

Dr. Arti Mishra

Visiting Researcher (Carl Trygger fellowship)

Umeå Plant Science Center (UPSC), Department of Plant Physiology,
Umeå University, Umeå, Sweden.

Email: arti.mishra@umu.se

Assistant Professor,

Department of Botany, Hansraj College, University of Delhi

Email: artimishrahrc@gmail.com

Academic experience

Jan 2024- till date	Visiting Researcher (Carl Trygger Postdoctoral fellowship), Umeå Plant Science Center (UPSC), Department of Plant Physiology, Umeå University, Umeå, Sweden.
Oct 2022- till date	Assistant Professor, Department of Botany, Hansraj College, University of Delhi
2020-2022	Assistant Professor, Amity Institute of Microbial Technology (AIMT), Amity University Uttar Pradesh, Noida, India
2017 – 2020	UGC-Dr. D. S. Kothari Postdoctoral fellow, Jawaharlal Nehru University, New Delhi, India
2007 – 2009	Research Assistant, Ruhr University, Bochum, Germany

Education

2011 – 2016	Ph.D. (Botany) A.P.S. University, Rewa, India
2006	MS (Biology) Linköping University, Sweden
2003	M.Sc. (Botany) VBS, Purvanchal University, Jaunpur
2001	B.Sc. (Botany, Zoology, Chemistry) VBS, Purvanchal University, Jaunpur

Research area

Phycology, Environmental Microbiology, Bioremediation, Plant-Microbe Interaction

Publication summary

Research Publications: 36

Book Chapter: 23

Patent filed: 3

Edited Book: 1

h-index: 23

i10 index: 33

Google scholar total citations: 1341

Research guidance

- 05 M.Sc. (completed)

Achievements

- Carl Trygger Postdoctoral fellowship to work in Umeå Plant Science Centre, Umeå Sweden (2022)
- Dr. D S Kothari Postdoctoral Fellowship by University Grant Commission in 2016.
- Editorial Board Member **Frontiers in Plant Science** (Plant symbiotic interactions)
- Editorial Board Member **Frontiers in Microbiology** (Microbial Physiology and Metabolism)
- DST-SERB International Travel Award to travel South Korea (2019)
- EMBO travel grant to attend EMBO Workshop on the Cell and Molecular Biology of Chlamydomonas and The 13th International Chlamydomonas conference. May 27-June 1, 2008, Hyères-les-Palmiers, France.

Patents filed

1. Cultivating Resistance: Unveiling the Biocontrol potential of *Zhihengliuella* sp. ISTPL4 against *Fusarium Oxysporum*
2. A microbial consortium to mitigate arsenic stress in rice plants and preparation method thereof.
3. A method and system for biocontrol of plant pathogens using *Zhihengliuella* sp. ISTPL4

Publications

1. Thuswaldner S, Lagerstedt JO, Rojas-Stütz M, Bouhidel K, Der C, Leborgne- Castel N, **Mishra A**, Marty F, Schoefs B, Adamska I, Persson BL, Spetea C. Identification, expression, and functional analyses of a thylakoid ATP/ADP carrier from *Arabidopsis*. *Journal of Biological Chemistry* (2007).282:8848-59. **(Impact Factor: 5.48)**
2. Pavón LR, Lundh F, Lundin B, **Mishra A**, Persson BL, Spetea C. Arabidopsis ANTR1 is a thylakoid Na⁺-dependent phosphate transporter: functional characterization in *Escherichia coli*. *Journal of Biological Chemistry* (2008). 283:13520-7. **(Impact Factor: 5.48)**
3. Glanz S, Jacobs J, Kock V, **Mishra A**, Kück U. Raa4 is a trans-splicing factor that specifically binds chloroplast tscA intron RNA. *Plant Journal* (2012). 69: 421-431. **(Impact Factor: 7.09)**

4. **Mishra A***, Tandon R, Kesarwani S, Singh R, Tiwari G L. Emerging applications of cyanobacterial ultraviolet protecting compound scytonemin. *Journal of Applied Phycology* (2014). 27: 1045-1051. **(Impact Factor: 3.2)**
5. **Mishra A***, Singh R, Tandon R, Kesarwani S, Tiwari GL. Pigment and protein analysis of certain representatives of cyanobacteria. *National Journal of Life Science* (2014) 11: 11-13
6. Tandon R, Kesarwani S, **Mishra A**, Dixit A, Tiwari GL. Genus *Microcystis* Kuetzing ex Lemmermann (Chroococcales, Cyanoprokaryota) from India. *Phykos* (2016). 46: (2) 4-13.
7. **Mishra A**, Jha Gopaljee, Thakur I S. Draft Genome Sequence of *Zihengliuella* sp. Strain ISTPL4, a Psychrotolerant and Halotolerant Bacterium Isolated from Pangong Lake, India. *Genome Announcements*, 2018, 6(5): e01533-17. **(Impact Factor: 0.877)**
8. **Mishra A**, Medhi K, Maheshwari N, Shrivastva S, Thakur, I S. Biofuel production and phycoremediation by *Chlorella* sp. ISTLA1 isolated from landfill site. *Bioresource Technology*, 2018, **253**, 121-129. **(Impact Factor: 11.88)**
9. Kumar M, **Mishra A**, Singh S. S, Srivastava S, Thakur I S. Expression and characterization of novel laccase gene from *Pandoraea* sp. ISTKB and its application. *International Journal of Biological Macromolecules*, 2018, 115,308-316. **(Impact Factor: 8.02)**
10. Medhi K, **Mishra A**, Thakur, I S. Genome Sequence of a Heterotrophic Nitrifier and Aerobic Denitrifier, *Paracoccus denitrificans* Strain ISTOD1, Isolated from Wastewater. *Genome Announcements*, 2018, 6, no. 15 (2018): e00210-18. **(Impact Factor: 0.877)**
11. **Mishra A***, Rathour R, Singh R, Kumari T, Thakur I S. Degradation and detoxification of phenanthrene by actinobacterium *Zihengliuella* sp. ISTPL4. *Environmental Science Pollution Research*, 2019. **(Impact Factor: 5.19)**
12. **Mishra, A.**, Medhi, K., Malaviya, P. and Thakur, I.S., 2019. Omics approaches for microalgal applications: Prospects and challenges. *Bioresource Technology*, p.121890. **(Impact Factor: 11.88)**
13. Rathour, R., Gupta, J., **Mishra, A.**, Rajeev, A.C., Dupont, C.L. and Thakur, I.S., 2020. A comparative metagenomic study reveals microbial diversity and their role in the biogeochemical cycling of Pangong lake. *Science of The Total Environment*, p.139074. **(Impact Factor: 10.75)**
14. **Mishra, A.**, Gupta, B., Kumar, N., Singh, R., Varma, A. and Thakur, I.S., 2020. Synthesis of calcite-based bio-composite biochar for enhanced biosorption and detoxification of chromium Cr (VI) by *Zihengliuella* sp. ISTPL4. *Bioresource Technology*, p.123262. **(Impact Factor: 11.88)**
15. Sharma, S., **Mishra, A.**, Shukla, K., Shukla, S., 2020. Food Contamination: It's stages and associated illness. *International Journal of pharmaceutical, chemical and biological science*. Volume 10, Issue 4. October – December, 2020.
16. Shukla S., Sharma M., Yadav S., Raghupathy A., Shukla K., Varma A, **Mishra A.** * 2021 Synthesis and applications of nanoparticles: State of the Art and Future Perspective. **Nanoscience & Nanotechnology-Asia** **Doi:** 10.2174/2210681211666210224154613
17. Bisht, A., Chatterjee, R., Dimri, A.G., Singh, D., **Mishra, A.**, Chauhan, A. and Jindal, T., Risk assessment of opportunistic bacterial pathogens in household drinking water. *Science Archives* (2020) Vol. 1 (1), 42-49

18. Gupta B., **Mishra, A.**, Singh, R., Varma, A., Thakur, I.S. 2020. Fabrication of calcite based biocomposites for catalytic removal of heavy metals from electroplating industrial effluent. *Environmental Technology & Innovation* Volume 21, February 2021, 101278. (**Impact Factor: 7.75**)
19. **Mishra A.**, Gupta J., Kumari T., Pal R., Thakur I. S., 2021. Unravelling the attributes of novel cyanobacteria *Jacksonvillea* sp. ISTCYN1 by draft genome sequencing, *Bioresource Technology*, Volume 337, 125473, doi.org/10.1016/j.biortech.2021.125473. (**Impact Factor: 11.88**)
20. Gupta, J., Kumari, M., Mishra, A., Akram, M. and Thakur, I.S., 2022. Agro-forestry waste management-A review. *Chemosphere*, 287, p.132321. (**Impact Factor: 8.94**)
21. Sharma, R., **Mishra, A.**, Pant, D. and Malaviya, P., 2021. Recent advances in microalgae-based remediation of industrial and non-industrial wastewaters with simultaneous recovery of value-added products. *Bioresource Technology*, p.126129. (**Impact Factor: 11.88**)
22. **Mishra A.***, Takkar S., Joshi N. C., Shukla S., Shukla K., Singh A., Manikonda, A., Varma A., An integrative approach to study bacterial enzymatic degradation of toxic dyes. *Frontiers in Microbiology* (**Impact Factor: 6.064**), 12, pp.802544-802544.
23. Takkar, S., Tyagi, B., Kumar, N., Kumari, T., Iqbal, K., Varma, A., Thakur, I.S. and **Mishra, A.***, 2022. Biodegradation of methyl red dye by a novel actinobacterium *Zhihengliuella* sp. ISTPL4: Kinetic studies, isotherm and biodegradation pathway. *Environmental Technology & Innovation*, (**Impact Factor: 7.75**), 26, p.102348.
24. Gupta, J., Rathour, R., Dupont, C., **Mishra, A.** and Thakur, I.S., 2022. Biogeochemical profiling and taxonomic characterization of municipal landfill site by metagenomic sequencing. (2022) *Bioresource Technology*, 351, 126936, 0960-8524. (**Impact Factor: 11.88**)
25. Tyagi, J., Chaudhary, P., **Mishra, A.**, Khatwani, M., Dey, S. and Varma, A., 2022. Role of Endophytes in Abiotic Stress Tolerance: With Special Emphasis on *Serendipita indica*. *International Journal of Environmental Research*, 16(4), pp.1-21. (**Impact Factor: 3.229**)
26. **Mishra, A.**, Kumari, M., Kumar, R., Iqbal, K. and Thakur, I.S., 2022. Persistent organic pollutants in the environment: Risk assessment, hazards, and mitigation strategies. *Bioresource Technology Reports*, p.101143.
27. Agarwal, H., Kashyap, V.H., **Mishra, A.**, Bordoloi, S., Singh, P.K. and Joshi, N.C., 2022. Biochar-based fertilizers and their applications in plant growth promotion and protection. *3 Biotech*, 12(6), pp.1-19. (**Impact Factor: 2.8**)
28. Shoarnaghavi, M.A., **Mishra, A.**, Amirifar, A., Mahapatra, S.S., Nobaharan, K., Hemati, A., Asgari Lajayer, B. and Astatkie, T., 2022. Soil algae enzymes and their biotechnological applications. *Systems Microbiology and Biomanufacturing*, pp.1-18.
29. Iqbal K., Saxena A., Pande P., Tiwari A., Joshi N. C., Varma A, **Mishra A.*** 2022. Microalgae-bacterial granular consortium: striding towards sustainable production of biohydrogen coupled with wastewater treatment. (2022) *Bioresource Technology*, 127203. (**Impact Factor: 11.88**)
30. Tyagi, J., **Mishra, A.**, Kumari, S., Singh, S., Agarwal, H., Pudake, R.N., Varma, A. and Joshi, N.C., 2022. Deploying a microbial consortium of *Serendipita indica*, *Rhizophagus intraradices*, and

Azotobacter chroococcum to boost drought tolerance in maize. *Environmental and Experimental Botany*, p.105142. **(Impact Factor: 6.028)**

31. Agarwal, H., Bajpai, S., **Mishra, A.**, Kohli, I., Varma, A., Fouillaud, M., Dufossé, L., Joshi, N.C. Bacterial Pigments and Their Multifaceted Roles in Contemporary Biotechnology and Pharmacological Applications. *Microorganisms* 2023, 11, 614. **(Impact Factor: 4.926)**
32. Yadav, G., Sharma, N., Goel, A., Varma, A., **Mishra, A.**, Kothari, S.L. and Choudhary, D.K., 2023. Trichoderma Mediated Metal Chelator and Its Role in Solanum melongena Growth Under Heavy Metals. *Journal of Plant Growth Regulation*, pp.1-23. **(Impact Factor: 4.8)**
33. Sharma, N., Dabral, S., Tyagi, J., Yadav, G., Aggarwal, H., Joshi, N.C., Varma, A., Koul, M., Choudhary, D.K. and **Mishra, A.** *, 2023. Interaction studies of *Serendipita indica* and *Zhihengliuella* sp. ISTPL4 and their synergistic role in growth promotion in rice. *Frontiers in Plant Science*, 14, p.1155715. **(Impact Factor: 5.6)**
34. Kashyap, V.H., **Mishra, A.**, Bordoloi, S., Varma, A. and Joshi, N.C., 2023. Exploring the intersection of *Aspergillus fumigatus* biofilms, infections, immune response and antifungal resistance. *Mycoses*. **(Impact Factor: 4.9)**
35. Sharma N, Koul M, Joshi NC, Dufossé L, Mishra A*. Fungal-Bacterial Combinations in Plant Health under Stress: Physiological and Biochemical Characteristics of the Filamentous Fungus *Serendipita indica* and the Actinobacterium *Zhihengliuella* sp. ISTPL4 under In Vitro Arsenic Stress. *Microorganisms*. 2024 Feb 17;12(2):405. **(Impact Factor: 4.5)**
36. Sharma N, Yadav G, Tyagi J, Kumar A, Koul M, Joshi NC*, Hashem A, Abd_Allah E F, **Mishra A*** Synergistic impact of *Serendipita indica* and *Zhihengliuella* sp. ISTPL4 in mitigation of Arsenic stress in rice Accepted in *Frontiers in Microbiology* **(Impact Factor: 5.2)**

* As corresponding author

Book

Title: Climate Change and the Microbiome: Sustenance of the Ecosphere (2021)

Editors: Dr. D. K. Choudhary, Dr. Arti Mishra, Prof. Ajit Varma

ISBN: 978-3-030-76863-8

Book chapters

1. Sharma, N., Yadav, G., Varma, A., Koul, M. and Mishra, A., 2024. Heavy Metal Remediation from Rhizospheric Soil by Using Microbial Consortium. In *Microbiology-2.0 Update for a Sustainable Future* (pp. 57-76). Singapore: Springer Nature Singapore.
2. Mazumdar, S., Singhal, S., Tyagi, J., Mishra, A., Joshi, N.C., Pudake, R.N., Farooq, M. and Varma, A., 2023. Understanding of Belowground Biochemical Communication in Millets Through Metabolomics. In *Millet Rhizosphere* (pp. 259-274). Singapore: Springer Nature Singapore.
3. Sharma, N., Takkar, S., Bhatia, K., Vardhan, H., Tripathi, M., Iqbal, K., Shukla, S., Shukla, K., Tyagi, J., Varma, A. and Mishra, A., 2023. Recent advances in fungal secondary metabolites and their applications. *Fungal resources for sustainable economy: current status and future perspectives*, pp.411-432.

4. Agrahari, R., Iqbal, K., Tyagi, J., Joshi, N.C., Shukla, S., Shukla, K., Varma, A. and Mishra, A., 2023. Diatoms in Biomedicines and Nanomedicines. In *Insights into the World of Diatoms: From Essentials to Applications* (pp. 195-210). Singapore: Springer Nature Singapore.
5. Sharma, S., Shukla, K., Mishra, A., Vishwakarma, K. and Shukla, S., 2023. Diatoms: A Potential for Assessing River Health. In *Insights into the World of Diatoms: From Essentials to Applications* (pp. 121-130). Singapore: Springer Nature Singapore.
6. Iqbal, K., Singh, S., Lajayer, B.A., Shukla, S., Shukla, K., Varma, A. and Mishra, A., 2023. Algae as a Biomarker Using the Free Air Carbon Dioxide Enrichment (FACE) System. In *Climate Change and Sustainable Development* (pp. 181-198). CRC Press.
7. Mishra, A., Singh, A.P., Takkar, S., Sharma, A., Shukla, S., Shukla, K., Giri, B.S., Katiyar, V. and Pandey, A., 2022. Phytoremediation of dye-containing wastewater. In *Current Developments in Biotechnology and Bioengineering* (pp. 197-222). Elsevier.
8. Salam, M.D., Porwal, S., Mishra, A. and Varma, A., Functional Metagenomics in Environmental Bioremediation: Recent Advances, Challenges and Future Outlook. *Omics for Environmental Engineering and Microbiology Systems*, pp.257-267.
9. Sharma, N., Shukla, S., Shukla, K., Varma, A., Kumar, V., Salam, M.D. and Mishra, A., Recent Advancements in Microbial Degradation of Xenobiotics by Using Proteomics Approaches. In *Omics for Environmental Engineering and Microbiology Systems* (pp. 181-201). CRC Press.
10. Shukla, S., Upadhyay, D., Mishra, A., Jindal, T. and Shukla, K., 2022. Challenges Faced by Farmers in Crops Production Due to Fungal Pathogens and Their Effect on Indian Economy. In *Fungal diversity, ecology and control management* (pp. 495-505). Springer, Singapore.
11. Takkar S., Shandilya C, Agrahari R., Chaurasia A., Vishwakarma K., Mohapatra S., Varma, A., **Mishra A***. Green technology: Phytoremediation for pesticide pollution. *Phytoremediation Technology for the Removal of Heavy Metals and Other Contaminants from Soil and Water* (PP 353-375). Elsevier
12. **Mishra A***, Vishwakarma K., Malaviya P., Kumar N., Pavón L. R., Shandilya C., Sharma, R. Bisht A., Takkar S., 2022. Influence of greenhouse gases on plant epigenomes for food security. *Biomass, Biofuels, Biochemicals* (pp.421-450). Elsevier
13. Pati, S., Mohapatra, S., Vishwakarma, K., Bandekar, D., **Mishra, A.** and Samantaray, D., 2021. Impact of Climate on Soil Microbes and Plant Health. In *Climate Change and the Microbiome* (pp. 359-368). Springer, Cham.
14. Thakur, I.S. and **Mishra, A.**, 2021. Rising Greenhouse Gases in the Atmosphere: The Microbes Can Be a Solution—A Review. *Climate Change and the Microbiome*, pp.623-636.
15. Shukla, K., Shukla, S., Upadhyay, D., Singh, V., **Mishra, A.** and Jindal, T., 2021. Socio-Economic Assessment of Climate Change Impact on Biodiversity and Ecosystem Services. In *Climate Change and the Microbiome* (pp. 661-694). Springer, Cham.
16. Sharma, S., **Mishra, A.**, Shukla, K., Kumari, P., Jindal, T. and Shukla, S., 2021. The Potential Impact of Climate Change on Soil Health, Soil Biota, and Soil Properties: A Review. *Climate Change and the Microbiome*, pp.31-48.
17. **Mishra, A.**, Kumar, M., Medhi, K. and Thakur, I.S., 2020. Biomass energy with carbon capture and storage (BECCS). In *Current Developments in Biotechnology and Bioengineering* (pp. 399-427). Elsevier. 9780444636744
18. Maheshwari, N., **Mishra, A.**, Thakur, I.S. and Srivastava, S., 2021. Algal Biofuel: A Sustainable Approach for Fuel of Future Generation. In *Environmental Microbiology and Biotechnology* (pp. 3-29). Springer, Singapore.

19. **Mishra, A*.,** Rajput, S., Gupta, P.S., Goyal, V., Singh, S., Sharma, S., Shukla, S., Singh, A., Shukla, K. and Varma, A., 2021. Role of Cyanobacteria in Rhizospheric Nitrogen Fixation. In *Soil Nitrogen Ecology* (pp. 497-519). Springer, Cham.
20. Upadhyay, D., Shukla, K., **Mishra, A.,** Jindal, T., Sharma, S. and Shukla, S., 2021. Molecular Aspects and Oxygen Relations of Nitrogen Fixation in Cyanobacteria. In *Soil Nitrogen Ecology* (pp. 521-568). Springer, Cham.
21. Parashar, R., Shukla, S., Shukla, K., Varma, A. and **Mishra, A*.,** 2021. Unravelling Microbial Nitrogen Pathway in Rhizosphere. In *Soil Nitrogen Ecology* (pp. 163-177). Springer, Cham.
22. Shukla, S., Shukla, K., **Mishra, A.,** Jindal, T., Sharma, S., Upadhyay, D. and Singh, V., 2021. Ecological Perspectives on Soil Microbial Community Involved in Nitrogen Cycling. In *Soil Nitrogen Ecology* (pp. 51-91). Springer, Cham.
23. Lorena Ruiz Pavón, **A. Mishra,** F. Lundh, B. Persson, Cornelia Spetea Wiklund. Localization and functional studies of *Arabidopsis* anion transporter 1 Photosynthesis: Energy from the Sun, 2008, 1063-1066

Academic responsibilities at Hansraj College, University of Delhi

- Subject coordinator at Mahatma Hansraj Faculty Development Centre (MHRFDC)

Academic responsibilities at Amity University, Noida

- Central deputy superintendent of examination
- Internal Auditor IQAC
- Mentor Program Coordinator
- Member Placement committee

Program organized as convener at Hansraj College, University of Delhi

- **National Conference**
Theme: Advances in Plant Biology 2022 (APB-2022)
Date: 9th December 2022

Program organized as co-convener at Amity University, Noida

- **Faculty Development Program (FDP)**
Theme: Emerging Trends in Microbial Science
Date: 26th to 28th July 2021
- **DST sponsored Workshop**
Theme: Advanced microscopy for sustainable agriculture
Date: 11th - 16th July, 2022
- **DBT sponsored International Conference**
Theme: Emerging Trends in Genome Editing
Date: 17th -18th August 2022