

Brief Resume

Name: Dr. Nishant Arunrao Dafale

Designation: Principal Scientist & AcSIR faculty

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Department: Environmental Bioprocess (Sub-Vertical),
CSIR-National Environmental Engineering Research Institute (CSIR-NEERI),
Nagpur

Education (Post Graduation onwards & Professional career)

1. **Ph.D.** in Microbiology CSIR-NEERI, Nagpur, and degree awarded by RTM Nagpur University, Nagpur. (Place of work: CSIR-NEERI, Nagpur).
2. **M.Sc.** in Microbiology (First Division) from P.G. Dept. of Microbiology, L.I.T. premises, RTM Nagpur University, Nagpur
3. **B.Sc.** in Micro, Chem, Zoo (First Division) from Jankidevi Bajaj College of Science, Wardha, Nagpur University, Nagpur

Professional career:

S. No.	Position and Organization	Period
1	Principal Scientist, EBGD, CSIR-NEERI, Nagpur	Dec 2021 to till date
2	Senior Scientist in the <i>EBGD</i> at CSIR-NEERI, Nagpur	Dec 2017 to 2021
3	Scientist in the <i>Environmental Genomic Division</i> at CSIR-NEERI, Nagpur	Dec 2013 to 2017
4	Senior Scientific Officer in Indian Pharmacopoeia Commission (IPC), Ministry of Health and Family Welfare, Govt. of India, Ghaziabad	Sept 2009 to Dec. 2013
5	CSIR-SRF and Project Fellow at the CSIR-NEERI, Nagpur	Sept 2002 to Sept 09
6	Dinshaw's Dairy Food Ltd., Nagpur	June 2001 to Aug 02

Awards:

- ◆ Awarded **CSIR-Senior Research Fellow (SRF)** by **Council for Scientific and Industrial Research (CSIR)**, New Delhi in 2008.
- ◆ Awarded **Junior Project Fellow (JPF)** by **CSIR-National Environmental Engineering Research Institute**, Nagpur in 2002.

Associate Editor/Editorial member for SCI journals:

- ◆ Applied biochemistry & Biotechnology, Springer Nature, IF-3.3, Hybrid Journal
- ◆ Molecular Biology Reports, Springer Nature, IF-2.6, Publishing model: Hybrid
- ◆ Scientific Reports, Nature, Impact factor-3.8, Publishing model: Open access

NABL Assessor/Expert:

- Empanelled as Lead and Technical Assessor by Quality Council of India (QCI), NABL, New Delhi and assessed more than 100 Govt. & Pvt. Lab. across India.

Deputation to three different EU Universities under Indo-EU project:

- University of Cyprus, **Cyprus**, from Feb 2-8, 2020; Institute of Technology, Sligo, **Ireland** from Feb 9-11, 2020 and Ulster University, **Belfast, UK**, from Feb 12-15, 2020

Ph. D Supervisor: (Awarded: 5 Ph.D; & Pursuing: 3 Ph.D.)

(2: DST-Inspire; 2: CSIR-SRF; 2: CSIR/UGC-SRF, 1: Project SRF & 1: IDDP)

Master's thesis: More than 19 students from various universities across Indian have completed their master's thesis.

Recognized Ph.D supervisor: 1) Microbiology, **Nagpur University, Nagpur**,
2) Microbiology & Biotechnology, **North Maharashtra University, Jalgaon**, and
3) Interdisciplinary (Biological Science/Eng.), **AcSIR, New Delhi** at NEERI-Nagpur.

Recent Few Research Projects:

Research Projects Ongoing: 5

Completed: 14

S No	Project Title	Sponsor	Amount	Period
1.	Prospecting rumen culture bank for novel Lytic Polysaccharide Monooxygenase for efficient deconstruction of agriculture waste residue	DBT (Project Leader)	Rs.54.00 lakhs	Sept 2023 to Sept 2026
2.	Functional Metagenomics of Camel Rumen Microbiome For Novel Key Glycoside Hydrolases (GH) to Benefit Animal Nutrition and Biofuels	DBT (Project Leader)	Rs. 31.00 lakhs	July 2017 to Jan 2021
3.	ResPharm: Resolving the fate and studying the impact of pharmaceutical wastes on the environment and local community of a pharmaceutical manufacturing hub	Indo-UK (DBT-NERC) (Project Leader)	Rs.86.00 lakhs	Jan. 2021 to Sept. 2025
4.	Photo-irradiation and Adsorption based Novel Innovations for Water-treatment: PANI-WATER (Indo-EU)	Indo-EU (DST-EU) (Co-PI)	Rs. 156.99 lakhs	March 2019 to Dec. 2025
5.	Metagenomics-based seasonal monitoring of wildlife health in Tadoba-Andhari Tiger Reserve, Chandrapur	Field Director & Conservator of Forests, TATR Chandrapur	Rs. 45.00 Lakhs	June 2024 to June 2027
6.	Wastewater based epidemiological monitoring for SARS-CoV-2 virus and antibiotic-resistant bacteria	CSIR (MLP-202) CSIR labs (CCMB & NCL)	Rs. 45.23 Lakhs	Feb 2022 to Feb 2024
7.	Engineered Bioremediation Approaches for Onsite Treatment of Soil Contaminated with Crude Oil	DBT (Co-PI)	Rs. 262.55 lakhs	March 2019 to March 2024
8.	Assessing influence of open and closed drain system on ecosystem	CSIR (Project Leader)	Rs. 161.00 lakhs	March 2020 to March 2023
9.	GIS based mapping of microbial diversity across the Ganga for ecosystem services	NMCG (Co-PI)	Rs. 300.00 lakhs	March 2020 to March 2024
10.	Microbial Diversity of Human Gut	ITC, Bangalore (Co-PI)	Rs. 307.00 lakhs	April 2014 to Dec. 2021
11.	Evaluation of bacteriophage cocktail as a biocontrol for pathogens	CSIR (Project Leader)	Rs. 30.00 lakhs	January 2015 to March 2017

No. of Publications in SCI journals (in numerical):

Google Scholar Id: <https://scholar.google.com/citations?user=UOefZaoAAAAJ&hl=en>

- **Total Number of Publications: 72**
- As corresponding Author: 59 As first Author: 14
- Book Chapters : 9 As corresponding book Author: 7
- Significant contribution in 3 pharmacopeial legal books

- ✓ **Gene Bank submission:** Metagenome: 43, WGS: 44, 16srDNA: ~200
- ✓ **Papers Presented in International/National Conferences:** 22 Nos.
- ✓ **Google scholar citations:** 2378 and **h-index:** 27; **i10-index-** 46
- ✓ **Indian Pharmacopoeia (IP) 2010, 2014 and IP Addendum 2012:-** Significant contribution in IP, a legal book per Drugs and Cosmetics Act 1940 and Rules 1945 for specifying the standards of medicines produced and/or marketed in India.

Patent filed: Biodegradable composite derived from agro-wastes suitable for application in electronic devices. Application No: 202541077516 (Dr Shailesh Rao & Dr Nishant A. Dafale)

Committee member:

- Member of the Institutional Biosafety Committee (IBSC).
- Microbiology subject expert for curriculum development and modification at Laxminarayan Innovation Technological (LIT) University, Nagpur (2023- till date)
- Member of the board of study in Microbiology at RTM Nagpur University, Nagpur (2022-2023).
- Doctoral Advisor Committee (DAC) member for 5 AcSIR Ph.D. students and External examiner for Ph.D. thesis evaluation by various Universities.
- Member of theory and practical examination and moderation for master's degree at RTM Nagpur University, Nagpur.

Recent related 10 SCI publications: *Corresponding author

1. S Bombaywala, A Bajaj, **NA Dafale*** (2024) Deterministic effect of oxygen level variation on shaping antibiotic resistome. *Journal of Hazardous Materials*, 465, 133047; **IF: 14.2**.
2. R Bamrotwar, C Akhand, S Bhairam, S Srivastava, **NA Dafale*** (2026) Insights into lytic polysaccharide Monooxygenases of *Streptomyces* sp. CRN30 for enhanced wheat straw saccharification: Enzyme kinetics and genome dissection. *Biomass and Bioenergy*, 204, 108433; **IF. 5.8**
3. RS Bhende, S Bombaywala, **NA Dafale*** (2023) Unleashing potential of *Pseudomonas aeruginosa* RNC3 and *Stenotrophomonas maltophilia* RNC7 for chlorpyrifos biodegradation by genome analysis and kinetic studies. *Journal of Hazardous Materials*, 132668; **IF: 14.2**.
4. S Srivastava, **NA Dafale*** (2024) Tailored microbial consortium producing hydrolytic enzyme cocktail for maximum saccharification of wheat straw. *Bioresource Technology*, 399, 130560; **IF: 11.1**.
5. S Bombaywala, HJ Purohit, **NA Dafale*** (2021) Mobility of antibiotic resistance and its co-occurrence with metal resistance in pathogens under oxidative stress, *Journal of Environmental Management*, 297, 113315. **IF: 8.91**

6. S Srivastava, **NA Dafale***, HJ Purohit (2020) Functional genomics assessment of lytic polysaccharide mono-oxygenase with glycoside hydrolases in *Paenibacillus dendritiformis* CRN18. *Int. Jr. of Biological Macromolecules*. 164, 3729-3738; **IF: 8.02**.
7. S Bombaywala, A Bajaj, **NA Dafale*** (2024) Oxygen mediated mobilization and co-occurrence of antibiotic resistance in lab-scale bioreactor using metagenomic binning. *World J. of Microbiology & Biotechnology*, 40 (5), 1-13; **IF. 4.1**
8. V Jha, S Bombaywala, H Purohit, **NA Dafale*** (2022) Differential colonization and functioning of microbial community in response to phosphate levels. *Journal of Environmental Management*, 321, 115856; **IF: 8.91**.
9. V Jha, **NA Dafale***, Z Hathi, H Purohit (2021) Genomic and functional potential of the immobilized microbial consortium MCSt-1 for wastewater treatment. *Science of the Total Environment*, 777, 146110; **IF:10.75**.
10. V Bohra, H Tikariha, HJ Purohit, **NA Dafale*** (2022) Unique pool of carbohydrate-degrading enzymes in novel bacteria assembled from cow and buffalo rumen metagenomes, *Applied Microbiology and Biotechnology*, 106 (12), 4643-4654. **IF: 5.56**