Sankarapandian P Final-Year B.Tech Biotechnology Student

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Professional Summary

Research-oriented final-year B.Tech Biotechnology student with strong academic laboratory training in biochemical analysis, molecular biology, microbiology, and bioprocess engineering. Experienced in sustainability-focused and bio-based research projects, with certified exposure to algal technology and pre-clinical drug design methodologies. Aspiring to pursue a research-intensive MS program in Biotechnology in South Korea or Japan, with the goal of gaining advanced experimental expertise and contributing to interdisciplinary biological research.

Education Bachelor of Technology (B.Tech) – Biotechnology

Kamaraj College of Engineering and Technology, Tamil Nadu, India

Affiliated to Anna University

Final Year | **CGPA:** 7.5 / 10

Relevant Coursework

Biochemistry · Molecular Biology · Microbiology · Cell Biology · Genetic Engineering · Bioprocess Engineering · Enzyme Technology · Immunology · Bioinformatics

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Technical Skills

Biochemical & Analytical Techniques

Protein estimation (Biuret, Lowry, Bradford) · Carbohydrate estimation (colorimetric methods) · Lipid analysis and saponification studies · DNA/RNA quantitative analysis · UV–Visible spectroscopy · Enzyme kinetics (Km and Vmax determination)

Chromatography Techniques

Thin Layer Chromatography (TLC) · Column chromatography

Microbiology & Cell Biology

Media preparation and sterilization · Aseptic techniques · Pure culture handling · Microbial staining (simple and differential) · Microbial enumeration (plate count method) · Growth kinetics · Antibiotic sensitivity testing · Cell viability assays · Hemocytometer-based cell counting · Sub-cellular fractionation · H&E staining

Molecular Biology & Genetic Engineering

Genomic and plasmid DNA isolation · Agarose gel electrophoresis · PCR · Restriction digestion · DNA ligation · Bacterial transformation · Recombinant screening · Protein expression analysis using SDSPAGE · Southern and Western blotting

Bioprocess & Enzyme Engineering

Enzyme isolation, purification, and immobilization · Enzyme inhibition studies · Bioreactor operation (batch, fed-batch, continuous) · Media optimization (Plackett–Burman design, RSM) · Oxygen transfer coefficient (KLa) estimation · Residence time distribution (RTD) analysis · Algal and cyanobacterial cultivation in photobioreactors

Immunology Techniques

ELISA · Immunodiffusion · Agglutination assays · Immunofluorescence · PBMC isolation · Leukocyte identification · Blood grouping

Computational Biology & Data Analysis

Sequence analysis (BLAST) · Multiple sequence alignment (ClustalW) · Phylogenetic analysis (MEGA) · Molecular visualization (PyMOL) · Molecular docking (AutoDock) · Homology modelling · Basic transcriptomic data analysis using R · Linux command-line operations · Data analysis and plotting using Excel and OriginPro

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Academic & Research Projects

Algal Biomass Valorization for Animal Feed

- Studied the utilization of *Gelidium* and *Sargassum* biomass after agar and alginate extraction
- Evaluated nutritional potential and sustainability aspects of algal residues
- Project aligned with national initiatives promoting algal cultivation

Pan-Genome Analysis of *Enterococcus faecalis*

- Conducted comparative genomics of diverse *E. faecalis* isolates
- Identified core and accessory genes across strains
- Characterized antibiotic resistance determinants and prophage regions
- Analyzed genome plasticity and mechanisms contributing to antimicrobial resistance (AMR) evolution

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Internship Experience Intern – Idhayam Parikshan Labs Ltd., Virudhunagar

June 2024

- Completed a 15-day industrial internship focused on routine biochemical analysis
- Assisted in standard laboratory procedures under professional supervision
- Followed Good Laboratory Practices (GLP) and laboratory safety protocols

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Value-Added & Industry-Certified Programs

- **Certified Value Added Program – Algal Technology and Applications**

  Conducted in association with AK Seaweeds; exposure to algal cultivation, processing, and industrial applications

- **Industry-Certified Value Added Program – Comprehensive Training in Revolutionary Drug Design: Pre-clinical Research Methodology**

  Conducted in association with A-CUBE SUBSTRATE; focused on drug discovery pipelines and preclinical research concepts

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Certifications & Academic Participation

- National Level Technical Symposium BIORITZ 2K24 – Poster/Paper Presentation (Merit & Participation)
- Food Hackathon – Euphoria'24, Kalasalingam University (Merit & Participation)
- National Webinar on Recent Concepts & Perspectives in Mycology (World Fungus Day)
- ClimateScience Olympiad 2024 – Qualifier
- NUS SCALE Summer Programme – Qualified (InspirED CPT)
- ISRO Space Expo 2024 – Volunteer (World Space Week)

Academic & Professional Activities

- Active participant in national-level technical quizzes, symposiums, and workshops
- Member, ISTE Students' Chapter
- Volunteer in science and technology outreach programs

Research Interests

Algal biotechnology and sustainable bioresources · Bioprocess optimization and enzyme engineering · Molecular and translational biotechnology · Pre-clinical drug discovery and bioactive compound screening

Languages

Kannada – Native (Mother Tongue)

Tamil – Professional proficiency

English – Professional proficiency