Divya Prakash (Ph. D)

Present position

- **Assistant Professor**

Contact Details

020-67656456

divya.prakash@fergusson.edu

linkedin.com/in/divya-prakash-114a8765

Work Experience

- **Teaching: 2.4 years**
- **Research/Industrial: 16.5 years**

Personal Profile

My career of 20 years spans from Industrial, Academic and Research experiences. I did my Post-graduation in Biochemistry from the University of Mysore, Mysore and passed CSIR-NET in 2000. I started my career as a Scientific Assistant at Bangalore Genei Pvt. Ltd. which is one of the pioneer biotechnology companies in India. After which, I worked in NCL and obtained my Ph. D in Microbiology from Savitribai Phule Pune University {SPPU} (formerly known as University of Pune). During this tenure, I was a visiting faculty at the Department of Microbiology, SPPU to teach Bioinformatics to Post-Graduate students and worked as a Senior Research Fellow at Dr. D. Y. Patil Biotechnology & Bioinformatics Institute on a SIDA funded project. This International collaborative project gave me international exposure to research laboratories in Germany and Sweden as well as grassroot experience in India. I also acquired expertise in various techniques and worked in a team of clinicians, academicians and students. I have also mentored post-graduate students in their dissertation projects. My Post-Doctoral experience includes research work at the Department of Biotechnology, SPPU and Department of Zoology, SPPU. I am currently teaching Under-Graduate and Post-Graduate students at DES Fergusson College (Autonomous) Affiliated to Savitribai Phule Pune University, Pune, India. My research interests include Leishmania-Macrophage interactions, Pre-probiotics as functional foods.

Course(s) Taught

1. Biological Chemistry
2. Practicals in Biological Chemistry and Biophysics

3. Molecular Biology – II
4. Biotechnology Practicals V Exercises in Molecular Biology, Protein Biochemistry and Enzymology
5. Introduction to Diagnostic Techniques
6. Cell Biology
7. Animal Tissue Culture
8. Bioanalytical Techniques – I
9. Biotechnology Practical-III (Bioanalytical Techniques I + Enzymology)
10. Biotechnology Practical-I (LSMP I + Diagnostic Techniques)
11. Molecular Biology
12. Biotechnology Practical-I
13. Genetic Engineering and Industrial Biotechnology-I
14. Biotechnology Practical–III
15. Biotechnology Practical-III

Field of Specialization/Areas of Interests

- Molecular Biology
- Protein Chemistry
- Leishmania-host interactome
- Pro-Prebiotics as functional foods

Education

- **Ph.D. – (Microbiology): 2010 to 2017**
  Title of the Thesis: "Enzymatic recovery of chitooligosaccharides from seafood waste: Molecules with therapeutic potential"
  Name of University / Institution: Savitribai Phule Pune University (Formerly known as University of Pune).
  Year of Award: 2017

- **Master of Science- (Biochemistry)**: 2001
  University of Mysore, Mysore.

- **Bachelor of Science- (Botany, Biochemistry & Microbiology):** 1999
  Yuvaraja's College, University of Mysore, Mysore.

Fellowship/Awards/ Certifications/Achievements/Recognitions

A. Dr. Awtar Krishan Award conducted by Trust for Education and Training in Cytometry (TETC) during "Virtual 22nd INDO-US Flow Cytometry workshop 2021".
B. Research Associateship, Department of Science & Technology, Government of India, India.
C. Senior Research Fellowship, Swedish International Development Cooperation Agency (SIDA), Sweden.
D. Ph. D Scholarship for Doctoral studies, University of Pune, India.
E. Senior Research Fellowship, Department of Biotechnology (DBT), Government of India, India.
F. National Eligibility Test (NET)-Lectureship, CSIR, Government of India, India.

Member of College Committees/ Professional Bodies and Others

College Level	Professional Bodies	Others
● F.Y. B.Sc. Admission Committee	Life member-Biotech Research Society of India (BRSI), India Life member- Indian Women Scientist's Association (IWSA), India	
● S. Y. B. Sc Class Teacher		
● Instruments Repair & Maintenance In-charge	Life member- Indian Science Congress Association, India	
• Co-Ordinator for Hands-on workshops and Brain-storming sessions with Green Array Technologies, Pune		

Employment History

1) Organization : Deccan Education Society's Fergusson College (Autonomous) Affiliated to Savitribai Phule Pune University, Pune, India
Role : Assistant Professor
Duration : February 2022-Present

Responsibilities	● Teaching ● Student centric activities ● Research and Development ● Research Mentoring

2) Organization : Deccan Education Society's Fergusson College (Autonomous) Affiliated to Savitribai Phule Pune University, Pune, India
Role : Visiting Faculty
Duration : October 2021-January 2022

Responsibilities	● Teaching

3) Organization : Centre of Advanced Study, Department of Zoology, Savitribai Phule Pune University, Pune, India
Role : Post-Doctoral Fellow
Duration : July 2019-October 2021

Responsibilities	● Research on proteomics studies involving clinical isolates ● Grant application to various funding agencies

4) Organization : Department of Biotechnology, Savitribai Phule Pune University, Pune, India
Role : Research Associate
Duration : December 2016-March 2019

Responsibilities	● Research involving cloning, expression and purification of a recombinant epoxy hydrolase enzyme from *Yarrowia lipolytica*. ● Drafting of research manuscripts and administrative work

5) Organization : Dr. D. Y. Patil Biotechnology & Bioinformatics Institute, Pune, India
Role : Senior Research Fellow
Duration : July 2012-April 2014

Responsibilities	● Research on Identifying novel biomarkers of COPD (Chronic Obstructive Pulmonary Disease) and design of innovative preventive and therapeutic strategies targeted for the benefit of the Indian population ● Mentoring Post-Graduate students in their dissertation work

6) Organization : Department of Microbiology, Savitribai Phule Pune University, Pune, India
Role : Visiting Faculty
Duration : January 2011-June 2012

Responsibilities	● Teaching

7) **Organization :** Department of Microbiology, Savitribai Phule Pune University, Pune, India
Role : Senior Research Fellow
Duration : December 2006- September 2009

Responsibilities	● Research on the extraction of Chitooligosaccharides from marine waste and evaluating their applications as Functional foods ● Mentoring Post-Graduate students in their dissertation work

8) **Organization :** Biochemical Division, National Chemical Laboratory, Pune, India
Role : Project Assistant
Duration : November 2004- May 2005

Responsibilities	● Research on Development of varieties with durable resistance to leaf and stripe rust using molecular technology in bread wheat

9) Organization : Biochemical Division, National Chemical Laboratory, Pune, India
Role : Project Assistant
Duration : November 2003- November 2004

Responsibilities	● Research on Programme for Micropropagation of various commercial and economic plants and its development

10) Organization : Bangalore Genei Pvt. Ltd (Currently Merck & Co.)
Role : Scientific Assistant
Duration : October 2001- November 2002

Responsibilities	● Research and Development of Life Science Products ● Production of chemically synthesized oligonucleotides

Research Projects

Title of the Project	Name of Funding Agency	Amount (Rs)	Duration (Year) (From To)	Type (Minor/Major)	Outcome
-	-	-	-	-	-

Research Publications in National and International Journals

1. Yewale, P., Wagle, N., Lenka, S., Bannigol, P., Junnarkar, M., **Prakash**, **D.,** Mandal, A., Stigh, C., Sahasrabudhe, T., Vannalwar, T., Thakare, P., Nikam, D., Pawar, P., and Nawani, N,. Studies on Biosmotrap: A multipurpose biological air purifier to minimize indoor and outdoor air pollution. *J. Clean. Prod* 2022; 357, 132001 **(IF:11.07)**.
2. Routaray, C. B., Choudhari, V., **Prakash**, **D.,** Patil, R., Jagtap, S., Bai, S., Kulkarni, M. J., Kuchipudi, S. V., and Pai, K,. Quantitative proteomic analysis reveals differential modulation of crucial stage specific proteins during promastigote to amastigote differentiation in *Leishmania donovani*. *J. protein proteomics* 2021; 13,17–27 **(IF:NA).**
3. Keesari, T., Ramakumar, K. L., Bala Krishna Prasad, M., Chidambaram, S., Perumal, P., **Prakash, D.,** and Nawani, N. N,. Microbial Evaluation of Groundwater and its Implications on Redox Condition of a Multi-Layer Sedimentary Aquifer System. *Environ. Process* 2015; 2, 331-346 **(IF:NA).**
4. Salgaonkar, N., **Prakash**, D., Nawani, N. N., and Kapadnis, B. P,. Comparative studies on ability of *N*-acetylated chitooligosaccharides to scavenge reactive oxygen species and protect DNA from oxidative damage. *Indian J. Biotechnol* 2015; 14, 186-192 **(IF:0.32).**
5. **Prakash, D.,** and Nawani, N. N,. A rapid and improved technique for scanning electron microscopy of actinomycetes. *J. Microbiol. Methods* 2014; 99, 54–57 **(IF:2.62).**
6. **Prakash**, **D.,** Nawani, N. N., and Kapadnis, B. P,. Chitinases: Ubiquity and Potential in Medicine. Journal of Chitin and Chitosan Science 2014; 2, 1-15.
7. Prakash, M., Bodas, M., **Prakash**, **D.,** Nawani, N. N., Khetmalas, M., Mandal, A., and Eriksson, C,. Diverse pathological implications of YKL-40: answers may lie in 'outside-in' signaling. Cell. Signal 2013; 25, 1567-1573 **(IF:4.85).**
8. **Prakash**, **D.,** Nawani, N. N., Prakash, M., Bodas, M., Mandal, A., Khetmalas, M., and Kapadnis, B,. Actinomycetes: A repertory of green catalysts with a potential revenue resource. Biomed Res. Int 2013; 8 pp. DOI:10.1155/2013/264020 **(IF:3.24).**

9. **Prakash, D.,** Mahale, V., Bankar, A., Nawani, N. N., Zinjarde, S., and Kapadnis, B,. Biosynthesis of colloidal gold nanoparticles by *Streptomyces* sp. NK52 and its anti-lipid peroxidation activity. Indian J. Exp. Biol 2013; 51, 969-972 **(IF:0.944).**
10. **Prakash, D.,** Nawani, N. N., and Kapadnis, B.P,. Cloning, expression and characterization of thermophilic and alkalophilic N-acetylglucosaminidase from *Streptomyces* sp. NK52 for the targeted production of N-acetylglucosamine. Proc Natl Acad Sci India Sect B Biol Sci 2013; 83, 431-437 **(IF:0.96).**
11. Purushe, S., **Prakash**, **D.,** Nawani, N. N., Dhakephalkar, P. K., and Kapadnis, B. P,. Biocatalytic potential of an alkalophilic and thermophilic dextranase as a remedial measure for dextran removal during sugar manufacture. Bioresour. Technol 2012; 115, 2-7 **(IF:11.88).**
12. Bankar, A., Winey, W., **Prakash**, **D.,** Ravikumar, A., Gosavi, S., Kapadnis, B., and Zinjarde, S,. Bioleaching of Fly Ash by the Tropical Marine Yeast, *Yarrowia lipolytica* NCIM 3589. Appl. Biochem. Biotechnol 2012; 168, 2205-2217 **(IF:3.09).**
13. Gajbhiye, M., **Prakash**, **D.,** Jagdale, S., Ahiwale, S., and Kapadnis, B.P,. Pomegranate borne fungicidal Lactic acid bacteria and their Biodiversity. Proc Natl Acad Sci India Sect B Biol Sci 2012; 82, 413-419 **(IF:0.96).**
14. Gajbhiye, M. H., **Prakash, D.,** and Kapadnis, B. P,. Identification of Pomegranate Fruit Rot Pathogens and an Antagonist *Lactococcus lactis* ssp. cremoris PB6. J. Plant Pathol 2012; 42, 400-406 **(IF:NA).**
15. Ahiwale S.S, **Prakash, D.**, Gajbhiye, M., Jagdale, S., Patil, N., and Kapadnis, B.P,. BVPaP-3, a T7-Like Lytic Phage of *Pseudomonas aeruginosa*: Its Isolation and Characterization. Curr. Microbiol 2012; 64, 305-311 **(IF: 2.188).**
16. Nawani, N. N., **Prakash, D.,** and Kapadnis, B. P,. Extraction, purification and characterization of an antioxidant from marine waste using protease and chitinase cocktail. World J. Microbiol. Biotechnol 2010; 26, 1509-1517 **(IF: 4.25).**
17. **Prakash**, **D.,** Bar, C., Bhor, R., and Pai, K,. Recent advances in biological databases to study diversity in Kinetoplastids. Title of the book: Microbial Diversity and Ecology in Hotspot. Eds: Gunjal A and Shinde S. Elsevier Publication 2021.
18. **Prakash**, **D.,** Nawani, N. N., and Kapadnis, B. P,. Microbial mining of value-added products from seafood waste and their applications. Title of book: Microorganisms in Environmental Management. Eds: Satyanarayana, Johri and Anil Prakash. Springer Publication 2012.
19. **Prakash**, **D.,** Nawani, N. N., and Kapadnis, B. P,. Indigenous and recombinant chitinases as biocontrol agents against plant pathogens: a comparative study. Pest Technology, Global Science Books, UK 2010.
20. **Prakash**, **D.,** Nawani, N. N., and Kapadnis, B. P,. Chitin: a target for biological control of agricultural pests. In: Role of Biocontrol Agents for Disease Management in Sustainable Agriculture. Eds: Ponmurugan, P and Deepa M. Research India Publications 2009.

Participation in Conferences/Seminars/Symposia/Workshop:

1. **Divya Prakash**, N. N. Nawani and B. P. Kapadnis, Enzymatic bioproduction of low molecular weight Nacetylated chitin oligosaccharides and evaluation of their remedial

potential. International Conference on "Innovative trends in Chemical, Physical and Biosciences 2016", Annasaheb Magar Mahavidyalaya, Pune, February 2016

2. **Divya Prakash**, Rupali Aursang, Tushar Sahasrabuddhe, Madhukar Khetmalas, Abul Mandal, Cecilia Eriksson and Neelu Nawani, Algae: Sequesters of flue gas from cook-stoves. "25ème Forum International des Sciences Biologiques et de Biotechnologie", Hammamet, Tunisia, March 2014

3. **D. Prakash**, N. Salgaonkar, N. N. Nawani and B. P. Kapadnis, *In vitro* comparative studies on antioxidative potential of N-acetylated chitooligosaccharides. International Conference on "Emerging trends in Biotechnology (ICETB-2014) and XI Convention of Biotech Research Society", Jawaharlal Nehru University, New Delhi, November 2014

4. **Prakash D**, N.N. Nawani and B. P. Kapadnis, Enzymatic resurgence of antioxidative N-acetyl chitotriose and chitotetraose from chitin waste. International Conference on "Advances in Biotechnology & Bioinformatics 2013 & X Convention of Biotech Research Society", Dr. D. Y. Patil Vidyapeeth, Pune, November 2013

5. **Divya Prakash**, N. N. Nawani, M. Bodas, M. Prakash, M.B. Khetmalas, A. Mandal and C. Eriksson, A study on indoor air pollution in rural India and remedies to reduce toxic effects of smoke arising due to burning of biomass fuels. International Conference on "Advances in Biotechnology & Bioinformatics 2013 & X Convention of Biotech Research Society", Dr. D. Y. Patil Vidyapeeth, Pune, November 2013

6. **Divya Prakash**, Vishal Mahale, Ashok Bankar, Neelu Nawani, Smita Zinjarde, Balasaheb Kapadnis, Green synthesis of colloidal gold nanoparticles by *Streptomyces* sp. NK52 and its anti-lipid peroxidation activity. International Conference on "Industrial Biotechnology (ICIB-2012)," Punjabi University, Patiala, November 2012

7. **Divya Prakash**, D. Ghorpade, N. N. Nawani, B. P. Kapadnis, Bioconversion of seafood waste by Streptomyces sp. fermentation for the targeted production of N-acetyl chitooligosaccharides and evaluation of their anti-lipid peroxidation potential. International Conference on "New Horizons in Biotechnology (NHBT-2011)", Trivandrum, November 2011

8. N. N. Nawani, **Divya Prakash** and B. P. Kapadnis (Oral Presentation), Bioconversion of seafood waste by *Bacillus* sp. NK395 for the production of Single Cell Protein (SCP) and chitobiose. International Conference on "Microbes in wastewater and waste treatment, bioremediation and energy production MWT2011", Goa, January 2011

9. N. N. Nawani, **Divya Prakash** and B. P. Kapadnis, Production of chitinases and proteases on shrimp waste by marine *Bacillus* sp. NK-395. International Conference on "Aquatic Microbiology (AMSCO 2010)", Chennai, September 2010

10. Malhotra A, Nawani N. N, Singh A, Pawar S.V, **Prakash D**, Terdalkar S. and G. D. Tandon, Studies on prospective bioinoculum for the sustenance of mangroves for prevention of Tsunami. "International Congress of Chemistry and Environment",Thailand, January 2010 (Received Appreciation Award for the work)

11. **Prakash D**, N. N. Nawani and B. P. Kapadnis, Application of a chitinolytic phosphate solubilizing bacterium for plant growth promotion. "Proceedings of Climate Change and Challenges in Biodiversity Conservation", Pune, December 2009

12. **Divya Prakash**, N.N. Nawani, P.K. Dhakephalkar and B.P. Kapadnis (2009) Characterization of the chitinolytic system of alkalophilic *Streptomyces* sp. NK52 and its prospective use in biocontrol. First symposium on "Trends and advancement in Life Sciences", IISc., Bangalore, November 2009

13. Purushe S, **Divya Prakash**, N. N. Nawani, P. K. Dhakephalkar and B. P. Kapadnis (2009) Dextranase from *Streptomyces* sp. NK458. National Conference on "Frontiers in Biological Sciences", VV Nagar, Gujarat, February 2009

14. **Divya Prakash**, Nawani N. N. and B. P. Kapadnis, Production and evaluation of antibacterial properties of chitinchitosan, useful biomaterials from crab shells. National Conference on "Trends in Biomaterials", Sriperumbudur, Tamil Nadu, July 2008

15. Nawani N. N, **Divya Prakash**, V.G. Gadekar and Kapadnis, B. P, Enhancement of chitinase production from *Microbispora* sp. V2 by response surface methodology. "48th conference of AMI", Chennai, December 2007

16. **Divya Prakash**, Nawani N. N. and Kapadnis, B. P, Phenotypic and molecular diversity of chitinolytic bacteria. "48th conference of AMI", Chennai, December 2007

Events Organized/Coordinated:

Sr. No	Name of the Event	Name of organizing Institute/ College/ University	Nature of contribution	Dates
-	-	-	-	-

Additional skills/Activities

- Proficient in laboratory safety practices, biostatistics and bioinformatics
- Academic and administrative skills
- Certified in NPTEL's **Introduction to Proteogenomics**
- Certified in NPTEL's **Introduction to Biostatistics**
- Certified in NPTEL's **Immunology**

Course Content Developed (e-content)

Not applicable

Consultancy Services

Not applicable