

Education

Carnegie Mellon University | 3.76/4

M.S. in Biotechnology and Pharmaceutical Engineering

[Relevant course work: Applied cell and molecular biology, Material balances in bioprocess, Statistical Computing for Biological Science]

Pittsburgh, PA

December 2024

PSG College of Arts and Science

Bachelor of Science in Biotechnology

[Relevant Coursework: Molecular Biology, Introduction to Microbiology, Cell biology, Immunology, Recombinant DNA technology, Biochemistry, Analytical techniques]

Coimbatore, India

May 2023

Experience

CBNR

Coimbatore, India

Pharmaceutical Biotechnology Intern

July 2022 - August 2022

- Executed wet-lab molecular techniques, such as UV spectrometry, to identify antimicrobial content in Rosa indica leaves
- Employed immunological assays, including enzyme-linked immunosorbent assay (ELISA) and immunoprecipitation assay
- Tested the minimum inhibitory concentration of antimicrobials required at CBNR (Centre for Bioscience and Nanoscience Research)
- Formulated and validated experiments focused on purifying antimicrobial compounds, achieving an impressive 56% efficiency in targeting gram-positive bacteria and demonstrating a remarkable 65% increase in efficiency against gram-negative bacteria
- Documented and maintained comprehensive records of all experiments, upholding impeccable standards in managing chemical inventories, safely disposing of waste, and accurately calibrating laboratory equipment
- Collaborated with industry experts to validate and contextualize the results obtained through the experiments, ensuring the findings align with current industry standards

Academic Research Experience and Projects

Secondary Metabolite production in Streptomyces species

Sep 2022- Apr 2023

- Collaborated with a team and performed growth analysis for Streptomyces species with inducing stress for increase in secondary metabolite production through staining the strains of streptomyces species
- Optimized production of secondary metabolites in streptomyces and improved efficiency above 75% providing a physical stress that affected the morphogenesis and cellular interaction
- Reviewed and compared several scientific studies to comprehend the growth of streptomyces in stress
- Monitored and reported the findings to further increase the knowledge and understanding of streptomyces species for antimicrobial production

Nano Biomedicine - Ecell IIT Kharagpur

March 2023

- Developed silver and gold nanoparticles using green synthesis
- Synthesized the metallic nanoparticles using clove extract and guava extract and obtained 30% more stabilized particles
- Characterized the size of nanoparticles using UV vis spectrometry and studied the morphology through SEM analysis with improved biocompatibility
- Studied various literature to understand the green synthesis of nanoparticles and their usage in medicines and drug delivery systems in living beings

Training in Bioinformatics| Basic to Advanced

May 2022- June 2022

- Proficient in retrieving fasta sequences and research articles from databases such as NCBI, PDB, and SWISSPROT.
- Conducted primary structure analysis and secondary structure prediction & Utilized PROTSKALE for protein scale analysis
- Experienced in visualizing 3D structures using tools like SPDBV and RASMOL
- Conducted pairwise sequence alignment using tools like BLAST & Performed multiple sequence alignment using CLUSTALW and MEGAX.
- Applied UCSC Genome Browser for genome analysis, with a specific focus on a case study of COVID-19 (COV-2)
- Utilized tools like Phyre2 for protein structure prediction and function annotation & Applied bioinformatics tools in real-world scenarios using databases like NCBI, PDB, and SWISSPROT.

Skills

Technical skills: Molecular techniques: PCR (polymerase chain reaction), UV spectrometry, Gel electrophoresis, SDS PAGE, Southern blotting, Good laboratory practices, Restriction digestion, Microbial Techniques: Isolation using Streaking and plating techniques, Cell culture maintenance, Staining techniques, Tissue culture techniques

Computational skills: Microsoft office, Python, Bioinformatics