

MANZOOR RAIEES KHAN, Ph.D.

- Mailing Address** : Department of Botany, University of Kashmir, North Campus, Delina, Baramulla, (J&K)-193103.
- Email Id** : khan111manzoor@gmail.com
- Contact No** : +91-9906965005
- Web of Science** : <https://www.webofscience.com/wos/author/record/AAE-3724-2021>
- Google Scholar** : https://scholar.google.co.in/citations?user=Vj_Y4SsAAAAJ&hl=en

Current Position:

Assistant Professor, Full Time (**Contractual**), Department of Botany,
University of Kashmir, North Campus, Delina, Baramulla, (J&K)-193103.

March 2025 ~

Educational Qualifications:

- 2015-2020** : **Ph.D. in Botany (Plant Pathology).**
Department of Botany, Aligarh Muslim University, Aligarh, India-202002.
- 2014-2015** : **M.Phil. in Botany (Plant Pathology).**
Department of Botany, Aligarh Muslim University, Aligarh, India-202002.
- 2012-2014** : **Advanced Diploma in Plant Tissue Culture & Micropropagation (PDTC)**
Department of Botany, Aligarh Muslim University, Aligarh, India-202002.
- 2009-2011** : **Master of Science (M.Sc.) in Botany (Plant Pathology).**
HNB-Garhwal University, Srinagar, Garhwal, Uttarakhand, India-248001.
- 2006-2009** : **Bachelor of Science (B.Sc.).**
University of Kashmir, Srinagar, India-190006.

Awards & Fellowships:

- 2016** : Qualified JK-SET for Assistant Professor.
- 2015-2020** : UGC non-NET Fellowship for Ph.D.
- 2014-2015** : UGC non-NET Fellowship for M.Phil.
- 2012-2013** : DBT Fellowship for plant tissue culture diploma (PDTC).

Teaching Experience (Full Time):

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| March 2025 to Present | Assistant Professor
(Botany) | Department of Botany, University of Kashmir, North Campus, Delina, Baramulla, Jammu & Kashmir, India-193103. |
| May 2024 to March 2025 | Assistant Professor
(Botany) | P.G. Department of Botany, Sri Pratap College, Cluster University of Srinagar, M. A. Road Srinagar, India-190001. |
| July 2021 to April 2024 | Assistant Professor
(Botany) | Department of Botany, Govt. Degree College Kupwara, Jammu & Kashmir, India-193222. |
| September 2020 – June 2021 | Assistant Professor
(Botany) | Department of Botany, Govt. Gandhi Memorial Science College, Jammu, Jammu & Kashmir, India-180001. |

Research Experience:

- December 2015 – June 2020** : **Project:** Studies on the interaction and management of *Meloidogyne incognita*, *Pectobacterium betavasculorum* and *Rhizoctonia solani* on beetroot (Ph.D. Work).
Department of Botany, Aligarh Muslim University, Aligarh, India.
Supervisor: Prof. Zaki Anwar Siddiqui

This work comprised pathogen-pathogen and host multiple-pathogen interactions and management of disease complex using beneficial microbes and metal oxide nanoparticles. This work has been published as journal articles (see publication list).

March 2014 – October 2015 : **Project:** Ecofriendly management of stem gall of coriander caused by *Protomyces macrosporus* (M.Phil. Work).
Department of Botany, Aligarh Muslim University, Aligarh, India.
Supervisor: Prof. Ghazala Parveen

During this study we investigated fungal (*Trichoderma* sp.) and bacterial (PGPR) biocontrol agents for their role in disease suppression and plant growth promotion. This work has been published as journal articles (see publication list)

July 2012 – June 2013 : **Project:** Micropropagation through axillary shoot proliferation by using nodal explants of *Bauhinia accuminata* L (PDTTC Dissertation).
Department of Botany, Aligarh Muslim University, Aligarh, India.
Supervisor: Prof. Anwar Shahzad

This work comprised the development of a protocol for rapid multiplication of *Bauhinia accuminata* using nodal explants from field grown mature plants.

List of Publications:

1. Siddiqui Z.A., **Khan, M.R.**, Aziz, S., Aqib and Singh, A. (2025). Individual and interactive effects of ZnO NPs / MnO₂ NPs and *Pseudomonas putida* on the bacterial leaf spot disease complex of turnip. *Vegetos*, <https://doi.org/10.1007/s42535-025-01244-8>. **IF = NA.**
2. Akhter, A, **Khan, M. R***, Zargar, S. A, Saggoo, M. I. S and Nawchoo, I. A. (2025). Morphological and genetic diversity of endangered *Lavatera cachemiriana* populations along an altitudinal gradient of Kashmir Himalayas. *Discover Plants*, 2:62, **IF = NA.**
3. Bhat T. A., Mir S. A., **Khan, M. R***, Bhat J. I. A., Bashir I., Beigh B. A., Azad H. (2025). The Impact of Vehicular Pollution on Soil Health in the Forest Ecosystem of Sonamarg Kashmir Himalayas. *Discover Environment*, 3:3, **IF = NA.**
4. Aqib, **M. R. Khan**, Z. A. Siddiqui (2024). Effect of different inocula of *Meloidogyne incognita* and *Pseudomonas syringae* pv. *aptata* on three cultivars of beetroot (*Beta vulgaris* L.). *Acta Phytopathologica et Entomologica Hungarica*, 59(2): 152-165, **IF = 0.35.**
5. Ikram Ullah, Yuan, W, Uzair, M, **Khan, M. R.**, Lak, F, Abbas, A, Gohari, A. M, and Wu, H. (2024). Understanding *Botrytis cinerea* infection and gray mold management: a review paper on deciphering the rose's thorn. *Phytopathology Research*, 6: 42. **IF = 3.40.**
6. Siddiqui, Z.A., **Khan, M.R.**, Aziz, S. and Aqib (2024). Use of manganese oxide nanoparticle (MnO₂ NPs) and *Pseudomonas putida* for the management of wilt disease complex of carrot. *Experimental Parasitology*. 257:108698. **IF = 2.10.**
7. Siddiqui, Z.A. **Khan, M.R.** and Aqib (2023). Comparative efficacy of zirconium dioxide nanoparticles and AM fungus against wilt disease complex of bottle gourd and upregulation of biochemical and physiological processes. *Int. J. Veg. Sci.* 29(3): 243-260. **IF = 1.35.**
8. **Khan, M.R.**, Siddiqui, Z.A. and Fang, X. (2022). Potential of metal and metal oxide nanoparticles in plant disease diagnostics and management: Recent advances and challenges. *Chemosphere*. 297: 134114. **IF = 8.80.**
9. **Khan, M.R.** and Siddiqui Z. A. (2021). Efficacy of titanium dioxide nanoparticles in the management of disease complex of beetroot (*Beta vulgaris* L.) caused by *Pectobacterium betavasculorum*, *Rhizoctonia solani*, and *Meloidogyne incognita*. *Journal of Crop Health*. 6:49:03 Z. **IF = 3.10.**
10. Samreen S., Khan, A.A, **Khan, M.R.**, Ansari, S.A. and Khan, A. (2021). Assessment of phytoremediation potential of seven weed plants growing in chromium and nickel contaminated soil. *Water, Air & Soil Pollution*. 232(209): 1-18. **IF = 2.98.**
11. **Khan, M.R.** and Siddiqui Z. A. (2021). Role of zinc oxide nanoparticles (ZnO NPs) in the management of disease complex of beetroot (*Beta vulgaris* L) caused by *Pectobacterium betavasculorum*, *Meloidogyne incognita*, and *Rhizoctonia solani*. *Horticulture, Environment, and Biotechnology*. 62: 225-241. **IF = 2.40.**
12. **Khan, M.R.** and Siddiqui Z.A. (2020). Effects of *Meloidogyne incognita*, *Pectobacterium betavasculorum* and *Rhizoctonia solani* interactions on the growth, physiological and biochemical changes of beetroot. *Israel Journal of Plant Sciences*. 37(3-4): 194-211. **IF = 1.02.**
13. **Khan, M.R.** and Siddiqui Z.A. (2020). Use of silicon dioxide nanoparticles for the management of *Meloidogyne incognita*, *Pectobacterium betavasculorum*, and *Rhizoctonia solani* disease complex of beetroot (*Beta vulgaris* L). *Scientia Horticulturae*, 265: 109211. **IF = 4.30.**

14. **Khan, M.R.** and Siddiqui Z.A. (2019). Potential of *Pseudomonas putida*, *Bacillus subtilis* and their mixture on the management of *Meloidogyne incognita*, *Pectobacterium betavasculorum*, and *Rhizoctonia solani* disease complex of beetroot (*Beta vulgaris* L). *Egyptian Journal of Biological Pest Control*, 29:73. **IF = 2.05.**
15. **Khan, M.R.** and Parveen, G. (2018). Supplementing biocontrol agents with botanicals improved growth and yield of coriander (*Coriandrum sativum* L.) infected with *Protomyces macrosporus* Unger. *Current Plant Biology*, 15: 44-50. **IF = 5.40.**
16. Siddiqui, Z.A., Hashmi, A., **Khan, M.R.** and Parveen, A. (2019). Management of bacteria *Pectobacterium carotovorum*, *Xanthomonas campestris* pv. *carotae*, and fungi *Rhizoctonia solani*, *Fusarium solani* and *Alternaria dauci* with silicon dioxide nanoparticles on carrot. *International Journal of Vegetable Sciences*, 26(6): 547-557. **IF = 1.35.**
17. Siddiqui, Z.A., **Khan, M.R.** Abd_Allah, E.F. and Parveen, A. (2018). Titanium dioxide and zinc oxide nanoparticles affect some bacterial diseases, and growth and physiological changes of beetroot. *International Journal of Vegetable Sciences*, 25(5): 409-430. **IF = 1.35.**
18. Siddiqui, Z.A., Khan, A., **Khan, M.R.** and Abd_Allah, E. F. (2018). Effects of Zinc Oxide Nanoparticles (ZnO NPs) and some Plant Pathogens on the Growth and Nodulation of Lentil (*Lens culinaris* Medik.). *Acta Phytopathologica et Entomologica Hungarica*, 53(2): 195-212. **IF = 0.35.**

Manuscripts in communication:

1. Ikram Ullah, Abass, A., Hussain m., **Khan, M. R.**, Hussain A., Nanda S., Al-Khayri J. M. (2025). Comprehensive Review of the Perspectives on the Health Impacts of Pesticide Exposure and Remediation by Eco-Friendly Processes. *Environmental Monitoring and Assessment*, **IF = 3.1.**
2. Ikram Ullah, Ihteram Ullah, **Khan M. R.**, Mateen A., Pei Y., Bhat A. H., Hussain A., Shakeel A., Zhang H., Fu C., Chen R. (2025). Molecular Mechanisms and Genomic Strategies for Enhancing Stress Resilience in Pepper Crop: Insights into Nucleic Acid Research and Applications. *International Journal of Biological Macromolecules*, **IF = 7.7.**
3. Ali, B., Dar, T. A., **Khan, M. R.***. (2025). Role of salicylic acid in enhancing the quality and productivity of vegetable and fruit crops through systemic acquired resistance and stress mitigation. *Discover Agriculture*, **IF = NA.**
4. Ali, B., Dar, T. A., **Khan, M. R.** (2025). Appraisal of the role of brassinosteroids in the mitigation of heavy metal stress in plants: Recent advances and trends. *Stress Biology*, **IF = NA.**

Book chapters:

1. Siddiqui, Z.A. and **Khan, M.R.** (2023). Management of nematode-charcoal rot disease complexes in legumes. In *Macrophomina phaseolina*, Ecology, Pathology and Management. Edited by Kumar, P. and Dubey, R.C. (2023). 6: 75-82. [Elsevier].
2. Siddiqui, Z.A., **Khan, M.R.** and Ahmad L. (2022). Effects of fly ash on growth and productivity and diseases of crop plants. In Hand Book of Fly Ash. Edited by Kamal K. K. 17: 525-545. [Elsevier].
3. **Khan, M.R.**, Parveen, G., Zaid, A., Wani, S.H. and Jogaiah, S. (2020). Potential of *Trichoderma* species in alleviating the adverse effects of biotic and abiotic stresses in plants. In *Biocontrol Agents and Secondary Metabolites: Applications and Immunization for Plant Growth and Protection*. Edited by Jogaiah, S. 5: 85-112. [Elsevier].

Conference Presentations:

1. **Khan, M.R.** and Parveen, G. (2018). Application of some biocontrol agents in soil supplemented with botanicals enhanced growth and yield attributes of coriander (*Coriandrum sativum* L.) infected with *Protomyces macrosporus* Unger. Presented in the **2nd International Conference "Advances in Agricultural, Biological and Applied Sciences for Sustainable Future (ABAS-2018)** held at Swami Vivekanand Subharti University, Meerut, India. 20-22 October, 2018.
2. **Khan, M.R.** and Siddiqui Z.A. (2018). Seed priming with titanium dioxide nanoparticles enhanced growth by inducing defence responses in beetroot plants up on infection with *Rhizoctonia solani*. Presented in **International Conference on Nanobiotechnology (2018)**, held at Centre for Interdisciplinary Research in Basic Sciences, Jamia Millia Islamia, New, Delhi, India. 5-6 February, 2018.
3. **Khan, M.R.** and Siddiqui Z.A. (2018). Pathological interaction of *Meloidogyne incognita*, *Pectobacterium betavasculorum* and *Rhizoctonia solani* on growth and biochemical changes of beetroot (*Beta vulgaris*). Presented in **International Conference on Advances in Biosciences and Biotechnology (ICABB-2018)**, held at Jaypee Institute of Information Technology (JIIT), Noida, India. 1-3 February, 2018.

4. **Khan, M.R.** and Siddiqui, Z.A. (2018). Seed priming with zinc oxide nanoparticles improved growth and physiological activity of *Beta vulgaris* infected with *Pectobacterium betavascularum*. Presented in **National conference on challenges and strategies to improve crop productivity in changing environment: an integrated approach**, held at Department of Botany Zakir Hussain College, (University of Delhi). 12 January 2018.
5. **Khan, M.R.**, Kulsoom, U. and Siddiqui, Z.A. (2017). Effect of titanium dioxide nanoparticles and chitosan alone and in combination on growth, biochemical attributes and soft rot disease of sugar beet caused by *Pectobacterium carotovorum* pv. *betavascularum*. Presented in **International conference on "Recent Trends in Bioinformatics and Biotechnology for Sustainable Development (2017)**, held at Sheer-e-Kashmir University of Agricultural Sciences and Technology, Jammu (J&K)-India. 12-13 October, 2017.
6. **Khan, M.R.** and Siddiqui Z.A. (2017). Pathological interaction of *Meloidogyne incognita*, *Pectobacterium betavascularum* and *Rhizoctonia solani* on sugar beet (*Beta vulgaris* L). Presented in national conference on **Plant Science Research: Current status and future challenges (NCPSCFC-2017)**, held at Women's College, Koti, Osmania University, Hyderabad, Telangana State. 7th & 8th December 2017.
7. **Khan, M.R.** and Parveen G. (2016). Biological control of stem gall disease of coriander caused by *Protomyces macrosporus*. Presented in **6th International Conference, Plant, Pathogens and People Challenges in Plant Pathology to Benefit Humankind**, held at Indian Phytopathological Society, New Delhi, India. 23-27 February, 2016.

Key Research Skills:

- **Microbial techniques:** Hands on experience in isolation, identification, culture and inoculation of bacterial and fungal pathogens as well as biocontrol agents.
- **Nematology techniques:** Hands on experience in isolation, identification, culture and inoculation of plant parasitic nematodes (root-knot & cyst nematodes).
- **Biochemical techniques:** Hands on experience in the estimation of biochemical markers of bacterial and fungal pathogens as well as plant parasitic nematodes, HPLS, GC-MS & ICPMS analysis.
- **Molecular techniques:** Hands on experience in isolation and quantification of genomic DNA/RNA, cDNA synthesis, PCR, qPCR, RT-PCR, and gel electrophoresis.
- **Proteomics:** Isolation and estimation of proteins, PAGE-SDS & Native.
- **Expertise in R-software:** Experience in performing data analysis and visualization using R packages.
- **Microscopy:** Preparation of biological samples (bacterial, fungal, nematode and plant samples) for scanning electron microscopy (SEM), transmission electron microscopy (TEM) and confocal microscopy.
- **Bioinformatics and computer skills:** Knowledge of computational and statistical analysis using software's viz. SPSS, GraphPad Prism, Origin, Sigma plot, Minitab, BLAST, Primer design using NCBI and other web based bioinformatics tools.
- **Plant tissue culture & Micropropagation:** Seed culture, Embryo culture, Callus culture, Organ culture, Protoplast culture, Single cell culture, Suspension culture, and Somatic embryogenesis.

Reviewer of Journals:

1. *Physiological and Molecular Plant Pathology*
2. *Current Plant Biology*
3. *Plant Physiology and Biochemistry*
4. *Environmental and Experimental Botany*
5. *Scientific Reports*
6. *Microbial Pathogenesis*
7. *Microbial Ecology*
8. *Total Environment Microbiology*
9. *Biocatalysis and Agricultural Biotechnology*
10. *Silicon*
11. *Heliyon*
12. *Journal of Crop Health*
13. *Scientia Horticulturae*
14. *Plant Nano Biology*
15. *Ecology and Evolution*
16. *The Microbe*
17. *Microchemical Journal*

18. *Grass and Forage Science*
19. *Archives of Phytopathology and Plant Protection*
20. *Journal of the Saudi Society of Agricultural Sciences*

Member of Societies:

1. *Society For Bioinformatics and Biological Sciences*
2. *American Phytopathological Society*
3. *Indian Phytopathological Society*
4. *Asian Phytopathological Society*