SHIPRA PANDEY

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Research Interest

Nanomaterial synthesis, Antimicrobial agent for plant and food-borne pathogens, Bio-based food packaging material, Food security, Host-pathogen-nanomaterial interaction

Academic Credential

Indian Institute of Technology Bombay, India, Aug 2020- present
Postdoctoral Fellow, Department of Chemical Engineering
Topic- Synthesis of bio-based food packaging material

CSIR-National Botanical Research Institute, India, 2014-2020
Ph.D., Biological Sciences
Topic- Synthesis and characterization of bio-nanomaterials for management of early blight disease in tomato

Barkatullah University, India, 2010-2012
M.Sc., Microbiology

Ewing Christian College, Allahabad University, India, 2007-2010
B.Sc., Botany, BTSP, Zoology

Selected Awards and Honors

- Best research paper award, 2015 – awarded by CSIR-NBRI, Lucknow
- SRISTI-BIRAC Appreciation Award-received in 2017
- Best research paper award, 2018- awarded by CSIR-NBRI, Lucknow
- Award of CSIR Senior Research Fellow in 2018
- Shri Lok Bahadur Khanal Memorial Award for Women Research Excellence Award in 2018
- Best PhD Thesis Award in 2020- awarded by Samagra Vikas Welfare Society, India

PUBLISHED PAPERS

- **Pandey, S**., Sharma, K., Gundabala, V. Antimicrobial Bio-inspired Active Packaging Materials for Shelf life and Safety Development: A Review. ***Food Biosciences***, *Under Revision.*

- Kumar, M., Giri, V.P., **Pandey, S**., Gupta, A., Patel, M.K., Bajpai, A.B., Jenkins, S. and Siddique, K.H. (2021). Plant-growth-promoting rhizobacteria emerging as an effective bioinoculant to improve the growth, production and stress tolerance of vegetable crops. ***International Journal of Molecular Sciences***, *22*(22), 12245.
- **Pandey, S**., Giri, V.P., Kumari, M., Tripathi, A., Gupta, S.C., Mishra, A. (2021). A comparative study of development and characterization of eco-friendly O/W nanoemulsions for improving antifungal activity. ***ACS- Agricultural Science and Technology,*** *https://doi.org/10.1021/acsagscitech.1c00141*.
- **Pandey, S**., Giri, V.P., Tripathi, A., Kumari, M., Narayan, S., Bhattacharya, A., Srivastava, S. and Mishra, A. (2020). Early blight disease management by herbal nanoemulsion in *Solanum lycopersicum* with bio-protective manner. ***Industrial Crops and Products***, *150*, 112421.
- Kumari, M*., **Pandey, S***., Mishra, S.K., Giri, V.P., Agarwal, L., Sidhu, O.P., Pandey. A., Nautiyal, C.S., Mishra. A. (2020). Omics based mechanistic insight into the role of bioengineered nanoparticles for biotic stress amelioration by modulating plant metabolic pathways. ***Frontiers in Bioengineering and Biotechnology***, *8*, 242.
- Giri, V.P*., **Pandey, S***., Kumari, M., Paswan, S., Tripathi, A., Srivastava, M., Rao, Ch. V., Katiyar, R., Nautiyal, C.S., Mishra, A. (2019). Biogenic silver nanoparticles as an efficient contrivance for wound healing acceleration than common antiseptic medicine. ***FEMS Microbiology Letter***, *366* (16), fnz201.
- Singh, S.P*., **Pandey, S***., Mishra, N., Giri, V.P., Mahfooz, S., Bhattacharya, A., Kumari, M., Chouhan, P., Nautiyal, C.S., Mishra, A. (2019). Supplementation of *Trichoderma* improves the alteration of nutrient allocation and transporter genes expression in rice under nutrient deficiencies. ***Plant Physiology and Biochemistry***, *143*, 351-363.
- Bhattacharya, A., Giri, V.P., Singh, S.P., **Pandey, S**., Chauhan Priyanka, Soni, Sumit., Srivastava, S., Singh, P.C., Mishra, A. (2019) Intervention of bio-protective endophyte *Bacillus tequilensis* enhance physiological strength of tomato during Fusarium wilt infection. ***Biological Control***, *139*, 104074.
- Kumari, M., Giri, V.P., **Pandey, S**., Kumar, M., Katiyar, R., Nautiyal, C.S., Mishra, A. (2019). An insight into the mechanism of antifungal activity of biogenic nanoparticles than their chemical counterparts. ***Pesticide Biochemistry and Physiology***, *157*, 45-52.
- Mishra, A., Singh, S.P., Mahfooz, S., Shukla, R., Mishra, N., **Pandey, S**., Dwivedi, S., Pandey, V., Shirke, P.A., Nautiyal, C.S. (2019). External supplement of impulsive micromanager *Trichoderma* helps in combating CO_2 stress in rice grown under FACE. ***Plant Molecular Biology Reporters***, *37*, 1-13.
- Kumari, M., **Pandey S**., Bhattacharya, A., Nautiyal, C.S., Mishra A. (2017). Protective role of biosynthesized silver nanoparticles against early blight disease in *Solanum lycopersicum.* ***Plant Physiology and Physiology***, *121*, 216-225.
- Kumari, M., **Pandey S**., Mishra, S.K., Nautiyal, C.S., Mishra, A. (2017). Effect of biosynthesized silver nanoparticles on native soil microflora via plant transport during plant-pathogen-nanoparticles interaction. ***3 Biotech***, *7*, 345.

- Kumari, M., **Pandey, S**., Mishra, A., & Nautiyal, C.S. (2017). Finding a facile way for the bacterial DNA transformation by biosynthesized gold nanoparticles. ***FEMS Microbiology Letters***, *364*(12), fnx081.
- Kumari, M., Shukla, S., **Pandey, S**., Giri, V.P., Tripathi, T., Bhatia, A., Kakkar, P., Nautiyal, C.S., Mishra, A. (2017). Enhanced cellular internalization: A bactericidal mechanism more relative to biogenic nanoparticles than chemical counterparts. ***ACS-Applied Materials & Interfaces***, *9*, 4519−4533.
- Kumari, M., **Pandey, S**., Giri, V.P., Bhattacharya, A., Shukla, R., Nautiyal, C.S., Mishra, A. (2016). Tailoring shape and size of biogenic silver nanoparticles to enhance antimicrobial efficacy against MDR bacteria. ***Microbial Pathogenesis***, *105*, 346-355.
- Kumari, M., Mishra, A, **Pandey, S.**, Singh, S.P., Chaudhry, V., Mudiam, M.K.R., Shukla, S., Kakkar, P., Nautiyal, C.S. (2016). Physico-chemical conditions optimization during biosynthesis lead to development of improved and catalytically efficient gold nanoparticles. ***Scientific Reports***, *6*, 27575.
- Mishra, A., Kumari, M., **Pandey, S.**, Chaudhry, V., Gupta, K.C., Nautiyal, C.S. (2014) Biocatalytic and antimicrobial activities of gold nanoparticles by *Trichoderma sp.* ***Bioresource Technology***, *166*, 235-242.

* Equal contribution in the manuscript

BOOK CHAPTERS

- Giri, V.P., **Pandey, S**., Singh, S.P., Kumar, B., Zaidi, S.F.A. and Mishra, A. (2022). Medicinal plants associated microflora as an unexplored niche of biopesticide. In *Biopesticides* (pp. 247-259). Woodhead Publishing.
- Chauhan, P., Verma, P., **Pandey, S**., Bhattacharya, A., Tripathi, A., Giri, V.P., Singh, S.P. and Mishra, A. (2021). Endophytic microbial interaction with legume crop for developing resistance against nutrient stress. In *Microbes in Land Use Change Management* (pp. 363-387). Elsevier.
- **Pandey, S**., Giri, V.P., Tripathi, A., Bajpai, R., Sharma, D., Bahadur, L. and Mishra, A. (2021). Interaction, fate and risks associated with nanomaterials as fertilizers and pesticides. In *Advances in Nano-Fertilizers and Nano-Pesticides in Agriculture* (pp. 229-248). Woodhead Publishing.
- Kumari, M., Kamat, S., Dixit, R., **Pandey, S**., Giri, V.P. and Mishra, A., 2021. Microbial formulation approaches in postharvest disease management. In *Food Security and Plant Disease Management* (pp. 279-305). Woodhead Publishing.
- **Pandey, S**., Mishra, A., Giri, V.P., Kumari, M. and Soni, S. (2019). A green nano-synthesis to explore the plant microbe interactions. In *New and Future Developments in Microbial Biotechnology and Bioengineering* (pp. 85-105). Elsevier.
- **Pandey S**, Kumari M, Singh S.P, Bhattacharya A, Mishra S.K, Chauhan P.S, Mishra A. (2015). Bioremediation via nanoparticles: An innovative microbial approach. *In Handbook of research on uncovering new methods for ecosystem management through bioremediation*, IGI Global. ISBN-13: 978-1466686823.

- Singh S.P, **Pandey S**, Shukla R, Singh P.C, Mishra A. (2014). Diversity, systematic and application of fungi. *In Plant taxonomy & biosystematics*. NIPA, New Delhi. ISBN- 978-93-83305-41-4.

Patent

An Indian patent on A herbal nanoemulsion formulation for skin care and a process for the has been filed.

Reviewer

American Journal of Material Science, Biomedical and Pharmacology Journal

References

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