

CURRICULUM VITAE

DR. PIYUSH MATHUR

ASSISTANT PROFESSOR



Official Address

Department of Botany
Institute of Science
Banaras Hindu University
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D.O.B. 11/08/1987

GENDER: MALE

NATIONALITY: INDIAN

THRUST AREAS OF RESEARCH:

- ❖ Fungal Endophyte Biology and Bio-Prospecting
- ❖ Mycoremediation and Applied Mycology
- ❖ Plant-Pathogen Interactions
- ❖ Nanotechnology and Plant Stress Biology

No. of Ph.D. students:

- (a) Supervised: 01
- (b) Ongoing: 03

M.Sc. Dissertation: 24 (completed)

No. of Publications:

- (a) Journal(s): **23**
- (b) Book(s): **04**
- (c) Book chapter(s): **10**

h-index – **12**

i10-index – **16**

OBJECTIVE

- Dedicated and dynamic professional with a passion for teaching and research seeking an Assistant Professor position in Botany.
- Committed to fostering an inclusive learning environment and making significant contributions to the academic community through innovative teaching methods and impactful research endeavors.

ACADEMIC QUALIFICATIONS

❖ Ph.D. in Botany (Year-2016)

Department of Botany

University of Delhi

Title of thesis: Effect of Elevated CO₂ on Plant-Pathogen Interactions in *Brassica juncea* (L.) Czern. & Coss.

❖ CSIR-UGC JRF and NET (Year 2010)

Life Sciences

❖ Master of Science in Botany (Year-2010)

Department of Botany

University of Delhi

❖ Bachelors in Science (Honours) in Botany (Year-2008)

S.G.T.B. Khalsa College

University of Delhi

TEACHING EXPERIENCE (8 years 3 months)

❖ Assistant Professor (5.8 years)

(July, 2024-Present)

Department of Botany

Institute of Science

Banaras Hindu University

Present Responsibilities

- Develop and deliver Undergraduate, Post graduate, Ph.D. coursework courses in Botany, Applied Microbiology etc.
- Design course materials, syllabi, and assessments to meet learning objectives
- Provide academic advising and mentorship to students
- Incorporate innovative teaching methods, such as active learning strategies and technology-enhanced instruction

❖ Assistant Professor (5.8 years)

(2018-Present)

Department of Botany

University of North Bengal

Siliguri, West Bengal

❖ Assistant Professor (Ad-hoc) (1.2 years)

(2017-2018)

Department of Botany

Zakir Husain Delhi College

University of Delhi

New Delhi

❖ **Assistant Professor (Ad-hoc) (1.5 years) (2016-2017)**

Department of Botany
S.G.T.B Khalsa College
University of Delhi
Delhi

❖ **Assistant Professor (Guest) (2015)**

Department of Botany
Dyal Singh College
University of Delhi
Delhi

COURSES/ SUBJECT TAUGHT

❖ **PG Level (2018-Till date)**

- M.Sc. (Botany): **Microbiology, Advance Course in Microbiology, Biofertilizers, Ecology, IPR**
- Ph. D. Coursework (Botany); **Research Ethics and Plagiarism, Microbial World**

RESEARCH PROJECTS

Co-Principal Investigator, UGC-DAE (2024-2027) Running

Title of the project : **Synthesis of Mesoporous Silica Nanoparticles Loaded with Natural Antifungals for the Management of Alternaria Leaf Spot Disease**

Funded by : University Grants Commission, Department of Atomic Energy (UGC-DAE)

Duration : 3 years

Member, Project Implementation Group (DST-FIST, 2022-2027)

Funded by : Department of Science and Technology, Govt. of India

Amount sanctioned : 1.5 crores

Duration : 5 years

Principal Investigator (2021-2022) (COMPLETED)

Title of the project : **Identification and Characterization of Endophytic Fungi Associated with Important Medicinal Plant of North Bengal Region**

Funded by : University of North Bengal

Amount sanctioned : Rs. 1,50,000/-

Duration : 1 year

Co-Principal Investigator (2017-2019) (COMPLETED)

Title of the project : **Raising Marigold (*Tagetes erecta* L) through organic farming**

Funded by : Science and Research Center, S.G.T.B Khalsa College,
University of Delhi
Amount sanctioned : Rs. 1,50,000/-
Duration : 2 years

PUBLICATIONS IN PEER REVIEWED JOURNALS

❖ 2024

1. Chouhan, D., Dutta, P., Dutta, D. Ankita D, Kumar A, Mandal P, Choudhuri C, **Mathur P** (2024). Effect of silver nanochitosan on control of seed-borne pathogens and maintaining seed quality of wheat. **Phytopathology Research** 6, 41. (I.F.- 3.2)
2. Toppo P, Jangir P, Mehra N, Kapoor R, **Mathur P** (2024). Bioprospecting of endophytic fungi from medicinal plant *Anisomeles indica* L. for their diverse role in agricultural and industrial sectors. **Scientific Reports** 14, 588. (I.F.- 4.6)
3. Mukherjee S, Subba, R, AlZuaibr FM, **Mathur P** (2024). Auxin and hydrogen peroxide (H₂O₂) interaction differentially regulate seedling growth, Na⁺/K⁺ ratio and H₂S homeostasis accompanying NaCl stress in etiolated sunflower (*Helianthus annuus* L. cv microgreen) seedling roots and cotyledons. **South African Journal of Botany** 166, 663-675. (I.F.- 3.1)

❖ 2023

4. Subba R, Dey S, Mukherjee S, Roy S, **Mathur P** (2023). Elucidating the role of exogenous iron (Fe) in regulation of hydrogen sulphide (H₂S) biosynthesis and its concomitant effect on seedling growth, pigment composition and antioxidative defense in NaCl stressed tomato seedlings. **Acta Physiologiae Plantarum** 45:135. (I.F.- 2.6)
5. Roy S, Kapoor R, **Mathur P** (2023). Revisiting Changes in Growth, Physiology and Stress Responses of Plants under the Effect of Enhanced CO₂ and Temperature. **Plant and Cell Physiology** p.pcad121. (I.F.- 4.9)
6. Kaur I, Dhama S, Mukherjee A, **Mathur P** (2023). Influence of different organic amendments in modulation of soil physico-chemical characteristics and growth of marigold seedlings. **Journal of Plant Nutrition** 1-14. (I.F.- 2.1)
7. Mukherjee S, Khan MN, **Mathur P** (2023). Exogenous calcium (Ca²⁺) and verapamil-sensitive Ca²⁺ channel activity differentially modulates melatonin-mediated regulation of endogenous hydrogen sulphide (H₂S) homeostasis, and L-cysteine desulphydrase (LDES) activity in NaCl-stressed etiolated sunflower seedlings. **South African Journal of Botany** 152, 124-135. (I.F.- 3.1)
8. Toppo P, Kagatay LM, Gurung A, Singla P, Chakraborty R, Roy S, **Mathur P** (2023). Endophytic fungi mediates production of bioactive secondary metabolites via modulation of genes involved in key metabolic pathways and their contribution in different biotechnological sector. **3 Biotech.** 13, 191. (I.F.- 2.8)

9. **Mathur P**, Chakraborty R, Aftab T, Roy S (2023). Engineered nanoparticles in plant growth: Phytotoxicity concerns strategies for their attenuation. **Plant Physiology and Biochemistry** 199, 107721. (I.F.- 6.5)

❖ 2022

10. **Mathur P**, Sharma E, Kapoor R (2022). Role of Nitrogen and Sulphur Fertilization for Sustaining the Growth, Physiology and Defence of *Brassica juncea* L. (Indian Mustard) Plants Exposed to Enhanced CO₂ Concentration. **Journal of Soil Science and Plant Nutrition** 22: 778–790 (I.F.- 3.5)
11. Subba R, **Mathur P** (2022). Functional attributes of microbial and plant based biofungicides for the defense priming of crop plants. **Theoretical and Experimental Plant Physiology** 1-33 (I.F.-2.34)
12. **Mathur P**, Tripathi DK, Baluška F, Mukherjee S. (2022). Auxin-mediated molecular mechanisms of heavy metal and metalloid stress regulation in plants. **Environmental and Experimental Botany** 196:104796 (IF-5.7)
13. **Mathur P**, Roy S, Khan NM, Mukherjee S (2022). Hydrogen sulphide (H₂S) in the hidden half: Role in root growth, stress signalling and rhizospheric interactions. **Plant Biology** (I.F. 3.8)
14. Toppo P, Subba R, Roy K, Mukherjee S, **Mathur P** (2022) Elucidating the Strategies for Isolation of Endophytic Fungi and Their Functional Attributes for the Regulation of Plant Growth and Resilience to Stress. **Journal of Plant Growth Regulation** 1:22 (I.F.- 4.6)

❖ 2021

15. Roy S, **Mathur P** 2021. Delineating the mechanisms of elevated CO₂ mediated growth, stress tolerance and phytohormonal regulation in plants. **Plant Cell Reports** 40 (8), 1345-1365. (I.F.- 6.2)
16. **Mathur P**, Roy S 2021. Insights into the plant responses to drought and decoding the potential of root associated microbiome for inducing drought tolerance. **Physiologia Plantarum**. 172 (2), 1016-1029. (I.F.-6.1)
17. Kundu C, Rai B, Subba R, **Mathur P** 2021. Disease Management in Brassicaceae family through various biocontrol agents: A review. **NBU Journal of Plant Sciences**

❖ 2020

18. **Mathur P**, Roy S (2020). Nanosilica facilitates silica uptake, growth and stress tolerance in plants. **Plant Physiology and Biochemistry** 157: 114-127. (I.F.- 6.5)

19. Malakar N, Mitra S, Toppo P, **Mathur P** 2020. Understanding the functional attributes of different microbial enzymes in bioremediation. **NBU Journal of Plant Sciences**

❖ **2019**

20. Sagar A, Kaur I, **Mathur P**, Mukherjee A, Dhama S, Singh V, Kaur V 2019. A New Concept in Organic Farming: Efficacy of Brassinosteroids as Foliar Spray to Ameliorate Growth of Marigold Plants. **Environment & We: An International Journal of Science & Technology**, Publisher name: Society for Environment and Development, (India) 14, 25-36.

❖ **2018**

21. Sharma E, Tayal P, Anand G, **Mathur P**, Kapoor R 2018. Functional analysis of diacylglycerol O-acyltransferase 2 gene to decipher its role in virulence of *Botrytis cinerea*. **Current Genetics** 64(2):443-457. (I.F.-3.8)
22. **Mathur P**, Singh VP, Kapoor R 2018. Interactive effects of CO₂ concentrations and *Alternaria brassicae* (Berk.) Sacc. infection on defense signalling in *Brassica juncea* (L.) Czern. & Coss. **European Journal of Plant Pathology**. 151 (2), 413–425 (I.F. 1.9)

❖ **2013**

23. **Mathur P**, Sharma E, Singh SD, Bhatnagar AK, Singh VP, Kapoor R 2013. Effect of elevated CO₂ on infection of three foliar diseases in oilseed *Brassica juncea*. **Journal of Plant Pathology** 95: 133-142. (I.F.-2.3)

BOOKS PUBLISHED

❖ **EDITOR**

1. Chakraborty R, **Mathur P**, Roy S (2024). *Food Production, Diversity, and Safety Under Climate Change*, Springer, Cham.
2. Saha SP, Mazumdar D, Roy S, **Mathur P** (2024). *Agro-waste to Microbe Assisted Value Added Product: Challenges and Future Prospects*, Springer Cham
3. Mathur P, Kapoor R, Roy S (2023). *Microbial Symbionts and Plant Health: Trends and Applications for Changing Climate*, Springer Singapore
4. Roy S, **Mathur P**, Chakraborty AP, Saha SP (2022) *Plant Stress: Challenges and Management in the New Decade*, Springer, Cham

BOOK CHAPTERS IN EDITED BOOK

1. Chouhan D, Choudhuri C, **Mathur P** (2024). Implication of Nanotechnology for the Management of Seed-Borne Pathogens in Cereal Crops. In *Food Production, Diversity, and Safety Under Climate Change* (pp. 263-272). Cham: Springer Nature Switzerland.
2. Chouhan, D, **Mathur P**, Choudhuri, C (2023). Plant-Microbe Interaction and Their Role in Mitigation of Heat Stress. In *Microbial Symbionts and Plant Health: Trends and Applications for Changing Climate* (pp. 127-147). Singapore: Springer Nature Singapore.
3. Sarkar MM, Subba R, Roy S, **Mathur P** (2023). Understanding the Role of Nitric Oxide and Its Interactive Effects with Phytohormones in Mitigation of Salinity Stress. In *Gasotransmitters Signaling in Plants under Challenging Environment* (pp. 121-145). Cham: Springer International Publishing.
4. **Mathur P**, Subba R, Mukherjee S (2023). Carbon Monoxide (CO) and Its Association with Other Gasotransmitters in Root Development, Growth and Signaling. In *Gasotransmitters Signaling in Plants under Challenging Environment* (pp. 315-328). Cham: Springer International Publishing.
5. Subba R, Roy S, **Mathur P** (2023). Phytohormones as a Novel Weapon in Management of Plant Stress Against Biotic Agents. In *Global Climate Change and Plant Stress Management* (pp. 277-286). 277-286. Wiley Publishing
6. Toppo P, **Mathur P** (2022). Deep Insights into the Role of Endophytic Fungi in Abiotic Stress Tolerance in Plants In: *Plant Stress: Challenges and Management in the New Decade* (pp. 331-347) Cham: Springer Nature Switzerland.
7. Sarkar MM, **Mathur P**, Roy S (2022). Silicon and nano-silicon: New frontiers of biostimulants for plant growth and stress amelioration In: *Silicon and Nano-silicon in Environmental Stress Management and Crop Quality Improvement Progress and Prospects* (Eds. Etesami H, Al Saeedi A, El-Ramady H, Fujita M, Pessarakli M, Hossain Academic Press
8. **Mathur P**, Mukherjee S (2021). Dynamic Pool of Nitric Oxide (NO) in Rhizosphere Modulates Root Architecture, Nutrient Acquisition and Stress Tolerance in Plants In: *Rhizobiology: Molecular Physiology of Plant Roots* (Eds.) Mukherjee S, Baluška F Springer, Cham
9. **Mathur P**, Pramanik S (2020). Prospective Role of Melatonin in Signaling and Alleviation of Stress in Plants In: *Neurotransmitters in Plant Signaling and Communication*, (eds.) Baluška F, Mukherjee S, Ramakrishna A pp 213-240. Springer, Cham, Springer Nature Switzerland AG
10. Kapoor R, Evelin H, **Mathur P**, Giri B (2013). Arbuscular Mycorrhiza: Approaches for Abiotic Stress Tolerance in Crop Plants for Sustainable Agriculture. In: *Plant Acclimation to Environmental Stress*, (eds.) Tuteja N, Gil SS. pp 359-401. Springer USA. (eBook ISBN-978-1-4614-5001-6).

CONFERENCE PAPERS

❖ Oral Presentations

1. Prabha Toppo, Pooja Jangir, Namita Mehra and **Piyush Mathur** Biodiversity and bioprospecting of endophytic fungi from two important medicinal plants *Anisomeles indica* L. and *Hedychium thyrsiforme* Sm. of Terai Duars region of North Bengal in International Conference on “**Biodiversity, Biotechnology and Bioprospects of fungi for Agricultural, Industrial and Environmental Sustainability**” (BBBFAIES-2024), University of Madras, Chennai, Tamil Nadu, from 6-8th March, 2024.
2. **Piyush Mathur** and Rupam Kapoor Elevated CO₂ Modulates the Transcript Expression of Genes Involved in Defense Signalling via Changes in Phytohormone Levels in *Brassica juncea*-*Altenaria brassicae* Pathosystem in International Seminar on Current Avenues in Microbial & Plant Sciences (CAMPS-2019), University of Gour Banga, Malda, West Bengal, India from 23-25th February, 2019.
3. **Piyush Mathur** and Rupam Kapoor Effect of elevated CO₂ and pathogen infection on phytohormone levels and transcript expression of genes involved in defense signalling in *Brassica juncea* in **3rd Agriculture and Climate Change Conference held at Budapest, Hungary** from 24-26th March 2019.

ADMINISTRATIVE EXPERIENCE (July, 2024-Present)

- **Member**, Standing Committee for Divyangjan (PWBD), **Banaras Hindu University, Varanasi**

ADMINISTRATIVE EXPERIENCE (September, 2018-July, 2024)

- **Chairman, UG Board of Studies in Botany, University of North Bengal, Siliguri** Drafted & Designed Four Year Undergraduate Programme (FYUGP) as per New Education Policy (NEP 2020) (July, 2023-July, 2024)
- **Nodal Officer, NAAC Accreditation Committee of the Department of Botany, University of North Bengal, Siliguri**
- **Convenor for the Skill Enhancement Committee of the University of North Bengal, Siliguri**
- **Member of PG Board of Studies, Department of Botany, University of North Bengal, Siliguri**
- **Member of Departmental Committee for Syllabus Revision for PG, M.Phil, and Ph.D. Department of Botany, University of North Bengal, Siliguri**

- Member of **Project Implementation Group DST-FIST** granted by DST, GOI, (2022-2027) amounting to **1.5 Crores**, **Department of Botany, University of North Bengal, Siliguri**
- Appointed as **Liason officer** during NAAC visit, **University of North Bengal, Siliguri**
- Member of the **Flying squad for the visit of Examination** conducted in different colleges affiliated with **University of North Bengal, Siliguri**
- Member of **Committee for disability affairs**, **University of North Bengal, Siliguri**

• ORGANIZING SECRETARY

- ❖ International conference on “**Advances in Plants, Microbes and Agricultural Sciences**” (APMAS-2023) held from **2-4th March, 2023** sponsored by DBT & DST-SERB, Govt. of India, organized by **Department of Botany, University of North Bengal**
- ❖ Two Days National Seminar (Online Mode) on “**Advancement of Plant Sciences for Food Diversity and Nutritional Security**” held on **30th September, 2021** and **1st October, 2021** organized by **Department of Botany in collaboration with UGC-Human Resource Development Center, University of North Bengal**

FELLOWSHIPS AND AWARDS

- ❖ **Foreign travel grant by Research Council, University of Delhi** for attending and participating **14th International Rapeseed Congress** held at **The Convention Centre, 35-22nd Street East, TCU Place Saskatoon, Saskatchewan Canada** from **5-9th July, 2015**
- ❖ **Best Oral Presentation Award** in a “**National Conference on Plant Science Research: Looking beyond 21st Century for Environmental and Agricultural Revolution**” held at **Department of Botany, University of Delhi, Delhi- Year-2016**
- ❖ **Foreign travel grant by International Travel Support Scheme, SERB, DST, GOI** for attending and participating in **3rd Agriculture and Climate Change Conference** held at **Budapest, Hungary** from **24-26th March 2019**.

TRAININGS/WORKSHOPS/SEMINARS/ E-CONFERENCES

- ❖ **E-Conferences**
 1. Two days “**National e-conference on Plant Science Research: Relevance, Funding, Challenges and Opportunities**” from **January, 16-17, 2021** organised by **Department of Botany, Hansraj College** in collaboration with **Mahatma Hansraj Faculty Development Centre Hansraj College, University of Delhi**

❖ E-Workshops

1. Workshop on "**Microbes for Sustainable and Resilient Future**" scheduled from December 6-9, 2021 organized by Delhi University Botanical Society (DUBS), Department of Botany, University of Delhi
2. Workshop on "**Recent Advances in Environmental Biotechnology**" from October 5- 9, 2020 January, jointly organized by the Department of Civil Engineering and School of Environmental Science & Engineering, IIT Kharagpur
3. Workshop on "**MOOCs, Online Courses & Open Educational Resources on the theme 'ICT Tools for Online Teaching'**" held from May 23-29, 2020 organized by Centre for Professional Development in Higher Education (CPDHE) UGC-Human Resource Development Centre University of Delhi

FACULTY DEVELOPMENT PROGRAMME

1. Faculty development programme on "**Advance Course in Bioinformatics**" held from May 10-16, 2021 organized by Department of Biotechnology and Electronics & ICT academy, National Institute of Technology, Warangal

FACULTY INDUCTION PROGRAMME/ REFRESHER COURSES ATTENDED

- Completed **NEP Orientation & Sensitization Programme** (MMC-109-2024-MAR-B-01193) from 15th March 2024 To 23rd March 2024 organized by UGC-Malaviya Mission Teacher Training Centre (UGC-MMTC) (Erstwhile Human Resource Development Centre) University of North Bengal, Siliguri (ONLINE)
- Completed UGC sponsored **Refresher Course in Life Sciences** (Interdisciplinary) from July 26, 2022 to August 8th, 2022 and obtained Grade A+ at UGC-HRDC, North Eastern Hill University, Shillong (ONLINE)
- Completed UGC-sponsored **Faculty Induction Programme** (FIP-02) from November 25, 2020 to December 24, 2020 and obtained Grade A+ at UGC-HRDC, University of North Bengal, Siliguri (ONLINE)

➤ INVITED LECTURES

- **Resource Person** for conducting a **One Day National Webinar as a part of the observation of "Swachhata Pakhwada" on the topic Microbial-Plant Alliances in Environmental Cleanup: Innovations in Waste Management** held on 14th September, 2024

- **Invited lecture** on the topic **Endophytic Fungi: Nature's Helpers in Farming, Cleanup, and Color Extraction** at Department of Botany, at APC Roy Government College, Siliguri on 5th March, 2024
- **Invited Speaker** at “**Environment Friendly Teaching Learning Practices**” delivered a talk via google meet on June 20, 2021 on the topic entitled “Elevated CO₂ and Modulation of Plant Defense”
- **Invited lecture** cum hands on workshop on "Bioinformatics: resources, tools and its application" at Zakir Husain Delhi College held on 19th-27th July, 2021.

ASSOCIATION WITH PROFESSIONAL BODIES/ MEMBERSHIP

- **Member**, Editorial Board **BMC Plant Biology, Springer Nature**
- **Managing Editor**, **NBU Journal of Plant Sciences**
- **Life Member**: Indian Phytopathological Society, Delhi
- **Life Member**: Delhi University Botanical Society, University of Delhi
- **Life Member**: Society of Rapeseed Mustard Research (SRMR), Bharatpur, Rajasthan

SKILLS

- ❖ **Excellent communication and interpersonal skills**
- ❖ **Strong analytical and problem-solving abilities**
- ❖ **Ability to work effectively in a collaborative research environment**