

ABHISHEK KUMAR

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EDUCATIONAL QUALIFICATIONS

M.Tech in Bioengineer **GPA - 8.9/10**
Indian Institute of Technology (IIT), Bhilai, India. 2023-2025

B.Tech in Biotechnology (Summit Research Program) **GPA- 8.4/10**
Shoolini University of Biotechnology and Management, Himachal Pradesh, India. 2019-2023

RESEARCH EXPERIENCE

M.Tech Thesis and Projects **Dec 2023 - Present**

Mentor - Dr. Sharad Gupta and Dr. Ramasamy Mayilmurugan

1. Development of probe for early detection of breast cancer - IIT Gandhinagar (Sept'24-Mar'25)

- Synthesized peptide-based target, conjugated with MRI Contrast agent and 4-arm PEG.
- Performed physicochemical, and *in-vitro* bioactivity testing.
- **Skills :-** Nanoparticle synthesis, Solid-phase peptide synthesis, FTIR, NMR, XRD, LC-MS, TGA, DSC, FE-SEM, AFM, Phantom imaging, Confocal Microscope and UV Spectrophotometer.

2. Development of bioplastic.

- Formulated natural polysaccharide-based bioplastic incorporated with natural wax with enhanced antimicrobial and antifungal properties.
- **Skills :-** Swelling, Degradation, Drug Release, Rheology.
- **Outcomes :-** Finalist in a Bio-based Hackathon.

B.Tech Thesis **Oct 2022 - June 2023**

Mentor - Dr. Azhar Khan

Analyze the potential of sugars and salts against the biofilm of *S. typhi*

- Biofilm formation of three different types of microbial species on different platforms and analyze them under different circumstances.
- **Skills:-** ICP-OES, and UV-Vis Spectrophotometer.

Internships

1.DBT Skill Vigyan Program – HIMCOSTE **Dec 2021 - Feb 2022**

I had experience working as a lab technician/assistant, with specific responsibilities including serving as a quality assurance(QA) and quality control(QC) Officer and overseeing the use and maintenance of lab instruments.

2.The iENGAGE Summer Research programme-Queen's University, Belfast, UK [Remote]
July 2022 - Aug 2022

Mentor - Dr. Judith Lechner **Summer Research Intern**

- investigate the role of EPCR (Endothelial Protein C Receptor) in diabetes mellitus.
- **Skills :-** Graphpad Prism-analysis of Flow cytometer data.

PUBLICATIONS

Journal Articles

- Exploring the potential of essential oils as anti-biofilm agents: a review on inhibition of *Salmonella typhi* biofilm formation. ***Journal of Essential Oil Research***, 1–15. Impact factor-2.7
- Circulating and non-circulating proteins and nucleic acids as biomarkers and therapeutic molecules in ovarian cancer. ***Genes & Diseases***, 10(3), 1005–1018. Impact factor-7.2
- A comprehensive review on nanoparticle-based photoacoustic: current applications and future perspectives. ***Discover Nano***, 19(1), 1–22. Impact factor-5.5

Book Chapter

- Application of bioinformatics: Integrated computational tools in green technologies, *Taylor & Francis*, 2024. Chapter 6: Microbial Approaches for Sustainable Green Technologies CRC Press.

Conference

- **Indian Peptide Society** - Poster presentation at IISER Pune on 10th Indian Peptide symposium
Topic - Design and Development of a Targeted Molecular Probe for Ultrasensitive Early Detection of Breast Cancer

Forthcoming Publications

- Post-covid complications on fertility in the male population: Mechanistic insights and intricacies (Accepted in Heliyon IF-3.9).
- Application of Deep learning in food and bioprocess. (Accepted Book chapter and under production)
- Advances in FRRG Peptide-Based Approaches for Breast Cancer Management: A Comprehensive Review (In Progress)

ACHIEVEMENTS AND SKILLS

- Selected finalists in **HackTheHurdle** by **SBTI** - Innovation and Startup
- Ranked among the top 15 of 250 teams in Ideathon organized by **Gujarat Biotechnology University**, India. - Innovation and Startup
- **Technical Skills** :- Microsoft Office Suite, OriginLab, ImageJ, ChemDraw, LaTeX, MestReNova, PyMOL, Autodock, Mendeley and Website Frontend Developer.
- **Languages** :- English, and Hindi

LEADERSHIP AND ACTIVITIES

Teaching Assistantship , Indian Institute of Technology(IIT), Bhilai	Aug 2023 - Present
Subject Matter Expert , Chegg	Jan 2023 - Sept 2023
Future Leaders Program , International Coaching Federation(ICF)	Aug 2022 - Dec 2022
Best Critics , PITINCRIT	Sept 2019

Reference

1. **Sharad Gupta**, HOD of Biological Science and Bioengineering at Indian Institute of Technology Gandhinagar (sharad@iitgn.ac.in)
2. **Shabirul Haque**, Professor at Feinstein Institutes for Medical Research (shaque@northwell.edu)