

Curriculum vitae

Personal Information

Name: MUHAMMAD AZAM

Present Position: Associate Professor

Date of birth: 10 April 1984

Institution: Institute of Horticultural Sciences
University of Agriculture, Faisalabad, 38040, Pakistan.

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Professional Education:

Certificate/Degree	Institution	Subject/Year
Ph.D.	Zhejiang University, China	Horticulture (2014)
M.Sc. (Hons.)	University of Agriculture, Faisalabad.	Horticulture (2007)
B.Sc. (Hons.)	University of Agriculture, Faisalabad.	Agriculture (2005)
F.Sc.	Govt College Faisalabad.	Pre-Medical (2001)
Matriculation	Govt. Islamic Madrassa High School, Faisalabad	Science (1999)

Service experience:

- **Currently**, Associate Professor at Institute of Horticultural Sciences, University of Agriculture Faisalabad, Pakistan from June 30, 2022, to date.
- Assistant Professor at Institute of Horticultural Sciences, University of Agriculture Faisalabad, Pakistan from Feb 28, 2015, to June 30, 2022.
- Assistant Professor at Department of Horticulture, Faculty of Agricultural Sciences & Technology, Bahauddin Zakariya University, Multan, Pakistan from Sep, 2014 to Feb 27, 2015.
- Citrus GLOBALGAP Consultant in Citrus GLOBALGAP® Certification Project, Ministry of Food Agriculture (MINFA) and Asian Development Bank (ADB) from September 01, 2007, to March 31, 2010.
- Project manager of Citrus Global GAP certification project, Bhalwal, from July 15th, 2009 to August 15th, 2009.
- Management Consultant, Sadruddin & Co. and Shaheen Enterprises, Bhalwal, Sargodha

Research Projects:

- "Introduction of Climate Resilient Citrus Germplasm and Establishment of Hi-Tech Citrus Orchard" funded Higher Education Commission, CPEC-Competitive Research Grant (21.95 million PKR, 2024-2026) (**Principal Investigator**)
- Import of high value germplasm and technologies of elite exotic fruits, vegetables and medicinal crops for diversification and sustainable production in Punjab funded by Pakistan Agriculture Research Board (PARB), (83.21 million PKR, 2022-2026) (**Team Scientist**)
- "Development and commercialization of tomato developed by inter and intraspecific

hybridization for tolerant to virus, heat, frost and improvement in shelf life in Punjab” funded by Pakistan Agriculture Research Board (PARB), (35.640 million PKR, 2023-2026) **(Team Scientist)**

- “Improvement of fruit quality and postharvest performance of papaya fruit by using eco-friendly chemicals” funded by Higher Education Commission, Islamabad, Pakistan (6.85 million PKR, 2022-2025) **(Principal Investigator)**
- “Citrus Variety Evaluation, Popularization, and the R&D Demonstration of High-Quality Production Technology” funded by Huazhong Agricultural University, Wuhan, China (CNY 200,000; 2023-2024) **(Principal Investigator)**
- “Research and postharvest quality maintenance and standardization of postharvest operations of Kinnow citrus fruit” funded by Huazhong Agricultural University, Wuhan, China (CNY 200,000; 2023-2024) **(Co-PI Citrus Postharvest Technology)**
- “Optimization and demonstration of papaya nursery raising technology” funded by Academia and industrial linkage (M/S Fatiyana Traders Seed & Plant Suppliers) (3.28 million PKR, 2022-2024) **(Principal Investigator)**
- “Establishment of Grapes germplasm unit (GPU) for Technology Transfer” funded by Endowment Funds Secretariat and USDA, University of Agriculture Faisalabad (4.407 million PKR, 2020-2024) **(Principal Investigator)**
- “Popularization of home gardening in urban and peri urban areas of Punjab” funded by Endowment Funds Secretariat and USDA, University of Agriculture Faisalabad (8.047 million PKR, 2022-2024) **(Co-Principal Investigator)**
- “Plant Integration and Demonstration of Tropical Economics Palm Production Technology in Pakistan (ZDYF2019194)” funded by Chinese Academy of Tropical Agricultural Sciences (CATAS), Department of Science & Technology, Hainan Province, China {300,000 RMB (10.57 million PKR), 2019-2021} **(Co-Principal Investigator)**
- “Established and demonstration of model Papaya orchard for technology transfer at PARS for growers” funded by Endowment Funds Secretariat and USDA, University of Agriculture Faisalabad (2.57 million PKR, 2017-2020) **(Principal Investigator)**
- “Punjab Agriculture and Dairy Leadership Programme (PADLP)” funded by Endowment Funds Secretariat and USDA, University of Agriculture Faisalabad (2.05 million PKR, 2018-2020) **(Team Scientist)**
- “Quantification of Peel Volatile Compounds from Four Citrus species Grown in Punjab” funded by Higher Education Commission, Islamabad, Pakistan (0.488 million PKR, 2016-2018) **(Principal Investigator)**

Postgraduate Research Supervision PhD 04 M. Sc. (Hons.) 43

Outreach Activities

Organized 38 training programs, seminars and conferences and participated in 40 scientific events. Delivered more than 35 *oral presentations/resource person and 9 poster presentations in national and international conferences.*

Research Publications:

1. Chaudhary, B., Azam, M., Khan, A.S. and Abbas, H., 2025. Effect of pre-harvest calcium chloride applications on physicochemical quality traits and postharvest life of grapes during cold storage. *Journal of Food Measurement and Characterization*, 19(11), pp.9032-9051.
2. Ashraf, M.A., Khan, A.S., Azam, M., Ayyub, S., Kaleem, M.M., Nawaz, S., Abubakar, M., Khalid, B., Riaz, T., Asim, M. and Ahmed, M.M., 2025. Innovative technologies in postharvest management of fruits and vegetables: a review. *European Food Research and Technology*, 251(11), pp.3445-3463.
3. Hanif, M., Azam, M., Khan, M.A., Zahid, T., Ali, B., Akram, M.T., Naveed, K., Ilahy, R., Hussain, I., Liu, H. and Khan, Z.U., 2025. Investigating the effect of marigold flower extract on bioactive compounds, antioxidants and postharvest quality and shelf life of peach during storage. *Journal of Food Measurement and Characterization*, 19(3), pp.1837-1850.
4. Yasmeen, S., Azam, M., Khan, A.S. and Abbas, H., 2025. Fruit Thinning Enhances Papaya Postharvest Quality by Maintaining Physicochemical, Phytochemical and Organoleptic Attributes During Low Temperature Storage. *Pak. J. Agri. Sci.*, Vol. 62(2), 2076-0906
5. Ashraf, M.A., Khan, A.S., Shireen, F., Nawaz, S., Ayyub, S., Mohibullah, S., Asim, M., Riaz, T., Khalid, B., Azam, M. and Ateeq, M., 2025. Peach diseases in a changing climate: Pathogens, resistance, and sustainable solutions. *Microbial Pathogenesis*, p.108110.
6. Rehman, Z.U., Azam, M., Chaudhary, B., Umer, M.A., Ali, B., Khan, Z.U., Muqadas, S., Qadri, R., Hashem, A., Avila-Quezada, G.D. and Almutairi, K.F., 2025. Postharvest L-Arginine treatment reduces senescence and improves storability of sweet cherry during cold storage. *Scientia Horticulturae*, 350, p.114340.
7. Li, J., Hanif, M., Azam, M., Khan, M.A., Umer, M.A., Chaudhary, B., Hussain, I., Khan, T.A., ur Rehman, S., Awais, M. and Ilahy, R., 2025. Effects of neem leaf extract on physiochemical traits and antioxidant activity of peach fruit during storage. *Journal of Stored Products Research*, 111, p.102555.
8. Hanif, A., Azam, M., Asif, M., Hussain, I., Ali, S., Akram, M.T., Yasmin, Z., Awais, M., Iqbal, M.A., Naveed, K. and Haider, S.T.A., 2024. Prestorage hot water treatments retard papaya fruit deterioration and enhanced fruit quality in cold storage. *Emirates Journal of Food and Agriculture*, 36, pp.1-10
9. Chouikhi, M., Tlili, I., Henane, I., Takács, S., Daoud, H., Pék, Z., Helyes, L., Montefusco, A., De Caroli, M., Di Sansebastiano, G.P. and Azam, M., 2024. Agronomic and Functional Quality Traits in Various Underutilized Hot Pepper Landraces. *Horticulturae*, 10(7), p.710.
10. Gull, S., Ejaz, S., Ali, S., Ali, M.M., Hussain, S., Sardar, H., Azam, M., Nawaz, A., Naz, S. and Maqbool, M., 2024. A novel edible coating based on Albizia [Albizia lebbbeck (L.) Benth.] gum delays softening and maintains quality of harvested guava fruits during storage. *International Journal of Biological Macromolecules*, 277, p.134096.
11. Gull, S., Ejaz, S., Ali, S., Ali, M.M., Sardar, H., Azam, M., Deng, H., Yousef, A.F., Alrefaei, A.F. and Almutairi, M.H., 2024. Xanthan gum-based edible coating effectively preserve postharvest quality of 'Gola' guava fruits by regulating physiological and biochemical processes. *BMC Plant Biology*, 24(1), p.450
12. Khan, M.A., **Azam, M***, Ahmad, S. and Atiq, M. Improvement of physicochemicals, antioxidant system and softening enzymes by postharvest L-arginine application leads to maintain persimmon fruit quality under low temperature storage. *Journal of Food Measurement and Characterization*, 2023, 1-14.
13. Li, J., **Azam, M***, Noreen, A., Umer, M.A., Ilahy, R., Akram, M.T., Qadri, R., Khan, M.A., Rehman, S.U., Hussain, I. and Lin, Q. Application of methyl jasmonate to papaya fruit stored at lower

- temperature attenuates chilling injury and enhances the antioxidant system to maintain quality. *Foods*, 2023, 12(14), 2743.
14. Iqbal, M. A., Feroze, M. A. **Azam, M***, Asif, M., Umer, M. A., Khan, M. A., Ali, H., Lyu, Q., Haider, S.-T.-A., Liaquat, M., Yasmin, Z., Answer, M. R., and I. Hussain. "Influence of Geographical Locations on Yield, Oil Productivity and Fatty Acid Profiling in Four Olive Cultivars". *Emirates Journal of Food and Agriculture*, vol. 35, no. 8, May 2023, doi:10.9755/ejfa.2023.3124.
 15. Haider, S.T.A., **Azam, M***, Naz, S., Hussain, S., Ali, S., Liaquat, M., Umer, M.A., Asif, M., Nasir, M., Mustafa, Z. And Hussain, R. Postharvest application of gamma irradiation affects fruit quality and antioxidant enzymes activities of 'Kinnow' mandarin fruits during cold storage. *Food Science and Technology*, 2023, 43.
 16. Li, J., Hussain, I., **Azam, M***, Khan, M.A., Akram, M.T., Naveed, K., Asif, M., Anjum, N., Zeng, J., Zhang, J. and Liu, H. Hot water treatment improves date drying and maintains phytochemicals and fruit quality characteristics of date palm (*Phoenix dactylifera*). *Foods*, 2023, 12(12), 2405.
 17. Ali, S., Nawaz, A., Naz, S., Ali, M., Ejaz, S., **Azam, M.** and Razzaq, K. Exogenous melatonin mitigates chilling injury in zucchini fruit by enhancing antioxidant system activity, promoting endogenous proline and GABA accumulation, and preserving cell wall stability. *Postharvest Biology and Technology*, 2023, 204, 112445.
 18. Qadri, R.W.K., Achakzai, A., Akram, M.T., Awais, M., Hussain, K., Nisar, N., **Azam, M.**, Ghani, M.A., Khan, M.M. and Khan, M.M., 2023. Physiochemical and mineral characterization of unexplored local grapes (*Vitis vinifera* L.) cultivars growing in Balochistan province, Pakistan. *Acta Scientiarum Polonorum Hortorum Cultus*, 22(5), pp.115-130.
 19. Farooq, Q., Khan, M.I., Ali, M.H., Bashir, S., Azam, M., Qadri, R., Ali, B., Dawood, M. and Hussain, M.I., 2023. A bacterial consortium and L-tryptophan boosted glyphosate removal, mungbean growth and physiology in contaminated soil. *Arabian Journal of Geosciences*, 16(12), pp.1-15.
 20. Laayouni, Y., Tlili, I., Henane, I., Ali, A.B., Égei, M., Takács, S., Azam, M., Siddiqui, M.W., Daood, H., Pék, Z. and Helyes, L., 2023. Phytochemical Profile and Antioxidant Activity of Some Open-Field Ancient-Tomato (*Solanum lycopersicum* L.) Genotypes and Promising Breeding Lines. *Horticulturae*, 9(11), p.1180.
 21. Khan, U.A., Qadri, R., Akram, M.T., Khan, M.A., Nisar, N., **Azam, M.**, Khan, M.M. and Hussain, K. Physio-chemical assessment of jujube (*ziziphus mauritiana* l.) Genotypes at three ripening stages grown under Cholistan desert, Pakistan. *Journal of Animal & Plant Sciences*, 2023, 33(2)
 22. Tlili, I., Ilahy, R., Romdhane, L., R'him, T., Ben Mohamed, H., Zgallai, H., Rached, Z., **Azam, M.**, Henane, I., Saïdi, M.N. and Pék, Z. Functional Quality and Radical Scavenging Activity of Selected Watermelon (*Citrullus lanatus* (Thunb.) Mansfeld) Genotypes as Affected by Early and Full Cropping Seasons. *Plants*, 2023, 12(9), 1805.
 23. Ilahy, R., Tlili, I., Ghannem, S., Pék, Z., **Azam, M.**, Siddiqui, M.W., Helyes, L., Takács, S., Lenucci, M.S. and Khamassy, N. Effect of growing season on some qualitative and functional attributes of different potato genotypes. *Crop Science*. 2023, 1–12
 24. Lyu, Q., Zheng, W., Shan, Q., Huang, L., Wang, Y., Wang, L., Kuang, H., **Azam, M.** and Cao, G. Expanding annotation of chemical compounds in hawthorn fruits and their variations in thermal processing using integrated mass spectral similarity networking. *Food Research International*, 2023, 113114.
 25. Ud Din, M.M., Khan, M.I., **Azam, M.**, Ali, M.H., Qadri, R., Naveed, M. and Nasir, A., Effect of biochar and compost addition on mitigating salinity stress and improving fruit quality of tomato. *Agronomy*, 2023, 13(9), 2197.
 26. Ghani, M.A., Abbas, M.M., Ziaf, K., **Azam, M.**, Qadari, R.W.K., Shireen, F., Jahangir, M.M., Ali, B., Iqbal, J., Iqbal, Q. and Nawaz, S., Optimizing efficacy of turnip growth through foliar application of glutamic acid under saline conditions. *Emirates Journal of Food and Agriculture*. 2023, 35(4): 370-378

27. Wang, D., Randhawa, M.S., **Azam, M***, Liu, H., Ejaz, S., Ilahy, R., Qadri, R., Khan, M.I., Umer, M.A., Khan, M.A. and Wang, K. Exogenous melatonin treatment reduces postharvest senescence and maintains the quality of papaya fruit during cold storage. *Frontiers in Plant Science*, 2022, 13. 1039373. **(IF=6.62)**
28. Ilahy, R., Tlili, I., Pék, Z., Montefusco, A., Daood, H., **Azam, M.**, Siddiqui, M.W., R'him, T., Durante, M., Lenucci, M.S. and Helyes, L. Effect of individual and selected combined treatments with saline solutions and spent engine oil on the processing attributes and functional quality of tomato (*Solanum lycopersicon* L.) Fruit: In Memory of Professor Leila Ben Jaballah Radhouane (1958–2021). *Frontiers in Nutrition*, 2022, 704. **(IF=6.62)**
29. Liu, P., Huang, J.J., Cai, Z.Y., Chen, H.T., Huang, X., Yang, S.N., Su, Z.X., **Azam, M.**, Chen, H.B. and Shen, J.Y. Influence of girdling on growth of litchi (*Litchi chinensis*) roots during cold-dependent floral induction. *Scientia Horticulturae*, 2022, 297, 110928. **(IF=3.46)**
30. Shakir, M.S., Ejaz, S., Hussain, S., Ali, S., Sardar, H., **Azam, M.**, Ullah, S., Khaliq, G., Saleem, M.S., Nawaz, A. and Anjum, M.A. Synergistic effect of gum Arabic and carboxymethyl cellulose as biocomposite coating delays senescence in stored tomatoes by regulating antioxidants and cell wall degradation. *International Journal of Biological Macromolecules*, 2022, 201, pp.641-652. **(IF=8.02)**
31. Iqbal, J., Shaheen, A., Ghani, M. A., Iqbal, Q., **Azam, M.**, Ali, B., Noor, A., Anwar, A., Bibi, M., Iqbal, R., Anwar, I., Aslam, M., Mahmood, I. Nutritional and mineral composition analysis of desert plants: A case study. *Emirates Journal of Food and Agriculture*, 2022, 34(10): 882-887 **(IF=1.04)**
32. Ayub, M., Abbasi, K.Y., Ahmad, S., Anjum, N., **Azam, M***, Ghani, M.A., Jahangeer, M.M., Ashraf, M.I., Yusuf, A., Khan, M.A. and Siddique, I.M. Foliar application of salicylic acid and calcium chloride enhance heat stress tolerance in tomato. *Plant Cell Biotechnology and Molecular Biology*, 2022, 24-34. (Overseas Journal)
33. Anjum, N., Feroze, M.A., Malik, S.N., Zulfiqar, B., Rafique, R., Shah, M.H., Javed, A., Asif, M., Ahmad, S., Ayub, C.M. and Iqbal, Z., **Azam, M***. Yield and quality assessment of grapevine cultivar Sultnina at different geographic locations of Punjab, Pakistan. *International Journal of Agricultural Extension*, 2022, 10(1). (National)
34. Khajjak, A.H., Noor-un-Nisa, M.E.M.O.N., Wahocho, N.A., Sharif, N., Minao, T.F., Siddique, I.M., Jamali, M.F., Akhtar, N., **Azam, M.** and Irshad, U. Effect of seed priming on germination and seedling growth of papaya (*Carica papaya* L.). *Plant Cell Biotechnology and Molecular Biology*, 2022, 1-12.
35. Iqbal, M.A., Khan, M.A., **Azam, M***, Bhatti, M.I.N., Feroze, M.A., Zulfiqar, B., Umar, M.A. and Asif, M. Seasonal Fluctuations of N, P and K in Leaves Influenced Nutrient Requirement During Fruit Development Stages in Different Olive Genotypes. *Brazilian Archives of Biology and Technology*, 2022, 65 **(IF=0.797)**
36. Liu, H., Cao, X., **Azam, M.**, Wang, C., Liu, C., Qiao, Y. and Zhang, B. Metabolism of carotenoids and β -ionone are mediated by carotenogenic genes and *ppccd4* under ultraviolet b irradiation and during fruit ripening. *Frontiers in Plant Science*, 2022, 13. **(IF=6.62)**
37. Ahmad, S., Chaudhary, B., **Azam, M.**, Ayub, C.M. and Yaseen, M. Comparison of effects of different herbicides on NPK uptake, yield, and quality of Kinnow mandarin plants. *Soil & Environment*, 2022, 41(1).
38. Iqbal, P., Ghani, M.A., Ali, B., Shahid, M., Iqbal, Q., Ziaf, K., **Azam, M.**, Noor, A., Cheema, K.L. and Ahmad, J. Exogenous application of glutamic acid promotes cucumber (*Cucumis sativus* L.) growth under salt stress conditions. *Emirates Journal of Food and Agriculture*, 2021, 407-416. **(IF=1.04)**
39. Ali, M.H., Khan, M.I., Bashir, S., **Azam, M.**, Naveed, M., Qadri, R., Bashir, S., Mehmood, F., Shoukat, M.A., Li, Y. and Alkahtani, J. Biochar and Bacillus sp. MN54 Assisted Phytoremediation of Diesel

- and Plant Growth Promotion of Maize in Hydrocarbons Contaminated Soil. *Agronomy*, 2021, 11(9), 1795. **(IF=3.94)**
40. Aslam, A., Zhao, S., Lu, X., He, N., Zhu, H., Malik, A.U., **Azam, M.** and Liu, W. High-throughput LC-ESI-MS/MS metabolomics approach reveals regulation of metabolites related to diverse functions in mature fruit of grafted watermelon. *Biomolecules*, 2021, 11(5), 628. **(IF=4.56)**
 41. **Azam, M***, Qadri, R., Aslam, A., Khan, M.I., Khan, A.S., Anwar, R., Ghani, M.A., Ejaz, S., Hussain, Z., Iqbal, M.A. and Chen, J. Effects of different combinations of N, P and K at different time interval on vegetative, reproductive, yield and quality traits of mango (*Mangifera Indica*. L) cv. Dusehri. *Brazilian Journal of Biology*, 2021, 82. **(IF=1.32)**
 42. **Azam, M***, Hameed, L., Qadri, R., Ejaz, S., Aslam, A., Khan, M.I., Shen, J., Zhang, J., Nafees, M., Ahmad, I., Ghani, M.A. Postharvest ascorbic acid application maintained physiological and antioxidant responses of Guava (*Psidium guajava* L.) at ambient storage. *Food Science and Technology*. 2021, 1(3): 748-754 **(IF=1.78)**
 43. Ghani, M.A., Mushtaq, A., Khurram, Z., Basharat, A., Khan M.J., Waseem R., Imran, K., **Azam M.** and Anam, N. Exogenously applied GA₃ promotes plant growth in onion by reducing oxidative stress under saline conditions. *Journal of Agricultural Sciences*, 2021, 27(2), 122-128. **(IF=1.08)**
 44. Khan, A., **Azam, M.**, Shen, J., Ghani, M.A., Khan, A.S., Ahmad, S., Iqbal, M.A., Anjum, N., Zhang, J., Anjum, M.A. and Jaskani, M.J., 2021. Overall quality maintenance of grapefruit during cold storage using pre-storage neem leaf extract dipping. *Journal of Food Measurement and Characterization*, 2021, 15(2), 1727-1736. **(IF= 2.43)**
 45. **Azam, M.**, Ilahy, R., Shen, J., Qadri, R., Iqbal, M.A., Yasmin, Z., Khan, M.A., Jaskani, M.J., Malik, A.U. and Hussain, S. Exogenous calcium nitrate application delays senescence, enhance nutraceutical properties and antioxidant defense system during storage. *Emirates Journal of Food and Agriculture*. 2021. 33(10): 852-862 **(IF= 1.04)**
 46. Saleem, M.S., Anjum, M.A., Naz, S., Ali, S., Hussain, S., **Azam, M.**, Sardar, H., Khaliq, G., Canan, İ. and Ejaz, S. Incorporation of ascorbic acid in chitosan-based edible coating improves postharvest quality and storability of strawberry fruits. *International Journal of Biological Macromolecules*, 2021, 189, pp.160-169. **(IF=8.02)**
 47. Nafees, M., Jaskani M.J., Ahmad, I., Maryam, Ashraf, I., Maqsood, A., Ahmar, S., **Azam, M.**, Hussain, S., Hanif, A., and Chen, J-T. Biochemical Analysis of Organic Acids and Soluble Sugars in Wild and Cultivated Pomegranate Germplasm Based in Pakistan. *Plants*, 2020. 9,493 **(IF=2.70)**
 48. Aslam, A., Zhao, S., **Azam, M.**, Lu, X., He, N., Li, B., Dou, J., Zhu, H., Liu, W. Comparative analysis of primary metabolites and transcriptome changes between ungrafted and pumpkin-grafted watermelon during fruit development. *PeerJ*. 2020. 6;8:e8259. **(IF=3.061)**
 49. Ahmad, R., Ali, S., Abid, M., Rizwan, M., Ali, B., Tanveer, A., Ahmad, I., **Azam, M.**, Ghani, M.A. Glycinebetaine alleviates the chromium toxicity in Brassica oleracea L. by suppressing oxidative stress and modulating the plant morphology and photosynthetic attributes. *Environmental Science and Pollution Research* 2020, 27:1101–1111 **(IF=5.053)**
 50. Ghani, M.A., Abbas, M.M., Ali, B., Ziaf, K., **Azam, M.**, Anjum, R., Iqbal, Q., Nadeem, M., Noor, A. and Jillani, U. Role of salicylic acid in heat stress tolerance in tri-genomic brassica napus l. *Bioagro*, 2020, 33(1), 3-20. **(IF=0.43)**
 51. Ghani, M.A., Abbas, M.M., Ziaf, K., **Azam, M.**, Ali, B., Amjad, M., Anjum, R., Noor, A. and Zahid, M. Production and characterization of inter and intraspecific hybridization eggplant. *Horticultura Brasileira*, 2020, 38, 407-414. **(IF=0.98)**
 52. Khan, A.S., Ibrahim, M., Basra, S.M.A., Ali, S., Hussain, M., Almas, **Azam, M.**, Anwar, R. and Hasan, M.U. Post-Bloom Applied Moringa Leaf Extract Improves Growth, Productivity and Quality of Early Season Maturing Grapes (*Vitis vinifera*). *International Journal of Agriculture & Biology*. 2020, 24 (5) 1217–1225 **(IF=0.81)**

53. Iqbal, M.A., Mahmood, A., Khan, M.A., Ahmad, T., **Azam, M.**, Bhatti, M.I.N., Awan, A.A. and Hafiz, I.A. Role of Compatible Pollinizer for Commercial Olive Production in Pothwar, Pakistan. *Journal of Animal & Plant Sciences*, 2020, 30(6) 1612-1621. **(IF=0.61)**
54. Khan, M.I., Shoukat, M.A, Cheema, S.A, Arif, H.N, Niazi, N.K, **Azam, M.**, Bashir, S., Ashraf, I., and Rashad Q. Use, contamination and exposure of pesticides in Pakistan: A review. *Pak. J. Agri. Sci.*, 2020, 55-131-149 **(IF=0.85)**
55. **Azam, M.**, Qadri, R., Khan, M.I., Khan, M., Akhtar, N., Khan, N.H. and Ayyub, C.M. Impact of fertilizer combinations on malformation physiology of mango panicles (*Mangifera indica*. L) cv. Dusheri. *Pure and Applied Biology*, 2020, 9(1), 626-634. (National)
56. Khan M, Fatima K, Ahmad R, Younas R, Rizwan M, **Azam M**, Abadin Z-U, Ali. Comparative effect of mesquite biochar, farmyard manure, and chemical fertilizers on soil fertility and growth of onion (*Allium cepa* L.). *Arabian Journal of Geosciences*, 2019, 12:563 **(IF=1.87)**
57. Khan, M.I., Shoukat, M.A, Cheema, S.A, Ali, S, **Azam M**, Rizwan, M, Rashad Qadri, Mohammad Al-Wabel. Foliar- and soil-applied salicylic acid and bagasse compost addition to soil reduced deleterious effects of salinity on wheat. *Arabian Journal of Geosciences*, 2019 12:78 **(IF=1.87)**
58. Qadri, R., Iqbal, A., Wu, Y., Li, J., Nisar, N., **Azam, M.**, and Yang, Y. A modified protocol for total RNA isolation from different oil palm (*Elaeis guineensis*) tissues using cetyltrimethylammonium bromide. *Current Science*, 2019, 116: 3: 10 **(IF=1.12)**
59. Ahmad, T., Rafiq, M.M., Dogar, W.A., Alvi, A.M., Iqbal, Q., **Azam, M.** and Khan, A.A. Efficacy of different phosphorus levels on growth and yield of phalsa (*Grewia asiatica* L.). *Sarhad Journal of Agriculture*, 2019, 35(4), pp.1284-1288. (National)
60. Qadri, R., Akram, M.T., Khan, I., **Azam, M***, Nisar, N., Ghani, M.A., Tanveer, M., and Khan, M.M. Response of guava (*Psidium guajava* L.) softwood cuttings to paclobutrazol application in different rooting media. *Bangladesh J. Bot.* 2018, 47(3): 361-367 **(IF=0.972)**
61. Qadri, R., Ubaid, Z., Saleem, A., Iqbal, A., Khan, M.M., Feroze, A., **Azam, M.**, Yang, Y. Phenotypic diversity among peach cultivars Grown under environmental conditions of Pothohar (salt range) Pakistan. *Fresenius Environmental Bulletin*. 2018, 27, 9289-9299 **(IF=0.553)**
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