

CURRICULUM VITAE

Dr. MANDEEP

Email ID: mandeep221193@gmail.com, mandeep.rs.micro@mdurohtak.ac.in

Mobile: +91-7982867587



Research Interest:

Enzyme Technology and Microbial Biotechnology; Protein Bioinformatics; Environment pollution

Educational Qualification/Research experience

- Ph.D. from Department of Microbiology, Maharshi Dayanand University, Rohtak, Haryana, India, 124001
Date of thesis submission: 6 July 2022
Date of viva-voce examination: 29 September 2022
Date of award of degree: 10 October 2022
PhD title: “Microbial Endoglucanases from thermophilic fungi: production, characterization and bio-computational studies”
Supervisor: Prof. Pratyoosh Shukla
- **Master of Science in Botany** (2018) (74.12%) from Department of Botany, University of Delhi, Delhi, India, 110007
- **Bachelor of Science (H) Botany** (2016) (87.27%) from Hindu College, University of Delhi, Delhi, India, 110007

Employment details

Sr. no.	Name of employer	Position	Period	
			From	Till
1.	Deen dayal upadhyaya college, University of Delhi	Asst. Professor (Guest Faculty)	11/01/2023	13/07/2023
2.	Bhaskaracharya College of Applied Sciences, University of Delhi	Asst. Professor (Guest Faculty)	16/08/2023	26/10/2023
3.	Hansraj College	Asst. Professor (Permanent)	27/10/2023	Currently working

Fellowship and Awards

- **AMI- Young Scientist Award 2023** by Association of Microbiologists of India in Industrial Microbiology
- **Senior Research Fellow (SRF):** 1st March 2021 to 29th September 2022 at Enzyme technology and protein bioinformatics laboratory, Department of Microbiology, Maharshi Dayanand University, Rohtak, Haryana, India

Area of Research: Scale-up of enzyme production and industrial application

- **Junior Research Fellow (JRF):** 6th February 2019 to 28th February 2021 at Enzyme technology and protein bioinformatics laboratory, Department of Microbiology, Maharshi Dayanand University, Rohtak, Haryana, India

Area of Research: Enzyme production, purification and characterization

- **Junior Research Fellow (JRF):** 1st October 2018 to 5th February 2019 at Enzyme technology and protein bioinformatics laboratory, Department of Microbiology, Maharshi Dayanand University, Rohtak, Haryana, India

Title of Project: Process development for the cost-effective production of fungal endoglucanase, lipase and amylase for deinking of newsprints and mixed office waste papers.

Professional skills

1. **Expertise:** Isolation of microorganisms from environmental samples and their utilization for enzyme production, Microbial media preparation, Plate and slant preparation etc, Microbial culture preparation, Genomic DNA isolation, Glycerol stock preparation, Hydrolytic enzyme assay, Purification of proteins, SDS-PAGE, Enzyme kinetics, Wastepaper deinking, Analysis of soil and water samples, Scale-up of enzyme production using bioreactor.
2. **Instruments known and their data analysis:** Scanning electron microscopy (SEM), Atomic absorption spectroscopy (AAS), UV-Vis spectrophotometer, Fourier-transform infrared spectroscopy (FTIR), X-ray Diffraction (XRD), Gas Chromatography (GC), High pressure liquid chromatography (HPLC), Sartorius Crossflo TFF system, Fermenter, Polyacrylamide gel electrophoresis (PAGE) unit
3. **Instruments handled:** Autoclave, Laminar Air Flow bench, Spectrophotometer, pH meter, Cooling Centrifuge, Electronic Balance, Probe Sonicator, Hot air oven, Lyophilizer, Gel electrophoresis unit, Gel documentation system, Ultra-violet (UV) transilluminator, Gas Chromatography (GC), High pressure liquid chromatography (HPLC), Sartorius Crossflo TFF system, Fermenter
4. Knowledge of MS Office (MS Word, Excel, Power point), and other data analysis software (Sigma).
5. **Bioinformatics:** Raw sequence refinement using BioEdit, Phylogenetic tree construction using

MEGA, Knowledge of BLAST (Basic Local Alignment Search Tool) and ClustalW, SwissDock, AutoDock, Chimera, CASTp, SWISS-MODEL.

Publications

1. **Dixit, M., & Shukla, P. (2023).** Analysis of endoglucanases production using metatranscriptomics and proteomics approach. *Advances in Protein Chemistry and Structural Biology*. (**Impact Factor : 5.4**) ISSN- 1876-1623
2. **Dixit, M., & Shukla, P. (2023).** Multi-efficient endoglucanase from *Aspergillus niger* MPS25 and its potential applications in saccharification of wheat straw and waste paper deinking. *Chemosphere*, 313, 137298. (**Impact Factor : 8.943**) <https://doi.org/10.1016/j.chemosphere.2022.137298> ISSN- 0045-6535
3. **Dixit, M., Chhabra, D., & Shukla, P. (2023).** Optimization of endoglucanase-lipase-amylase enzyme consortium from *Thermomyces lanuginosus* VAPS25 using Multi-Objective Genetic Algorithm and their bio-deinking applications. *Bioresource Technology*, 370, 128467 (**Impact Factor: 11.889**) <https://doi.org/10.1016/j.biortech.2022.128467> ISSN- 0960-8524
4. **Dixit, M., Gupta, G. K., Yadav, M., Chhabra, D., Kapoor, R. K., Pathak, P., ... & Shukla, P. (2022).** Improved deinking and biobleaching efficiency of enzyme consortium from *Thermomyces lanuginosus* VAPS25 using Genetic Algorithm-Artificial Neural Network based tools. *Bioresource Technology*, 349, 126846. <https://doi.org/10.1016/j.biortech.2022.126846> (**Impact Factor: 11.889**) ISSN- 0960-8524
5. **Dixit, M., Gupta, G. K., Pathak, P., Bhardwaj, N. K., & Shukla, P. (2022).** An efficient endoglucanase and lipase enzyme consortium (ELEC) for old newspaper deinking and ultrastructural analysis of deinked pulp. *Biomass Conversion and Biorefinery*, 1-9. (**Impact Factor : 4.987**) <https://doi.org/10.1007/s13399-022-03310-6> ISSN- 2190-6815
6. **Dixit, M., Gupta, G. K., Usmani, Z., Sharma, M., & Shukla, P. (2021).** Enhanced bioremediation of pulp effluents through improved enzymatic treatment strategies: A greener approach. *Renewable and Sustainable Energy Reviews*, 152, 111664. <https://doi.org/10.1016/j.rser.2021.111664> (**Impact Factor: 16.799**) ISSN- 1364-0321
7. **Dixit, M., Liu, H., Shukla, P. (2021).** Synthetic biology and bio-computational approaches for improving microbial endoglucanases towards their innovative applications. *ACS Omega*,

- 6(9), 6055-6063 <https://doi.org/10.1021/acsomega.0c05744> (**Impact Factor: 4.132**) ISSN- 2470-1343
8. **Dixit, M.**, Panchal, K., Pandey, D., Labrou, N.E., and Shukla, P (2021). Robotics for enzyme technology: innovations and technological perspectives. *Applied Microbiology and Biotechnology*, 105(10), 4089-4097. <https://doi.org/10.1007/s00253-021-11302-1> (**Impact Factor: 5.560**) ISSN- 0175-7598
 9. Gupta, G. K., **Dixit, M.**, Kapoor, R. K., and Shukla, P. (2021). Xylanolytic enzymes in pulp and paper industry: new technologies and perspectives. *Molecular biotechnology*, 64, 130–143. <https://doi.org/10.1007/s12033-021-00396-7> (**Impact Factor: 2.695**) ISSN- 1073-6085
 10. **Dixit, M.**, Liu, H., Luo, J., and Shukla, P. (2020). Effluents detoxification from pulp and paper industry using microbial engineering and advanced oxidation techniques. *Journal of Hazardous Materials*, 398, 122998. <https://doi.org/10.1016/j.jhazmat.2020.122998> (**Impact Factor: 14.224**) ISSN- 0304-3894
 11. **Dixit, M.**, and Shukla, P. (2020). Microbial nanotechnology for bioremediation of industrial wastewater. 11, 590631, *Frontiers in Microbiology*, <https://dx.doi.org/10.3389/fmicb.2020.590631> (**Impact Factor: 6.064**) ISSN- 1664-302X
 12. Jaiswal, S., Gupta, G. K., Panchal, K., **Dixit, M.**, and Shukla, P. (2020). Synthetic Organic Compounds From Paper Industry Wastes: Integrated Biotechnological Interventions. *Frontiers in bioengineering and biotechnology*, 8, 592939. <https://doi.org/10.3389/fbioe.2020.592939> (**Impact Factor: 6.064**) ISSN- 2296-4185
 13. Chaudhary, T., **Dixit, M.**, Gera, R., Shukla, A. K., Prakash, A., Gupta, G., & Shukla, P. (2020). Techniques for improving formulations of bioinoculants. *3 Biotech*, 10(5), 1-9. <https://doi.org/10.1007/s13205-020-02182-9> (**Impact Factor: 2.4**) ISSN-2190-572X
 14. Yadav, M., **Dixit, M.**, & Shukla, P. (2020). Probiotics of diverse origin and their therapeutic applications: a review. *Journal of the American College of Nutrition*, 39(5), 469-479. <https://doi.org/10.1080/07315724.2019.1691957> (**Impact Factor: 3.175**) ISSN- 0002-9165
 15. Jaiswal, S., Kumar, M., **Dixit, M.**, Singh, Y., & Shukla, P. (2020). Systems biology approaches for therapeutics development against COVID-19. *Frontiers in Cellular and Infection Microbiology* 10: 643. <https://doi.org/10.3389/fcimb.2020.560240> (**Impact Factor: 5.293**) ISSN- 2235-2988
 16. **Dixit, M.**, Gupta, GK., and Shukla, P. (2019). Insights into the resources generation from

pulp and paper industry wastes: challenges, perspectives and innovations. *Bioresource Technology*, 297, 122496. <https://doi.org/10.1016/j.biortech.2019.122496> (**Impact Factor: 11.889**) ISSN-0960-8524

17. **Dixit, M.**, Gupta, G.K., Liu, H., and Shukla, P. (2019). Pulp and paper industry based pollutants, their health hazards and environmental risks. *Current Opinion in Environmental Science & Health*, 12: 48-56. <https://doi.org/10.1016/j.coesh.2019.09.010> (**Cite Score 15.3**) ISSN- 2468-5844

18. **Dixit, M.**, Sinha, R., and Shukla, P. (2019). Protein Engineering for Improved Health: Technological Perspectives. *Current Protein and Peptide Science*, 20, 9. <https://doi.org/10.2174/138920372009190917095307> (**Impact Factor:3.272**) ISSN-1389-2037

Book Chapters:

1. **Dixit, M.**, Gupta, G. K., & Shukla, P. (2020). Enzyme engineering techniques for biotechnological applications. In *Microbial enzymes and biotechniques* (pp. 235-249). Springer, Singapore. https://doi.org/10.1007/978-981-15-6895-4_12 ISBN- 978-981-15-6895-4
2. Khangwal, I., Yadav, M., **Dixit, M.**, & Shukla, P. (2020). Probiotics and Prebiotics: Techniques Used and Its Relevance. In *Microbial Enzymes and Biotechniques* (pp. 193-206). Springer, Singapore. https://doi.org/10.1007/978-981-15-6895-4_10 ISBN- 978-981-15-6895-4
3. Gupta, G. K., **Dixit, M.**, Pandey, D., Kapoor, R. K., Kango, N., Shukla, P. (2022) Microbial enzyme bioprocesses in bio-bleaching of pulp and paper: technological updates. In: *Microbial bioprocess: Applications and Perspectives*. Elsevier ISBN: 9780323953337.

Achievements/Awards

- ❖ Qualified JRF (NET)-CSIR in CSIR-UGC test for Life Sciences in December 2017 (AIR- 52)

Membership

- ❖ Life Member, “Association of Microbiologists of India(AMI)”

Workshop/conference/Seminar

- ❖ Poster presented (Title: Multi-objective genetic algorithm based optimization of enzyme cocktail from *Thermomyces lanuginosus* VAPS25 and their utilization for deinking) In International conference on Exploring New Horizons In Biotechnology (ENB-2023) & Mini

Symposium On Recent Advances In Biotechnological Innovations (Rabi-2023), 10-12 February 2023, School of Biotechnology, Institute of Science, BHU, Varanasi, U.P., India.

- ❖ Poster presented (Title:Preliminary screening and process optimization of soil thermophilic fungi.) In International Conference on ‘Current trends in microbiology and microbiome research : A global perspective’ (CTM-2019) in collaboration with INSCR-Indian Network For Soil Contamination,11-12 October 2019, Department of Microbiology, Maharshi Dayanand University, Rohtak , Haryana, India.
- ❖ Poster presented (Title: Production of endoglucanases from *Thermomyces lanuginosus* VAPS-24 for their deinking applications. International Conference on “Bioengineering Solutions for Healthcare, Food, Energy, and Environment” at IIT, Jodhpur, April 9-10, 2021.(Online)
- ❖ Computer Aided Drug Design and Protein Analysis. IIT BHU Varanasi. February 22-26, 2021. (Online)
- ❖ International Webinar Series on ‘Entrepreneurship Ideas for Biotechnology Researchers and Students’ (EIBRS-2021) from 8th October to 24th November, 2021 at School of Biotechnology & Centre for Bioinformatics (BTiS-Sub-DIC), Institute of Science, Banaras Hindu University, Varanasi, India.
- ❖ Two Days online National Conference on "National Products and human Health: Opportunities and Challenges in present scenario. at Maharshi Dayanand University, Rohtak, Haryana, April 9-10, 2021. (Online)
- ❖ One week online workshop on “Research Methodology in Life Sciences” organized by Chaudhary Ranbir Singh Institute of Social and Economic Change and Faculty of Life Sciences at Maharshi Dayanand University, Rohtak, Haryana, April 1-5, 2021.
- ❖ National seminar on “Data Analysis and interpretation in Scientific Research” organized by Department of Genetics at Maharshi Dayanand University, Rohtak, Haryana, November 9, 2019.