ADITYA KISHOR BAROT

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Objective

To contribute to microbial biochemistry and environmental biotechnology research by leveraging my expertise in microbial metabolism, biochemical assays, and data-driven analysis. Passionate about sustainable innovation through microbial bioprocesses.

RESEARCH EXPERIENCE

Microbiology Technician – Biomine Ltd, Sudbury, ON
March 2025 – Present

- Developed microbial-based bioprocesses for plastic waste degradation using bacterial Consortium.
- Explored eco-friendly biomining of gallium via microbial chelation.
- Monitored bacterial growth, metabolite formation, and sugar degradation using HPLC, LC-MS, and spectrophotometry.
- Investigated microbial conversion of agricultural waste into valuable metabolites (e.g., organic acids, sugar derivatives).
- Conducted whole-cell and cell-free experiments using Bacterial Consortium.
- Performed Bradford, Anthrone, DNPH, and CAS assays to quantify proteins, carbohydrates, and gallium-chelating agents.
- Optimized culture conditions with citrate, TPA, and gallium stress for enhanced metabolite yield.

Volunteer Researcher
Laurentian University
November 2024 – February 2025

- Participating in a research project focusing on microbial and biochemical processes.
- Conducting laboratory experiments using techniques such as Bradford, DPNH, Ninhydrin, and Anthrone assays to analyze biomolecular interactions.
- Preparing growth media and studying microbial consortia dynamics.
- Performing sonication, cell-free extract preparation, and centrifugation to isolate and analyze biological components.
- Utilizing High-Performance Liquid Chromatography (HPLC) for detailed chemical analysis.
- Collaborating with research teams to interpret data and optimize experimental protocols.

Research Associate
May 2024 –August 2024
MyEdMaster

- Led market research and problem assessment for youth health projects.
- Gained expertise in conducting thorough literature reviews of randomized controlled trials (RCTs) and observational studies.

  Analyzed the effects of independent variables on health conditions such as obesity, depression, hypertension, hypercholesterolemia, asthma, and arthritis
- Developed evidence-based recommendations for managing and improving health outcomes through dietary and lifestyle interventions.

EDUCATION

Post Graduate Diploma in Health Analytics 2023 – 2024
Cambrian College Sudbury, ON

Post Graduate Diploma in Functional Genomics and Clinical Consultation 2022 - 2023
Canadore College North Bay, ON

Bachelor's in biotechnology 2018-2020
Government Biotechnology College Ahmedabad, Gujarat, India

Key Projects

Plastic Waste Management: Utilize proprietary microbial consortia to investigate and optimize the microbial degradation and bioconversion of plastic waste into eco-friendly byproducts.

Biomining of Gallium: Develop microbial-based extraction processes for gallium recovery from industrial sources, focusing on environmentally sustainable biomining techniques.

Agricultural Waste Valorization: Apply microbial treatments to agricultural residues to convert waste into value-added bioproducts, contributing to circular bioeconomy initiatives.

REFERENCES

Available upon request.