



NAME: Dr. Manisha V. Junnarkar

Designation: Assistant Professor

Email ID: manisha.junnarkar@dpu.edu.in

Qualification: Ph.D. Biotechnology

Area of Specialization: Microbial Biotechnology

Research Interest: Nutraceuticals and Pharmaceutical Microbiology

EDUCATIONAL QUALIFICATIONS:

Ph.D. (Biotechnology) (2019) Dr. D.Y. Patil Vidyapeeth (DPU), Pune, India
Thesis title: "Potential of Lactic Acid bacteria for food preservation and Nutraceuticals".

M.Sc. (Biotechnology) (2004) Govt. Institute of science, Dr. B.A.M.U, Aurangabad, India.
Thesis title: Bacteriocin production from micro flora associated with Ginger (*Zingiber officinale*) and Radish (*Raphanus sativus*).

B.Sc. (Chemistry, Botany, Zoology) (2002) Dr. B.A.M.U, Aurangabad, India.

ACADEMIC EXPERIENCE:

Assistant Professor (July 2019 - till date): Pad. Dr. D.Y. Patil Biotechnology and Bioinformatics Institute, Tathawade, Pune, India.

Lecturer (October 2008 - June 2019): Pad. Dr. D.Y. Patil Biotechnology and Bioinformatics Institute, Tathawade, Pune, India.
Teaching: Biophysical chemistry, Cell Biology, Biopharmaceuticals, Food Biotechnology.

Lecturer (June 2006 - October 2008): Pad. Dr. D.Y. Patil College of Pharmacy, Pune University, Pune, India.
Teaching: Pharmaceutical Biotechnology, Pharmaceutical Microbiology, Pharmaceutical Biochemistry.

RESEARCH EXPERIENCE:

Recognized Ph. D. guide in Biotechnology, Dr. D. Y. Patil Biotechnology & Bioinformatics Institute, Dr. D. Y. Patil Vidyapeeth Pune.

Innovation grant from All India Council for Technical Education (AICTE) & Ministry of Education (MoE), Government of India 2024-2025, Avapro: An ecofriendly probiotic formulation for discouraging the use of antibiotics and chemical growth hormones in poultry feed. Grant value **Rs. 03 Lakhs**.

Research project Avapro: An ecofriendly probiotic formulation for discouraging the use of antibiotics and chemical growth hormones in poultry feed. Funded by Dr. D. Y. Patil Vidyapeeth, Pune, Jan 2016- Dec 2017 Grant value Rs. **05 Lakhs**.

Research project Screening of lactic acid bacteria for characteristic human and plant probiotic properties, Funded by Dr. D. Y. Patil Vidyapeeth, Pune, Jan 2016- Dec 2017 Grant value Rs. **13.40 Lakhs**.

Doctoral research project title: "Potential of Lactic Acid bacteria for food preservation and Nutraceuticals".

Post-graduation research project Bacteriocin production from micro flora associated with Ginger (*Zingiber officinale*) and Radish (*Raphanus sativus*).

MEMBERSHIPS

Life Member- Biotech Research Society of India (BRSI).

PUBLICATIONS:

PATENTS:

A probiotic formulation and a method thereof. Indian patent 1778/MUM/2015, Indian patent office journal publication dated 5 Aug 2016, page 55977.

RESEARCH PAPERS/PUBLICATIONS:

1. Roshani Pagar, Sanjeevani Deshkar, Jayashri Mahore, Vinita Patole, Hemant Deshpande, Nageswari Gandham, Shahzad Mirza, **Manisha Junnarkar**, Neelu Nawani (2024). The Microbial Revolution: Unveiling the Benefits of Vaginal Probiotics and Prebiotics. *Microbiological Research*, 127787. (Impact Factor 6.1)
2. Sangeet, S., Pawar, S., Nawani, N., **Junnarkar, M.**, & Gaikwad, S. (2022). Computational approach to attenuate virulence of *Pseudomonas aeruginosa* through bioinspired silver nanoparticles. *3 Biotech*, 12(11), 1-12. (Impact Factor 2.8)
3. Priti Yewale, Neeta Wagle, Shaurya Lenka, Pramila Bannigol, **Manisha Junnarkar**, Divya Prakash, Abul Mandal, Cecilia Stigh, Tushar Sahasrabudhe, Tejas Vannalwar, Prasad Thakare, Dhiraj Nikam, Sarika Pawar, Neelu Nawani (2022) Studies on Biosmotrap: A multipurpose biological air purifier to minimize indoor and outdoor air pollution, **Journal of Cleaner Production**, Volume 357, 2022,132001, ISSN 0959-6526. (Impact Factor 9.7)
4. Afrin Mansuri, Kiran Lokhande, Supriya Kore, Swapnil Gaikwad, Neelu Nawani, K. Venkateshwara Swamy, **Manisha Junnarkar** & Sarika Pawar (2020) Antioxidant, anti-quorum sensing, biofilm inhibitory activities and chemical composition of Patchouli essential oil: in vitro and in silico approach, **Journal of Biomolecular Structure and Dynamics**, 40:1, 154-165. (Impact Factor 2.7)

5. **Manisha Junnarkar**, Sarika Pawar, Swapnil Gaikwad, Jana Jass, Abul Mandal, Neelu Nawani (2019) Probiotic potential of Lactic acid bacteria from fresh vegetables: application in food preservation. **Indian Journal of experimental biology**, 57: 825-838. (Impact Factor 0.94)
6. Sadaf Khan, Simran Singh, Swapnil Gaikwad, Neelu Nawani, **Manisha Junnarkar**, Sarika Vishnu Pawar (2019) Optimization of process parameters for the synthesis of silver nanoparticles from *Piper betle* leaf aqueous extract, and evaluation of their antiphytofungus activity. **Environmental Science and Pollution Research** <https://doi.org/10.1007/s11356-019-05239-2>. (Impact Factor 5.8)
7. **Manisha V. Junnarkar**, Prasad M. Thakare, Priti P. Yewale, Aminur Rahman, Jana Jass, Abul Mandal, and Neelu N. Nawani (2018) Evolution of probiotic potential of Lactic acid bacteria isolated from different sources. **Food Biotechnology**, 32(2):112–129. (Impact Factor 1.8)
8. Neeta A. Salgaonkar, Prasad M. Thakre, **Manisha V. Junnarkar**, Balasaheb P. Kapadnis, Abul Mandal, Cecilia Eriksson and Neelu N. Nawani (2016) Use of N, N'-diacetyl chitobiose in decreasing toxic effects of indoor air pollution by preventing oxidative DNA damage. **Biologia**. 71 (5): 508-515. (Impact Factor 1.4)
9. Ingale M.S., Devarshi A.D., **Andure M.S.**, Kulkarni S.N., and N.J.Chikhale "Bacteriocin production from Ginger (*Zingiber officinale*) and Radish (*Raphanus sativa*) associated microflora. Bioinfolet 1:32-33." (Impact Factor 3.1)

BOOK CHAPTERS:

Surekha Satpute, Neelu Nawani, Deepansh Sharma, **Manisha Junnarkar**, Chapter 9 - Lactic acid bacteria in food quality enrichment, **In Applied Biotechnology Reviews, Lactic Acid Bacteria in Food Biotechnology**, Elsevier (2022) Pages 163-180, ISBN 9780323898751, <https://doi.org/10.1016/B978-0-323-89875-1.00014-6>.

INVITED SPEAKER:

1. A Start-up Innovator at the 'Innovation Day' event organized by SIMACES Learning LLP for PGP-ABM students 2022-23, representing the Innovation Avapro: A probiotic formulation for poultry feed.
2. The World of Microbiology on occasion of "WORLD POLIO DAY" 23rd & 24 th October 2020 AT Indian Institute of Food Science & Technology, Aurangabad. On topic "Probiotics: A Role in the Treatment of Intestinal Inflammation"

EPIGEUM (Research Skill Courses):

The Bioinformatics Summer Internship, BioTechNika: Online Courses, July 2023

CONFERENCES (Abstracts/Oral/Poster):

- 1. Manisha Junnarkar**, Sarika Pawar, Swapnil Gaikwad, Neelu Nawani Anti-inflammatory effect of indigenous probiotic formulation and modulation of expression of genes involved suppression of inflammation. International Conference on Biotechnology for Sustainable Agriculture, Environment and Health, (BSAEH-2021) jointly organized by Malaviya National institute of technology, Jaipur and the Biotech research society, India at Jaipur, India during April 04-08, 2021
- 2. Manisha Junnarkar**, Shraddha Chavan, Sarika Pawar, Swapnil Gaikwad, Neelu Nawani, Studies on safety and efficacy of probiotic formulation in overcoming intestinal inflammation. New Horizon in Biotechnology (NHBT-2019), November 20-24, 2019 at CSIR-National Institute for Interdisciplinary Science and Technology, Thiruvanthapuram, India.
- 3. Manisha Junnarkar**, Priti Yewale, Sarika Pawar, Swapnil Gaikwad, Neelu Nawani Studies on safety and efficacy of probiotic formulation “AVAPRO” in overcoming inflammatory bowel disease. Recent Advances in Modern Biology & Biotechnology 2019 March 14-16, 2019 at Dr. D. Y. Patil Biotechnology and Bioinformatics Institute, Tathawade, Pune, India
- 4. Manisha Junnarkar**, Sarika Pawar, Neelu Nawani (2018) Probiotic potential of Lactic acid bacteria from fresh vegetables: application in food preservation. CSIR-IICT platinum Jubilee International Conference on Biotechnological Research and Innovation for Sustainable Development XV BRSI Convention and V Asia- Oceania Algae Innovation Summit (AOAIS) 22-25th November, 2018 at CSIR-Indian Institute of chemical Technology Hyderabad, India
- 5. Manisha Junnarkar**, Prasad Thakre, Jana Jass, Abul Mandal, N. N. Nawani (2016)“Evaluation of probiotic properties of Lactic acid bacteria isolated from different sources” International Conference on Current trends in Biotechnology Conference 8- 10 December 2016 at VIT University, Vellore, India.
- 6. Manisha Junnarkar**, Vedant Borghate , Pranjali Karkera, Alquama Lokhandwala, Jana Jass, Abul Mandal, N. N. Nawani(2016) “Phylogenetic analysis and probiotic potential of Lactic acid bacteria isolated from different plant sources” Next GenGenomics, Biology, Bioinformatics and Technologies (NGBT) Conference 3-5 October 2016, Cochin, India. (Partial scholarship)
- 7. Manisha Junnarkar**, Prasad Thakre, Jana Jass, N. N. Nawani (2016) Isolation and screening of Lactic acid bacteria for bioactive potential International Conference on “Innovative trends in chemical, physical and biological sciences 2016” AM college, University of Pune, 9-10 Feb 2016, Pune.
- 8. Thakre PM, M.V. Junnarkar**, J. Jass, A. Mandal and N.N. Nawani (2016) Antioxidant studies of lactic acid bacteria isolated from plant sources. International Conference on “Innovative trends in chemical, physical and biological sciences 2016” AM college, University of Pune, 9-10 Feb 2016, Pune.
- 9. Manisha Junnarkar**, Prasad Thakre, Neelu Nawani (2013) Studies on Bioactive Potential of Lactic acid bacteria from Vegetables. International Conference on Advances in Biotechnology and Bioinformatics & X convention of BRSI, India, Pune 25-27 April 2013.

- 10. Manisha Junnarkar, N. N. Nawani (Oral Presentation) (2010)** 'Studies on antimicrobial potential of lactic acid bacteria for food preservation' in national seminar on Frontiers in Biotechnology at C.K.T. College, new Panvel, Navi Mumbai-Dec. 2010.
- 11. Ingale M.S., Kulkarni S.N., Andure M.S., Devarshi A.D., Kumaru R.R., Athawale A.A. and Bramhane S.A. (2004)** Bacteriocin production from Ginger (*Zingiber officinale*) and Radish (*Raphanus sativa*) associated microflora in National conference on Biotechnological approaches in conservation utilization and improvement of plant wealth. Nanded Feb 14-15, 2004.

WORKSHOPS, CONFERENCES & SEMINARS:

1. The **Regional Meet** organized by the **Institutions' Innovation Council** and **MoE's Innovation Cell** at **Dr. D. Y. Patil Vidyapeeth, Pune** on **16th December 2023**.
2. A one-day international conference titled "**Honoring the contributions and an insight into the contemporary and future perspectives of microorganisms**". The event, **MicCon23**, was organized by the **Department of Microbial Technology, School of Biological Sciences, Madurai Kamaraj University, Madurai-21**, on **16 September 2023**, and is affiliated with the **Federation of European Microbiological Societies**.
3. The Mini Workshop on "Building a Startup" Organized by VC Analytix and TechEx.in at Venture Center in collaboration with Dr. D. Y. Patil Vidyapeeth, Pune-Deemed to be University at Venture Center, Pune on 28 August 2023.
4. One day workshop on "Your Personality-The Power in Real You" on, by Dr. Vinay Chandratre, a Professional trainer and management expert. Nov 5th, 2014 DPU Dr. D. Y. Patil Biotechnology & Bioinformatics Institute, Pune.
5. International Conference on Advances in Biotechnology and Bioinformatics ICABB 2013 and X Convention of Biotech Research Society, 25 to 27 Nov 2013 DPU Dr. D. Y. Patil Biotechnology & Bioinformatics Institute, Pune.
6. 12th Indo-US Flow Cytometry Workshop Oct 19th-20th, 2011 DPU Dr. D. Y. Patil Biotechnology & Bioinformatics Institute, Pune.
7. Chemical Biology- International Year of Chemistry 2011 27th July 2011 Dr. D. Y. Patil Biotechnology & Bioinformatics Institute, Pune.
8. National Workshop on "Systems Biology" April 23rd, 2011 DYPBBI Dr. D. Y. Patil Biotechnology & Bioinformatics Institute, Pune.
9. National Seminar on Frontiers in Biotechnology and Bioinformatics 12th Feb 2011, DYPBBI Dr. D. Y. Patil Biotechnology & Bioinformatics Institute, Pune.
10. National Seminar On 'Frontiers in Biotechnology' CKT college, New Panvel, Navi Mumbai, India-2010.(presented)
11. "Chromatographic Techniques in Pharmaceutical analysis" Sinhgad College of Pharmacy, Pune, India-2007(Attended)
12. "INSIGHT2008" Anuradha Engineering college, Chikhali, India-2008.(presented)
13. 'Biotechnological Approaches In conservation, utilization and improvement of plant wealth', Nanded Maharashtra India-2004.(presented)

BIOTECHNOLOGY AND BIOINFORMATICS SKILLS:

Nutraceuticals and Probiotic Characterization

- Skilled in the identification, isolation, and characterization of probiotic strains for nutraceutical applications, focusing on health benefits, such as gut health support and immune enhancement.
- Proficient in optimizing strain survivability and functionality under various physiological conditions to enhance product stability and efficacy in nutraceuticals.

Microarray and Microarray Data Analysis

- Expertise in designing and conducting microarray experiments for gene expression profiling and functional genomics studies.
- Advanced skills in analyzing microarray data using bioinformatics tools (R, Bioconductor, Python), including data normalization, statistical analysis, and identification of significant expression patterns to draw meaningful biological insights.

Probiotic Product Development and Animal Testing

- Extensive experience in the development of probiotic formulations with optimized strains to improve gut health, growth, and performance in host.
- Conducted *in-vivo* testing and animal trials to ensure product safety, efficacy, and compliance with regulatory standards for probiotic applications in livestock.
- Skilled in translating lab-scale probiotic formulations to pilot and large-scale production, including standardization of fermentation and downstream processes for quality control.

Metagenomic Analysis of Bacterial Flora

- Conducted comprehensive metagenomic studies on bacterial flora in various environments, to understand microbial diversity and community structure.
- Proficient in next-generation sequencing (NGS) data analysis, utilizing 16S rRNA sequencing for community profiling, and bioinformatics tools for taxonomy classification, diversity analysis, and pathway mapping.
- Leveraged metagenomic insights to inform probiotic selection, development, and targeted formulations based on microbial ecology and functional genomics.

Innovation and Product Development

- Strong innovation skills in translating research findings into practical, sustainable biotech solutions, from ideation and prototyping to commercialization.
- Experienced in collaborating with cross-functional teams and leading biotech projects, with a proven track record in the successful design, development, and market introduction of novel probiotic-based products.