RASHID IQBAL KHAN, PhD

Scientific Officer | Horticulture Research Institute, NARC, Islamabad

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PROFESSIONAL SUMMARY

Dr. Rashid Iqbal Khan is a horticulture scientist and Scientific Officer at the Horticulture Research Institute (HRI), NARC, with over 8 years of progressive experience spanning academic research, industrial R&D, and postharvest technology. He holds a PhD in Horticulture from the University of Agriculture Faisalabad, specializing in botanical management of early blight disease in tomato, and has contributed 27 peer-reviewed publications with 718 citations and an H-Index of 12. His expertise encompasses sustainable fruit production, stress physiology, pre- and post-harvest disease management, germplasm evaluation, and statistical data analysis using advanced tools. Dr. Khan is committed to translating scientific inquiry into practical, scalable solutions for fruit crop improvement and food security.

EMPLOYMENT HISTORY

Position	Organization	Duration
Scientific Officer	Fruit Program, Horticulture Research Institute, National Agriculture Research Centre, Islamabad	May 2023 – Present
Senior Research & Development Officer	HAC Agri, Lahore	November 2021 – June 2023
Research & Development Officer	HAC Agri, Lahore	January 2021 – November 2021
Graduate Research Assistant	University of Agriculture Faisalabad	September 2017 – December 2020
Internee	Federal Seed Certification & Registration Department, Islamabad	April 2016 – May 2017

EDUCATION

Ph.D. Horticulture — University of Agriculture, Faisalabad | *August 2021*

Dissertation: Study of Botanicals to Manage Early Blight Disease caused by Alternaria solani in Tomato

Advisor: Dr. Rana Mazhar Abbas

M.Sc. (Hons.) Horticulture — PMAS-Arid Agriculture University, Rawalpindi | *May 2017*

Dissertation: Studies of Vegetative Growth and Reproductive Phase of Different Bell Pepper (Capsicum annuum L.) Varieties under Hydroponic Conditions

Advisor: Prof. Dr. Ishfaq Ahmed Hafiz

B.Sc. (Hons.) Agriculture – Horticulture — University of Agriculture, Faisalabad | *June 2014*

PROFESSIONAL EXPERIENCE

Scientific Officer | Fruit Program, HRI, NARC Islamabad | May 2023 – Present

- Led germplasm evaluation, propagation optimization, and post-harvest protocol development for fruit crops including dragon fruit, avocado, kiwi, fig, and peach.

Senior Research & Development Officer | HAC Agri, Lahore | November 2021 – June 2023

- Directed end-to-end farm operations and mango orchard quality assessments while designing training programs for farmers and QA/QC teams on pre- and post-harvest best practices to enhance produce quality and export readiness.

Research & Development Officer | HAC Agri, Lahore | January 2021 – November 2021

- Drafted SOPs, process flows, and research proposals for industrial-scale fruit and vegetable production while evaluating cultivars and optimizing post-harvest treatments through collaborations with UAF, IUB, COMSATS, and UC Davis.

Teaching Assistant | University of Agriculture, Faisalabad | September 2018 – January 2019

- Assisted faculty in delivering graduate-level horticulture courses and developed lectures and research project proposals on crop management and production strategies.

Internee | Federal Seed Certification & Registration Department | April 2016 – May 2017

- Conducted morphological characterization, DNA extraction, and ISTA-standard seed purity and germination analysis while maintaining certified nursery records and monitoring early crop growth characteristics.

INTERNATIONAL TRAININGS

- Three-Month International Training in Fruit & Vegetable Processing — Huazhong Agricultural University, Wuhan, China (August – November 2025). Focused on advanced postharvest technologies, processing methods, quality control systems, and seed preservation techniques.
- Online Short Course: Postharvest Technology of Horticultural Crops — University of California, Davis (May–June 2020).

PUBLICATIONS

Total Publications	Publication as A first Author	Publication as Co-Author	No. of Citations	h-Index
27	**5**	**23**	**718**	**12**

27. **Khan, R.I.**, M. Abbas, R.U. Zahid, A. Maryam, K. Ziaf, S. Mumtaz, M.A. Sabir, S. Walli, S. Khan & A. Rauf. 2026. Quantifying the Dynamic Recovery of Plants through Stress Memory and Physiological Attractors. Scientific Reports. **16**, 20061. https://doi.org/10.1038/s41598-026-49352-y
26. Hussain, K., Qadri, R., **Khan, R. I**., Ahmed, A. H., Azam, M., Akram, M. T., Khan, M. I., Arshad, A., & Shrestha, S. (2025). Evaluating the impact of triacontanol on physiological, enzymatic and biochemical responses of Psidium guajava L. under salinity stress. Applied Fruit Science, 67(5). https://doi.org/10.1007/s10341-025-01548-8
25. Maryam A., **R.I Khan**., M. Abbas., K. Hussain., S. Muhammad., M. A. Sabir., T. Hussain and M.F. Khalid. 2025. Beyond the Membrane: The pivotal role of lipids in plants abiotic stress adaptation. Plant Growth Regul. http://doi.org/10.1007/s10725-025-01363-x
24. Aslam, R. M. T., **R.I. Khan**, Abbas, R. M., Rafique, T., Khatana, M. A., Aslam, H. R. M. W., Rajput, A. Q., & Khan, M. M. (2025). Morphological, Reproductive and Biochemical Diversity in Luffa (*Luffa aegyptiaca*) Cultivars. Intl. J. Hort. Sci. Technol., https://doi.org/10.22059/ijhst.2024.370205.751.
23. **R.I. Khan,** M.F. Khalid, A. Maryam, M. Abbas, M.R. Sabir, K. Hussain. 2025. Abiotic Stresses in Mango. Handbook of Research on Mango Production: Postharvest Science, Production, Nutrition and Processing Technology. Edition 1st. Apple Academic Press. ISBN: 9781003637592 Pages, 718. https://doi.org/10.1201/9781003637592
22. M.F. Khalid**, R.I. Khan**, A. Maryam, M. Abbas. 2025. Harvesting Indices and Methods. Handbook of Research on Mango Production: Postharvest Science, Production, Nutrition and Processing Technology. Edition 1st. Apple Academic Press. ISBN: 9781003637592 Pages, 718. https://doi.org/10.1201/9781003637592
21. Khan, J. A., Hafiz, I. A., Maryam, A., Muhammad, S., & **R.I. Khan**. 2024. Enhancing growth and productivity of gloxinia flower through Nano-Particles. Pakistan Journal of Agricultural Research, 37(3). https://doi.org/10.17582/journal.pjar/2024/37.3.320.325
20. Khan, N., S. Ali, A. Zeb, M. Noman, M.I. Kasana, **R.I. Khan**, S. Mumtaz, S. Rasheed, M. Muneer and M.Q-U. Zaman. 2024. Impact of different scion-rootstock combinations on vegetative growth of peach cultivars under Pothohar conditions. Pakistan Journal of Agricultural Research, 37(2): 165-171.
19. M.F. Khalid, W. Shafqat, **R.I. Khan**, M.Z. Jawaid, S. Hussain, M. Saqib, M. Rizwan and T. Ahmed. 2024. Unveiling the Resilience Mechanism: Strigolactones as Master Regulators of Plant Responses to Abiotic Stresses. Plant Stress. 1-40. doi.org/10.1016/j.stress.2024.100490

18. Kasana, M.I., **R. I. Khan**, N.U. Khan, M. Noman, S. Ali, S. Mumtaz, S. Rasheed and M. Qamar-Uz-Zaman. 2024. Impact of Grafting Techniques on Vegetative Growth of Different Avocado Cultivars. Pakistan Journal of Agricultural Research, 37(1): 39-47.
17. Asif, M., Naseer, J., Turabi, T. H., **Khan, R. I**., & Maryam, A. 2023. Drought induced molecular and physiological adaptations in *Ziziphus mauritiana* and *Salvadora oleoides* under climate change scenario. Global Forests. https://doi.org/10.54219/globalforests.2023.9216
16. M.F. Khalid, I. Zakir, **R.I. Khan**, S. Irum, S. Sabir, N. Zafar, S. Ahmed, M. Abbas, T. Ahmed and S. Hussain. 2023. Effect of Water Stress (Drought and Waterlogging) on Medicinal Plants. Medicinal Plants: Their Response to Abiotic Stress. Edition 1st. Springer. ISBN: 978-981-19-5611-9.
15. M.F. Khalid, M.S. Saleem, I. Zakir, **R.I. Khan**, M. Sohail, S. Ejaz, M.A. Anjum, S. Sabir, S. Ali, S. Ahmed and S. Hussain. 2023. Salicylic acid induced abiotic stress tolerance in plants. Plant Stress Mitigators. Edition 1st. Elsevier. ISBN: 9780323898713
14. Khalid, M.F., **R.I. Khan**, M.Z. Jawaid, W. Shafqat, S. Hussain, T. Ahmed, M. Rizwan, S. Ercisli, O.L. Pop and R.A. Marc. 2022. Nanoparticles: The Plant Saviour under Abiotic Stresses. A Review. Nanomaterials. 12, 3915. Pp: 1-26. https://doi.org/10.3390/nano12213915.
13. Anas Fadli, Hamid Benyahia, Sajjad Hussain, **R.I. Khan**. M. J. Rao, T. Ahmed, V. Ancona, M.F. Khalid. 2022. Phytophthora-Citrus Interactions and Management Strategies. A Review. Turkish Journal of Agriculture and Forestry. 46: 730-742.
12. Maida, M. Ali, A. Arshad, M. Abdullah, **R. I. Khan**, A. Nazir. 2022. Postharvest losses of Maize and Sunflower in canal irrigated habitat. Bioscience Research. 19(1):354-357
11. M.F. Khalid, W. Shafqat, **R.I. Khan**, M. Abbas, T. Ahmed, Ullah, S. Ahmad and S. Hussain. 2022. Citrus Responses and Tolerance against Temperature Stress. Citrus Production. Edition 1st. CRC Press. ISBN: 9781003119852
10. Walli, S., Hafiz, I.A., **R.I. Khan,** et al. 2022. Zinc and Boron Application at Different Phenological Stages Alleviates Tree Growth, Fruit Yield and Quality of Sweet Orange Cv. 'Blood Red'. Gesunde Pflanzen. 74: 385–396. https://doi.org/10.1007/s10343-021-00616-9
9. **Khan, R.I.,** M. Abbas, M.J. Jaskani and A. Habib. 2021. Fenugreek Extract application improves plant performance of *Alternaria solani* infected tomato plants. Pak. J. Agri. Sci., 58(4): 1263-1275.
8. Madiha, I., Abdullah, Z. Bibi, A. Nageena, **R.I. Khan**, S. Noshin, M. Rabia, W. Shahid, T. Jibran, A. Ibrar, M. Naeem and A. Habib. 2021. Agro-Morphological, Yield, and Genotyping-by-Sequencing Data of Selected Wheat (*Triticum aestivum*) Germplasm from Pakistan. Frontiers in Genetics. 12: Article 617772. 1-7.
7. Abbas, M., F. Imran, **R. I. Khan**, M. Zafar-ul-Hye, T. Rafique, M. J. Khan, S. Taban, S. Danish and R. Datta. 2020. Gibberellic Acid Induced Changes on Growth, Yield, Superoxide Dismutase, Catalase and Peroxidase in Fruits of Bitter Gourd (*Momordica charantia* L.). Horticulturae. 6, 72: 1-12. doi:10.3390/horticulturae6040072
6. Abbas, M., K. Jam, **R. I. Khan**, M.Z. Hye, T. Rafique, Z. Mahmood. 2020. Bio-stimulant and salicylic acid application triggers antioxidants activities and yield parameters of bottle gourd (*Lagenaria siceraria* L.). Pakistan J. Agric. Res., 33(3): 652-661. doi.org/10.17582/journal.pjar/2020/33.3.652.661
5. Hussain, K., R. Qadri, M.T. Akram, N. Nisar, A. Iqbal, Y. Yang, M.M. Khan, I. Haq, **R. I. Khan**, M. A. Iqbal. 2020. Clonal Propagation of Olive (*Olea Europeae*) through Semi-Hardwood cuttings using IBA under shaded Polyethylene Tunnels (SPTS). Fresenius Environmental Bulletin. 29. 8131-8137.
4. Abbas, M., J. Anwar, M. Zafar-ul-Hye, **R. I. Khan**, M. Saleem, A. A. Rahi, S. Danish and R. Datta. 2020. Effect of seaweed extract on productivity and quality attributes of four onion cultivars. Horticulturae. 6 (2): 28.

3. **Khan, R. I**., M. Abbas, K. Goraya, M. Zafar-ul-Hye, S. Danish. 2020. Plant derived antiviral products for potential treatment of COVID-19: A Review. Phyton-International Journal of Experimental Botany. 89(3): 437-452. DOI:10.32604/phyton.2020.010972.
2. Hameed, S., M. Abbas, **R. I. Khan**, M. T. Aslam, and M. Zafar-ul-Hye. 2019. Assessment of Vegetative and Reproductive Traits in Bottlegourd Cultivars. Pak. J. Agri., Agril. Engg., Vet. Sci., 35(1):1-6.
1. **Khan, R. I.,** Hafiz, I.A., Shafique, M., Ahmad, T., Ahmed, I., Qureshi, A. A., 2018. Effect of pre-harvest foliar application of amino acids and seaweed (*Ascophylum nodosum*) extract on growth, yield, and storage life of different bell pepper (*Capsicum annuum* L.) cultivars grown under hydroponic conditions. Journal of Plant Nutrition. 41(18): 2309-2319.

Projects & Grant Writing

1. Building Rainfed Community Resilience through Skills in Climate Smart Agriculture: Team member from HRI in collaboration with Japan International Cooperation Agency (JICA): On-going
2. Establishment of Post-Harvest Lab and Cold Storage for Research Infrastructure: Submitted to Turkish Cooperation and Coordination Agency (USD $ 80,000)
3. Development of AI- and IoT-Assisted Postharvest Decision Support System for Shelf-Life Prediction and Value Addition of Export-Oriented Mango and Banana in Pakistan and Sri Lanka: **PSF-NSF Submitted (USD $ 29,000)**

ORAL & POSTER PRESENTATIONS

- [Oral] PM Initiaive for 1000 Agriculture Graduates — Agriculture Polytechnic Institute, NARC, Islamabad, September 2026.
- [Oral] Horticulture Research Institute, NARC, Islamabad — Postharvest management of Fruits and Vegetables, November 2024.
- [Oral] Pakistan Horticulture Development & Export Company — Webinar on Reducing the Post-Harvest Losses of Apples by Introducing Recommended Packaging, Sorting and Transportation, October 2023.
- [Oral] 7th International Conference, Pakistan Phytopathological Society — University of Agriculture, Faisalabad, November 2021.
- [Oral] International Horticulture Conference — Institute of Agricultural Sciences, Punjab University, Lahore, February 2020.
- [Poster] International Horticulture Conference — Institute of Agricultural Sciences, Punjab University, Lahore, February 2020. Paper: Prospects for the Use of Plant Allelochemicals in Integrated Pest Management.
- [Poster] 1st International Conference on Agricultural and Biological Sciences — University of Haripur, March 2019. Paper: Vegetable Cultivation under Climate Change: Impact and Management Practices.
- [Poster] International Conference on Horticultural Sciences — Bahauddin Zakariya University, Multan, February 2019.

TECHNICAL SKILLS

- Research Design & Execution: Planning, establishing and executing in-vitro, in-vivo and field trials following rigorous statistical designs.
- Data Analysis & Statistics: Proficient in R software and Statistix 8.1 for experimental data analysis, interpretation, and visualization.
- Scientific Communication: Developing research project proposals, peer-reviewed manuscripts, and technical reports; experienced journal article reviewer.
- Postharvest Technology: Cold chain management, packaging evaluation, CA storage optimization, shelf-life assessment for fruits and vegetables.
- Orchard & Crop Management: Germplasm evaluation, propagation optimization, disease management, and production system improvement for fruit crops.

- Software: MS Office (Word, Excel, PowerPoint), statistical software (R, Statistix 8.1), scientific literature platforms.

AWARDS & HONORS

- Indigenous PhD Fellowship — Higher Education Commission (HEC), Pakistan (2015–2020): Full PhD scholarship awarded on merit for M.Sc. leading to Ph.D. program.

SELECTED ACHIEVEMENTS

- Reduced post-harvest wastage of Kinnow Mandarin to 2% after 3 months of storage through optimized handling protocols.
- Achieved 5 months of cabbage storage with only 2% wastage through implementation of controlled atmosphere management techniques.
- Compiled a comprehensive national-level fruits and vegetable harvesting calendar categorized by area and season across Pakistan.
- Developed a statistical software-based sampling technique for pre-harvest quality assessment and yield prediction, achieving a 90% efficiency improvement.
- Pioneered a storage life expectancy prediction model for CA-stored produce based on weekly/monthly wastage and moisture loss data.

PROFESSIONAL MEMBERSHIPS

- Member, Pakistan Society for Horticultural Sciences

EXTRACURRICULAR ACTIVITIES

- Finance Secretary, Naat & Qirat Club — University of Agriculture, Faisalabad (2011–2014).