Curriculum Vitae

Dr. Muhammad Shareef

Assistant Professor of Botany
University of Narowal, Pakistan
PhD: Chinese Academy of Sciences (CAS), 2014-18
Awardee of CAS-TWAS President's Fellowship
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Personal Traits

Disciplined, motivated, self-driven, capable of managing time and stress, team worker, and love to accomplish tasks in given time frame.

Professional Skills

- Experienced in Physical and Online modes of Teaching.
- Capable to work through heavy workloads.
- Capable to supervise Master and PhD students in an influential way.
- Skilled in developing and executing research projects.
- Capable to communicate effectively at all levels, orally and in writing.

Research Experience and Interests

Photosynthesis | **Plant Nutrition** | **Plant-Water Relations**
Stress Signaling | **ROS & Anti-ROS** | **Climate Change Impact**
Stomatal Traits | **Eco-physiology of Plants**

Highest Qualification

Ph.D in Ecological Physiology of Plants
Thesis on: Eco-physiological Changes in Cotton During Drought Stress Tolerance in the Desert Ecosystem
► ***Outstanding International PhD Graduate Award***
► ***Research Productivity Award***
Xinjiang Institute of Ecology and Geography, Chinese Academy of Sciences, P.R. China.

Academic Experience

Dec-21 to date-	**Assistant Professor (Regular)** Department of Botany, University of Narowal, Pakistan
Apr-20 to Dec-21	**Assistant Professor of Botany (Regular)** Hameeda Rasheed Institute of Science & Technology Multan, Pakistan
Apr-19- Mar-20	**Assistant Professor (on IPFP contract)** Department of Botany, University of Education Lahore, Campus Dera Ghazi Khan, Pakistan
Oct-18-June-19	**Lecturer (Visiting)** Department of Botany, Ghazi University, Dera Ghazi Khan, Pakistan

Writing & Communication Skills

- Can effectively communicate in English through writing and speaking
- Proficient in drafting and publishing scientific content
- Can speak Chinese to some extent
- Capable of demonstrations and interpersonal communication

Research Experience

2021-to-date	**Research Lead:** Ecological Physiology of Domesticated and Wild plants at Plant Biology Research Lab, University of Narowal, Pakistan.
2014-2018	**Research Fellow** at the State Key Laboratory of Desert and Oasis Ecology, Xinjiang Institute of Ecology and Geography, Chinese Academy of Sciences, Urumqi, China **Research Fellow** at Cele National Station for Observation and Research on the Desert Grassland Ecosystem in Xinjiang, China
2008-2010	**Research Assistant** at Agro-Biology Lab for Resource Conservation, University of Agriculture, Faisalabad, Pakistan

Research Project/s as Principal Investigator

Sr. #	Project title	Funding Source	Status
1	Enhancing growth and C-assimilation in winter wheat by ameliorating physiological activities with foliar applied growth promoters	HEC Pakistan	Completed

Fellowships & Awards

2014-2018 **CAS-TWAS President's Fellowship** for international PhD students.

2019 **Distinguished International Researcher Award of 2018** from State Key Laboratory of Desert and Oasis Ecology, Xinjiang Institute of Ecology & Geography, Chinese Academy of Sciences, China

2017 **Outstanding International PhD Graduate Award of 2018** from Chinese Academy of Science, Xinjiang Branch, China.

2013 **The Best Performance Award of 2013** from **Bayer Crop Science** Pvt. Limited.

Research Accomplishments as Project Lead

Sr. #	Research titles	Year	Role
1	**Shareef et al.** Carbon assimilatory and antioxidative response of maize seedlings to heat shock and foliar augmentation of nitrogen.	2023-25	**Supervisor**
2	**Shareef et al.** Metabolic and physiological performance of maize seedlings raised in differently respiring soils in the saline conditions	2023-25	**Supervisor**
3	**Shareef et al.** Antioxidative potential and photosynthetic response of wheat seedlings to foliar applied cannabis extract under elevated temperature	2023-25	**Supervisor**
4	**Shareef et al.** Impact of phosphorus seed coating on root structure , nodulation and leaf gas exchange attributes of *Pisum sativum* L. on sandy soil	2023-25	**Supervisor**
5	**Shareef et al.** Combined effect of foliage applied and priming used wild cannabis extract in heat tolerance of maize seedlings	2023-25	**Supervisor**
6	**Shareef et al.** Photosynthetic efficiency and biochemical response of flooded and aerobic rice seedlings to nitro-potash foliar	2023-25	**Supervisor**
7	**Shareef et al.** Role of leaf water status in absorption efficiency of foliar applied nitrogen in differently irrigated spinach	2023-25	**Supervisor**
8	**Shareef et al.** Impact of foliar potassium doses on leaf water relations and physiology of drought stressed tomato plant	2023-25	**Supervisor**
9	**Shareef et al.** Impact of phospho-seed priming on root nodulation and physiology of *Pisum sativum* L. under elevated temperature	2023-25	**Supervisor**
10	**Shareef et al.** Growth and physiological response of flooded rice (*Oryza sativa L.*) to root phosphorus coating under reduced basal application	2023-25	**Supervisor**
11	**Shareef et al.** Nodulation potential and physiological response of legume species to sources of phosphorus fertilizer	2023-25	**Supervisor**
12	**Shareef et al.** Impact of acid rain of various pH on leaf physiology and biochemistry of maize seedling	2023-25	**Supervisor**
13	**Shareef et al.** Study on flag leaf and spike physiology of wheat plant at different levels of drought stress	2023-25	**Supervisor**
14	**Shareef et al.** Relative carbon assimilatory tendency of perrenial tree species at different day hours of summer season in the semiarid environment	2023-25	**Supervisor**
15	**Shareef et al.** Leaf photosynthetic and biochemical response of *epipremnum aureum* under varying light and watering conditions	2023-25	**Supervisor**
16	**Shareef et al.** Morpho-physiological and biochemical response of barely to detergent rich irrigation water on different nature of soil	2023-25	**Supervisor**
17	**Shareef et al.** Impact of rice straw incorporation techniques on soil physio-chemical properties and seedling health of wheat on sandy soil	2023-25	**Supervisor**
18	**Shareef et al.** Apical and axial leaf physiology and biochemistry of Java Plum in different seasons of semiarid climate	2023-25	**Supervisor**

19	**Shareef et al.** Leaf gas exchange and biochemical response of perenial fruiting trees to changing air moisture in sunny and cloudy conditions	2023-25	**Supervisor**
20	**Shareef et al.** Root nodulation and leaf photosynthetic tendency of salt stressed Sesbania under contrasting soils	2023-25	**Supervisor**
21	**Shareef et al.** Modifications in leaf tissue structure and photosynthetic capacity of *Rosa indica L*. under intensities of heat stress.	2023-25	**Supervisor**
22	**Shareef et al.** Root vigour, leaf physiology and achene development of phosphorus primed sunflower under various foliar application on clayey soil.	2022-24	**Supervisor**
23	**Shareef et al.** Impact of Narrow leaf Herbicide on mesophyll Structure and Physiology of wheat seedling under Elevated temperature Stress	2022-24	**Supervisor**
24	**Shareef et al.** Role of banana peel extract and urea foliar in up regulating net assimilation and growth of turnip	2022-24	**Supervisor**
25	**Shareef et al.** Impact of differentially inoculated dry and wet rice straws on root heath, leaf physiology, and productivity of wheat	2022-24	**Supervisor**
26	**Shareef et al.** Root proliferation and photosynthetic efficiency of wheat in response to seed priming	2022-24	**Supervisor**
27	**Shareef et al.** Comparative study of Fenugreek morphophysiologcial and yield phenotyping in response to different irrigation sources	2022-24	**Supervisor**
28	**Shareef et al.** Early seedling growth and photosynthetic assessment of fennel exposed to foliar PGR under elevated temperature.	2022-24	**Supervisor**
29	**Shareef et al.** Comparative role of growth regulators in combating elevated temperature stress in Coriander sativum	2022-24	**Supervisor**
30	**Shareef et al.** Impact of seed primers and auxin on root proliferation and tillering efficiency of wheat under elevated soil moisture stress	2022-24	**Supervisor**
31	**Shareef et al.** Microscopic and morpho-physiological study of coriander exposed to foliage applied H_2O_2 under elevated moisture stress.	2022-24	**Supervisor**
32	**Shareef et al.** Carbon assimilation,growth and yield response of Allium sativum to different sources of foliage applied sulphur under salt stress	2022-24	**Supervisor**
33	**Shareef et al.** Modifications in leaf tissue structure and physiology of *Dalbergia sissoo* in response to seasonal temperature shift in the semi-arid conditions	2022-24	**Supervisor**

Participation in Conferences and Research Trainings

2025 **Speaker at 2nd International conference on "Recent Approaches in Plant Sciences"** Organized by the Department of Botany, University of Education, Lahore, Pakistan

2019 **Speaker at 2nd International Conference on "Climate Smart Agriculture:** The way towards Sustainability, Organized by Department of Agronomy, Muhammad Nawaz Sharif University of Agriculture, Multan, during November 26-27, 2019

2019 **Speaker at 1st International Conference on Sustainable Agriculture under Changing Climate** Organized by Department of Agronomy Faculty of Agricultural Science and Technology, Ghazi University, Dera Ghazi Khan, April 2-5, 2019.

2017 **Speaker at 4th Sino-German MEECAL International Conference on,**
Management of Ecosystems and Environmental Changes in Arid Lands in Central Asia. Held at Xinjiang Institute of Ecology and Geography, Chinese Academy of Science.

2018 Winter School on Frontier and Interdisciplinary Sciences for the Overseas Students in IC-UCAS, held at Sanya, Hainan, China (January 2018).

2016 Winter School on Frontier and Interdisciplinary Sciences for the Overseas Students in IC-UCAS, held at Guangzhou, China (January 2016).

Publications

1. **Shareef, M**., Jameel M. Al Khayri, A. Mushtaq, F. Zeng, Othman M. Al Dossary, Hesham S. Ghazzawy, M. Fiaz, Ahmed M. Ismail **(2025)**. Lipids and amino acids inhibitory herbicides impaired the leaf structure and photosynthetic capacity of wheat seedlings under elevated temperature. **Plant Physiology & Biochemistry**, Accepted: In-press

2. Hassan Iqbal, Chen Yaning, Syed Turab Raza, Sona Karim, **Muhammad Shareef**, Muhammad Waqas **(2025)**. From Lab to Field: Harnessing H_2O_2-Mediated Upregulation of Plant Capacities Under Abiotic Stresses. **Physiologia Plantarum,** Accepted: In Press

3. **Shareef, M.**, Zeng, F., Dongwei, G., Ahmed, Z., Waqas, M., Iqbal, H., Zhang, B. and Waseem, M., **(2024)**. Recovery Efficacy of Differentially Applied Nitrogen Regulates the Metabolism Coupled Physiological Phenotyping of Cotton on Leaching Prone Sandy Soil of Desert. ***Journal of Soil Science and Plant Nutrition***, pp.1-15.

4. Amina, H., Arif, M. U., Baig, M. M., Zulfiqar, S., Butt, M. A., Ahmad, M. **Shareef M.**,. .. & Lee, S. G. **(2024)**. Biogenic synthesis of MoO3 nanoparticles using extract of Lactuca Serriola plant of Asteraceous flora: palynomorphological studies and environmental remediation applications**.** ***Journal of Taibah University for Science***, *18*(1), 2292322.

5. Iqbal, H., Yaning, C., Waqas, M., Raza, S. T., **Shareef, M.**, & Ahmad, Z. **(2023)**. Salinity and exogenous H_2O_2 improve gas exchange, osmoregulation, and antioxidant metabolism in quinoa under drought stress. ***Physiologia Plantarum***, *175*(6), e14057.

6. Bo Zhang, Fanjiang Zeng, Xiaopeng Gao, **Muhammad Shareef**, Zhihao Zhang, Qiang Yu, Yanju Gao, Changjun Li, Hui Yin, Yan Lu, Caibian Huang, Gangliang Tang **(2022)**. Groundwater depth alters soil nutrient concentrations in different environments in an arid desert. ***Frontiers in Environmental Science***, 10:939382.

7. Muhammad Tajammal Khan, Shakil Ahmed, Rehana Sardar, **Muhammad Shareef**, Asim Abbasi, Muhammad Mohiuddin, Sezai Ercisli, Sajid Fiaz, Romina Alina Marc, Kotb Attia, Naeem Khan, Kiril S Golokhvast **(2022)**. Impression of foliar-applied folic acid on coriander (Coriandrum sativum L.) to regulate aerial growth, biochemical activity, and essential oil profiling under drought stress. ***Frontiers in Plant Sciences***, 13:1005710.

8. Waqas, M., Yaning, C., Iqbal, H., **Shareef, M**., ur Rehman, H., & Bilal, H. M. **(2021)**. Synergistic consequences of salinity and potassium deficiency in quinoa: Linking with stomatal patterning, ionic relations and oxidative metabolism. ***Plant Physiology and Biochemistry***, *159*, 17-27.

9. Bo Zhang, Gangliang Tang, Hanlin Luo, Hui Yin, Zhihao Zhang, Jie Xue, Caibian Huang, Yan Lu, **Muhammad Shareef**, Xiaopeng Gao, Fanjiang Zeng **(2021)**. Topsoil nutrients drive leaf carbon and nitrogen concentrations of a desert phreatophyte in habitats with different shallow groundwater depths. ***MDPI Water***, 13(21), 3093.

10. Murtaza, Ghulam, Zeeshan Ahmed, Muhammad Usman, Waseem Tariq, Zia Ullah, **Muhammad Shareef**, Hassan Iqbal et al. **(2021)** Biochar induced modifications in soil properties and its impacts on crop growth and production. ***Journal of Plant Nutrition***: 1-15.

11. Bo Zhang, Gangliang Tang, Hui Yin, Shenglong Zhao, **Muhammad Shareef,** Bo Liu, Xiaopeng Gao and Fanjiang ZENG **(2021)**. Groundwater depths affect phosphorus and potassium resorption but not their utilization in a desert phreatophyte in its hyper-arid environment. ***Frontiers in Plant Sciences***, 12, 1021

12. Zeeshan Ahmed, Junhe Liu, Ejaz Ahmad Waraich, Yan Yan, Zhiming Qi, Dongwei Gui, Fanjiang Zeng, Akash Tariq, **Muhammad Shareef**, Hassan Iqbal, Ghulam Murtaza, Zhihao Zhang **(2020).** Differential physio-biochemical and yield responses of Camelina sativa L. under varying irrigation water regimes in semi-arid climatic conditions. **Plos One** 15(12) e0242441.

13. Iqbal, H., Yaning, C., ur Rehman, H., Waqas, M., Ahmed, Z., Raza, S. T., and **Shareef, M**. (2020). Improving heat stress tolerance in late planted spring maize by using different exogenous elicitors. ***Chilean Journal of Agricultural Research***, *80*(1), 30-40.

14. **Muhammad Shareef,** Dongwei Gui, Fanjiang Zeng, Muhammad Waqas, Zeeshan Ahmed, Bo Zhang, Hassan Iqbal, Jie Xue **(2019)**. Nitrogen leaching, recovery efficiency, and cotton productivity assessments on desert-sandy soil under various application methods. ***Agricultural Water Management,*** 223, https://doi.org/10.1016/j.agwat.2019.105716

15. Ahmed, Z., Gui, D., Qi, Z., Liu, J., Ali, A., Murtaza, G., Shabbir, R.N., Tariq, M., **Shareef, M.**, Zafar, S. and Khan, M.S., **(2023)**. Greenhouse gas emissions and mitigation strategies in rice production systems. In *Global Agricultural Production: Resilience to Climate Change* (pp. 237-265). Cham: Springer International Publishing.

16. Zeeshan Ahmed, Ejaz Ahmad Waraich, Zhiming Qi, Dongwei Gui, **Muhammad Shareef**, Hassan Iqbal, Rana Nauman Shabbir **(2019)**. Physio-biochemical and yield response of two contrasting Camelina sativa L. breeding lines under drought stress. **International Journal of Agriculture and Biology** 22: 1187-1196.

17. **Muhammad Shareef,** Dongwei Gui, Fanjiang Zeng, Muhammad Waqas, Bo Zhang and Hassan Iqbal **(2018)**. Water productivity, growth, and physiological assessment of deficit irrigated cotton on hyperarid desert-oases in northwest China. ***Agricultural Water Management***, 206: 1-10.

18. **Muhammad Shareef**, Dongwei Gui, Fanjiang Zeng, Zeeshan Ahmed, Muhammad Waqas, Bo Zhang, Hassan Iqbal, and Muhammad Fiaz **(2018)**. Impact of Drought on Assimilates Partitioning Associated Fruiting Physiognomies and Yield Quality Attributes of Desert Grown Cotton. ***Acta Physiologiae Plantarum,*** 40 (4): 71.

19. **Muhammad Shareef**, Fanjiang Zeng, Dongwei Gui, Muhammad Waqas, Bo Zhang, and Muhammad Fiaz **(2018)**. Drought Induced Interactive Changes in Physiological and Biochemical Attributes of Cotton (*Gossypium hirsutum*). ***International Journal of Agriculture and Biology,*** 20 (3): 539-546.

20. Hassan Iqbal, Chen Yaning, Muhammad Waqas, **Muhammad Shareef**, Syed Turab Raza **(2018).** Differential response of quinoa genotypes to drought and foliage applied H_2O_2 in relation to oxidative damage, osmotic adjustment, and antioxidant capacity. ***Ecotoxicology and Environmental Safety***, 164: 344-354.

21. Muhammad Waqas, Chen Yaning, Hassan Iqbal, **Muhammad Shareef**, Hafeez Ur Rehman, Shahid Iqbal, Sajid Mehmood **(2018)**. Soil drenching of Paclobutrazol: An efficient way to improve quinoa performance under salinity**.** ***Physiologia Plantarum***, 165 (2): 219-231.

22. Bo Zhang, Xiaopeng Gao, Lei Li, Yan Lu, **Muhammad Shareef**, Caibian Huang, Guojun Liu, Dongwei Gui, Fanjiang Zeng **(2018)** Groundwater Depth Affects Phosphorus But Not Carbon and Nitrogen Concentrations of a Desert Phreatophyte in Northwest China. ***Frontier in Plant Science***, 9, http//doi: 10.3389/fpls.2018.00338

23. H. Iqbal, C. Yaning, M. Waqas, H. Rehman, **M. Shareef**, S. Iqbal **(2018)**. Hydrogen peroxide application improves quinoa performance by affecting physiological and biochemical mechanisms under water deficit conditions. ***Journal of Agronomy and Crop Science***, 204 (6): 541-553.

24. Bo Zhang, Dongwei Gui, Xiaopeng Gao, **Muhammad Shareef**, Lei Li, Fanjiang Zeng **(2018)** Controlling Soil Factor in Plant Growth and Salt Tolerance of Leguminous Plant *Alhagi sparsifolia* Shap. in Saline Deserts, Northwest China. ***Contemporary Problems in Ecology,*** 11 (1), 111-121.

25. Muhammad Fiaz, Luis Carlos Martínez, Angelica Plata-Rueda, Wagner Gonzaga Gonçalves, **Muhammad Shareef,** Jose Cola Zanuncio, Jose Eduardo Serrao **(2018)** Toxicological and morphological effects of tebufenozide on *Anticarsia gemmatalis* (Lepidoptera: Noctuidae) larvae. ***Chemosphere,*** 212: 337-345.

26. Muhammad Fiaz, Abid Ali, Farooq Ahmad, Mansoor-Ul Hassan, Muhammad Sagheer, Jose Eduardo Serrao, Jose Cola Zanuncio, **Muhammad Shareef** and Junhe Liu **(2018).** Comparative potential of chitin synthesis inhibitors against trogoderma granarium E. (coleoptera: Dermestidae) for stored wheat management in Pakistan. **Pakistan Journal of Agricultural Science**s, Vol. 55(4), 949-954.

27. M. Waqas, C. Yaning, H. Iqbal, **Muhammad Shareef**, H. Rehman, Y. Yang **(2017)**. Paclobutrazol improves salt tolerance in quinoa: Beyond the stomatal and biochemical interventions. ***Journal of Agronomy and Crop Science***, 203(4): 315-322.

28. Jie Xue, Dongwei Gui, Ying Zhao, Jiaqiang Lei, Fanjiang Zeng, Xinlong Feng, Donglei Mao, and **Muhammad Shareef (2016)**. A decision-making framework to model environmental flow requirements in oasis areas using Bayesian networks. ***Journal of Hydrology***, 540, 1209-1222.

29. Otgon Shinebayar, Lanhai Li, **Muhammad Shareef** and Mukanyandwi Valentine **(2018)**. Characterization of long-term seasonal climate and its impact on runoff of Kharkhiraa river in western Mongolia. ***East European Scientific Journal*** *#12(40): page 7-17.*

Book Chapter

1. Waseem, M., Basharat, S., Shaheen, I., Pingwu, L., **Shareef, M**., & Shahid, N. **(2025)**. Improving Plant Abiotic Stress Tolerance by Modulating LncRNAs Using CRISPR/Cas9 Technology. *Genome and Epigenome Editing for Stress-Tolerant Crops*, 49-63.
2. Zeeshan Ahmed, Dongwei Gui, Zhiming Qi, Junhe Liu, Abid Ali, Ghulam Murtaza, Rana Nauman Shabbir, Muhammad Tariq, **Muhammad Shareef**, Sadia Zafar, Muhammad Saadullah Khan, Shakeel Ahmad. **(2023)**. Greenhouse Gas Emissions and Mitigation Strategies in Rice Production Systems. In *Global* ***Agricultural Production: Resilience to Climate Change*** (pp. 237-265). Cham: Springer International Publishing.

Conference Abstracts

1. **Shareef et al., 2019**. Physiolo-biochemical adaptations, water productivity, and yield quality assessments of deficit drip irrigated cotton under desert conditions. **1st International Conference on Sustainable Agriculture under Changing Climate Scenario**. Department of Agronomy, Faculty of Agriculture, Ghazi University, Dera Ghazi Khan, Pakistan. April 2-5, 2019.
2. **Shareef et al., 2017**. Nitrogen band placement in mud reduces nitrate leaching in sandy soils and enhances uptake: Rationalization from growth and yield response of cotton. **4th Sino-German MEECAL Conference on Management of Ecosystems and environmental changes in arid land in central Asia.** Xinjiang Institute of Ecology and Geography, Chinese Academy of Sciences, Urumqi, China, September 26-29, 2017.

References

1. Prof. Dr. Fanjiang Zeng

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Chinese Academy of Sciences, Urumqi, China
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2. Prof. Dr. Gui Dongwei

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