

# Barsha Koirala

Bhaktapur, Nepal

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**RESEARCH INTERESTS:** Microbial ecology, Fermentation, Plant Sciences, Soil Microbiology, Genomics, Molecular Biology

## EDUCATION

- 2016-2020 Master of Science (Research)(Microbiology)-3.64 GPA  
Thesis topic: **Comparative study of wine produced from Pear's varieties**
- College project: **Evaluation of Antioxidants and Antimicrobial Properties of Indigenous Plants: *Elaeocarpus sphaericus* and *Ficus religiosa***
- 2012-2016 Bachelor of Science (Research) (Microbiology)-63.15%  
Thesis topic: **Bacteriological study of Gram-negative bacteria isolated from meat sample of Kathmandu Valley**

## PROFESSIONAL EXPERIENCES

- Jan 2021- April 2025 Gyanav Pathshala – Teacher**  
Classroom management, Communication, supervision, lesson plan and syllabus studies, and creating safe and engaging learning environment
- Dec 2020-July 2022 Contentiolab Pvt. Ltd. – Research writer (Freelancer)**  
Conduct thorough research on scientific topics, review literature, develop clear and concise hypotheses, and provide structure to reports, citation, and referencing styles, editing, and proofreading, presentations and posters preparation
- Feb2019- June 2019 Ministry of Forests and Environment (Microbiology and Biotechnology labs)- (Intern)**  
Isolation, routine culturing, and identifying microorganisms, lab sterilization and quality control, plant extracts, MIC and MBC, and qualitative and quantitative test, study of disease-free plants, enhancing crop yields, DNA recombinant techniques and genetic analysis, perform acclimatization and sand rooting, stock solutions, and culture media
- Jan-Feb 2015 & Dec-2018-Feb 2019 Dairy Development Corporation (Intern)**  
Perform Coliform tests, routine microbial tests (MBRT), and pH, Acidity, and nutritional composition of sampled milk, with physicochemical parameters, Quality testing of products like Cheese, Flavored milk, yogurt, ghee, Butter, etc. Monitor and maintain quality by studying microbial content being compliance with food standards, water quality analysis.

## SKILLS AND COMPETENCIES:

- Python (NumPy, Pandas, Matplotlib), Machine learning and data visualization
- Statistical analysis (Advanced), SPSS, STATA, Minitab Software (Basic: Microsoft Office, Excel, Power-point, Origin, Photoshop)
- Use of UV-visible spectrometer, Infra-Red Spectrophotometer, Chromatographic techniques, Fermentation, down streaming process
- Bioinformatics, Sequence Alignments tools
- Lab management skills: Calibration of equipment, data extraction and recording
- Microbiological tests: Microbial culture growth, colony count, biochemical tests, antibiotic susceptibility test, fermentation, production and microscopy
- Molecular Biology techniques: PCR, Blotting, Electrophoresis
- Basic programming knowledge in R (Microbial Data Analysis)

## RESEARCH PUBLICATIONS:

**Koirala, B.,** & Shrestha, A. (2020). Comparative Study of Bioactive Compounds in Different Varieties of Pears in Nepal. *Nepal Journal of Biotechnology*, 8(3), 95–101.

DOI: <https://doi.org/10.3126/njb.v8i3.33663>

**Koirala, B.,** Pakuwal, E., Rai, H. J., & Shrestha, A. (2021). Evaluation of Antioxidants and Antimicrobial Properties of Indigenous Plants: *Elaeocarpus sphaericus* and *Ficus religiosa*. *International Journal of Environment*, 10(2), 48–63.

DOI: <https://doi.org/10.3126/ije.v10i2.42821>

**Koirala, B.,** Bhattarai, R., Maharjan, R., Maharjan, S., & Shrestha, S. (2021). Bacterial Assessment of Buffalo Meat in Kathmandu Valley. *Nepal Journal of Science and Technology*, 19(2), 90–96.

DOI: <https://doi.org/10.3126/njst.v20i1.39438>

**Koirala, B.,** Bhattarai, R., Maharjan, R., Maharjan, S., & Shrestha, S. (2023). Isolation and Identification of Gram-Negative Bacteria from Chicken Meat collected from Retail Meat Shops of Kathmandu Valley. *Nepalese Veterinary Journal*, 37(1), 54–61.

DOI: <https://doi.org/10.3126/nvj.v37i37.55516>

## OTHER PUBLICATIONS (Guidebooks & Educational Materials):

General Microbiology (MB:101), Methods in Microbiology (MB:405)- 2022, Biochemistry & Microbial Biotechnology (MB:201) - 2023, Agriculture and Food Microbiology (MB:401)- 2024

Publisher: ABC Prakashan Pustak Bhawan, Kathmandu Tel:+977 014530969

## CONFERENCES AND WORKSHOPS:

- One-day symposium on “Revolutionizing Life Sciences” (18<sup>th</sup> Aug, 2018)
- Online Four-Day International Workshop on Flow Cytometry (4<sup>th</sup> May- 7<sup>th</sup> May 2021)
- One-day Conference on Unravelling Life Sciences – A quest for sustainability, 29<sup>th</sup> Nov, 2019
- Poster presentation on the topic “Preparation of wine from Pears”.

## TRAINING AND EXTRA-CURRICULAR ACTIVITIES:

- Reviewer at International Journal of Environment(IJE), Nepal Journals Online (March 2022-Present)
- Data Science and Machine Learning with Python Training (Current)- Broadway Infosys- Kathmandu
- Internal Auditor Training on Food Safety Management System: ISO 22000:2018/HACCP as per ISO 19011 International Standards (17<sup>th</sup> -19<sup>th</sup> Dec 2021)
- Training on Bioinformatics, Molecular Techniques and Research Tools, St. Xavier’s College, (13<sup>th</sup> Dec 2018 to 13<sup>th</sup> March 2019)
- Governmental Teacher’s License Holder- Teacher’s Service Commission, Nepal