Teaching Assistant for the undergraduate course “Phytopathology” at Free University of Bozen-Bolzano
- Co-supervision for a master thesis titled: Rapid Identification of *Colletotrichum* spp. and *Neofabraea* spp. using High-Resolution Melting (HRM) Real-Time PCR

Memberships

- Italian Crystallographic Association (AIC) <https://cristallografia.org/home-en/>
- International Union of Crystallography (IUCr) <https://www.iucr.org/>

Internships

- Early detection of leaf rust disease (*Puccinia triticina*) in wheat using hyperspectral technique and fluorescence microscopy, JKI, Quedlinburg, Germany

Scholarships and Grants

- BRAVE Project (Breeding for Plant Resistance to Viruses) – Awarded a grant of **€6,000** as an undergraduate visiting student under Cohort 2 of the EU-India Consortium. Participated in academic training at the University of Helsinki, Finland (2016). <http://brave.aua.gr/index.php?lang=en>
- Erasmus Mundus Joint master’s degree in plant health in Sustainable Cropping Systems – Full scholarship of **€49,000** awarded by the Erasmus+ Programme of the European Union (2017–2019). <https://planthealth.upv.es/>
- PhD Fellowship, Free University of Bozen-Bolzano – Funded doctoral position in the Bioorganic Chemistry and Bio-Crystallography Laboratory (B2Cl) as part of structured PhD training (2020–2024). <https://www.unibz.it/>
- MOSBRI Visit Grant – Mobility grant of **€1000** under the EU’s Horizon 2020 research and innovation programme (Grant Agreement No. 101004806) for research visit at BIOCEV, Vestec, Prague (2023). <https://www.mosbri.eu/>
- Instruct-ERIC Fellowship – Awarded **€4,000** to conduct a research internship at EMBL Hamburg (2023), focusing on structural biology techniques. <https://instruct-eric.eu/>

Conferences and Presentations

- Poster presentation at 3rd International Symposium on Fire Blight, Dresden-Pillnitz (2022) – <https://www.fireblight2022.de/>

- Poster at International School on Biological Crystallization, Granada (2023) – <https://www.isbcgranada.org/>
- Oral talk at 4th AIC Meeting, Florence (2023) – <https://www.cristallografia.org/aic2023/>
- ECS8: European Crystallography School, Berlin (2023) – https://www.helmholtz-berlin.de/events/ecs8/index_en.html
- 25th EMBL PhD Symposium (2023) – <https://phdsymposium.embl.org/>
- Course on Biological Small Angle Scattering, EMBL Hamburg (2023) – <https://www.embl.org/about/info/course-on-biological-small-angle-scattering/>
- Poster presentation at XXIX Conference of the Italian Society of Plant Pathology, Trento, 09 - 11 September 2024
New challenges for Plant Pathology between sustainability of agro-food production and climate change. <https://event.unitn.it/sipav2024trento/>
- 14th Conference of the European Foundation for Plant Pathology, 2-5 June, 2025 | Uppsala, Sweden. <https://www.efpp2025.com/>

Key Skills

X-ray Crystallography and Structural Biology

- Molecular cloning and recombinant protein expression in *E. coli* strains
- Protein purification using chromatography techniques (affinity, ion exchange, hydrophobic interaction and size exclusion)
- Protein crystallization using manual and robotic methods
- Harvesting of crystals and X-ray diffraction data collection
- 3D Structure determination and refinement using the CCP4 suite
- Structural visualization and analysis with PyMOL and WinCoot
- Experience with basic bioinformatics tools including Bio Edit, Geneious, MEGA tools.

Phytopathology and Molecular Diagnostics

- DNA and RNA extraction from fungal hyphae, Sanger sequencing, High Resolution Melting (HRM) analysis for early detection of pathogens
- Hands on experience in sequence analysis and primer designs for qPCR, Identification and isolation of pathogens from infected specimens
- PCR and RT-PCR techniques for nucleic acid amplification and expression analysis
- Gel electrophoresis for nucleic acid analysis, simple and fluorescent microscopy
- Identification of plant pathogens using multilocus sequence typing (MLST) and other molecular markers

Publications

- <https://doi.org/10.1007/s42161-023-01532-9>
- <https://doi.org/10.3390/agronomy11061060>
- <https://doi.org/10.1371/journal.pone.0326667>

References: available on request

Bolzano, Italy

25.08.25