

Sajjad Hussain  
Citrus Center, Texas A&M Kingsville

## **CURRICULUM VITAE**

### **Dr. Sajjad Hussain**

Associate Professor, Texas A&M University Kingsville, Citrus Center, Weslaco, TX 78599, USA

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ORCID Profile: <https://orcid.org/0000-0002-7143-2754>

### **EDUCATION:**

**2011 Ph.D.** University of Corsica Pascale Paoli, Corte, France

Ph.D. Dissertation Title: *Physiological characterization of citrus genotypes: salt stress tolerance studies and impact of the presence of zygotic and autotetraploid rootstocks.*

**2005 M.Sc. (Hons.) Agriculture (Horticulture)**, Bahauddin Zakariya University Multan Pakistan

M.Sc. (Hons.) Dissertation Title: *In vitro regeneration in different rootstocks of citrus.*

**2003 B.Sc. (Hons.) Agriculture (Horticulture)**, Bahauddin Zakariya University Multan Pakistan

### **RESEARCH AND PROFESSIONAL EXPERIENCE:**

**01-06-2024-to date**

**Associate Professor**, Texas A&M University Kingsville, Citrus Center Weslaco, Texas

**15-10-2022-to 31-05-2024**

**Professor (Tenured)** Department of Horticulture, Faculty of Agricultural Sciences and Technology, Bahauddin Zakariya University, Multan, Pakistan.

**13-07-2018- 14-10-2022**

**Associate Professor (Tenured)** Department of Horticulture, Faculty of Agricultural Sciences and Technology, Bahauddin Zakariya University, Multan, Pakistan.

**12-02-2013- 12-07-2018**

**Assistant Professor (TTS)** Department of Horticulture, Faculty of Agricultural Sciences and Technology, Bahauddin Zakariya University, Multan, Pakistan.

**26-04-2011- 25-04-2012**

**Assistant Professor (IPFP)** Department of Horticulture, Faculty of Agricultural Sciences and Technology, Bahauddin Zakariya University, Multan, Pakistan.

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**2006-2011**

Doctoral Research, UR GEQA –INRA CIRAD Corsica, France

## RESEARCH AREAS OF INTEREST:

1. Citrus stress tolerance mechanisms
2. Citrus Germplasm's evaluation for biotic and abiotic stresses
3. Citrus Polyploidy rootstocks (tetraploid and triploid) breeding for fruit quality and stress tolerance/adaptation
4. Fruit-bearing and fruit quality mechanisms
5. Citrus nutritional imbalance and its effect on fruit yield and quality

## ACADEMIC PERFORMANCE:

### Teaching

University/ Department	Course No.	Course Title
Faculty of Agricultural Sciences & Technology, Bahauddin Zakariya University, Multan, Pakistan	<b>B.Sc. (Hons.) Agriculture</b>	
	HORT-201	Introductory Horticulture
	HORT-202	Principal Horticultural Crops
	HORT-301	Principles of Fruit Production
	HORT-302	Tropical and Subtropical Fruit Production
	<b>M.Sc. (Hons.) Agriculture (Horticulture)</b>	
	HORT-508	Citriculture
	HORT-505	Plant Growth Regulators
	HORT-515	Rootstocks of Fruit Crops
	<b>Ph.D. Horticulture</b>	
	HORT-706	Advance Fruit Science
	HORT-710	Horticultural crop production under abiotic stresses
	HORT-704	Physiology of Horticultural Crops
	HORT-702	Plant Molecular Techniques
	<b>Graduate Course</b>	

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Department of Agriculture, Agribusiness, and Environmental Sciences, Texas A&M University- Kingsville, Texas, USA	PLSS 6346	Citrus and subtropical fruit crops
	PLSS 5390	Horticultural production under abiotic stresses

### Authored BOOKS:

1. Cropping Systems Modeling Under Changing Climate (Mukhtar Ahmed, Shakeel Ahmad, Ghulam Abbas, **Sajjad Hussain**, Gerrit Hoogenboom) <https://doi.org/10.1007/978-981-97-0331-9> Springer Singapore, **2024**.

### EDITED BOOKS:

2. Citrus Production: Technological Advancements and Adaptation to Climate Change (Editors: **Sajjad Hussain**, Muhammad Fasih Khalid, Muhammad Arif Ali, Niaz Ahmed, Mirza Hasanuzzaman, Shakeel Ahmad) Taylor & Francis, CRC Press **2022**.
3. Handbook of Research on Mango Fruit Postharvest Science, Production, Nutrition, and Processing Technology (Editors: **Sajjad Hussain**, Kamrun Nahar, Ishtiaq A. Rajwana, Sezai Ercisli, Shakeel Ahmad) Apple Academic Press, **2025**. [Apple Academic Press](#)

### LIST OF PUBLICATIONS:

#### ***Peer-Reviewed Publications in the Field of CITRICULTURE***

Best Research Article Award JPLPH (Journal of Plant Physiology) 2022. [Awards - Journal of Plant Physiology | ScienceDirect.com by Elsevier](#)

One of the two Best Research Articles published in JPLPH in the year 2020

***Better salinity tolerance in tetraploid vs diploid volkamer lemon seedlings is associated with robust antioxidant and osmotic adjustment mechanisms***

#### **Publication in Impact factor Journals:**

1. **Sajjad Hussain**, Mehwish Jan, Muhammad Fasih Khalid, Sakeena Tul-Ain Haider, Muhammad Arif Ali, Shakeel Ahmad, Samreen Sabir, Mamoudou Sétamou & Raphael Morillon. 2025. Rooting for Resilience: Arbuscular Mycorrhizal Fungi (AMF) Boost Citrus Tolerance to Water

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Scarcity in Rangpur Lime and Carrizo Citrange  
Rootstocks. *Horticulturae*. <https://doi.org/10.3390/horticulturae11010024>

2. Shahid Iqbal, Carlos Eduardo Aucique-Perez, **Sajjad Hussain**, Rashad M. Balal, Guillaume Charrier, Matthew Mattia, John M. Chater, Muhammad A. Shahid. 2025. Drought-stress memory confers cold hardiness in grapefruit (*Citrus paradisi*) through modulations in antioxidant system, osmolyte production and carbohydrate metabolism. <https://doi.org/10.1016/j.stress.2025.100801>
3. Iqra Zakir, Shakeel Ahmad, Muhammad Shahzad Saleem, **Sajjad Hussain**, Halima Nawaz, Talaat Ahmed, Muhammad Fasih Khalid. 2025. First Insights on Sowing Time and Cultivar Selection of Sweet Corn for Optimal Yield and Shelf Life Under Agro-Climatic Conditions of Multan. <https://doi.org/10.1007/s42106-025-00329-3>
4. Sahrish Naz, Mukhtar Ahmed, Ghulam Abbas, Zartash Fatima, Sajjad Hussain, Pakeeza Iqbal, Abdul Ghani, Muhammad Ali, Tahir Hussain Awan, Noreen Samad, Muhammad Aasim, Sezai Ercisli, Shakeel Ahmad. 2024. Assessment of climate change impact on potato-potato cropping system under semi-arid environment and designing of adaptation strategies. *Potato Research*. 1-31.
5. Muhammad SOHAIL, Hossam S EL-BELTAGI, Sajjad HUSSAIN, Altaf HUSSAIN, ALI Ehsan, Shakeel AHMAD, Vicent ARBONA, Muhammad F KHALID. 2024. Deciphering the drought tolerance mechanisms in citrus rootstocks. *Notulae Botanicae Horti Agrobotanici Cluj-Napoca*. 52 (4): 14124-14124.
6. Muhammad Fasih Khalid, Waqar Shafqat, Rashid Iqbal Khan, Muhammad Zaid Jawaaid, Sajjad Hussain, Muhammad Saqib, Muhammad Rizwan, Talaat Ahmed. **2024**. Unveiling the resilience mechanism: Strigolactones as master regulators of plant responses to abiotic stresses. *Plant stress*. (12). 100490.
7. Idrees Haider, Muhammad Arif Ali, Muhammad Sanaullah, Niaz Ahmed, Sajjad Hussain, Muhammad Taimoor Shakeel, Syed Atif Hasan Naqvi, Javeed Shabbir Dar, Mahmoud Moustafa, Mohammed O. Alshaharni. **2023**. Unlocking the secrets of soil microbes: How decades-long contamination and heavy metals accumulation from sewage water and industrial effluents shape soil biological health. *Chemosphere*, (342). 140193.

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8. **Sajjad Hussain**, Hamza Sohail, Iqra Noor, Shakeel Ahmad, Shaghef Ejaz, Muhammad Arif Ali, Sakeen Tul-Ain Haider, Muhammad Sohail, Hayat Ullah, Sezai Ercisli, Raphael Morillon, Muhammad Fasih Khalid. **2023**. Physiological and biochemical determinants of drought tolerance in tetraploid vs diploid sour orange citrus rootstock. The Journal of Horticultural Science & Biotechnology. <https://doi.org/10.1080/14620316.2023.2192230>.
9. Muhammad Junaid Rao, Bihong Feng, Muhammad Husnain Ahmad, Muhammad Tahir Ul Qamar, Muhammad Zeshan Aslam, Muhammad Fasih Khalid, **Sajjad Hussain**, Ruimin Zhong, Qurban Ali, Qiang Xu, Chongjian Ma and Lingqiang Wang. **2023**. LCMS/MS-based metabolomics approach identified novel antioxidant flavonoids associated with drought tolerance in citrus varieties. Frontiers in Plant Science. doi: **10.3389/fpls.2023.1150854**.
10. Sakeena Tul-Ain Haider, Muhammad Azam, Safina Naz, **Sajjad Hussain**, Sajid Ali, Mehwish Liaquat, Muhammad Ali Umer, Muhammad Asif, Maryam Nasir, Zaid Mustafa, Rashid Hussain, Muhammad Azhar Iqbal, Sharoon Masih, Muhammad Tahir Akram, Khalid Naveed. **2023**. Postharvest application of gamma irradiation affects fruit quality and antioxidant enzymes activities of 'kinnow' mandarin fruits during cold storage. Food Science and Technology, 43.
11. Niaz Ahmed, Ghulam Sabir Hussain, **Sajjad Hussain**, Iftikhar Ahmad, Javed Iqbal, Mumtaz Hussain Farooqi, Muhammad Mubashir, Mahmoud Moustafa, Muhammad Arif Ali. **2023**. Effect of soil and foliar applied micronutrient consortia on alleviation of micronutrient deficiency in kinnow. **Pakistan Journal of Botany**, 55(SI): DOI: [http://dx.doi.org/10.30848/PJB2023-SI\(8\)](http://dx.doi.org/10.30848/PJB2023-SI(8)).
12. Muhammad Shahzad Saleem, Shaghef Ejaz, Muhammad Akbar Anjum, Sajid Ali, **Sajjad Hussain**, Aamir Nawaz, Safina Naz, Mehdi Maqbool, Abdul Manan Abbas. 2022. Aloe vera gel coating delays softening and maintains quality of stored persimmon (*Diospyros kaki* Thunb.) fruits. **Journal of Food Science and Technology**. Revision submitted. (Impact factor = 2.701)
13. Sajid Ali, Muhammad Akbar Anjum, Aamir Nawaz, Shaghef Ejaz, Raheel Anwar, Ghulam Khaliq, **Sajjad Hussain**, Sami Ullah, Rizwan Hussain, Muhammad Shahzad Saleem, Mahmood Ul Hasan 2022. Postharvest  $\gamma$ -aminobutyric acid application mitigates chilling injury of aonla (*Emblica officinalis* Gaertn.) fruit during low temperature storage. **Postharvest Biology and Technology** 185: 111803. (Impact factor = 4.303)

14. Muhammad Saleem Shakir, Shaghef Ejaz, **Sajjad Hussain**, Sajid Ali, Hasan Sardar, Muhammad Azam, Sami Ullah, Ghulam Khaliq, Muhammad Shahzad Saleem, Aamir Nawaz, Muhammad Akbar Anjum, Ihsan Canane. 2022. 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*. In Press. **(Impact factor = 5.162)**
15. Muhammad Azam, Riadh Ilahy, Jiyuan Shen, Rashad Qadri, Zarina Yasmin, Muhammad Arsalan Khan, Muhammad Jafar Jaskani, Muhammad Azhar Iqbal, Aman Ullaha Malik, **Sajjad Hussain**, Muhammad Awais Ghani, Aqeel Feroz. 2022. Pre-storage calcium nitrate application promoted Physico-chemical, antioxidative activities and sensory attributes of guava at ambient storage. *Emirates Journal of Food and Agriculture*. Accepted for publication. **(Impact factor = 1.008)**
16. Niaz Ahmad, **Sajjad Hussain**, Muhammad Arif Ali, Asif Minhas, Waqar Waheed, Subhan Danish, Shah Fahad, Umber Ghafoor, Khurram Shehzad Baig, Haider Sultan, Muhammad Iftikhar Hussain, Mohammad Javed Ansari, Theodore Danso Marfo, Rahul Datta. 2022. Correlation of Soil Characteristics and Citrus Leaf Nutrients Contents in Current Scenario of Layyah District. *Horticulturae* 8(1): 61. **(Impact factor =2.33)**
17. Sammen Walli, Ishfaq Ahmed Hafiz, Rashid Iqbal Khan, Muhammad Ajmal Bashir, Sareer Uddin, Shakir Ullah Khan, Usman Ajmal, **Sajjad Hussain**, and Muhammad Fasih Khalid. 2022. Zinc and Boron Application at Different Phenological Stages Alleviates Tree Growth, Fruit Yield and Quality of Sweet Orange Cv.'Blood Red'. *Gesunde Pflanzen* :1-12. <https://doi.org/10.1007/s10343-021-00616-9> **(Impact factor = 0.738)**
18. Sahrish Naz, Shakeel Ahmad, Ghulam Abbas, Zartash Fatima, **Sajjad Hussain**, Muhammad Azam Khan, Mukhtar Ahmed, Ahmad Khan, Shah Fahad, Wajid Nasim, Sezai Ercisli, Carol Jo Wilkerson, Gerrit Hoogenboom. 2022. Modeling the impact of climate warming on potato phenology. *European Journal of Agronomy*, 132, 126404. **(Impact factor = 3.726)**
19. Hasan Sardar, Muhammad Akbar Anjum, **Sajjad Hussain**, Sajid Ali, Muhammad Rashid Shaheen, Muhammad Ahsan, Shaghef Ejaz, Khawaja Shafique Ahmad, Safina Naz, Muhammad Shafique. 2022. Deciphering the role of moringa leaf powder as a supplement in

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the cotton waste substrate for the growth and nutrition of king oyster mushroom. *Scientia Horticulturae* 2963: 110694 (Impact factor = 2.769)

20. Tahira Abbas, Rong Fan, **Sajjad Hussain**, Abdul Sattar, Samina Khalid, Madiha Butt, Umbreen Shahzad, Hafiz Muhammad Atif, Momal Batool, Sami Ullah, Yunzhou Li, Abdulrahman Al-Hashimi, Mohamed S Elshikh, Rashid Al-Yahyai. 2021. Protective effect of jasmonic acid and potassium against cadmium stress in peas (*Pisum sativum* L.). *Saudi Journal of Biological Sciences*. <https://doi.org/10.1016/j.sjbs.2021.12.051> (Impact factor = 2.802)
21. Iqra Noor, Hamza Sohail, Mirza Hasanuzzaman, **Sajjad Hussain**, Guohuai Li, Junwei Liu 2021. Phosphorus confers tolerance against manganese toxicity in *Prunus persica* by reducing oxidative stress and improving chloroplast ultrastructure. *Chemosphere*: 132999. <https://doi.org/10.1016/j.chemosphere.2021.132999>. (Impact factor = 5.778)
22. Muhammad Shahzad Saleem, Muhammad Akbar Anjum, Safina Naz, Sajid Ali, **Sajjad Hussain**, Muhammad Azam, Hasan Sardar, Ghulam Khaliq, Ihsan Canan, Shaghef Ejaz. 2021. Incorporation of ascorbic acid in chitosan-based edible coating improves postharvest quality and storability of strawberry fruits. *International Journal of Biological Macromolecules* 189: 160-169. (Impact factor = 5.162)
23. Ghulam Mustafa, Muhammad Arif Ali, Donald L. Smith, Sajid Masood, Muhammad Farooq Qayyum, Niaz Ahmed, Ateeq ur Rehman, Shakeel Ahmad, **Sajjad Hussain**, Muhammad Arshad, Summia Muneer, Aqib Hassan Ali Khan, Shah Fahad, Rahul Datta, Mazhar Iqbal & Timothy D. Schwinghamer 2021. Formalin fumigation and steaming of various composts differentially influence the nutrient release, growth and yield of muskmelon (*Cucumis melo* L.). *Scientific Reports* 11, 21057. <https://doi.org/10.1038/s41598-021-99692-0>. (Impact factor = 3.998)
24. Abdul Saboor, Muhammad Arif Ali, Shabir Hussain, Hesham A.El Enshasy, **Sajjad Hussain**, Niaz Ahmed, Abdul Gafur, R.Z. Sayyed, Shah Fahad, Subhan Danish, Rahul Datta. 2021. Zinc nutrition and arbuscular mycorrhizal symbiosis effects on maize (*Zea mays* L.) growth and productivity. *Saudi Journal of Biological Sciences* 28 (11): 6339-6351. <https://doi.org/10.1016/j.sjbs.2021.06.096>. (Impact factor = 2.802)
25. **Sajjad Hussain**, Ahmad Hassan, Pakiza Arshad, Muhammad Akbar Anjum 2021. Different Sources of Irrigation Water Affect Heavy Metals Accumulation in Soils and Subsequently on

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Physiological Determinants and Physico-Chemical Properties of Guava Fruits. *Environmental Science and Pollution Research*. Accepted (Impact factor = 3.056)

26. Muhammad Fasih Khalid, Christopher Vincent, Raphael Morillon, Muhammad Akbar Anjum, Shakeel Ahmad, **Sajjad Hussain** (2021) Different Strategies Lead to a Common Outcome: Different Water-Deficit Scenarios Highlight Physiological and Biochemical Strategies of Water Deficit Tolerance in Diploid vs. Tetraploid Volkamer Lemon. *Tree Physiology* 41(12):2359-2374. (<https://doi.org/10.1093/treephys/tpab074>) (Impact factor = 3.655)
27. Muhammad Fasih Khalid, Raphael Morillon, Muhammad Akbar Anjum, Shaghef Ejaz, Muhammad Junaid Rao, Shakeel Ahmad, **Sajjad Hussain** (2021) Volkamer Lemon Tetraploid Rootstock Transmits the Salt Tolerance When Grafted with Diploid Kinnow Mandarin by Strong Antioxidant Defense Mechanism and Efficient Osmotic Adjustment. *Journal of Plant Growth Regulation* <https://link.springer.com/article/10.1007/s00344-021-10367-6> (Impact factor = 2.67)
28. Sajid Ali, Muhammad Akbar Anjum, Shaghef Ejaz, **Sajjad Hussain**, Sezai Ercisli, Muhammad Shahzad Saleem, Hasan Sardar (2021) Carboxymethyl cellulose coating delays chilling injury development and maintains eating quality of 'Kinnow' mandarin fruits during low temperature storage. *International Journal of Biological Macromolecules* 168: 77–85. (Impact factor = 5.162)
29. Muhammad Akbar Anjum, **Sajjad Hussain**, Pakiza Arshad, Ahmad Hassan (2021) Irrigation water of different sources affects fruit quality attributes and heavy metals contents of un-grafted and commercial mango cultivars. *Journal of Environmental Management*. 281: 111895. (Impact factor = 5.647)
30. Mukhtar Ahmed, Shah Fahad, Muhammad Arif Ali, **Sajjad Hussain**, Muhammad Tariq, Fariha Ilyas, Shakeel Ahmad, Shah Saud, Hafz Mohkum Hammad, Wajid Nasim, Chao Wu, Hongyan Liu (2021) Hydrogen Sulfide: A Novel Gaseous Molecule for Plant Adaptation to Stress. *Journal of Plant Growth Regulation* 40:2485-2501 (<https://link.springer.com/article/10.1007/s00344-020-10284-0>) (Impact factor = 2.672)
31. Muhammad Fasih Khalid, **Sajjad Hussain**, Muhammad Akbar Anjum, Muhammad Arif Ali, Shakeel Ahmad, Shaghef Ejaz, Sajid Ali, Muhammad Usman, Ehsan Ul Haque, Raphael Morillon (2020) Efficient compartmentalization and translocation of toxic minerals leads



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tolerance in volkamer lemon tetraploids than diploids under moderate and high salt stress.

**Fruits: *The international Journal of Tropical and Sub Tropical Horticulture*. 75(5), 204–215.**

**(Impact factor = 0.579)**

32. Muhammad Shahzad Saleem, Shaghef Ejaz, Muhammad Akbar Anjum, Aamir Nawaz, Safina Naz, **Sajjad Hussain**, Sajid Ali, Ihsan Canan (2020) Postharvest application of gum arabic edible coating delays ripening and maintains quality of persimmon fruits during storage. ***Journal of Food Processing and Preservation***. <https://doi.org/10.1111/jfpp.14583> (Impact factor = 1.405)
33. Zartash Fatima, Mukhtar Ahmed, Mubshar Hussain, Ghulam Abbas, Sami Ul-Allah, Shakeel Ahmad, Niaz Ahmed, Muhammad Arif Ali, Ghulam Sarwar, Ehsan ul Haque, Pakeeza Iqbal, **Sajjad Hussain** (2020) The fingerprints of climate warming on cereal crops phenology and adaptation options. ***Scientific Reports***. <https://doi.org/10.1038/s41598-020-74740-3> (Impact factor = 3.998)
34. Muhammad Nafees, Muhammad Jafar Jaskani , Ishtiaq Ahmad, Maryam, Irfan Ashraf, Ambreen Maqsood, Sunny Ahmar, Muhammad Azam, **Sajjad Hussain**, Asma Hanif, Jen-Tsung Chen (2020) Biochemical Analysis of Organic Acids and Soluble Sugars in Wild and Cultivated Pomegranate Germplasm Based in Pakistan. ***Plants***, 9: 493. <https://doi.org/10.3390/plants9040493> (Impact factor = 2.762)
35. Muhammad Arif Ali, Muhammad Mustansar Ajaz, Muhammad Rizwan, Muhammad Farooq Qayyum, Muhammad Arshad, **Sajjad Hussain**, Niaz Ahmad, Muhammad Amjad Qureshi (2020) Effect of biochar and phosphate solubilizing bacteria on growth and phosphorus uptake by maize in an Aridisol. ***Arabian Journal of Geoscience***, 13, 333 (2020). <https://doi.org/10.1007/s12517-020-05326-6> (Impact factor = 1.327)
36. Muhammad Fasih Khalid, **Sajjad Hussain**, Muhammad Akbar Anjum, Shakeel Ahmad, Muhammad Arif Ali, Shaghef Ejaz, Raphael Morillon (2020) Better salinity tolerance in tetraploid vs diploid volkamer lemon seedlings is associated with robust antioxidant and osmotic adjustment mechanisms. ***Journal of Plant Physiology***, 244: 153071. <https://www.sciencedirect.com/science/article/pii/S0176161719302007> (Impact factor = 3.013)

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- 37.** Sajid Ali, Ahmad Sattar Khan, Muhammad Akbar Anjum, Aamir Nawaz, Safina Naz, Shaghef Ejaz, **Sajjad Hussain (2020)** Effect of postharvest oxalic acid application on enzymatic browning and quality of lotus (*Nelumbo nucifera* Gaertn.) root slices. *Food Chemistry*, 312: 126051. <https://www.ncbi.nlm.nih.gov/pubmed/31891888> (Impact factor = 6.306)
- 38.** Sajid Ali, Muhammad Akbar Anjum, Aamir Nawaz, Safina Naz, **Sajjad Hussain**, Shaghef Ejaz, Hasan Sardar **(2020)** Effect of pre-storage ascorbic acid and Aloe vera gel coating application on enzymatic browning and quality of lotus root slices. *Journal of Food Biochemistry*, 44 (3) e13136. <https://onlinelibrary.wiley.com/doi/abs/10.1111/jfbc.13136> (Impact factor = 1.662)
- 39.** Ghulam Abbas, Shakeel Ahmad, Mubshar Hussain, Zartash Fatima, **Sajjad Hussain**, Pakeeza Iqbal, Mukhtar Ahmed, Muhammad Farooq **(2020)** Sowing date and hybrid choice matters production of maize-maize system. *International Journal of Plant Production*, 14, 583-595 (<https://link.springer.com/content/pdf/10.1007/s42106-020-00104-6.pdf>) (Impact factor = 1.169)
- 40.** Ghulam Abbas, Zartash Fatima, Mubshar Hussain, **Sajjad Hussain**, Atique-ur-Rehman, Naeem Sarwar, Mukhtar Ahmed, Shakeel Ahmad **(2020)** Nitrogen rate and hybrid selection matters productivity of maize-maize cropping system under irrigated arid environment of southern Punjab, Pakistan. *International Journal of Plant Production*, 14: 309-320 (<https://link.springer.com/article/10.1007/s42106-020-00086-5>) (Impact factor = 1.169)
- 41.** **Sajjad Hussain**, Muhammad Junaid Rao, Muhammd Akbar Anjum, Shaghef Ejaz, Ummad-ud-Din Umar, Muhammad Arif Ali, Muhammad Fasih Khalid, Muhammad Sohail, Sezai Ercisli, Muhammad Zia-Ul-Haq, Shakeel Ahmad, Syed Atif Hasan Naqvi **(2019)** Effect of different combinations of antibiotics on fruit quality and antioxidant defense system in Huanglongbing infected Kinnow orchards. *AMB Express*, 9:147. (Impact factor = 2.449)
- 42.** Muhammad Tyyab Tahir, Muhammad Akbar Anjum, Muhammad Saqib, Muhammad Fasih Khalid, **Sajjad Hussain (2019)** Seed priming and foliar application of plant growth regulators affect the growth and yield of okra under calcareous soils. *Acta Scientiarum Polonorum Hortorum Cultus*, 18 (4): 25-33. (Impact factor = 0.616)
- 43.** Sajid Ali, Ahmad Sattar Khan, Aamir Nawaz, Muhammad Akbar Anjum, Safina Naz, Shaghef Ejaz and **Sajjad Hussain (2019)** Aloe vera gel coating delays postharvest browning and

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maintains quality of harvested litchi fruit. *Postharvest Biology and Technology* 157 (2019) 110960. (Impact factor = 4.303)

44. Sajid Ali, Ahmad Sattar Khan, Muhammad Akbar Anjum, Aamir Nawaz, Safina Naz, Shaghef Ejaz and **Sajjad Hussain (2019)** *Aloe vera* gel coating delays post-cut surface browning and maintains quality of cold stored lotus (*Nelumbo nucifera* Gaertn.) root slices. *Scientia Horticulturae*, 256:108612. <https://doi.org/10.1016/j.scienta.2019.108612>. (Impact factor = 2.769)
45. **Sajjad Hussain**, Muhammad Fasih Khalid, Muhammad Saqib, Shakeel Ahmad, Waseem Zafar, Muhammad Junaid Rao, Raphael Morillon, Muhammad Akbar Anjum (2018) Drought tolerance in citrus rootstocks is associated with better antioxidant defense mechanism. *Acta Physiologiae Plantarum*, 40(8): 135. (<https://link.springer.com/article/10.1007/s11738-018-2710-z>). (Impact factor = 1.760)
46. Mubshar Hussain, Shakeel Ahmad, **Sajjad Hussain**, Rattan Lal, Sami Ul-Allah, Ahmad Nawaz (2018) Rice in saline soils: physiology, biochemistry, genetics and management. *Advances in agronomy*, 148: 231-287. (<https://doi.org/10.1016/bs.agron.2017.11.002>) (Impact factor = 5.279)
47. Zartash Fatima, Qaiser Abbas, Amna Khan, **Sajjad Hussain**, Muhammad Arif Ali, Ghulam Abbas, Haseeb Younis, Shahrish Naz, Muhammad Ismail, Muhammad Imran Shahzad, Muhammad Nadeem, Umair Farooq, Shahzad Usman Khan, Kashif Javed, Azhar Ali Khan, Mukhtar Ahmed, Muhammad Azam Khan, Shakeel Ahmad (2018) Resource-use-efficiencies of C3 and C4 cereals under split nitrogen regimes. *Agronomy*, 8(5), 69, (<https://doi.org/10.3390/agronomy8050069>)(Impact factor = 2.603)
48. Wajeeha Amin, **Sajjad Hussain**, Muhammd Akbar Anjum, Shaghef Ejaz, Muhammad Saqib, Muhammad Fasih Khalid, Sezai Ercisli, Shakeel Ahmad (2018) Genetic diversity of jujube (*Ziziphus mauritiana*) cultivars. *Genetika*, 50(2): 483-494. <http://www.doiserbia.nb.rs/Article.aspx?ID=0534-00121802483A> (Impact factor = 0.403)
49. Wajid Nasim, Asad Amin, Shah Fahad, Muhammad Awais, Naeem Khan, Muhammad Mubeen, Abdul Wahid, Veysel Turan, Muhammad Habibur Rehman, Muhammad Zahid Ihsan, Shakeel Ahmad, **Sajjad Hussain**, Ishaq Ahmad Mian, Bushra Khan, Yousaf Jamal (2018) Future risk assessment by estimating historical heat wave trends with projected heat accumulation

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using SimCLIM climate model in Pakistan. *Atmospheric Research*, 205: 118-133.

(<http://www.sciencedirect.com/science/article/pii/S0169809517310992>) (Impact factor =4.676)

50. Muhammad Tariq, Shakeel Ahmad, Shah Fahad, Ghulam Abbas, **Sajjad Hussain**, Zartash Fatima, Wajid Nasim, Muhammad Mubeen, Muhammad Habib ur Rehman, Muhammad Azam Khan, Muhammad Adnan, Carol Jo Wilkerson, Gerrit Hoogenboom (2018) The impact of climate warming and crop management on phenology of sunflower-based cropping systems in Punjab, Pakistan. *Agricultural and Forest Meteorology*, 256-257: 270-282. (<https://www.sciencedirect.com/science/article/pii/S0168192318300984>) (Impact factor = 4.651)
51. Syed Bilal Hussain, Muhammad Akbar Anjum, **Sajjad Hussain**, Shaghef Ejaz, Hafiz Muhammad Kamran (2017) "Agro-climatic conditions affect fruit quality of mandarin (*Citrus reticulata* Blanco) cultivars". *Fruits*. 72(6): 341-349. (Impact factor 0.579).
52. Muhammad Saqib, Muhammad Fasih Khalid, **Sajjad Hussain**, Muhammad Akbar Anjum (2017) "Effect of water stress and different planting systems on growth, yield and quality of sweet potato". *Acta Scientiarum Polonorum Hortorum Cultus*. 16 (6): 197-206. (Impact Factor: 0.616).
53. Ghulam Abbas, Shakeel Ahmad, Ashfaq Ahmad, Wajid Nasim, Zartash Fatima, **Sajjad Hussain**, Muhammad Habib-ur-Rehman, Muhammad Azam Khan, Mirza Hasanuzzaman, Shah Fahad, Kenneth J. Boote, Gerrit Hoogenboom (2017) "Quantification the impacts of climate change and crop management on phenology of maize-based cropping system in Punjab, Pakistan". *Agricultural and Forest Meteorology*. 247: 42-55. (Impact Factor 4.651).
54. Hasan Sardar, Muhammad Asif Ali, Muhammad Akbar Anjum, Fahim Nawaz, **Sajjad Hussain**, Safina Naz, Sohail Mahmood Karimi (2017) "Agro-industrial residues influence mineral elements accumulation and nutritional composition of king oyster mushroom (*Pleurotus eryngii*)". *Scientia Horticulturae*. 225: 327-334. (Impact Factor 2.769).
55. Syed Bilal Hussain, Muhammad Akbar Anjum, **Sajjad Hussain**, Shaghef Ejaz, Maqsood Ahmed (2017) "Physico-chemical profiling of promising sweet orange cultivars grown under different agro-climatic conditions of Pakistan". *Erwerbs-Obstbau*. 59:315-324. (Impact Factor 1.044).

Sajjad Hussain

Citrus Center, Texas A&M Kingsville

56. Maqsood Ahmed, Muhammad Akbar Anjum, **Sajjad Hussain**, Shaghef Ejaz, Shakeel Ahmad, Sezai Ercisli (2017) "Biodiversity in indigenous germplasm of *Pyrus* from Pakistan based on phenotypical and morphological traits". *Erwerbs-Obstbau*. 59: 19-27. (Impact Factor 1.044).
57. Abdur Rehman, Mubshar Hussain, **Sajjad Hussain**, Sibgha Noreen, Hülya Doğan, Muhammad Zia-Ul-Haq and Shakeel Ahmad (2016) "Band application of phosphorus with farm manure improves phosphorus use efficiency, productivity and net returns of wheat on sandy clay loam soil". *Turkish Journal of Agriculture and Forestry*. 40: 319-326. (Impact Factor 1.660).
58. Ghulam Mustafa, Muhammad Arif Ali, Muhammad Abid, Sajid Masood, Niaz Ahmad, Muhammad Aamer, Muhammad Farooq Qayyum and **Sajjad Hussain** (2016) "Comparison of various potting media for their influence on nutrients supply, germination, and growth of muskmelon (*Cucumis melo* L.) seedlings". *Compost Science & Utilization*. 24: 61-71. (Impact Factor 0.969).
59. Hafiz Muhammad Masroor, Muhammad Akbar Anjum, **Sajjad Hussain**, Shaghef Ejaz, Shakeel Ahmad, Sezai Ercisli and Muhammad Zia-Ul-Haq (2016) "Zinc ameliorates fruit yield and quality of mangoes cultivated in calcareous soils". *Erwerbs-Obstbau*. 58:49–55 (Impact Factor 1.044).
60. Hajra Nisar, Maqsood Ahmed, **Sajjad Hussain** and Muhammad Akbar Anjum (2015) "Biodiversity in morpho-physiological characteristics of indigenous plum germplasm from Azad Jammu and Kashmir, Pakistan". *Zemdirbyste-Agriculture*. 102 (4): 423-430. (Impact Factor 0.833).
61. Shakeel Ahmad, Ilyas Raza, Dilbaugh Muhammad, Hakoomat Ali, **Sajjad Hussain**, Hülya Doğan and Muhammad Zia-ul-haq (2015) "Radiation, water and nitrogen use efficiencies of *Gossypium hirsutum* L". *Turkish Journal of Agriculture and Forestry*. 39: 825-837. (Impact Factor 1.660).
62. **Sajjad Hussain**, Raphaël Morillon, Muhammad Akbar Anjum, Patrick Ollitrault, Gilles Costantino and François Luro (2015) "Genetic diversity revealed by physiological behavior of citrus genotypes subjected to salt stress". *Acta Physiologiae Plantarum*. 37: 1740-1744. (Impact Factor 1.760).
63. Muhammad Akbar Anjum, Syed Ali Qasim, Shakeel Ahmed and **Sajjad Hussain** (2015) "Assessment of advantages of pea and non-legume winter vegetable intercropping systems

Sajjad Hussain

Citrus Center, Texas A&M Kingsville

through competition and economic indices". *Experimental Agriculture*. 51 (3): 327–343.

**(Impact Factor 1.396).**

64. Hajra Nisar, Maqsood Ahmed, Muhammad Akbar Anjum and **Sajjad Hussain (2015)** "Genetic diversity in fruit nutritional composition, anthocyanins, phenolics and antioxidant capacity of plum (*Prunus domestica*) genotypes". *Acta Scientiarum Polonorum Hortorum Cultus*. 14(1): 45-61. **(Impact Factor: 0.616).**
65. Syed Fahad, Khalid Masood Ahmad, Muhammad Akbar Anjum and **Sajjad Hussain (2014)** "The effect of micronutrients (B, Zn and Fe) foliar application on the growth, flowering and corm production of gladiolus (*gladiolus grandiflorus* L.) in calcareous soils". *Journal of Agricultural Science and Technology*. 16: 1671-1682. **(Impact Factor: 0.897)**
66. Maqsood Ahmed, Muhammad Akbar Anjum, Kashif Khaqan and **Sajjad Hussain (2014)** "Biodiversity in morphological and physico-chemical characteristics of wild raspberry (*Rubus idaeus* L.) germplasm collected from temperate region of Azad Jammu & Kashmir (Pakistan)". *Acta Scientiarum Polonorum Hortorum Cultus*. 13(4): 117-134. **(Impact Factor: 0.616)**
67. Syed Ali Qasim, Muhammad Akbar Anjum, **Sajjad Hussain** and Shakeel Ahmad **(2013)** "Effect of pea intercropping on biological efficiencies and economics of some non-legume winter vegetables". *Pakistan Journal of Agricultural Sciences*. 50 (3): 399-406. **(Impact factor: 0.663)**
68. **Sajjad Hussain**, Franck Curk, Muhammad Akbar Anjum, Olivia Pailly and Gilles Tison **(2013)** "Performance evaluation of common clementine on various citrus rootstocks". *Scientia Horticulturae*. 150: 278-282. **(Impact Factor: 2.769)**
69. Maqsood Ahmed, Muhammad Akbar Anjum, Raja Mohib, Muazzam Naz, Muhammad Riaz Khan and **Sajjad Hussain (2013)** "Characterization of indigenous barberry germplasm: variability in morphological characteristics and nutritional composition". *Fruits*. 68 (5): 409-422. **(Impact factor: 0.579)**
70. **Sajjad Hussain**, François Luro, Gille Costantino, Patrick Ollitrault, Raphaël Morillon **(2012)** "Physiological analysis of salt stress behavior of citrus species and genera: low chloride accumulation is an indicator of salt tolerance". *South African Journal of Botany*. 81: 103-112. **(Impact factor: 1.792)**

Sajjad Hussain

Citrus Center, Texas A&M Kingsville

**71. Sajjad Hussain**, Frank Curk, Claudie Dhuique-Mayer, Laurent Urban, Patrick Ollitrault, François Luro, Raphaël Morillon **(2012)** "Autotetraploid trifoliate orange (*Poncirus trifoliata*) rootstocks do not impact clementine quality but reduce fruit yields and highly modify rootstock/scion physiology". *Scientia Horticulturae*. 134: 100-107. **(Impact Factor: 2.769)**

**72. Sajjad Hussain**, Franck Curk, Patrick Ollitrault, Raphaël Morillon, François Luro **(2011)** "Facultative apomixis and chromosome doubling are heterogeneity sources in citrus rootstock trials: impact on clementine production and breeding selection". *Scientia Horticulturae*. 130: 815-819. **(Impact Factor: 2.769)**.

### **Publication in Non-Impact factor Journals**

1. Ehsan-Ul-Haque, Akbar Hayat, Muhammad Asim, **Sajjad Hussain**, Muhammad Shakeel Hanif, Muhammad Zubair, Muhammad Abdullah Jamil, Faheem Khadija **(2020)** Comparative Nutritional and Storage Study of two Mandarin Varieties by Application of Various Salts Incorporated in Wax. *Journal of Innovative Sciences*, 6(1): 66-76.
2. Sajid Ali, Muhammad Akbar Anjum, Aamir Nawaz, Safina Naz, **Sajjad Hussain** and Shaghef Ejaz **(2019)** Effect of Brassinosteroids on postharvest physiology of horticultural crops: A concise review. *Journal of Horticultural Sciences and Technology*, 2 (3): 62-68.
3. Jahanzaib Qamar, Shaghef Ejaz, Muhammad Akbar Anjum, Aamir Nawaz, **Sajjad Hussain**, Sajid Ali and Shehzad Saleem **(2018)** Effect of Aloe vera gel, chitosan and sodium alginate based edible coating on postharvest quality of refrigerated strawberry fruits of cv. Chandler. *Journal of Horticultural Sciences and Technology*, 1 (1): 8-16.
4. Muhammad Fasih Khalid, **Sajjad Hussain**, Muhammad Akbar Anjum, Shakeel Ahmad, Shaghef Ejaz, Muhammad Arif Ali, Abdur Rahim, Muhammad Saqib **(2017)** Physico-Chemical Profiling of Promising Cultivars of Litchi (*Litchi chinensis* Sonn.) Fruit Grown under Agro-Climatic Conditions of Multan. *Science, Technology and Development*, 36 (3): 183-188, 2017.
5. Maqsood Ahmed, Nadra Khan, Ishfaq Ahmed Hafiz, Nadeem Akhtar Abbasi, Muhammad Akbar Anjum and **Sajjad Hussain (2015)** Effect of various factors on the efficiency of agrobacterium-mediated transformation of grape (*Vitis vinifera* L.). *Vegetos*, Vol. 28 (1) Pages 171-178.
6. Mateen Sajid, Muhammad Akbar Anjum and **Sajjad hussain** 2015 Foliar application of plant

Sajjad Hussain

Citrus Center, Texas A&M Kingsville

growth regulators affects growth, flowering, vase life and corm production of *gladiolus grandiflorus* L. under calcareous soil. Bulgarian Journal of Agricultural Science, 21 (5), Pages 982-989.

## POPULAR ARTICLES:

1. "New salt stress tolerant citrus rootstocks" by François Luro and **Sajjad Hussain** (published on 12/02/2011) <http://www.inra.fr/en/Partners-and-Agribusiness/Results-Innovations-Transfer/All-the-news/New-salt-stress-tolerant-citrus-rootstocks>

## CHAPTERS IN EDITED BOOKS INTERNATIONAL:

1. Khalid, M.F., Saleem, M.S., Zakir, I., Khan, R.I., Sohail, M., Ejaz, S., Anjum, M.A., Sabir, S., Ali, S., Ahmad, S., **Hussain, S.**, 2023. Salicylic acid induced abiotic stress tolerance in plants. In: Ghorbanpour, M., Shahid, M.A. (Eds.), Plant Stress Mitigators. Elsevier, pp. 57-67.
2. Khalid, M.F., Zakir, I., Khan, R.I., Irum, S., Sabir, S., Zafar, N., Ahmad, S., Abbas, M., Ahmed, T., **Hussain, S.**, 2023. Effect of Water Stress (Drought and Waterlogging) on Medicinal Plants. In: Husen, A., Iqbal, M. (Eds.), Medicinal Plants: Their Response to Abiotic Stress. Springer Nature Singapore, Singapore, pp. 169-182.
3. Curk F., Luro F., **Hussain S.**, Ollitrault P., 2022. Citrus origins. In: Hussain S., Khalid M.F., Ali M.A., Ahmed N., Ahmad S., Hasanuzzaman, M., (Eds), Citrus Production: *Technological Advancements and Adaptation to Climate Change*. Taylor & Francis, CRC Press, pp. 1-21.
4. Oustric J., Morillon M., Santini J., **Hussain S.**, Ruiz M., 2022. Challenges and advances in citrus breeding: Polyploidy manipulation for better production. In: Hussain S., Khalid M.F., Ali M.A., Ahmed N., Ahmad S., Hasanuzzaman, M., (Eds), Citrus Production: *Technological Advancements and Adaptation to Climate Change*. Taylor & Francis, CRC Press, pp. 51-72.
5. Khalid M.F., *Shafqat W.*, Khan R. I., *Abbas M.*, Ahmed T., Ullah S., Ahmad S., **Hussain S.**, 2022. Citrus responses and tolerance against temperature stress. In: Hussain S., Khalid M.F., Ali M.A., Ahmed N., Ahmad S., Hasanuzzaman, M., (Eds), Citrus Production: *Technological Advancements and Adaptation to Climate Change*. Taylor & Francis, CRC Press, pp. 149-155.
6. Rao M. J., Wang L., Ahmed U., Hussain M., **Hussain S.**, 2022. Citrus metabolic and antioxidant responses to high light stress. In: Hussain S., Khalid M.F., Ali M.A., Ahmed N.,



Sajjad Hussain

Citrus Center, Texas A&M Kingsville

Ahmad S., Hasanuzzaman, M., (Eds), Citrus Production: *Technological Advancements and Adaptation to Climate Change*. Taylor & Francis, CRC Press, pp. 167-179.

7. Ilyas F., Ali M. A., Ahmed N., Arshad M., **Hussain S.**, Ahmad S., Riaz M., Haider I., Ullah H.H., Bilal M., 2022. Importance of soil microbes in improving citrus production: Excellence of mycorrhizal fungi. In: Hussain S., Khalid M.F., Ali M.A., Ahmed N., Ahmad S., Hasanuzzaman, M., (Eds), Citrus Production: *Technological Advancements and Adaptation to Climate Change*. Taylor & Francis, In Press.
8. Ali, S., Anjum, M.A., Ejaz, S., Hasan, M.U., Nawaz, A., **Hussain, S.**, Shafique, M., 2022. Natural Preservatives for Improvement of Shelf Life. In: Dar, B.N., Shah, M.A., Mir, S.A. (Eds.), Shelf Life and Food Safety. CRC Press, pp. 227-252.
9. Ali, S., Nawaz, A., Naz, S., Ejaz, S., **Hussain, S.**, Anwar, R., 2022. Decontamination of Microgreens. In: Shah, M.A., Mir, S.A. (Eds.), Microbial Decontamination of Food. Springer Nature Singapore, Singapore, pp. 125-143.
10. Ali S., Khan A.S., Anjum M.A., Ejaz S., Khaliq G., **Hussain S.**, Ahmad R., Saleem M.S., 2022. Pre- and post-harvest physiological disorders of citrus fruit. In: Hussain S., Khalid M.F., Ali M.A., Ahmed N., Ahmad S., Hasanuzzaman, M., (Eds), Citrus Production: *Technological Advancements and Adaptation to Climate Change*. Taylor & Francis, In Press.
11. Khalid, M.F., **Hussain, S.**, Fadli, A., Shahzad, F., Anjum, M.A., Zakir, I., Ahmad, S., 2021. Hydrogen sulfide and lateral root development in plants under stress. In: Singh, S., Singh, V.P., Tripathi, D.K., Prasad, S.M., Chauhan, D.K., Dubey, N.K. (Eds.), Hydrogen Sulfide in Plant Biology. Academic Press, pp. 103-111.
12. Ali, S., Anjum, M.A., Nawaz, A., Naz, S., Ejaz, S., Ahmad, S., **Hussain, S.**, 2021. Role of reactive nitrogen species in mitigating organic pollutant-induced plant damages. In: Hasanuzzaman, M., Prasad, M.N.V. (Eds.), Handbook of Bioremediation. Academic Press, pp. 493-503.
13. **Hussain S.**, khalid M.F., Sohail M., Anjum M.A., Ejaz S., Nafees M., Zakir I., Ahmad M., Ali S., Ahmad S., 2020. Role of transporters in accumulating salt ions by halophytes. In: Hasanuzzaman, M., (Eds), Approaches to the remediation of inorganic pollutants. Springer Nature Singapore. Pp. 11-40.
14. Gul I., Iqar, I., Manzoor, M., Ali M.A., Arshad M., Ahmad S., **Hussain S.**, Ahmad N., Ilyas F., 2020. Molecular basis of plant-microbes interaction in remediating metals and inorganic

Sajjad Hussain

Citrus Center, Texas A&M Kingsville

- pollutants. In: Hasanuzzaman, M., (Eds), Approaches to the remediation of inorganic pollutants. Springer Nature Singapore. Pp. 385-403.
15. Ali S., Anjum M.A., Nawaz A., Naz S., Ejaz S., Ahmad S., **Hussain S.**, 2020. Role of reactive nitrogen species in mitigating organic pollutants-induced plant damages. In: Hasanuzzaman, M., Prasad, M.N.V. (Eds), Handbook of Bioremediation. Academic Press. Pp. 493-503.
  16. Ejaz S., Fahad S., Anjum M.A., Nawaz A., Naz S., **Hussain S.**, Ahmad S., 2020. Role of Osmolytes in the Mechanisms of Antioxidant Defense of Plants. In: Lichtfouse E. (eds.) Sustainable Agriculture Reviews 39. Springer, Cham
  17. Ali M.A. Ilyas F., Arshad M., **Hussain S.**, Iqbal M., Ahmad S., Saboor A., Mustafa G., Ahmad N. 2019. Microbial Inoculation of Seeds for Better Plant Growth and Productivity. In: Hasanuzzaman M., Fotopoulos V. (Eds). Priming and Pretreatment of Seeds and Seedlings: *Implication in Plant Stress Tolerance and Enhancing Productivity in Crop Plants*. Springer, Singapore. Pp 523-550.
  18. Haider I., Akmal M., Shakeel M.T., Ahmad S., Ahmad N., **Hussain S.**, Bilal M., Ali M.A. 2019. Improving Antioxidant Defense in Plants Through Seed Priming and Seedling Pretreatment. In: Hasanuzzaman M., Fotopoulos V. (Eds). Priming and Pretreatment of Seeds and Seedlings: *Implication in Plant Stress Tolerance and Enhancing Productivity in Crop Plants*. Springer, Singapore. Pp 595-604.
  19. Khalid M.F., **Hussain S.**, Anjum M.A., Ejaz S., Ahmad M., Jan M., Zafar S., Zakir I., Ali M.A., Ahmad N., Rao M.J., Ahmad S., 2019. Hydropriming for Plant Growth and Stress Tolerance. In: Hasanuzzaman M., Fotopoulos V. (Eds). Priming and Pretreatment of Seeds and Seedlings: *Implication in Plant Stress Tolerance and Enhancing Productivity in Crop Plants*. Springer, Singapore. Pp 373-384.
  20. Shakeel M.T., Parveen R., Haider I., Arshad M., Ahmad S., Ahmad N., **Hussain S.**, Riaz M., Ali M.A. 2019. Seed Pretreatment as a Means to Achieve Pathogen Control. In: Hasanuzzaman M., Fotopoulos V. (Eds). Priming and Pretreatment of Seeds and Seedlings: *Implication in Plant Stress Tolerance and Enhancing Productivity in Crop Plants*. Springer, Singapore. Pp 363-371.
  21. Mustafa G., Masood S., Ahmad N., Saboor A., Ahmad S., **Hussain S.**, Bilal M., Ali M.A. 2019. Seed Priming for Disease Resistance in Plants. In: Hasanuzzaman M., Fotopoulos V. (Eds).

- Priming and Pretreatment of Seeds and Seedlings: *Implication in Plant Stress Tolerance and Enhancing Productivity in Crop Plants*. Springer, Singapore. Pp 333-362.
- 22.** Saboor A., Mustafa G., Arshad M., **Hussain S.**, Ahmad N., Ahmad S., Shahid M., Ali M.A. 2019. Priming and Metal/Metalloid Stress Tolerance in Plants. In: Hasanuzzaman M., Fotopoulos V. (Eds). Priming and Pretreatment of Seeds and Seedlings: *Implication in Plant Stress Tolerance and Enhancing Productivity in Crop Plants*. Springer, Singapore. Pp 287-311.
- 23.** Rao M.J., **Hussain S.**, Anjum M.A., Saqib M., Ahmad R., Khalid M.F., Sohail M., Nafees M., Ali M.A., Ahmad N., Zakir I., Ahmad S., 2019. Effect of Seed Priming on Seed Dormancy and Vigor. In: Hasanuzzaman M., Fotopoulos V. (Eds) Priming and Pretreatment of Seeds and Seedlings: *Implication in Plant Stress Tolerance and Enhancing Productivity in Crop Plants*. Springer, Singapore. Pp 135-145
- 24.** Ejaz S., Anjum M.A., **Hussain S.**, Azam M., Ali S., Ahmad S., 2019. Pretreatment of Seedlings with Exogenous Protectants for Abiotic Stress Tolerance. In: Hasanuzzaman M., Fotopoulos V. (Eds) Priming and Pretreatment of Seeds and Seedlings: *Implication in Plant Stress Tolerance and Enhancing Productivity in Crop Plants*. Springer, Singapore. Pp 573-593. ([https://link.springer.com/chapter/10.1007/978-981-13-8625-1\\_28](https://link.springer.com/chapter/10.1007/978-981-13-8625-1_28))
- 25.** Ali S., Nawaz A., **Hussain S.**, Khan S.M., Ejaz S., Ahmad S., 2019. Abiotic Stress Tolerance in Plants by Priming and Pretreatment with Ascorbic Acid. In: Hasanuzzaman M., Fotopoulos V. (Eds) Priming and Pretreatment of Seeds and Seedlings: *Implication in Plant Stress Tolerance and Enhancing Productivity in Crop Plants*. Springer, Singapore. Pp 459-493. ([http://doi.org/10.1007/978-981-13-8625-1\\_23](http://doi.org/10.1007/978-981-13-8625-1_23))
- 26.** Ali M.A., Fahad S., Haider I., Ahmed N., Ahmad S., **Hussain S.**, Arshad M., **2019.** Oxidative stress and antioxidant defense in plants exposed to metal/metalloid toxicity. In: Reactive Oxygen, Nitrogen and Sulfur Species in Plants: Production, Metabolism, Signaling and Defense Mechanisms, Edited by Mirza Hasanuzzamn, Vasileios Fotopoulos, Kamrun Nahar, Masayuku Fujita. Chapter 15) by John Wiley and Sons, pp. 353-370. (<https://onlinelibrary.wiley.com/doi/abs/10.1002/9781119468677.ch15>)
- 27.** Nafees M., Fahad S., Shah A. N., Bukhari M.A., Maryam, Ahmed I., Ahmad S., **Hussain S.**, **2019.** Reactive Oxygen Species Signaling in Plants (Chapter 11). (Editors; Mirza Hasanuzzaman, Khalid Rehman Hakeem, Kamrun Nahar, Hesham F. Alharby Plant Abiotic Stress Tolerance:

Sajjad Hussain

Citrus Center, Texas A&M Kingsville

Agronomic, Molecular and Biotechnological Approaches. Springer Nature Switzerland AG 2019, pp. 259-272. ([https://link.springer.com/chapter/10.1007%2F978-3-030-06118-0\\_11](https://link.springer.com/chapter/10.1007%2F978-3-030-06118-0_11))

- 28. Hussain S.,** Rao M.A., Anjum M.A., Ejaz S., Zakir I., Ali M.A., Ahmad N., Nawaz A., Ahmad S., **2019.** Oxidative Stress and Antioxidant Defense in Plants Under Drought Conditions (Chapter 9). (Editors; Mirza Hasanuzzaman, Khalid Rehman Hakeem, Kamrun Nahar, Hesham F. Alharby) Plant Abiotic Stress Tolerance: Agronomic, Molecular and Biotechnological Approaches. Springer Nature Switzerland AG 2019, pp. 207-219. ([https://link.springer.com/chapter/10.1007%2F978-3-030-06118-0\\_9](https://link.springer.com/chapter/10.1007%2F978-3-030-06118-0_9))
- 29.** Ahmad R., **Hussain S.,** Anjum M.A., Khalid M.F., Saqib M., Zakir I., Hassan A., Fahad S., Ahmad S., **2019.** Oxidative Stress and Antioxidant Defense Mechanism in Plants Under Salinity Stress (Chapter 8). (Editors: Mirza Hasanuzzaman, Khalid Rehman Hakeem, Kamrun Nahar, Hesham F. Alharby), Plant Abiotic Stress Tolerance: Agronomic, Molecular and Biotechnological Approaches. Springer Nature Switzerland AG 2019, pp. 191-205. ([https://link.springer.com/chapter/10.1007%2F978-3-030-06118-0\\_8](https://link.springer.com/chapter/10.1007%2F978-3-030-06118-0_8))
- 30.** Ejaz S., **Hussain S.,** Anjum M.A., Ahmad S., **2019.** Application of Osmolytes in Improving Abiotic Stress Tolerance in Plants. In: Plants Tolerance to Environmental Stress: Role of Phtoprotectants (Chapter 4) (Editors: Mirza Hasanuzzaman, Masayuki Fujita, Hirosuke Oku, and M. Tofazzal Islam) CRC Press, Taylor Francis Book, pp. 47-58. (<https://www.crcpress.com/Plant-Tolerance-to-Environmental-Stress-Role-of-Phytoprotectants/Hasanuzzaman-Fujita-Oku-Islam/p/book/9781138559172>).
- 31.** Khalid M.F., **Hussain S.,** Ahmad S., Ejaz S., Zakir I., Ali M.A., Ahmed N., Anjum M.A., **2019.** Impacts of Abiotic Stresses on Growth and Developments of Plants. In: Plants Tolerance to Environmental Stress: Role of Phtoprotectants (Chapter 1) (Editors: Mirza Hasanuzzaman, Masayuki Fujita, Hirosuke Oku, and M. Tofazzal Islam) CRC Press, Taylor Francis Book, pp. 1-8. (<https://www.crcpress.com/Plant-Tolerance-to-Environmental-Stress-Role-of-Phytoprotectants/Hasanuzzaman-Fujita-Oku-Islam/p/book/9781138559172>).
- 32. Hussain S.,** Khalid M.F., Hussain M., Ali M.A., Nawaz A., Zakir I., Fatima Z., Ahmad S., **2018.** Role of Micronutrients in Salt Stress Tolerance to Plants. In: Plant Nutrients and Abiotic Stress Tolerance. (Chapter 15) (Editors: Mirza Hasanuzzaman, Masayuki Fujita, Hirosuke Oku,

Sajjad Hussain

Citrus Center, Texas A&M Kingsville

Kamrun Nahar, Barbara Hawrylak-Nowak). Pp. 363-376. DOI: 10.1007/978-981-10-9044-8, Springer Singapor. (<https://www.springer.com/la/book/9789811090431>)

- 33.** Farooq S., Ahmad S., **Hussain S.**, Hussain M., **2018**. Nutrient Homeostasis and Salt Stress Tolerance. In: Plant Nutrients and Abiotic Stress Tolerance (Chapter 17) (Editors: Mirza Hasanuzzaman, Masayuki Fujita, Hirosuke Oku, Kamrun Nahar, Barbara Hawrylak-Nowak). Pp. 391-413. DOI: 10.1007/978-981-10-9044-8, Springer Singapor. (<https://www.springer.com/la/book/9789811090431>)

### **ABSTRACTS PUBLISHED:**

- 1.** **Hussain**, S., Anjum, M.A. and Morillon, R. 2014. Citrus diversity investigated by physiological behavior of plants under salt stress growth conditions. Abstract Book International Conference on "Stress Biology and Biotechnology: Challenges & Management", May 21-23, 2014. Institute of Agricultural Sciences, University of the Punjab, Lahore, p. 31.
- 2.** Anjum, M.A., Masroor, H.M., **Hussain**, S. and Ejaz, S. 2014. Zinc application influences flowering, fruit yield and quality of mango. Abstracts World Mango Conference, June 24-25, 2014. College of Agriculture and Environmental Sciences, The Islamia University of Bahawalpur, p. 43.
- 3.** **Hussain**, S., Junaaid, H.M., Ejaz, S. and Anjum, M.A. 2014. Effect of manganese and its methods of application on fruit yield and quality of mango cv. Samar Bahisht Chaunsa. Abstracts World Mango Conference, June 24-25, 2014. College of Agriculture and Environmental Sciences, The Islamia University of Bahawalpur, p. 17.
- 4.** **Hussain**, S.B., Anjum, M.A., **Hussain**, S., Ejaz, S. and Kamran, H.M. 2015. Physico-Chemical Profiling of Promising Sweet Orange Cultivars Grown under Different Agro-Climatic Conditions of Punjab. International Conference on Citriculture: Challenges and Management, February 11-13, 2015. Bahauddin Zakariya University, Multan, p. 52.
- 5.** **Hussain**, S.B., Anjum, M.A., **Hussain**, S., Ejaz, S. and Kamran, H.M. 2015. Agro-Climatic Conditions Affect Fruit Quality of Mandarins (*Citrus reticulata* Blanco) Cultivars. International Conference on Citriculture: Challenges and Management, February 11-13, 2015. Bahauddin Zakariya University, Multan, p. 123.

6. Azam, M., Ahamd, W., Anjum, M.A., **Hussain**, S.B., Khalid, M.S., Saeed, K. and Raza, A. 2015. Implementation of GlobalGAP Standards for High Yield, Safe and Better Quality of Citrus cv. Kinnow. International Conference on Citriculture: Challenges and Management, February 11-13, 2015. Bahauddin Zakariya University, Multan, p. 13.
7. Azam, M., Anjum, M.A., **Hussain**, S.B., Khalid, M.S., Saeed, K. and Raza, A. 2015. Evaluation of Nutritional Status of Soil and Leaf from Citrus Orchard. International Conference on Citriculture: Challenges and Management, February 11-13, 2015. Bahauddin Zakariya University, Multan, p. 113.
8. Tahir, M.T., Anjum, M.A., **Hussain**, S.B., **Hussain**, S. and Ejaz, S. 2016. Effect of seed priming and foliar application of plant growth regulators on growth and yield of three okra (*Abelmoschus esculentus* L. Moench) cultivars. 2<sup>nd</sup> International Conference on Horticultural Sciences "Production Challenges and Food security" Organized by Institute of Horticultural Science and Horticultural Research Institute, held on February 18 – 20, 2016 at University of Agriculture, Faisalabad, Pakistan, p. 119.
9. Khalid, M.F., **Hussain**, S., Anjum, M.A., Ejaz, S. and Naveed, F. 2016. Physico-chemical profiling of promising litchi (*Litchi chinensis* Sonn.) fruit grown under agro-climatic conditions of Multan. 2<sup>nd</sup> International Conference on Horticultural Sciences "Production Challenges and Food security" Organized by Institute of Horticultural Science and Horticultural Research Institute, held on February 18 – 20, 2016 at University of Agriculture, Faisalabad, Pakistan, p. 93.
10. Anjum, M.A., **Hussain**, S., Arshad, P. and Hassan, A. 2018. Irrigation water quality affects physico-chemical attributes and heavy metals contents in guava fruits. Abstract Book National Symposium on Soil Plant Water Interactions for Orchards Management under Changing Climate, held on May 9-11, 2018 at The University of Haripur, p. 22.
11. **Hussain**, S., Sohail, H., Noor, I., Khalid, M.F., Tahira, M., Nawaz, A. and Anjum, M.A. 2018. Response of diploid and autotetraploid sour orange (*Citrus aurantium*) rootstocks to drought conditions. Abstract Book National Symposium on Soil Plant Water Interactions for Orchards Management under Changing Climate, held on May 9-11, 2018 at The University of Haripur, p. 7.
12. Khalid, M.F., **Hussain**, S., Saqib, M., Ahmad, R., Ejaz, S., Naveed, F., Nawaz, A., Ahmad, S. and Anjum, M.A. 2018. Response of diploid and autotetraploid volkameriana lemon rootstocks

- under salt stress conditions. Abstracts International Horticulture Conference, Pakistan 2018, held on April 25-27, 2018 at PMAS-Arid Agriculture University, Rawalpindi, Pakistan, p. 30.
13. Ahmad, R., Malik, W., Anjum, M.A., **Hussain**, S., Saqib, M. and Khalid, F. 2018. Morphological characterization of Indian jujube (*Zizyphus mauritiana* L.) germplasm through digital imaging and biplot analysis. Abstracts International Horticulture Conference, Pakistan 2018, held on April 25-27, 2018 at PMAS-Arid Agriculture University, Rawalpindi, Pakistan, p. 48.
  14. Ahmad, R., Anjum, M.A., Malik, W., **Hussain**, S., Sardar, H., Saqib, M. and Khalid, F. 2018. Biodiversity in physico-chemical attributes of Indian jujube (*Zizyphus mauritiana* L.) germplasm revealed through principal component analysis. Abstracts International Horticulture Conference, Pakistan 2018, held on April 25-27, 2018 at PMAS-Arid Agriculture University, Rawalpindi, Pakistan, p. 49.
  15. Anjum, M.A., **Hussain**, S., Arshad, P. and Hassan, A. 2018. Effect of different sources of irrigation water on fruit quality and heavy metals contamination in mango. Abstracts International Horticulture Conference, Pakistan 2018, held on April 25-27, 2018 at PMAS-Arid Agriculture University, Rawalpindi, Pakistan, p. 72.
  16. Saqib, M., Anjum, M.A., Ahmad, R., **Hussain**, S., Naz, S. and Khalid, F. 2018. Leguminous cluster bean affects the performance and economics of intercropped non-leguminous okra and chilies. Abstracts International Horticulture Conference, Pakistan 2018, held on April 25-27, 2018 at PMAS-Arid Agriculture University, Rawalpindi, Pakistan, p. 78.
  17. Saleem, S., Ejaz, S., Anjum, M.A., Nawaz, A., Naz, S. and **Hussain**, S. 2018. Fortification of chitosan based coating with calcium and ascorbic acid increases cold storage life of low-chilling strawberry cultivar fruits. Abstracts International Horticulture Conference, Pakistan 2018, held on April 25-27, 2018 at PMAS-Arid Agriculture University, Rawalpindi, Pakistan, p. 119.
  18. Munawar, S., Ejaz, S., Anjum, M.A., Nawaz, A., Naz, S., **Hussain**, S. and Saleem, S. 2018. Sodium alginate coatings fortified with ascorbic acid and calcium improves the storage life and postharvest quality of strawberry fruits. Abstracts International Horticulture Conference, Pakistan 2018, held on April 25-27, 2018 at PMAS-Arid Agriculture University, Rawalpindi, Pakistan, p. 129.
  19. Anjum, M.A., **Hussain**, S., Hassan, A. and Arshad, P. 2018. Irrigation water quality affects fruit physico-chemical attributes and heavy metals contents in jaman and falsa. Abstracts

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- International Horticulture Conference, Pakistan 2018, held on April 25-27, 2018 at PMAS-Arid Agriculture University, Rawalpindi, Pakistan, p. 145.
20. Ahmad, R., Anjum, M.A., Malik, W., Haider, S.A., Saqib, M., **Hussain**, S., and Khalid, M.F. 2018. Physico-chemical attributes of dried Indian jujube fruits as affected by different drying methods. Abstracts International Horticulture Conference, Pakistan 2018, held on April 25-27, 2018 at PMAS-Arid Agriculture University, Rawalpindi, Pakistan, p. 161.
  21. Ali, S., Khan, A.S., Nawaz, A., Anjum, M.A., Naz, S., **Hussain**, S., Ejaz, S. and Sardar, H. 2019. Modified atmosphere packaging delays enzymatic browning and maintains quality of harvested litchi fruits during low temperature storage. Abstract Book International Horticulture Conference Pakistan 2019, held on February 26-28, 2019 at Bahauddin Zakariya University, Multan, Pakistan, p. 138.
  22. Nazir, M.M., Ejaz, S., Saeed, Q., Anjum, M.A., Nawaz, A., Naz, S., **Hussain**, S., Zaka, S.M. and Ali, S. 2019. Use of garlic extract as a botanical to reduce post-harvest losses due to *Tribolium castaneum* pests in stored almond. Abstract Book International Horticulture Conference Pakistan 2019, held on February 26-28, 2019 at Bahauddin Zakariya University, Multan, Pakistan, p. 200.
  23. Tahira, M., **Hussain**, S., Anjum, M.A., Nawaz, A., Naveed, F., Naz, S., Masood, K., Ejaz, S., Sardar, H., Haider, S.T.A., Ali, S., Sohail, M. and Khalid, M.F. 2019. Water logging induced changes in oxidative stress and antioxidant enzymes activities in grafted and non-grafted citrus rootstocks. Abstract Book International Horticulture Conference Pakistan 2019, held on February 26-28, 2019 at Bahauddin Zakariya University, Multan, Pakistan, p. 204.
  24. **Hussain**, S., Asif, H.M., Anjum, M.A., Naveed, F., Nawaz, A., Naz, S., Ahmad, K.M., Ejaz, S., Haider, S.T.A., Sardar, H. and Ali, S. 2020. Alleviation of salt stress in *Trigonella (foenum-graecum L.)* through different seed priming techniques. Abstract Book International Horticulture Conference 2020, held on February 26-28, 2020 at the Institute of Agricultural Sciences, University of the Punjab, Lahore, Pakistan, p. 64.
  25. Khalid, M.F., Anjum, M.A. and **Hussain**, S. 2020. Kinnow mandarin grafted on tetraploid (4x) volkamer lemon rootstock tolerates more under moderate and high salinity. The Ohio State University's 2020 Plant Sciences Symposium (PSS), Columbus, Ohio. (*Virtual-Poster presentation*).



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26. Khalid, M.F., **Hussain**, S., Anjum, M.A., Vincent, C., Ahmad, S., Ali, M.A. and Morillon, R. 2020. Water use pattern and intrinsic antioxidant machinery confer tetraploid volkamer lemon tolerance to various water-deficit scenarios. Southern Region American Society Horticultural Science, Louisville, Kentucky, 2020. (*Oral Presentation*).

## RESEARCH PROJECTS:

### Projects awarded as Principal Investigator

Date of award	Title	Sponsoring Agency/Organization	Amount in Rupees
2018	Physiological and molecular determinants of salt and water deficit stress in citrus: Study on diploid and corresponding autotetraploid volkameriana lemon and sour orange rootstocks and their compatibility with Kinnow	Higher Education Commission (HEC) Pakistan	3.463 (millions)
2017	Performance of diploid and autotetraploid sour orange rootstocks under water deficit conditions	Bahauddin Zakariya University Multan Pakistan	0.200 (millions)
2016	Physiological and biochemical responses of different citrus rootstocks under drought stress	Bahauddin Zakariya University Multan Pakistan	0.150 (millions)
2015	Effect of different antibodies to control/suppress the HLB in kinnow orchard	Bahauddin Zakariya University Multan Pakistan	0.148 (millions)
2014	Assessment of diversity in physico-chemical composition of fruits of different litchi ( <i>Litchi chinensis</i> Sonn.) cultivars grown under agro-climatic conditions of Multan	Bahauddin Zakariya University Multan Pakistan	0.099 (millions)
2013	Molecular & physiological determinants of salt tolerance in citrus	Higher Education Commission (HEC) Pakistan	0.485 (millions)

### Projects awarded as Co-Principal Investigator

Date of award	Title	Sponsoring Agency/Organization	Amount in Rs
2018	Improving Mango Productivity and Fruit Quality by Integrated Plant Nutrition, including Micronutrients, in Mango Growing Areas of Multan, Muzafargarh, Rahim Yar Khan and Mirpur Khas districts	PARC-ALP	5.08 (million)

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2018	Improving citrus productivity and fruit quality by integrated plant nutrition, including micronutrients	Higher Education Commission of Pakistan	3.67 (millions)
2018	Up and down regulation of zinc uptake in plants by arbuscular mycorrhizal fungi for improving crop productivity	Higher Education Commission of Pakistan	2.82 (millions)
2016	Toxicological and biochemical studies on selected fruits grown in peri-urban areas of Multan	Higher Education Commission of Pakistan	6.53 (millions)

### STUDENT SUPERVISION:

Ph.D. student's supervised:

Total Number: Three

Sr. #	Name of students	Approved Thesis Title	Status
1	Muhammad Fasih Khalid	<i>Physiological and biochemical determinants of salt and drought tolerance in dioploid and autotetraploid volkameriana citrus rootstock</i>	Completed 2021
2	Muhammad Sohail	<i>Transcriptomic, biochemical and physiological profiling of sensitive and tolerant citrus rootstocks under water deficit condition</i>	Completed 2024
3	Hafiz Hayatullah	<i>Role mycorrhiza in mitigation of water logged induced hypoxia in Diploid and tetraploid citrus rootstocks</i>	Completed 2024

Ph.D. students currently under supervision:

Total Number: One

Sr. #	Name of students	Approved Thesis Title	Status
1	Muhammad Awais Fareed	<i>Deciphering the role of Pre and Postharvest application of salicylic acid in Citrus</i>	In progress

M.Sc. (Hons.) student's supervised:

Total Number: 24

Sr. #	Name of students	Thesis title	Year of passing
1	Muhammad Arsalan Akbar	Mitigation of drought stress through foliar application of melatonin in citrus rootstock (Jatti khatti)	2022
2	Israr Ullah	Role of Ascorbic acid in recovery after drought stress in diploid and tetraploid volkamer lemon rootstocks	2022
5	Muhammad Usman haider	Role of H <sub>2</sub> O <sub>2</sub> in mitigation of drought stress in Volkamer lemon rootstock.	2021
4	Ans Waseem	Postharvest quality management of tomato with prestorage application of calcium chloride, sodium bicarbonate and salicylic acid	2021

6	Fazeel Ahmad	Physiological and biochemical responses of sensitive and tolerant citrus rootstocks under individual and combine stress of drought and salinity	2021
7	Mudassir Ahmad	Physiological and biochemical determinants of Cadmium (Cd) stress in citrus rootstocks	2021
8	Rana Afzaal Ahmad	Effect of different irrigation regimes on fruit yield and quality of Kinnow	2021
9	Hamza Rabbani	Alleviation of drought stress of citrus rootstocks through foliar application of <i>Trapa natans</i> L.	2021
10	Usman Irshad	Arbuscular mycorrhizal symbiosis enhance the tolerance in citrus rootstocks against salt stress	2020
11	Mehwish jan	The impact of Arbuscular Mycorrhizal Fungi (AMF) in mitigation of drought stress effect in citrus rootstocks	2019
12	Sumaira Zafar	Increased tolerance of citrus rootstocks to waterlogging after inoculation with Arbuscular Mycorrhizal Fungi (AMF)	2019
13	Momal Batool	Protective effect of Jasmonic acid and potassium against cadmium stress in Peas ( <i>Pisum sativum</i> L.)	2019
14	Ahmad Hassan	Effect of different sources of irrigation water on quality and heavy metals content of Guava	2019
15	Maryam Tahira	Response of grafted and ungrafted citrus rootstocks under excess water condition	2018
16	Hafiza Muzamil Asif	Alleviation of salt stress in <i>Trigonella foenumgraecum</i> L. through different seed priming techniques	2018
17	Madiha Latif	Effect of photooxidative stress to leaves on Kinnow fruit quality and antioxidant enzymes	2018
18	Hamza Sohail	Effect of drought on performance of diploid and tetraploid sour orange ( <i>Citrus aurantium</i> L.) rootstocks	2017
19	Iqra Noor	Response of diploid and tetraploid sour orange ( <i>Citrus aurantium</i> L.) rootstocks to salt stress	2017
20	Muhammad Waseem Zafar	Effect of drought stress on antioxidant mechanism of different citrus rootstocks	2016
21	Muhammad Junaid Rao	Effect of antibiotics to control the Huanglongbing (HLB) in infected kinnow orchards	2016
22	Wajeeha Amin	Physico-chemical properties of Ber under different agroclimatic conditions of Pakistan	2016
23	Muhammad Fasih Khalid	Assessment of diversity in physico-chemical composition of fruits of different litchi ( <i>Litchi chinensis</i> Sonn.) cultivars grown under agro-climatic conditions of Multan	2015
24	Hafiz Muhammad Kamran	Growth & yield response of onion ( <i>Allium cepa</i> L.) cultivars to different seed priming treatments	2014
25	Hafiz Muhammad	Effect of manganese (Mn) on fruit yield and quality of	2014

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	Junaid	mango cv. Samar Bahisht Chaunsa	
Under supervision: 4			

## PROFESSIONAL TRAININGS AND FORMATIONS

1. Research capacity Building Programme for Principal Investigators by Pak-UK Education Gateway. **2022.**
2. Formation of statistics; January 9<sup>th</sup> and 11<sup>th</sup> 2008. UFR Sciences et Techniques, campus Grossetti. University of Corsica Pascal Paoli, Corsica, **France.**
3. Formation of bioinformatics; B module «Structural and functional Annotation »; January 14<sup>th</sup> to 18<sup>th</sup> 2008. GENOSCOPE, Paris, **France.**
4. Formation of Excel software (data bases); February 8<sup>th</sup> 2008; SRA INRA CIRAD of San Giuliano, **France.**
5. Formation of Scientific writing in English 6-10 July 2009; INRA de Corte. **France.**
6. Formation of Mister; 17-19 June 2009; SRA INRA CIRAD of San Giuliano, **France.**
7. French course: FLE (330 h): DELF B2: Level C1

## TRAININGS/WORKSHOPS/SEMINARS CONFERENCES AND OTHER EVENTS ORGANIZED:

1. Organized three days International Horticulture Conference February 26-28, **2019** in Bahauddin Zakariya University Multan, Pakistan in collaboration with Higher Education Commission, Islamabad.
2. Organized two days “Mango workshop and Exhibition” 13-14 July, **2017**, in Bahauddin Zakariya University Multan.
3. Organized three days International Conference on Citriculture: Challenges and Management, February 11-13, **2015** in Bahauddin Zakariya University Multan, Pakistan in collaboration with Higher Education Commission, Islamabad.

## INTERNATIONAL CONFERENCES (ORAL PRESENTATION):

1. **Sajjad Hussain**, Curk F, Tison G, Jacquemond C (2008). New rootstock evaluation for common clementine in corsica. 11<sup>th</sup> International Citrus Congress. Wuhan, China, October 26-30, 2008.
2. **Sajjad Hussain**, Francois Luro, Gille Costantino, Patrick Ollitrault, Raphael Morillon (2012).

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Physiological analysis of salt stress behavior of citrus species and genera: low chloride accumulation is an indicator of salt tolerance. 12<sup>th</sup> International Citrus Congress. Valencia, Spain, November 26-30, 2012.

3. International Science Conference on “Prospects & Challenges to Sustainable Agriculture” Faculty of Agriculture, Rawalakot, The University of Azad Jammu and Kashmir. 14-16 July 2011
4. **Sajjad Hussain**, Muhammad Akbar Anjum, Franck Curk, François Luro, Gilles Tison “Performance evaluation of common clementine on various rootstocks” 12<sup>th</sup> National and 3<sup>rd</sup> International Conference of Botany. 1–3 September 2012 Quaid-i-Azam University Islamabad, Pakistan.

### **INTERNATIONAL CONFERENCES (POSTER PRESENTATION)**

1. **Sajjad Hussain**, Raphael Morillon, Gille Costantino, Patrick Ollitrault and Francois Luro. Strategy for studying the genetic and physiological behaviors of citrus genetic resources for salt stress tolerance. Université de corse. July 2010. **Corte, France.**
2. **Sajjad Hussain**, R. Morillon, A. Palazzo, G. Costantino, A. Dubois, F. Curk, P. Ollitrault, F. Luro. Genetic and physiological behavior of citrus genetic resources to salt stress tolerance. 8<sup>th</sup> international conference Eco-physiological aspects of plant responses to stress factors. **Cracow, Poland**, September 16-19, 2009.
3. Morillon R., Allario T., Wafa Mouhaya, **Sajjad Hussain.**, Jaffuel S., Colmenero J. M, Iglesias D, Juarez J, Pina JA, Talon M, Navarro L, Ollitrault P. Tetraploidy and tolerance to environmental stresses in citrus. International conference on plant abiotic stress tolerance. February 8-11, 2009 **Vienna, Austria.**
4. Morillon R., Allario T., Mouhaya W., **Sajjad Hussain.**, Dhuique-Mayer C., Talon M., Navarro L., and P. Ollitrault. 2008- Tetraploidy and tolerance to environmental stresses in citrus. 11<sup>th</sup> International Citrus Congress. October 26-30, 2008. Wuhan, China.
5. **Sajjad Hussain**, Mouhaya W, Costantino G, Urban L, Froelicher Y, Ollitrault P, Morillon R, Luro F (2008). Genetic strategy for identification of genes involved in citrus salt stress tolerance: Status of an intergeneric genetic mapping program. EUCARPIA 18th General Congress Modern Variety Breeding for Present and Future Needs. **Valencia, Spain**, September 9-12, 2008.

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6. Euro Med dissemination Conference 11-07-2008 **Catania Italy**.

### **CONFERENCE/WORKSHOPS/SEMINARS ATTENDED:**

1. Two days “Hands on Training Workshop on CRISPR/Cas Genome Editing Technology” from 29-30 April, 2019 at Centre of Excellence in Molecular Biology, University of Punjab, Lahore, Pakistan
2. Three Days National Symposium on “Soil Plant Water Interaction for Orchards Management under Changing Climate and Agri-Tech Exhibition” from 9-11 May, 2018 at The University of Haripur, Haripur, Pakistan.
3. Two Day “International Workshop on Phytotechnologies for Environmental Cleanup” from 8-9 May, 2018 Organized by Institute of Environmental Sciences & Engineering, NUST, Pakistan
4. One day Seminar on “Technology Development Fund” on 15<sup>th</sup> May, 2018 at Bahauddin Zakariya University Multan Pakistan.
5. Three days International Horticulture Conference 25-27 April, 2018, at Department of Horticulture, Pir Maher Ali Shah Arid Agriculture University Rawalpindi, Pakistan.
6. International Seminar on “Current issues in food safety- the way forward” on 4<sup>th</sup> March, 2018, Bahauddin Zakariya University and Muhammad Nawaz Sharif university of Agriculture Multan, Pakistan.
7. One day workshop on “Fruit tree value assessment” April 18, 2018, Institute of Horticultural Sciences, University of Agriculture Faisalabad.
8. International Conference on “Climate Change Threat to Agriculture and Food Security” THINK-ADAPT, from 22-24 November, 2017 at Department of Agronomy and Climate Change Centre, The University of Agriculture, Peshawar, Pakistan.
9. 6<sup>th</sup> International Conference of Pakistan Phytopathological Society “Plant Health for Sustainable Agriculture” A focused approach for food security under changing climate, from 20-22 November, 2017 at Department of Plant Pathology, Bahauddin Zakariya University Multan, Pakistan.
10. Awareness Seminar on EU Research & Innovation Programme, Horizon-2020, 24 August, 2017 at Bahauddin Zakariya University Multan, Pakistan.
11. One day workshop on “Partial Least Square Structural Equation Modelling (PLS-SEM) using

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smart PLS”, on 21<sup>st</sup> April, 2017 at Department of Agronomy, Bahauddin Zakariya University Multan, Pakistan.

- 12.** One day Seminar “Wheat Production Challenges in Pakistan under Changing Climate”, on 07<sup>th</sup> of March, **2017** at Department of Agronomy, Bahauddin Zakariya University Multan, Pakistan.
- 13.** National Conference “Challenges and Opportunities to Boost Agriculture in Changing Climate” from 29-30, March **2017** at College of Agriculture, Bahauddin Zakariya University, Bahadur Sub-Campus Layyah, Pakistan
- 14.** Fifteen days International training on fruits production techniques for Asia organized by Research Institute of Pomology, Chinese Academy of Agricultural Sciences from 22-08-2016 to 05-09-2016 at Xingcheng City of Liaoning Province, PR China
- 15.** One day workshop on 6<sup>th</sup> May, 2016 “Discovering yourself & others” organized by Directorate of Quality Enhancement & Department of Agronomy, Bahauddin Zakariya University Multan, Pakistan.
- 16.** Three days workshop on Basic Bioinformatics from 19-21 April 2016 at Institute of Molecular Biology and Biotechnology, Bahauddin Zakariya University Multan, Pakistan.
- 17.** Three days 2<sup>nd</sup> International Conference on Horticultural Sciences: Production Challenges and Food Security, from 18-20, February 2016, at Institute of Horticultural Sciences, University of Agriculture Faisalabad, Pakistan.
- 18.** E-Learning Course on Nonchemical Pest Management in Agriculture organized by Asian Productivity Organization in Collaboration with Bahauddin Zakariya University Multan. 7-9 December 2015.
- 19.** Two days International Conference on Malnutrition in South Asia: The Peril Persists & Food Expo, 23-24, February, 2015, at Bahauddin Zakariya University Multan, Pakistan.
- 20.** One day seminar on Mango Diseases and their Management at Bahauddin Zakariya University Multan, Pakistan on 14-05-2015.
- 21.** Two days AgMIP Pakistan Mid Term Workshop and International Seminar on climate change Adaptation Strategies to Ensure Food Security at University of Agriculture Faisalabad Pakistan from 16-17 January, 2014.
- 22.** One day Workshop on “Irrigation Management Training Workshop” at Bahauddin Zakariya University Multan on 09-04-2014.

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- 23.** International Conference on “Stress Biology and Biotechnology: Challenges & Management”, May 21-23, 2014. Institute of Agricultural Sciences, University of the Punjab, Lahore.
- 24.** World Mango Conference, June 24-25, 2014. College of Agriculture and Environmental Sciences, The Islamia University of Bahawalpur.
- 25.** Two days workshop on “Simulation Modeling: A Decision Support System for Agro-Technology Transfer for Improving the Standards of Research” at Faculty of Agricultural Sciences and Technology, Bahauddin Zakariya University, Multan from 4-5 March, 2013.
- 26.** Two days workshop on “Agricultural Modeling Inter-comparison and Improvement Project (AgMIP) Kickoff Workshop” at University of Agriculture Faisalabad from 04-06 June, 2013.
- 27.** Workshop on “Modern Corn Technologies” organized by Monasanto Pakistan (Pvt.) Ltd. and Institute of Pure & Applied Biology on August 20, 2013 at Bahauddin Zakariya University, Multan.
- 28.** Workshop on “Emerging Postharvest Technologies for Fresh Fruits and Vegetables” at Bali, Indonesia from 23-27 September 2013.
- 29.** Three days workshop on “Cascading of Asian Institute of Technology (AIT) Thailand Based Training Program: Ensuring Training Effectiveness” at University College of Agriculture, Bahauddin Zakariya University, Multan from 9-11 April, 2012.
- 30.** Seminar on “Recent Developments in Edible Oil Production and Processing with Special Reference to Pakistan” at University College of Agriculture, Bahauddin Zakariya University, Multan from 12-13 March, 2012.
- 31.** Three days workshop on “Statistical Modeling for Improving the Standards of Research and Education for University Professionals” at University College of Agriculture, Bahauddin Zakariya University Multan from 23-25 January, 2012.
- 32.** One day workshop “2<sup>nd</sup> workshop on Bioinformatics” at Muhammad Ali Jinnah University, Islamabad on 25 July, 2011.

**LANGUAGES:**

Language	Speaking	Listening	Reading	Writing
English	Excellent	Excellent	Excellent	Excellent
French	Good	Good	Good	Good



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### **ADMINISTRATIVE ASSIGNMENTS IN DEPARTMENT AND UNIVERSITY:**

1. Member of University Convocation Committee 2023. Bahauddin Zakariya University Multan, Pakistan
2. Member of University academic council, Bahauddin Zakariya University Multan, Pakistan
3. Member of University Senate Bahauddin Zakariya University Multan, Pakistan.
4. Member of National Agriculture Education Accreditation Council Pakistan for Evaluation Horticulture degree program offered by the Universities in all over Pakistan
5. Member Board of Faculty, Faculty of Agricultural Science & Technology, Bahauddin Zakariya University Multan, Pakistan.
6. Member Board of studies in Horticulture
7. Member of PhD Synopsis evaluation committee from 22-02-2017.
8. Director Student Affairs (DSA) of Department of Horticulture, Bahauddin Zakariya University Multan, Pakistan.
9. In charge Experimental Orchards from 27-11-2015
10. Member Departmental Admission Committee from 03-07-2013.
11. Member of Campus Beautification Committee (25/11/2016).
12. Member of Campus Beautification Committee (12/10/2017).

### **MEMBERSHIP OF SOCIETIES:**

1. Life time member of Horticultural Foundation of Pakistan (Membership No. ASA 2750 HFP).
2. Member of International Society of Horticultural Sciences (Membership No. 94258).
3. Life time member of Pakistan Society of Horticultural Science (Membership No. PSHS L4).

### **AWARDS AND HONORS:**

1. Best Research Article Award JPLPH (Journal of Plant Physiology) 2022. [Awards - Journal of Plant Physiology | ScienceDirect.com by Elsevier.](#)
2. Received the **Performance Based Increment and Honorarium** Awarded by the University based on Academic and Scholarly performance for **YEAR 2021** on Tenure Track System.
3. Received the **Performance Based Increment and Honorarium** Awarded by the University based on Academic and Scholarly performance for **YEAR 2020** on Tenure Track System.
4. Received the **Performance Based Increment and Honorarium** Awarded by the University

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based on Academic and Scholarly performance for **YEAR 2019** on Tenure Track System.

5. Received the **Performance Based Increment and Honorarium** Awarded by the University based on Academic and Scholarly performance for **YEAR 2018** on Tenure Track System.
6. Received the **Performance Based Increment and Honorarium** Awarded by the University based on Academic and Scholarly performance for **YEAR 2017** on Tenure Track System.
7. Received the **Performance Based Increment** Awarded by the University based on Academic and Scholarly performance for **YEAR 2015** on Tenure Track System.
8. General Secretary of Pakistan Society of Horticultural Sciences **(2021)**
9. Approved supervisor by Higher Education Commission of Pakistan for PhD students
10. Received the scholarship by Higher Education Commission of Pakistan for M.Phil. leading to Ph.D. studies in France
11. Fourth position in M.Sc. (Hons.) Agriculture major Horticulture.

#### **SERVICES:**

1. **Member of DTRC** (Departmental Technical Review Committee) for evaluation of Faculty working on Tenure Track.
  - Department of Horticulture, Islamia University Bahawalpur, Pakistan
  - Department of Horticulture, The University of Punjab, Pakistan
2. **External Examiner** for Evaluation of M.Sc. (Hons.) Horticulture and Ph.D. Horticulture Thesis
3. **Reviewer of research proposal** for Higher education Commission under National Research Program for University (NRPU)
4. **Editorial: Associate Editor** of The Journal of Environmental Sustainability and Technology (JEST)