

ANSHIKA PAL

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SKILLS

Wet Lab: PCR, ELISA, Western Blotting, SDS-PAGE, DNA/RNA Extraction, Gel Electrophoresis, Plasmid Isolation, Chromatography, Fermentation & Yeast Handling, Antibiotic Sensitivity Testing (Kirby-Bauer), Southern Blotting, Transformation, Microscopy, UV-Vis Spectrophotometry

Bioinformatics: BLAST, ClustalOmega, EMBOSS Needle/Dottup, Molecular Docking, Primer Designing, Sequence Alignment, NCBI Databases

Industry Standards: GMP, GLP, HACCP Awareness, QC/QA Principles, Lab SOP Compliance

Data & Tools: MS Excel (Calibration Curves, Kinetic Modelling, Statistical Analysis), SQL, MS Office Suite

Soft Skills: Scientific Communication, Analytical Thinking, Attention to Detail, Time Management, Lab Record Maintenance

INTERNSHIP

Fortis Hospital, Ludhiana — Diagnostic Laboratory

May 2024 – Jun 2024

Biotechnologist Intern

- Executed clinical diagnostics across microbiology, biochemistry, and hematology; processed 50+ blood, urine, and swab samples per week following standard SOPs.
- Operated spectrophotometer, centrifuge, and autoclave with zero biosafety deviations across the 4-week tenure.
- Performed reagent QC checks and maintained traceable lab records ensuring complete sample data integrity.

RESEARCH PROJECTS

Antimicrobial Resistance Profiling of Pathogenic Microbes from Sewage Samples

Jan 2026 – Present

- Isolated and cultured pathogenic microorganisms from raw sewage using aseptic and sterile techniques.
- Evaluated antibiotic resistance profiles via Kirby-Bauer disc diffusion against 8+ antibiotics relevant to AMR surveillance.
- Generated standardized microbiological safety documentation aligned with public health reporting standards.

Smart NPK Soil Testing Kit Development

2025 – 2026

- Developed an AI-integrated, field-deployable NPK soil testing kit for rapid agricultural nutrient assessment.
- Designed colorimetric assays for quantitative Nitrogen, Phosphorus, and Potassium estimation and calibrated results against certified soil standards.
- Integrated AI/ML-based interpretation for automated nutrient analysis and fertilizer recommendations.
- Built as a cost-effective precision agriculture solution aimed at improving soil health monitoring for smallholder farmers.

Multimodal Characterization of Bioactive Compounds in Singapore Daisy

Sep 2025 – Nov 2025

- Identified and characterized bioactive compounds via UV-Vis spectrophotometry across 3 compound classes.
- Performed systematic sample preparation, instrument calibration, and quantitative data interpretation.

Kinetic Characterization of Salivary Amylase

Aug 2025 – Oct 2025

- Investigated enzyme kinetics under varied pH (4–9), temperature (25–45°C), and substrate concentrations.
- Determined V_{max} and K_m via spectrophotometric assays; constructed Michaelis-Menten and Lineweaver-Burk plots.

Comparative Study of Antioxidant Activity in Beverages

Jul 2024 – Dec 2024

- Quantified antioxidant activity across 10+ beverage matrices via UV-Vis spectrophotometry using DPPH assay.
- Constructed calibration curves and statistically compared absorbance profiles applicable to food QC/QA.

Physicochemical Water Quality Assessment

Jan 2024 – Jun 2024

- Conducted multi-parameter analysis (pH, TDS, turbidity, conductivity) on 20+ water samples.
- Interpreted results against IS/WHO standards; flagged 4 samples exceeding permissible limits for reporting.

ACHIEVEMENTS

MicCon25 — Oral Presenter, International Microbiology Conference

Jun 2025

Presented original research at Madurai Kamaraj University's national-level microbiology conference.

IDEATHON 4.0 — Innovation Challenge Participant

Nov 2025

Pitched a science-based solution under competitive conditions at Bennett University's innovation challenge.

CERTIFICATIONS & CONFERENCES

- **Treasure Titans- An Treasure Hunt Event Based On Analytical Skill QuesSons** Mar 2026
School of Mechanical Engineering, Lovely Professional University
- **Applied Environmental Microbiology — NPTEL Online Certification** Jan – Apr 2026
IIT Roorkee | Swayam
- **Cracking Microbial Genomes with PCR and Electrophoresis** Nov 2025
School of Bioengineering and Biosciences, Lovely Professional University
- **Good Laboratory Practices (GLP) for Industries — Guest Lecture** Nov 2025
School of Bioengineering and Biosciences, Lovely Professional University
- **MicCon25 International Microbiology Conference — Oral Presenter** Jun 2025
Madurai Kamaraj University
- **Introduction to Data Analytics** Aug 2025
Saylor Academy
- **Introduction to MS Excel** Jun 2025
Simplilearn

EDUCATION

- Lovely Professional University** Jalandhar, Punjab
M.Sc. in Microbiology | CGPA: 8.01 (ongoing) 2025 – 2027
- Punjab College of Technical Education** Ludhiana, Punjab
B.Sc. in Biotechnology | CGPA: 8.68 2022 – 2025
- R.S. Model Senior Secondary School** Ludhiana, Punjab
12th (PCB) | Percentage: 85.4% 2020 – 2022
- Harsh Vidya Mandir** Ludhiana, Punjab
10th Standard | Percentage: 91% 2020