



Miranda House

UNIVERSITY OF DELHI

Name: Dr. DHARMENDRA KUMAR

Department: BOTANY

Current Designation: Assistant Professor

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Academic Qualifications:

M.Sc. (Botany)	2014	University of Delhi
B.Sc. Botany (Hons)	2012	University of Delhi

Research Degree(s):

Ph.D.	2025	University of Delhi
M.Phil. (Botany)	2016	University of Delhi

Field of Specialization under the Subject/Discipline:

Environmental Monitoring, Phycoremediation, Water pollution, Algae and its utilization, Secondary metabolite, Agar- Agar extraction, Seaweed cultivation.

Achievement and Awards:

- UGC SRF, CSIR-UGC NET-JRF, GATE, UGC NET, CSIR NET, ARS NET & DBT-IBSD JRF
- National Award – Nature Care & Sustainability (2025), awarded at the National Conference on Restoring Health of Rivers and Water Bodies through People's Participation (12 Dec 2025, Constitution Club, New Delhi), organized by Nature Care Initiative.
- National Award for outstanding research contributions towards the conservation and restoration of the River Yamuna at the National Conference on Restoring River Health, jointly organized by Nature Care Initiative, Delhi University Botanical Society, and Indian Phycological Society (Sept 2025).
- Vice president of Delhi University Botanical Society (DUBS) from 2021-2023

Research Experience

- DBT IBSD PH.D. JRF from August 2017 to October 2019



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- September 2014 to May 2016: Worked as JRF/ Project fellow in DBT Sponsored Project entitled “Development of seaweeds biorefinery and Pilot demonstration of bioethanol production” at Department of Botany, University of Delhi, Delhi - 110007.
- M.Phil. Dissertation: “Biochemical Analysis of *Gracilaria* species Collected from Indian Coasts”.
- M.Sc. Dissertation: “Tools for insertional mutagenesis in Fungi by using Gene Transfer Technology”

Field Experience

During my Ph.D. and M.Phil. research periods, I travelled extensively to different parts of the Yamuna River and the Indian coast, including Chilika Lake (Odisha), Satpada (Puri, Odisha), Rameswaram, Kanyakumari, and Dhanushkodi (Tamil Nadu), and conducted field surveys and research investigations in these areas.

Total Teaching Experience: 1 YEAR 9 MONTHS

Teaching at Miranda House since: January 06, 2025

List of Publications:

1. Prajapati, M., **Kumar, D.**, Baweja, P., & Sahoo, D. (2026). Phytochemical Profile and Antioxidant Potential of Seaweed Species Using Different Solvents and their Characterisation by LC-ESI-QTOF-MS/MS. *Thalassas: An International Journal of Marine Sciences*, 42(4), 225.
2. **Kumar, D.**, Sahoo, S., Agrawal, S., & Sahoo, D. (2026). Anthropogenic Metal Loading in Yamuna-Irrigated Soils and Vegetables: Environmental and Human Health Risks in a Rapidly Urbanizing Nexus System. *Energy Nexus*, 100819. **IF- 8.2**
3. **Kumar, D.**, Kumar, G., Geetanjali, E., Shakya, R., Verma, D., Agrawal, S., & Sahoo, D. (2026). Water quality degradation and pollution dynamics of the Yamuna River: Sources, impacts, and remediation prospects. *River*. Accepted for publication. **IF- 1.8**.
4. **Kumar, D.**, Agrawal, S., Prajapati, M., Sahoo, S., & Sahoo, D. (2026). LC-MS/MS-Based Metabolite Profiling and Functional Assessment of *Hydrodictyon reticulatum* as a Potential



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- Source of Natural Therapeutics Collected from the Yamuna River, India. *Applied Food Research*, 102062. **IF – 6.2**
5. Prajapati, M., **Kumar, D.**, Agrawal, S., Kumar, D., Baweja, P., & Sahoo, D. (2026). Multifaceted bioactivity of brown seaweed-derived fucoidan from the Indian Coastline: A natural health product candidate. *Plos one*, 21(4), e0346712. **IF – 2.8**
 6. Vishavjeet, R., Ahlawat, Y.K., Singh, R., Bhardwaj, J.K., Ajaybeer, K., Kumar, S., Sharma, P., Choudhary, R., Nidhi, D., **Kumar, D.** and Shivankar, A., 2026. Microplastics and Health: A Review on Environmental Exposure, Toxicokinetics and Biological Effects. *Sustainability*, 18(7), p.3527. **IF – 4.1**
 7. **Kumar, D. et al. (2026)**. Analysis of *Spirulina maxima* grown in CFTRI and Zarrouk's Media, Insights into nutraceutical enhancement. *Journal of Applied and Natural Science*, 18(1), 222 - 231. <https://doi.org/10.31018/jans.v18i1.7061>
 8. **Kumar, D.**, Sahoo, S., Chourasia, R., Rai, A. K., & Sahoo, D. (2025). Assessment and phycoremediation of Yamuna river contaminants originating from the Najafgarh Drain, India, using LC–MS. *Environmental Science and Pollution Research*, 1-18. **IF – 5.8**
 9. **Kumar, D.**, Agrawal, S., Sahoo, S., & Sahoo, D. (2025). Native Algal Consortia as a Bioremediation Tool for Polluted Freshwater Ecosystems: A Case Study from the Yamuna River. *Phycology*, 5(4), 70. <https://doi.org/10.3390/phycology5040070> **IF – 3.5**
 10. **Kumar, D.**, Agrawal, S., Sahoo, S., Geetanjali, E., & Sahoo, D. (2025). Metabolic Plasticity and Abiotic Stress Adaptation in Freshwater Algae During Phycoremediation of Polluted River Water. *Plant-Environment Interactions*, 6(5), e70093. **IF – 1.9**
 11. Verma, P., **Kumar, D.**, Mishra, G., & Sahoo, D. (2025). Harnessing the bioactive potential of Indian seaweeds through multivariate analysis. *Discover Oceans*, 2(1), 43.
 12. Baweja, P., Devi, S. S., **Kumar, D.**, & Sahoo, D. (2025). Assessment and Remediation of Two Most Polluted Urban Sites of Yamuna River, India: An Algal-Based Approach. *Water, Air, & Soil Pollution*, 236(15), 983. **IF – 3.9**
 13. **Kumar, D.**, Qureshi, S., & Sahoo, D. (2024). Bioremediation of complex contaminated Yamuna River India by using selected cyanobacteria. *Bioremediation Journal*, 1-18. **IF – 2.1**



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14. **Kumar, D., & Sahoo, D.** (2024). Assessment of Physiochemical Parameters and Bioremediation of Complex Contaminated Yamuna River, India: An Algal-Based Approach. *Water, Air, & Soil Pollution*, 235(2), 90. **IF – 3.9**
15. **Kumar, D., Agrawal, S., & Sahoo, D.** (2024). Environmental contamination by heavy metals and assessing the impact of inhabitant microalgae in bioremediation: a case study of urban water of Yamuna River, India. *Urban Water Journal*, 21(3), 308-322. **IF – 2.1**
16. **Kumar, D., Agrawal S., Sahoo D.,** "Assessment of the intrinsic bioremediation capacity of a complexly contaminated Yamuna River of India: a algae-specific approach." *International Journal of Phytoremediation* (2023): 1-15. **IF – 4.1**
17. **Kumar, D., Agrawal S., Sahoo D.,** “Assessment of nutritional constituents and biomedical aspects of five *Gracilaria* species: A multivariate analysis” *Journal of Aquatic Food Product Technology* 32, no. 6-7 (2023): 570-584. **IF – 1.9**
18. Baweja, P., **Kumar, D., et.al.,** “Effect of Cadmium stress on Growth and Development of *Cicer arietinum* (Fabaceae)” *Environment & We: An International Journal of Science & Technology* 15 (2020): 49-59.

Book Chapters:

1. **Dharmendra Kumar, 2026** Seema Choudhary, Gaurav Kumar, Pooja Baweja, Manisha Prajapati. River Pollution in India and the Emerging Role of Algae in Sustainable Environmental Management.
2. Khan, Z., **Kumar, D., Kumar, G., & Kumar, S.** 2026 Algal Defense Mechanism Against Herbivory: Implications for Marine Biodiversity and the Blue Economy.
3. Choudhary, S., Kumari, S., Nagar, A., **Kumar, D., Verma, P., Geetanjali, E., Kumar, S., Jaiswal, P., & Kumar, 2026.** Harnessing microalgae and seaweeds: Navigating climate change for biodiversity and sustainability.
4. Yadav, K., **Kumar, D., Kumar, S., & Sahoo, D.** EFFECTS OF SEAWEED LIQUID EXTRACT ON SEEDLINGS GROWTH AND PIGMENT CONTENT OF *Vigna radiata*. India 2020: Environmental Challenges, Policies and Green Technology, 113.



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5. Verma, P., Kumar, M., **Kumar, D.**, Mishra, G and Sahoo D. Algae a potential bioresource for fine chemicals. India 2017, Scope of phytochemically unexplored medicinal plants, 221.

Research Guidance:

- Academic Session 2025–2026: Guided 3 fourth-year undergraduate students as Co-Principal Investigator (Co-PI) in their final-year research projects and served as a member of the Advisory Committee for 1 student, providing academic and research guidance, reviewing research progress, and contributing recommendations to strengthen the research work.

Membership Of Professional Bodies:

- Life Time Member of Indian Phycological Society

Invited talks/Session chair/Resource person:

- Expert Panel Discussion – Session Chair/Panelist: *National Conference on Restoring Health of Rivers and Water Bodies through People's Participation*, Constitution Club, New Delhi, 20 December 2025, organized by Nature Care Initiative.

Conferences Organised:

- **Organizing Secretary**, *National Conference on Carbon Garden: An Urban Ecosystem Services Model to Combat Toxic Air Pollution*,” held on March 25, 2026 jointly organized by Nature Care Initiative, New Delhi, India; Delhi University Botanical Society (DUBS); and Indian Phycological Society, Delhi, India
- **Organizing Secretary**, *National Conference on Restoring River Health: Yamuna as a Model System*, jointly organized by Nature Care Initiative, Delhi University Botanical Society, and Indian Phycological Society (Sept 2025).
- **Organizing Member**, National Conference on “Urban Waste Management and Sustainable Solutions,” under the aegis of “Spreading Awareness on Emerging Challenges of Air Pollution and Climate Change on Human Health in Urban Ecosystem,” organized by the Environmental



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Pollution Laboratory (EPL), University of Delhi, in collaboration with Delhi University Botanical Society and Indian Phycological Society, Delhi, India, **03–04 March 2025**, Department of Botany, University of Delhi, Delhi, India.

- **Organizing Secretary**, Workshop and Hands-on Training on “*Bio-Entrepreneurship in Hydroponics*,” jointly organized by the Delhi University Botanical Society, Department of Botany, University of Delhi, Delhi–110007, India, and the Institute of Horticulture Technology (IHT), Greater Noida, Uttar Pradesh–201310, India.
- **Organizing Secretary**, National workshop and training programme on *seaweed cultivation and artificial reef construction for ecological restoration* organized by Marine Biotechnology Laboratory, Department of Botany, University of Delhi. (2024, February 16–17) Chilika Lake, Odisha, India.
- **Organizing Secretary**, *National Workshop and Training Programme on Seaweed Cultivation and Artificial Reefs Deployment for Ecological Restoration*, February 16–17, 2024, Satapada, Chilika Lake, Odisha, India. Organized by Marine Biotechnology Laboratory, Department of Botany, University of Delhi; sponsored by Department of Biotechnology, Government of India; supported by Indian Phycological Society.

Seminars/Workshops/Conferences attended:

- Poster presented at the National Conference on Biodiversity, Climate Change and Sustainability held on 30 September 2026 titled “Algae-Based Bioconcrete: A Sustainable Approach for Low-Carbon Construction,” jointly organized by Nature Care Initiative, New Delhi, India; Delhi University Botanical Society (DUBS); and Indian Phycological Society, Delhi, India. (**Best Poster Award**)
- Poster presented at the International Conference Equinox 2026 is the 6th Annual International Conference held on April 9-10, 2026 titled “Role of microalgae in phycoremediation of Hindon River” organized by the Centre for Research, ACPG, and IQAC at Maitreyi College, University of Delhi India (**Best Poster Award**)



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- Poster presented at the National Conference “Carbon Garden: An Urban Ecosystem Services Model to Combat Toxic Air Pollution,” held on March 25, 2026, in Delhi, India, titled “Phycological Profiling of Urban Water Bodies: A Post-Monsoon Study of Four Delhi Ponds,” jointly organized by Nature Care Initiative, New Delhi, India; Delhi University Botanical Society (DUBS); and Indian Phycological Society, Delhi, India, and awarded the **IST Prize**.
- Poster presented at the National Conference “Carbon Garden: An Urban Ecosystem Services Model to Combat Toxic Air Pollution,” held on March 25, 2026, in Delhi, India, titled “Assessing the Impact of Water and Air Pollution on the Growth and Biochemical Composition of *Dunaliella*,” jointly organized by Nature Care Initiative, New Delhi, India; Delhi University Botanical Society (DUBS); and Indian Phycological Society, Delhi, India, and awarded the **IIST Prize**.
- Poster presented at the National Conference “Carbon Garden: An Urban Ecosystem Services Model to Combat Toxic Air Pollution,” held on March 25, 2026, in Delhi, India, titled “Impact of Seaweed Liquid Fertilisers on the Growth Dynamics and Nutritional Profile of Microgreens,” jointly organized by Nature Care Initiative, New Delhi, India; Delhi University Botanical Society (DUBS); and Indian Phycological Society, Delhi, India
- Poster presented at the National Conference “Carbon Garden: An Urban Ecosystem Services Model to Combat Toxic Air Pollution,” held on March 25, 2026, in Delhi, India, titled “Efficiency of Microalgal Consortia for Phycoremediation: A Study on Yamuna River Water,” jointly organized by Nature Care Initiative, New Delhi, India; Delhi University Botanical Society (DUBS); and Indian Phycological Society, Delhi, India.
- Poster presented at the National Conference “Carbon Garden: An Urban Ecosystem Services Model to Combat Toxic Air Pollution,” held on March 25, 2026, in Delhi, India, titled “Role of Plant Morphology and Genetic Diversity in Establishing Uniqueness of GI-Tagged Crops—Darjeeling Tea and Alphonso Mango,” jointly organized by Nature Care Initiative, New Delhi, India; Delhi University Botanical Society (DUBS); and Indian Phycological Society, Delhi, India
- Poster presented in the “Two days National Conference on Urban Waste Management and Sustainable Solutions” March 3 - 4, 2025, Delhi, India organized by Environmental Pollution



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Laboratory (EPL) University of Delhi, India & Department of Botany, University of Delhi, India in collaboration with Delhi University Botanical Society & Indian Phycological Society, Delhi, India **(Best Poster Award)**

- Poster presentation at the “Two days National conference on Blue Economy” 19th-20th February 2023 **(Best Poster Award)**
- Poster presentation at the “Three-Days International Conference on Multidisciplinary research & Practices” 16th-18th December 2023, Agra, Uttar Pradesh, India **(Best Oral Presentation Award)**
- Participate in “National Conference on Sustainable Environment Perspectives: A journey From Ancient India” 5-6th June 2022, organized by Deen Dayal Upadhyaya College University of Delhi.
- Participate in “National Conference on Beyond Himalayas” 8th Sept. 2021, organized by Centre for Himalayan Studies, University of Delhi, Delhi, India
- Participate in National Seminar on “Innovation and Opportunities in Marine Bioresources and Biotechnology on 21st August 2021 organized by Marine Biotechnology Laboratory Department of Botany University of Delhi.
- Participated in “National Conference on Water Sustainability: Conservation, Policy, Ethics and Science 21st-22nd January 2020, organized by Department of Botany, Zakir Husain Delhi College, University of Delhi, Delhi, India
- Participated in “National Conference on Pharmacognosy: Scope of Phytochemically Unexplored Medicinal Plants 2017” on 12th January 2017, organized by Department of Botany, Zakir Husain Delhi College, University of Delhi, Delhi, India.
- Participated in “INDIA INTERNATIONAL SCIENCE FESTIVAL 2016” on 8-11 December 2016, during Young Scientists Conclave Held at CSIR- NPL, Delhi, India
- Participated in “1st Himalayan Conclave-2015” on 9-10 September 2015, Organized by Institute of Bioresources and Sustainable Development in association with Department of Botany, University of Delhi, Delhi, India, Himalayan Environmental Studies and Conservation Organisation, India, Institute of Himalayan Bioresource Technology, India.

Workshops/Training attended

- Participated in and helped organize the workshop on “Bio-Entrepreneurship in Hydroponics”,



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organized by the Delhi University Botanical Society (DUBS), Department of Botany, University of Delhi, and the Institute of Horticulture Technology, Greater Noida, held on October 4–5, 2024.

- Participate and organized in the National Workshop on Urban Heat Island & Spreading Awareness on Emerging Challenges of Air Pollution and Climate Change on Human Health in Urban Ecosystem Organized by Environmental Pollution Laboratory (EPL) Department of Environmental Studies, University of Delhi, India & Delhi University Botanical Society Department of Botany, University of Delhi, Delhi, India held on 5-6 August, 2024.
- Participate and Organizing Member in National Workshop and Training Programme on “Seaweed Cultivation and Artificial Reefs Deployment for Ecological Restoration” organized by Marine Biotechnology Laboratory Department of Botany University of Delhi, on February 16-17, 2024.
- Participate in one day international workshop on “Intellectual Property Rights: Invention, Patents and copyrights” organized by Department of Botany, Maitreyi College, University of Delhi held on October 27, 2023
- Participate and Organizing Member in National Workshop and Training Programme on “Empowering Coastal Communities Especially the Women through Seaweeds Cultivation and Utilization” organized by Marine Biotechnology Laboratory Department of Botany University of Delhi, on 24-25 January 2023.