

Afjal Ansari

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EDUCATION

Chhatrapati Shahu Ji Maharaj University <i>M.Sc. in Biotechnology</i> Dissertation: Nanotechnology and nanomaterials in biofuel production.	Kanpur, U.P. 2023 79%
Chhatrapati Shahu Ji Maharaj University <i>B.Sc. in Biotechnology</i>	Kanpur, U.P. 2021 64.75%
MSI College <i>Intermediate (12th)</i>	Gorakhpur, U.P. 2015 76.8%
Ramsewak H S S Dhaurahara <i>High School (10th)</i>	Kushinagar, U.P. 2013 76.3%

RESEARCH EXPERIENCE

Center for Environmental Science and Engineering, Indian Institute of Technology Kanpur <i>Junior Research Fellow (JRF)</i>	Kanpur, U.P. March 2024 – Present
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Project-1: Selective conversion of aqueous CO₂ to formate using the wastewater-isolated microalgae in a packed bed photobioreactor under continuous flow condition.

- The project aims to enhance the efficiency of industrial wastewater treatment through the innovative use of microalgae, while also incorporating an advanced approach that combines the principles of carbon capture and bio-based chemical production. By leveraging the natural metabolic abilities of microalgae and employing a photobioreactor system, this process seeks to convert CO₂ into valuable products, such as formate.

Project-2: Treatment of high-COD industrial wastewater using a conical-shaped packed-bed microbial fuel cell in continuous flow.

- The project involves an advanced approach to treating wastewater with a high concentration of organic pollutants. Microbial fuel cells (MFCs) use microbes' metabolic activity to degrade organic matter while generating electricity as a by-product. The conical-shaped packed-bed design in a continuous flow setup enhances treatment efficiency and energy production.

TEACHING EXPERIENCE

<ul style="list-style-type: none">Sigma Classes <i>Biology Faculty</i>Axis Institute of Higher Education <i>Assistant Professor</i>	Kanpur, U.P. 2021 – 2023 Kanpur, U.P. 2023 – 2024
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PUBLICATIONS / PATENTS

- A packed bed photobioreactor for conversion of aqueous CO₂ to starch in continuous mode.
- Patent No- 202411064858 (Applied)

ACADEMIC ACHIEVEMENTS

<ul style="list-style-type: none">IIT JAM qualifiedICAR-PG qualifiedGATE BT qualifiedBITP	2021 2021 2023 2024
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SKILLS

- **Microbial techniques:** Isolation of bacteria & algae (Streak plate, pour plate, spread plate method), Sterilization methods, Staining (Gram staining), Cell counting using a hemocytometer, Antibiotic sensitivity test, Starch extraction, and detection from algae.
- **Molecular techniques:** Nucleic acid isolation, Electrophoresis, SDS-PAGE, ELISA, PCR.
- **Bioinformatics tools:** BLAST, NCBI, Homology modeling, Clustal omega, Mega XI.
- **Nanotechnology:** Nanoparticle synthesis using chemical vapor deposition (CVD)
- Basic knowledge of computers, proficiency in MS Office (Excel, Word, and PowerPoint).
- **Instrument handling:** High-Performance Liquid Chromatography (HPLC), Gas Chromatography (GC), Ultrasonicator, pH meter, Microscopy, Centrifuge (Benchtop Centrifuge, Refrigerated Centrifuge), Laminar air flow chamber, Autoclave, Lyophilizer, UV spectroscopy, CO₂ incubator, BET surface area analyzer, Thermogravimetric analyzer (TGA), and Chemical Oxygen Demand conducting Digestor, and Particle size analyzer (PSA).

EXTRA-CURRICULAR ACTIVITIES

- **Chhatrapati Shahu Ji Maharaj University**, *Member of National service scheme (NSS) at CSJMU Kanpur.* 2018-2020
- **Chhatrapati Shahu Ji Maharaj University**, *Placement coordinator at School of life science and Biotechnology CSJMU Kanpur* 2021-2022
- **Chhatrapati Shahu Ji Maharaj University**, *Member Executive councilor Students union at School of life science and Biotechnology CSJMU* 2022-2023

AREA OF INTEREST

- Immunology
- Cellular and molecular biology
- Microbiology
- Nanotechnology
- Industrial biotechnology

CERTIFICATE AND SEMINAR

- 2 days National conference on Advancements in Biotechnology NIT Warangal
- National seminar of World Environment Day CSJMU Kanpur
- Training Program on Fundamentals of AI, ML, and Data Science conducted by Electronics & ICT Academy (E & ICT Academy) at IIT Kanpur
- SERB Sponsored High-End Workshop "Karyashala" on Emerging Technologies in Point of Care Diagnostics (POCD) for Disease Monitoring organized by MNNIT Allahabad.

REFERENCES

Prof. Nishith Verma

Chevron Corporation Chair Professor
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Department of Sustainable Energy Engineering
& Center for Environmental Science and Engineering
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