

Dr. Lakshmi Tewari

1. **Qualification** Ph. D. Microbiology
2. **Designation** Professor & Head
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5. **Research projects:**
 - Identification and characterization of high efficiency *Cyanobacteria/Microalgae* for biodiesel production. 2010-2013. (Funded by **LSRB,DRDO, Ministry of Defence, Govt. of India.**)
 - Microbiological studies on vinegar production from sugarcane juice. 2000-2004, (AICRP-PHT, ICAR)
 - *In vitro* screening and selection of sodic tolerant genotypes in multipurpose tree species. 2002-2004, (**UPCAR**)
 - Development of Formulation, Mass production and delivery system of bio-control agent *Trichoderma harzianum* . 2000-2003, (**UPCAR**).
 - Mycorrhizal colonization of leguminous crop plants and tree species, 1999-2000, (GBPUA&T).
6. **Selected Research publications:**
 1. Heena Parveen, Neha Bisht and **Lakshmi Tewari**. 2020. Optimization and biochemical characterization of thermo-alkalotolerant cellulase enzyme from *Aspergillus terreus* PPCF. *Cellulose Chemistry and Technology* 54 (9-10): 977-986. (**Impact factor 0.857; NAAS rating 6.76**).
 2. Bisht, N., Parveen, H., **Tewari, L.** (2019). Batch fermentation of underutilized pear fruits using newly isolated stress tolerant ethanogenic yeast *Pichia kudriavezeii* BGY1. *Environment and Ecology* 37 (4A): 1326- 1335 (**NAAS rating 4.18**).
 3. Bisht, N. and **Tewari, L.** (2019). Identification and Characterization of High Efficacy Thermotolerant Yeast for Bioethanol Production from Fruit Waste. *Biotech Today*. 9 (1): 81-86 (**NAAS rating 3.94**).
 4. Raj Kumar Pandey, Salil Tewari, and **Lakshmi Tewari** 2018. Lignolytic mushroom *Lenzites elegans* WDP2: Laccase production, characterization, and bioremediation of synthetic dyes. *Ecotoxicology and Environmental Safety*.158: 50- 58. (**Impact factor 4.872; NAAS rating 9.97**).

5. Heena Parveen and **Lakshmi Tewari** 2018. Optimization of fermentation conditions for enhanced Beta glucosidase production from cellulolytic *Aspergillus terreus* strain PPCF using agro residues. *Environment and Ecology*. 36(4): 911-921. (**NAAS rating 4.18**)
6. Raj Kumar Pandey and **Lakshmi Tewari**. 2017. Role of lignolytic fungal enzymes in removal of industrially important carcinogenic dyes. *International Journal of Basic and Applied Agricultural Research*. 15 (1, 2): 41-46. (**NAAS rating 4.6**).
7. Heena khaton, Praveen solanki, Maitrayie Narayan, **Lakshmi Tewari** and JPN Rai. 2017. Role of microbes in organic carbon decomposition and maintenance of soil ecosystem. *International Journal of Chemical Studies*. 5 (6):1648- 1656. (**Impact factor 0.565, NAAS rating 5.31**).
8. Praveen solanki, Shiv Singh Meena, Maitrayie Narayan, Hina khaton and **Lakshmi Tewari**. 2017. Denitrification process as an indicator of soil health. *Int. J. Curr.Microbiol.App.Sci*.6(5): 2645- 2657. (**NAAS rating 5.38**).
9. Raj Kumar Pandey and **Lakshmi Tewari**. 2017. Fungal decolourization study of chemically synthesized malachite green and brilliant green textile dyes. *International Journal of Chemical Studies*. 5 (6): 67-72. (**Impact factor 0.565, NAAS rating 5.31**).
10. Raj Kumar Pandey, Babita Rana, Salil Tewari, Anwesa Sarkar, Ashutosh Dubey, Dinesh Chandra, & **Lakshmi Tewari**. 2016. Exploration of Plant-Biomass Degrading Fungi for *In Vitro* Mycoremediation of Toxic Synthetic Dyes. *International Journal of Current Microbiology and Applied Sciences*. (**NAAS rating 5.38**).
11. Swargadeep Saikia, Raj Kumar Pandey, and **LakshmiTewari**. 2015. Phosphate solubilizing potential of fungal isolates from Bamboo rhizosphere. *International Journal of Basic and Applied Agricultural Research*. 13 (3), Sept – Dec: 492-496. . (**NAAS rating 4.60**).
12. Disha Sharma, B.K.Kumbher, A.K. Verma and **Lakshmi Tewari**. 2014. Optimization of critical growth parameters for enhancing extracellular lipase production by alkalophilic *Bacillus* sp. *Biocatalysis and Agricultural Biotechnology*. 3:205-211. (**Impact factor 2.80**).
13. Jitendra Kumar Saini, Reetu Saini, and **Lakshmi Tewari**. 2014. Lignocellulosic agriculture waste as biomass feedstocks for second generation bioethanol production: concepts and recent developments. *3Biotech*. DOI 10.1007/s13205-014-0246-5. (**Impact factor 2.27, NAAS rating 7.79**).
14. Utobo, E.B. and **Tewari, L**. 2014. Soil enzymes as indicators of soil ecosystem status. *Applied Ecology and Environmental Research*.13I(1):147-169. (**Impact factor- 0.740**).
15. Jitendra K. Saini, Rahul K. Anurag, Arti Arya, B.K. Kumbhar and **Lakshmi Tewari**. 2013. Optimization of saccharification of sweet sorghum bagasse using response surface methodology. *Industrial Crops and Products* 44: 211– 219. (**Impact factor 4.244, NAAS rating 10.15**).

16. Rekha Rawata, B.K. Kumbhar and **Lakshmi Tewari**. 2013 Optimization of alkali pretreatment for bioconversion of poplar (*Populus deltoides*) biomass into fermentable sugars using response surface methodology. *Industrial Crops and Products*. 44 220–226. (Impact factor 4.244, NAAS rating 10.15).
17. R. Rawat, **L. Tewari**. 2011. Effect of Abiotic Stress on Phosphate Solubilization by Biocontrol Fungus *Trichoderma* sp. *Current Microbiology* 62:1521–1526. (Impact factor 1.610, NAAS rating 7.60).
18. Rajesh Kaushal, L.S. Jeena, S. Chaturvedi, **L. Tewari** and S.K.Tewari. 2010. Vegetative propagation of *Adina cordifolia* (Roxb.) hook, F. Ex Brandis, *The Indian Foresters*. 136: 1693-1698. (Impact factor 4.244, NAAS rating 10.15).
19. Kapri, Anil and **Tewari Lakshmi**. 2010. Phosphate solubilization potential and phosphatase activity of rhizospheric *Trichoderma* sp. *Braz. J. Microbiol.*41(3): 787-795. (Impact factor 2.428, NAAS rating 8.86).
20. Rekha Rawat and **Lakshmi Tewari**. 2010. Transmission electron microscopic study of the cytological changes in *Sclerotium rolfii* parasitized by a biocontrol fungus *Trichoderma* sp. *Mycology* 1(4): 237–241. (Impact factor 1.05).
21. Shubhra Singh, Ashutosh Dubey, **Lakshmi Tewari** and A.K.Verma. 2009. Microbial profile of stored jaggery: A traditional Indian sweetener. *Sugar Tech*. 11 (2): 213-216. (Impact factor 1.14, NAAS rating 7.02).
22. Nidhi Gupta, Ashutosh Dubey and **Lakshmi Tewari**. 2009. High efficiency alcohol tolerant *Saccharomyces* isolates of *Phoenix dactylifera* for bioconversion of sugarcane juice into Bioethanol. *Journal of scientific & Industrial Research*.68: 401-405. (Impact factor 0.729, NAAS rating 6.74).
23. **Lakshmi Tewari** & Rajbir Singh, 2005. Biological control of Sheath Blight of rice by *Trichoderma harzianum* using different delivery systems. *Indian Phytopathology*. 58(1): 35-40. (Impact factor 0.230 , NAAS rating 5.90).
24. **Lakshmi Tewari** and Chandra Bhanu. 2004. Evaluation of Agro-industrial Wastes for Conidia based inoculum production of bio-control agent: *Trichoderma harzianum*. *Journal of scientific & Industrial Research*. 63(4): 807-812. (Impact factor 0.729, NAAS rating 6.74).
25. Thamodharan, V; **Tewari Lakshmi** and Bajpai, G.C. 2004. Genotype x phosphate solubilizing bacteria interaction in pigeonpea (*Cajanus cajan*). *Indian J. Genetics & Plant Breeding* . 64 (3): 241-242. (Impact factor 0.194 , NAAS rating 6. 47).
26. **Tewari Lakshmi** and Chandra Bhanu. 2003. Screening of various substrates for sporulation and mass multiplication of bio control agent *Trichoderma harzianum* through solid state fermentation. *Indian Phytopathology*. 56(4):476-478. (Impact factor 0.230 , NAAS rating 5.90).

27. **Lakshmi Tewari** and Piyush Malaviya.2002. Biodegradation of catechol by fluorescent *Pseudomonas* for sustainable environment. *Journal of scientific & Industrial Research*. 61 (1): 70-74. **(Impact factor 0.729, NAAS rating 6.74)**.
28. **Lakshmi Tewari**. 2002. Removal of the Flatulence factors (Alpha-Galactooligosaccharides) from chickpea *Cicer arietinum*) by germination and mold fermentation. *J. Food Sci. Technol.* 39 (5) : 458-462. **(Impact factor 1.946, NAAS rating 7.85)**.
29. **Tewari Lakshmi** and C.Bhanu. 2002. Evaluation of Agroindustrial wastes for mass production of *Trichoderma harzianum*- A biofungicide for sustainable agriculture. *Journal of Mycology and Plant Pathology*. 32 (1) : 138-139. **(NAAS rating 5.79)**.
30. **Tewari Lakshmi**; S.M. Tandon and B.N. Johri. 1993. Host genotype dependency and growth enhancing ability of VA-mycorrhizae on *Eluecine coracana*. *World Journal of Microbiology and Biotechnology*. 9 : 191 -195. . **(Impact factor 2.518, NAAS rating 8.65)**.

Book Chapters:

1. Raj Kumar Pandey and **Lakshmi Tewari**. 2018. Mycotechnology for lignocellulosic Bioethanol Production: An emerging approach to sustainable Environment. In: Microbial Biotechnology in Environmental Monitoring and cleanup . Pankaj and Anita Sharma (eds.) IGI global Publisher. pp: 28-34.DOI: 10.4018/978-1-5225-3126-5.
2. Pandey,R.K; **Tewari, Lakshmi**; Srivastava,R.K. 2018. Second generation bio-ethanol production for sustainable environment. In: Gusain,P., Arya,M., Singh,V.. Agro-Waste management. I ed. Avon Publications, New Delhi: 97-109.
3. **Tewari Lakshmi**, Pandey RK, Sharma RS, Kumar N, Tewari SK. 2017. Phytostimulating mechanisms and bioactive molecules of *Trichoderma* species: current status and future prospects (chapter-10). In: Microorganisms for green Revolution. Microorganisms for Sustainability, vol 6. Panpatte D.G., Jhala, Y., Vyas R., Shelat H. (eds). Springer, Singapore pp: 189-213. . DOI https://doi.org/10.1007/978-981-10-6241-4_10, Online ISBN 978-981-10-6240-7
4. **Lakshmi Tewari**, Jitendra Saini and Arti. 2012. Bioremediation of Pesticides by Microorganisms: General Aspects and Recent Advances. In. Bioremediation of Pollutants. Eds: D.K.Maheshwary and R.C. Dubey. I.K.International Publishing House Pvt. Ltd.,India .pp: 24-49.
5. **Lakshmi Tewari**, Bipin Chandra and Jitendra Saini. 2012. Biological Control of Fungal Phytopathogens by *Trichoderma* sp.: Mechanisms of Action . In. Microbes: Diversity and Biotechnology, Eds: S. C. Sati and M. Belwal. Daya Publishing House, New Delhi: pp 99-118..
6. **Lakshmi Tewari**, Rekha, Ruby and Bipin Chandra. 2012. Mass multiplication and development of formulations of the biocontrol agent: *Trichoderma* sp. In. Microbes: Diversity and Biotechnology, Eds: S. C. Sati and M. Belwal. Daya Publishing House, New Delhi: pp 159-176.

7. **Lakshmi Tewari**, Salil K. Tewari and Rajesh Kaushal. 2008. Role of Mycorrhizal Association in Growth of Forest Trees. *In: The Mycorrhizae-Diversity, Ecology and Applications* Editors M.K.Tewari and S.C.Sati, Daya Publishing House, Delhi, India, pp232-251.
8. **Lakshmi Tewari**. 2006. Development of formulation, mass production and delivery system of biocontrol agent *Trichoderma harzianum* *In: Salient Achievements of CARP projects*. Eds- Chandrika Prasad and Rajvir Singh Rathore. Published by UPCAR, Lucknow. p.27-29.

Practical Manual:

- Introductory Microbiology (BBM-300): Lab. Manual for the U.G. course.
- Microbiological Techniques (BBM-510): Lab. Manual for the P.G. course.

7. Specialization:

- Agricultural Microbiology
- Bioethanol Production

8. Research Areas/ Areas of Interest:

- Plant- Microbe Interaction (Biocontrol & Phosphate Solubilization)
- Bioremediation of Synthetic Dyes
- Green Biomass Based Bioethanol Production

9. Any other Information for uploading in Faculty Profile:

1. Awards/ Honours:

- Nominated as Fellow of The Indian Society of Agricultural Biochemists (F.I.S.A.B.) in the Year 2013.
- Honoured as Distinguished scientist to deliver a lecture on “Microbial Degradation of lignocellulosic waste” on the occasion of National science Day Celebration by the Defence Institute of Bio-energy Research at Goraparao, Haldwani, Uttarakhand on February 28, 2012.

2. Registrations/ Submissions of genes/cultures:

- Submission of microbial gene sequences to GenBank- **09**
- Fungal Cultures deposited to National Repository (ITCC New Delhi)- **07**

3. Affiliation to Scientific Societies:

- Life Member, Association of Microbiologists of India
- Life Member, Indian Society of Agricultural Biochemists.
- Life Member, Society of Plant Physiology and Molecular Biology .
- Life Member, Pantnagar Journal of Research (Renamed as “International Journal of Basic and Applied Agricultural Research”).

4. Patents Filed:

1. Raj Kumar Pandey and Lakshmi Tewari. 2019. A novel process for production of thermoacidophilic and storage stable extracellular laccase enzyme from mesophilic mushroom. (No. IPMC/F.No. 47/846 dated July22, 2019).

10. Student's Information :

1. Student's Guidance:

- M.Sc.: 23 , under guidance- 02
- Ph. D.: 08 , under guidance – 03

2. Student's Awards:

- **Second prize** for the research work entitled “*In vitro* decolourization of synthetic textile dyes: Role of Indigenous microbial Cultures and Fungal Laccase Enzyme” (**Raj Kumar Pandey** and **Lakshmi Tewari**) presented (oral) in the National Seminar on “Trends and Advances in Wool and Specialty Hair ”at G.B. Pant University of Agriculture and Technology, Pantnagar-263145, Uttarakhand during March 16-17, 2018.
- **Best paper** (oral) presentation award for the research work entitled “Sustainable Biofuel (bioethanol) production process development through mycotechnological bioconversion of bamboo Biomass”(**Raj Kumar Pandey**, Salil Tewari and **Lakshmi Tewari** in the ninth conference of Indian science Congress Association (Haridwar chapter) on Oct. 13-14, 2018
- Ph. D. student (Mr. Raj Kumar Pandey) received the award “**Environmental Microbiologist of the year- 2017**” for the Ph. D. thesis research work on “Delignification of Bamboo biomass” at World Clean Environment Congress Organized by Scientific and Environment Research Institute Kolkata at India International Centre, New Delhi on June 05, 2017.
- Mr. Raj Kumar Pandey, Ph.D. Scholar was awarded **First prize** for presentation (oral) of the research paper entitled “*Optimization of Laccase Production for Biological Delignification of Bamboo Biomass for Sustainable Bioethanol Production*” in one day symposium on ‘Topical developments in Biochemistry and Allied Sciences’ on **7th May, 2016**, at GBPUAT Pantnagar.

- Ms. Babita Rana, M.Sc. student was awarded **Second prize** for presentation (poster) of the research paper entitled “*Mycoremediation of synthetic carcinogenic industrial dyes using white rot fungi*” in one day symposium on ‘Topical developments in Biochemistry and Allied Sciences’ on 7th May, 2016, at GBPUAT Pantnagar
- **Best poster award** (First Prize) for the research work entitled “Identification and molecular characterization of dye decolourizing microalgae for bioremedial potential” (**Lakshmi Tewari**, Ranjana Joshi, Rekha Rawat, Raj Kumar Pandey) presented in the workshop on ‘ Advances in Biotechnology and its Application in Conservation Biology’ organized by Dolphin Institute of Biomedical and Natural Sciences, Dehradun in collaboration with Wildlife Institute of India and Zoological Survey of India, Dehradun during October 16-17, 2014.
- **Young Scientist award** for best poster presentation on the topic entitled “Microbial Technology for Bioconversion of Renewable Biomass into Fermentable sugars for Sustainable Biofuel Production” in three days National Conference on Science of OMICS for Agricultural Productivity: Future Perspectives, held at GB Pant University of Ag. & Tech., Pantnagar, US Nagar Uttarakhand from March 4-6, 2014.
