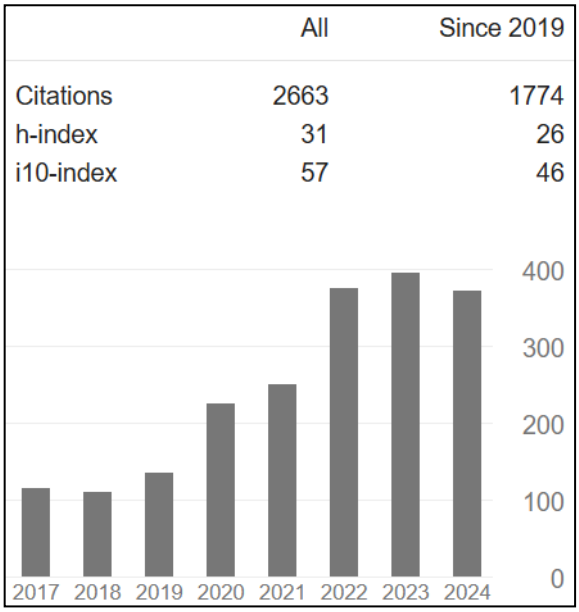
CV

Sultan Habibullah Khan,
PhD (University of Manchester), Postdoc (University of California-Berkeley)
Director, Centre for Advanced Studies in Agriculture and Food Security (CAS-AFS)
Professor, Centre of Agricultural Biochemistry and Biotechnology (CABB)

SUMMARY

I obtained my PhD in Plant Sciences from the University of Manchester, England, in 2004. Since November 2005, I have been a faculty member at the University of Agriculture, Faisalabad. My postdoctoral tenure includes research and teaching positions at the University of California, Berkeley (as a Visiting Scientist), and Sultan Qaboos University, Oman (as a Teaching Consultant). Currently, I serve as a Professor at the Centre of Agricultural Biochemistry and Biotechnology (CABB) and as the Director of the Centre for Advanced Studies in Agriculture and Food Security (CAS-AFS). With over 20 years of experience in plant biotechnology, breeding, genetics, and molecular biology, I began my research career as a Research Associate at the Centre for Advanced Molecular Biology in Lahore, focusing on the tissue culture regeneration response of elite cotton lines. I then advanced to the National Institute for Biotechnology and Genetic Engineering (NIBGE), where I specialized in cotton transformation and the characterization of cotton leaf curl virus. During my PhD, I explored the protein targeting machinery in non-photosynthetic plastids. My current research aims to develop crop varieties with enhanced environmental tolerance through advanced breeding and genome engineering techniques. I have received numerous national and international scholarships, the Research Productivity Award (2014), and have co-authored over 100 publications with a cumulative impact factor of 180 and 2600 citations, including two books and 18 book chapters.



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Google Scholar:https://scholar.google.com.pk/citations?user=wpzXMt8AAAAJ&hl=en

PERSONAL DETAILS

Addresses:

Office:	Centre for Advanced Studies in Agriculture and Food Security/Centre of Agricultural Biochemistry and Biotechnology, University of Agriculture, Faisalabad-38040, Pakistan
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EDUCATION/TRAINING

Postdoc	Institute:	**University of California, Berkeley, USA,** Jun 2010
	Field:	Plant Biotechnology,
	Topic**:**	Site specific gene targeting/Gene stacking in plants
PhD	Institute:	**University of Manchester, England, UK,** July 2004
	Field:	Plant Molecular Sciences,
	Thesis**:**	Molecular characterisation of the protein import machinery in pea root plastids
MSc (Hons)	Institute**:**	**University of Agriculture, Faisalabad, Pakistan,** June 1995
	Field:	Plant Breeding and genetics
	Thesis**:**	Path Coefficient analyses for yield traits in upland cotton (*Gossypium hirsutum* L.)
BSc (Hons)	Institute**:**	**University of Agriculture, Faisalabad, Pakistan,** June 1993
	Field:	Plant Breeding and genetics

EXPERIENCE:

Teaching and Research	Administration
➢ **Professor:** Since 22-Mar-2022 ➢ **Associate Professor:** 29-May-2013 to 21-Mar-2022 ➢ **Assistant Professor:** 17-Nov-2005 to 28-May-2013 ➢ **Consultant at SQU-Oman**: Feb-2011 to Jan-2012 ➢ **Visiting Scientist at UC-Berkeley**: June-2009 to June 2010 ➢ **PhD Scholar University of Manchester**: 1999-2004 ➢ **Research Associate at NIBGE**: 1996 to 1999 ➢ **Research Fellow at CEMB-Lahore:** 1995 to 1996	➢ **Director CAS-AFS:** since 19-Apr-2022 ➢ **Focal Person CAS-AFS:** 13-July-2021 to April 18, 2022: ➢ **Deputy Chief of Party:** CAS-AFS 2015 Jan -to 12-July-2021: ➢ **Focal Person of CAS-AFS**: 2013- 2015

TEACHING PHILOSOPHY

To induce effective learning, teachers act as a mentor to supply essential information and, most importantly, expose students to the means of acquiring knowledge independently and apply it in new situations. I believe in challenging students to express their hidden potential by being demanding and by maximizing student-student and student-teacher interactions. I build a sound rapport with the students to be aware of their individual goals, values, issues, and a little about their lives. I believe that students get motivated when they feel that their instructor cares about them. I deliver lectures in a way to stimulate students' critical thinking skills and nurture their intellectual growth to ignite a lifelong learning process. I achieved this by mastering the subject matter of the courses and employing multimedia tools. For advance classes, I encourage students to spend time reading and analyzing high impact research journal articles to create thinking like modern scientists.

My experience to date reveals a steady success in my teaching which I gauge by my confidence developed over years. At the same time, I believe teaching perfection is a journey rather than a destination and there is room for me to improve through my colleagues and my students' learning experiences.

ADMINISTRATION EXPERTISE

Working as Director of CAS-AFS which was established in 2014 for the capacity building of UAF. The responsibilities included administration of

- Project/staff Management
- international exchanges
- curricular reforms
- research grants
- graduate scholarships
- workshops and conferences

TEACHING EXPERTISE

I am an ***HEC Approved Supervisor*** for PhDs studies with over 15 years' experience of teaching the following subjects in Pakistan (UA-Faisalabad), Oman (SQU-Muscat) and USA (UC-Berkeley).

- ***Biotechnology*** (SQU-Oman, UA-Faisalabad, UC-Berkeley)
- ***Cell and Molecular Biology*** (UA-Faisalabad)
- ***Genetics*** (UAF, SQU-Oman)
- ***Plant Breeding*** (UA-Faisalabad, SQU-Oman)
- ***Plant Physiology*** (UA-Faisalabad, SQU-Oman)

RESEARCH EXPERTISE:

- ***Agronomy and plant genetics*** techniques including *g*rowing of plants in field, greenhouse and in sterile conditions, performing crossing, genetic analysis of phylogenies, application of statistical methods and marker-assisted selection.
- ***Plant transformation*** techniques including tissue culture, biolistic and *agrobacterium* mediated gene transformation, transgene analysis, bioassays.
- ***Molecular biology*** techniques including DNA, RNA and protein isolation, DNA/protein hybridisation techniques, numerous PCR applications, gene cloning, DNA sequencing and *in vitro* protein expression, genome editing.
- ***Cell biology*** techniques including protoplasts preparation, organelle fractionation, enzyme activity analysis, *in vitro* protein targeting assays.
- ***Ability to work independently, innovation and problem-solving skills*****, good *communication and multimedia presentation skills.***

SUPERVISION OF GRADUATE STUDENTS

	Completed as Supervisor	Completed as a member of the Supervisory Committee	Ongoing
PhD	6	>10	04
MSc (Hons)/MPhil	60	>50	10

RESEARCH PROJECTS

	Agency	Title	Duration	Award
International	USAID	Climate Smart Activity in Pakistan in partnership with Kaizen-TetraTech starting July 2024 years (Project Director)	04 Years	$24m
	ADPC/ World Bank	ADPC funded High Throughput Crop Monitoring using Computer Vision for Climate Smart Agriculture	13 months	$100000
	USAD	USAID funded Center for Advanced Studies Project (Focal Person/Deputy Chief of Party)	5 Years	US$ 30 million
	ILSI	Linking Cry-protein persistence with microbial diversity, enzymatic activity, nutrient cycling and gaseous emissions in soils under Bt cotton in Punjab (Co-PI)	1 Year	US$ 18,900
National	HEC	HEC funded Low cost domestic production of Taq Polymerase enzyme for research and diagnostics	6 months	Rs. 7 million
	MoST	MoST funded National Center for Genome Editing (NCGE) as Project Manager	3 years	Rs. 501 million
	HEC	Enhancing the performance of tomato by improving fruit lycopene content (Co-PI)	3 Years	Rs. 2.0 million
	HEC	Gene Stacking for virus and insect resistance in cotton using Site specific recombinases (PI)	3 Years	Rs. 8.3 million
	HEC	Collection and Characterization of Native and Exotic Hot Pepper (Capsicum annum L.) Germplasm for Breeding Hybrids (PI)	1 year	Rs. 0.498 million
	HEC	Sustainable Management of Insect Pests of Rice Crop with Special Reference to Bio-Control Agents and Bio-Rational Insecticides (Co-PI)	3 Years	Rs. 8.7 million

AWARDS/HONOURS

- Honoured to be the major contributor in developing ***UAF's Vision 2030***, a strategic plan for UAF.
- Honoured to be the founding member, focal person/Deputy Chief of Party of ***Centre for Advanced Studies in Agriculture and Food Security (CAS-AFS)*** which was a unique partnership between UC-Davis and UAF funded by USAID ($30m)
- Recipient of ***RESEARCH PRODUCTIVITY AWARD*** (2014) from Govt of Pakistan
- ***National Science Foundation (USA) Travel Award*** for 2nd International Conference on Plant DNA Repair & Recombination, Asilomar, California, United States (2010)
- Higher Education Commission (Pakistan) ***Postdoc Fellowship at the University of California at Berkeley***, United States (2009)
- ***University of Manchester (United Kingdom) Research Scholarship*** for PhD (1999-2002)
- United Kingdom ***Oversees Research Scholarship*** for PhD (1999-2002)
- Education Board (Faisalabad, Pakistan) ***Merit Scholarship for FSc & BSc*** (Hons) studies, (1986-1992)

SUMMARY OF PUBLICATIONS

Books	Book Chapters	Articles	Total
02	18	84	104

CO-AUTHORED BOOKS

1. Aftab Ahmad, **Sultan Habibullah Khan**, Zulqurnain Khan (Eds.) (2022). The CRISPR/Cas Tool Kit for Genome Editing. Springer Singapore
2. Aftab Ahmad, **Sultan Habibullah Khan**, Zulqurnain Khan (Eds.) (2021). CRISPR Crops: The Future of Food Security. Springer Singapore

BOOK CHAPTERS

18. Aslam, S., Munir, A., Aslam, H. M. U., Khan, S. H., & Ahmad, A. (2022). Genome editing advances in soybean improvement against biotic and abiotic stresses. In S. H. Wani, N. u. R. Sofi, M. A. Bhat, & F. Lin (Eds.), *Soybean Improvement* (pp. XXX-XXX). Springer, Cham. https://doi.org/10.1007/978-3-031-12232-3_13

17. Mubarik, M. S., Khan, S. H., Sajjad, M. (2021). Key applications of CRISPR/Cas for yield and nutritional improvement. In A. Ahmad, S. H. Khan, & Z. Khan (Eds.), *CRISPR Crops* (pp. XXX-XXX). Springer, Singapore. https://doi.org/10.1007/978-981-15-7142-8_7

16. Khan, S. H., et al. (2021). Applications of CRISPR/Cas beyond simple traits in crops. In A. Ahmad, S. H. Khan, & Z. Khan (Eds.), *CRISPR Crops* (pp. XXX-XXX). Springer, Singapore. https://doi.org/10.1007/978-981-15-7142-8_8

15. Khan, Z., Khan, S. H., Ahmad, A. (2022). Challenges and future prospects of CRISPR technology. In A. Ahmad, S. H. Khan, & Z. Khan (Eds.), *The CRISPR/Cas Tool Kit for Genome Editing* (pp. XXX-XXX). Springer, Singapore. https://doi.org/10.1007/978-981-16-6305-5_10

14. Khan, S. H., et al. (2022). Applications of CRISPR/Cas system in plants. In A. Ahmad, S. H. Khan, & Z. Khan (Eds.), *The CRISPR/Cas Tool Kit for Genome Editing* (pp. XXX-XXX). Springer, Singapore. https://doi.org/10.1007/978-981-16-6305-5_9

13. Sultan, Q., Ashraf, S., Munir, A., Khan, S. H., Munawar, N., Abd-Elsalam, K. A., et al. (2022). Beyond genome editing: CRISPR approaches. In A. Ahmad, S. H. Khan, & Z. Khan (Eds.), *The CRISPR/Cas Tool Kit for Genome Editing* (pp. 187–218). Springer. https://doi.org/10.1007/978-981-16-6305-5_6

12. Hafiza Masooma Naseer Cheema, Asif Ali Khan, Muhammad Aakif Khan, Muhammad Ans Pervez, Muhammad Zubair Ghouri, Aftab Ahmad Sultan Habibullah Khan. (2022). Breeding cotton for insect/pests resistance. In Z. Khan, Ali Z., & A. A. Khan (Eds.), *Cotton Breeding and Biotechnology* (pp. XXX-XXX). CRC Press.

11. Iqbal, M. U., Khan, S. H., Mubarik, M. S., Ahmad, A., Sajjad, M., & Imran, H. M. (2022). Cotton genetics and genomics. In Z. Khan, Ali Z., & A. A. Khan (Eds.), *Cotton Breeding and Biotechnology* (1st ed., pp. 171–197). CRC Press.

10. Khan, Z., Khan, S. H., Ahmad, A. (2022). Challenges and future perspective of CRISPR/Cas technology for crop improvement. In A. Ahmad, S. H. Khan, & Z. Khan (Eds.), *CRISPR Crops* (pp. XXX-XXX). Springer, Singapore. https://doi.org/10.1007/978-981-15-7142-8_10

9. Hafiz Muhammad Wasif Ali, Muhammad Qadir Ahmad, Muhammad Asif Saleem, Hafiz Mamoon Rehman, Abdul Qayyum, Waqas Malik, Etrat Noor, Sultan Habibullah Khan. (2024). Biofortified sorghum: A prospectus of combating malnutrition. In M. Tehseen Azhar, M. Qadir Ahmad, I. A. Rana, & R. M. Atif (Eds.), *Biofortification of Grain and Vegetable Crops* (pp. 115-138). Academic Press. https://doi.org/10.1016/B978-0-323-91735-3.00007-8

8. Aftab Ahmad, Ahmad Munir, Nayla Munawar, Sultan Habibullah Khan, Zulqurnain Khan, Bushra Akhtar. (2024). Regulations of multiplex genome-edited crops and CRISPR/Cas gene drives. In K. A. Abd-Elsalam, A. Ahmad (Eds.), *Genome Modified Plants and Microbes in Food and Agriculture: Global Regulatory Outlook for CRISPRized Plants* (pp. 397-445). Academic Press. https://doi.org/10.1016/B978-0-443-18444-4.00010-7

7. Aftab Ahmad, Ahmad Munir, Hassan Zafar, Muhammad Kashif Zahoor, Samia Hassan, Sultan Habibullah Khan. (2024). Tracking footprints of CRISPR-based genome editing. In K. A. Abd-Elsalam, A. Ahmad (Eds.), *Genome Modified Plants and Microbes in Food and Agriculture: Global Regulatory Outlook for CRISPRized Plants* (pp. 113-145). Academic Press. https://doi.org/10.1016/B978-0-443-18444-4.00018-1

6. Saba Yaseen, Fatima Javeria, Sultan Habibullah Khan, Aftab Ahmad, Shoaib Ur Rehman, Muhammad Imran, Hasan Riaz, Zulqurnain Khan. (2024). Nanoencapsulation of rhizobacteria: An innovative solution for boosting crop yields. In K. A. Abd-Elsalam (Ed.), *Nanobiotechnology for Plant Protection: Nanofertilizer Delivery, Effects and Application Methods* (pp. 149-171). Elsevier.

5. Ayesha Shahid, Iqra Kamal, Muhammad Nabeel Haider, Muhammad Imran Arshad, Sultan Habibullah Khan, Ning Wang, & Hui Zhu. (2024). Cyanobacterial cell factories: Insight into their pharmaceutical and nutraceutical properties. In M. A. Mehmood, P. Verma, M. P. Shah, & M. J. Betenbaugh (Eds.), *Pharmaceutical and Nutraceutical Potential of Cyanobacteria* (pp. XXX-XXX). Springer, Cham. https://doi.org/10.1007/978-3-031-45523-0_1

4. Aiman Arif, Rana Ali Haider, Ahmad Munir, Muhammad Zubair Ghouri, Sultan Habibullah Khan, Kamel A. Abd-Elsalam, Aftab Ahmad. (2024). Bioinformatics tools and databases in genome editing for plants. In K. A. Abd-Elsalam, A. Ahmad, & B. H. Zhang (Eds.), *Genome Modified Plants and Microbes in Food and Agriculture: CRISPRized Horticulture Crops* (pp. 51-66). Academic Press. https://doi.org/10.1016/B978-0-443-13229-2.00008-9

3. Munawar, N., Faheem, M., Niamat, A., Munir, A., Khan, S. H., Zahoor, M. K., ... (2024). Regulatory, ethical, social, and biosafety concerns in genome-edited horticultural crops. In K. A. Abd-Elsalam, A. Ahmad, & B. H. Zhang (Eds.), *Genome Modified Plants and Microbes in Food and Agriculture: CRISPRized Horticulture Crops* (pp. 421-438). Academic Press.

2. Ahmad A., Ghouri M.Z., Jamil A., Khan S.H., Ahmad N., Rahman M. (2021). First-Generation Transgenic Cotton Crops. In Rahman M., Zafar Y., Zhang T. (Eds.), *Cotton Precision Breeding* (Springer, Cham). https://doi.org/10.1007/978-3-030-64504-5_10

1. Khan Z., SH Khan, MS Mubarik and A Ahmad (2018). Targeted Genome Editing for Cotton Improvement. In: Mehboob-Ur-Rahman and Yusuf Zafar (Eds). *Past, Present and Future Trends in Cotton Breeding* (IntechOpen). https://doi.org/10.5772/intechopen.73600. (5)

ARTICLES

84. Saleem, M. S., Khan, S. H., Ahmad, A., Rana, I. A., Naveed, Z. A., & Khan, A. I. (2024). The 4Fs of cotton: Genome editing of cotton for fiber, food, feed, and fuel to achieve zero hunger. Frontiers in Genome Editing, 6, 1401088. https://doi.org/10.3389/fgeed.2024.1401088 (IF: 2.177)
83. Ahmed, A. I., Khan, A. I., Negm, M. A. M., Khan, S. H., Kazi, A. M., Basra, S. M. A., & others. (2024). Enhancing cotton resilience to challenging climates through genetic modifications. Journal of Cotton Research, 7, 10. [DOI: Not available] (IF: Not available)
82. Naveed, Z. A., Jamil, M., Asif, N., Waqas, M., Ajaz, S., & Khan, S. H. (2024). Cross-regulation of cytoskeleton and calcium signaling at plant-pathogen interface. Cellular Signalling, 117, 111100. https://doi.org/10.1016/j.cellsig.2024.111100 (IF: Not available)
81 Shahzaib, M., Khan, U. M., Azhar, M. T., Atif, R. M., Khan, S. H., Zaman, Q. U., Fladung, M., & Rana, I. A. (2024). Phylogenomic curation of Ovate Family Proteins (OFPs) in the U's Triangle of Brassica L. indicates stress-induced

growth modulation. PLOS ONE, 19(1), e0297473. https://doi.org/10.1371/journal.pone.0297473 (IF: Not available)

80 Mustafa, S. E., Razzaq, H., Khan, F. A., & Khan, S. H. (2023). Exploring genetic variation in Brassica rapa for improved yield and fatty acid profiles. Plant Bulletin, 2(2), 135–141.

79 Zafar, U. B., Shahzaib, M., Atif, R. M., Hameed, A., Alam, M. W., & Faure, D. (2023). De novo transcriptome assembly of Dalbergia sissoo Roxb. (Fabaceae) under Botryodiplodia theobromae-induced dieback disease. Scientific Reports, 13, 20503. https://doi.org/10.1038/s41598-023-45982-8 (IF: Not available)

78 Ashraf, S., Ahmad, A., Khan, S. H., Jamil, A., Sadia, B., & Brown, J. K. (2023). LbCas12a mediated suppression of Cotton leaf curl Multan virus. Frontiers in Plant Science, 14, 1233295. https://doi.org/10.3389/fpls.2023.1233295 (IF: 3.466)

77 Mustafa, S. E., Razzaq, H., Khan, F. A., & Khan, S. H. (2023). Estimation of combining ability effects for yield and fatty acid-related traits in Brassica rapa using line × tester analysis. SABRAO Journal of Breeding & Genetics, 55(4).

76 Asif, M., Khan, A. A., Cheema, H. M. N., Khan, S. H., & Iqbal, Z. (2023). Cotton germplasm characterization for drought tolerance based on morpho-physiological and fiber quality parameters. SABRAO Journal of Breeding & Genetics, 55(4).

75 Saleem, H., Sadaqat, H. A., Razzaq, H., Chattha, A. A., & Khan, S. H. (2023). Heterotic grouping with combining ability and gene action in Sesamum indicum L. using line× tester analysis.

74 Chaudhry, A., Hassan, A. U., Khan, S. H., Aslam, S., Rehman, S. U., Khan, S. H., & others. (2023). The changing landscape of agriculture: Role of precision breeding in developing smart crops. Functional & Integrative Genomics, 23, 167. https://doi.org/10.XXXXXXX (IF: Not available)

73 Shahzaib, M., Bruegmann, T., Shakeel, M., Khan, S. H., Azhar, M. T., Atif, R. M., Fladung, M., & Rana, I. A. (2023). Development of climate smart fruit plants via CRISPR/Cas genome editing systems: A spatiotemporal review. Preprints, 2023051887. https://doi.org/10.XXXXXXX (IF: Not available)

72 Shaheen, N., Khan, U. M., Farooq, A., Sahi, S. T., Hameed, A., Alam, M. W., & Faure, D. (2023). Comparative transcriptomic and evolutionary analysis of FAD-like genes of Brassica species revealed their role in fatty acid biosynthesis and stress tolerance. BMC Plant Biology, 23, 250. https://doi.org/10.1186/s12870-023-XXXXXX (IF: 2.941)

71 Zahra, A., Shahid, A., Shamim, A., Khan, S. H., & Arshad, M. I. (2023). The SHERLOCK platform: An insight into advances in viral disease diagnosis. Molecular Biotechnology, 65(5), 699–714. https://doi.org/10.1007/s12033-022-00625-7 (IF: 1.844)

70 Raza, Q., Rashid, M. A. R., Waqas, M., Aslam, S., Sultan, H., Majeed, S., Waqas, M., Riaz, H., & Ali, Z. (2023). Genomic diversity of aquaporins across genus Oryza provides a rich genetic resource for development of climate resilient rice cultivars. BMC Plant Biology, 23, 172. https://doi.org/10.1186/s12870-023-XXXXXX (IF: Not available)

69 Khan, Z., Khan, S. H., Ahmed, A., Khan, S. H., Ali, A., Ahmad, A., & others. (2023). Genome editing in cotton: Challenges and opportunities. Journal of Cotton Research, 6, 3. https://doi.org/10.1186/s42397-023-00140-3 (IF: 3.930)

68 Khan, U. M., Shaheen, N., Farooq, A., Maqbool, R., Khan, S. H., Azhar, M. T., Rana, I. A., & Seo, H. (2023). Optimization of regeneration and Agrobacterium-mediated transformation protocols for bi and multilocular varieties of Brassica rapa. Plants, 12, 161. https://doi.org/10.XXXXXXX (IF: Not available)

67 Khan, S. H., Sajjad, M., Gulnaz, S., Waqar, S., Shahzad, M., & Arain, S. M. (2022). Genetic dissection of grain yield traits in a large collection of spring wheat (Triticum aestivum L.) germplasm. Journal of Crop Science and Biotechnology, 25(2), 215–223.

66 Aslam, S., Khan, S. H., Ahmad, A., Walawage, S. L., & Dandekar, A. M. (2022). Founder transformants of cotton (Gossypium hirsutum L.) obtained through the introduction of DS-Red, Rec, Rep and CRISPR/Cas9 expressing constructs for developing base lines of recombinase mediated gene stacking. PLoS ONE, 17(2), e0263219. https://doi.org/10.1371/journal.pone.0263219 (IF: 1)

65 Zaheer, M., Rehman, S. U., Khan, S. H., Shahid, S., Rasheed, A., Naz, R., & Sajjad, M. (2022). Characterization of new COBRA like (COBL) genes in wheat (Triticum aestivum) and their expression analysis under drought stress. Molecular Biology Reports, 1–9.

64 Asif, M., Khan, A. A., Cheema, H. M. N., Khan, S. H., & Iqbal, Z. (2022). Genetic variability in diverse cotton germplasm for drought tolerance. Pakistan Journal of Agricultural Sciences, 59, 63–74. https://doi.org/10.XXXXXXX (IF: 0.869)

63 Sher, M. A., Khan, A. S., Ali, Z., & Khan, S. H. (2021). Association mapping of agronomic traits in bread wheat using a high density 90k SNP array. Pakistan Journal of Biochemistry and Biotechnology, 2(2), 236–247. https://doi.org/10.XXXXXXX (IF: 0.618)

62 Mubarik, M. S., Wang, X., Khan, S. H., Ahmad, A., Khan, Z., Amjid, M. W., Razzaq, M. K., Ali, Z., & Azhar, M. T. (2021). Engineering broad-spectrum resistance to cotton leaf curl disease by CRISPR-Cas9 based multiplex editing in plants. GM Crops & Food. https://doi.org/10.1080/21645698.2021.1938488 (IF: Not available)

61 Binyameen, B., Khan, Z., Khan, S. H., Ahmad, A., Munawar, N., Mubarik, M. S., Riaz, H., Ali, Z., Khan, A. A., Qusmani, A. T., & others. (2021). Using multiplexed CRISPR/Cas9 for suppression of cotton leaf curl virus. International Journal of Molecular Sciences, 22, 12543. https://doi.org/10.3390/ijms221212543 (IF: Not available)

60 Ahmad, A., Munawar, N., Khan, Z., Qusmani, A. T., Khan, S. H., Jamil, A., Ashraf, S., Ghouri, M. Z., Aslam, S., Mubarik, M. S., & others. (2021). An outlook on global regulatory landscape for genome-edited crops. International Journal of Molecular Sciences, 22, 11753. https://doi.org/10.3390/ijms222111753 (IF: Not available)

59 Farheen, R., Ahmad, M. Q., Saleem, M. A., Qayyum, A., Noor, E., Malik, W., … Mahmood, S. (2021). Genetic diversity, population structure and evaluation of bread wheat genotypes under high temperature stress. JAPS: Journal of Animal & Plant Sciences, 31(4).

58 Alghuthaymi, M. A., Ahmad, A., Khan, Z., Khan, S. H., Ahmed, F. K., Faiz, S., Nepovimova, E., Kuča, K., & Abd-Elsalam, K. A. (2021). Exosome/liposome-like nanoparticles: New carriers for CRISPR genome editing in plants. International Journal of Molecular Sciences, 22, 7456. https://doi.org/10.3390/ijms22217456 (IF: Not available)

57 Mubarik, M. S., Khan, S. H., Ahmad, A., Raza, A., Khan, Z., Sajjad, M., Sammour, R. H. A., Mustafa, A. Z., Al-Ghamdi, A. A., Alajmi, A. H., Alshamasi, F. K. I., & Elshikh, M. S. (2021). A manipulative interplay between positive and negative regulators of phytohormones: A way forward for improving drought tolerance in plants. Physiologia Plantarum, 172(2), 1269–1290.

56 Mubarik, M. S., Majeed, S., Khan, S. H., Du, X., Frelichowski, J. E., Hinze, L., & Azhar, M. T. (2021). Reforming cotton genes: From elucidation of DNA structure to genome editing. Turkish Journal of Agriculture and Forestry, 45. https://doi.org/10.3906/tar-2012-64 (IF: Not available)

55 Ismail, M., Ahmad, A., Nadeem, M., Javed, M. A., Khan, S. H., Khawaish, I., Sthanadar, A. A., Qari, S. H., Alghanem, S. M., Khan, K. A., Khan, M. F., & Qamer, S. (2020). Development of DNA barcodes for selected Acacia species by using rbcL and matK DNA markers. Saudi Journal of Biological Sciences, 27(12), 3735–3742. https://doi.org/10.1016/j.sjbs.2020.08.020 (IF: 0.677)

54 Mubarik, M. S., Khan, S. H., Ahmad, A., Raza, A., Khan, Z., Sajjad, M., … Others. (2020). Controlling geminiviruses before transmission: prospects. Plants, 9(11), 1556.

53 Ghouri, M. Z., Ismail, M., Javed, M. A., Khan, S. H., Munawar, N., Umar, A. B., Nisa, M., Aftab, S. O., Amin, S., Khan, Z., & Ahmad, A. (2020). Identification of edible fish species of Pakistan through DNA barcoding. Frontiers in Marine Science. https://doi.org/10.3389/fmars.2020.554183 (IF: 1.932)

52 Afzal, I., Kamran, M., Basra, S. M. A., Khan, S. H., Mahmood, A., Farooq, M., & Tan, D. K. Y. (2020). Harvesting and post-harvest management approaches for preserving cottonseed quality. Industrial Crops & Products, 155, 112842. https://doi.org/10.1016/j.indcrop.2020.112842 (IF: 0.677)

51 Muazzam, A., Khan, A. S., Ali, Z., & Khan, S. H. (2020). Genetics of lodging resistance related traits in bread wheat (Triticum aestivum L.). Bangladesh Journal of Botany, 49(3), 611–617. (IF: 0.677)

50 Ahmed, H. G. M., Sajjad, M., Zeng, Y., Iqbal, M., Khan, S. H., Ullah, A., & Akhtar, M. N. (2020). Genome-wide association mapping through 90K SNP array for quality and yield attributes in bread wheat against water-deficit conditions. Agriculture, 10, 392.

49 Sajjad, M., Khan, S. H., Shahid, M., Zubair, M., Awan, F. S., Khan, A. I., Mubarak, M. S., Tahir, A., Umer, M., Keyani, R., Afzal, M. I., Manzoor, I., Wattoo, J. I., & Rehman, A. U. (2020). Genome wide association analysis for stripe rust resistance in spring wheat (Triticum aestivum L.) germplasm. Journal of Integrative Agriculture, 19(8), 2035–2043. (IF: 1.337)

48 Ahmad, Muhammad Qadir, Naseer, M. F., Qayyum, A., Malik, W., Khan, S. H., Noor, E., … Others. (2020). Agronomic, physiological and molecular characterization of spring wheat (Triticum aestivum L.) accessions for drought tolerance. Bangladesh Journal of Botany, 49(1), 29–38.
47 Aslam, S., Khan, S. H., Ahmed, A., & Dandekar, A. M. (2020). The tale of cotton plant: From wild type to domestication, leading to its improvement by genetic transformation. American Journal of Molecular Biology, 10, 91–127. https://doi.org/10.3390/agriculture10090392 (IF: 0.677)
46 Munir, S., Khan, A. S., Kashif, M., & Khan, S. H. (2019). The genetic exploitation of wheat for different yield related traits by principal component analysis. Pakistan Journal of Agricultural Sciences. https://doi.org/10.21162/PAKJAS/19.8194 (IF: 0.618)
45 Muhammad Zubair Ghouri, Zulqurnain Khan, Sultan Habibullah Khan, Muhammad Ismail, Syed Ovais Aftab, Qaisar Sultan, Aftab Ahmad. (2020). Nanotechnology: Transformation of agriculture and food security. American Journal of Biotechnology and Bioscience, 3, 19.
44 Muhu-Din-Ahmed, H. G., Khan, A. S., Li MingJu, L. M., Khan, S. H., & Muhammad Kashif, M. K. (2019). Early selection of bread wheat genotypes using morphological and photosynthetic attributes conferring drought tolerance. Journal of Integrative Agriculture, 18(11), 2483–2491.
43 Aslam, S., Khan, S. H., Ahmed, A., & Dandekar, A. M. (2019). Genome editing tools: Need of the current era. American Journal of Molecular Biology, 9, 85–109. (IF: Not available)
42 Sarfraz, S., Riaz, K., Oulghazi, S., Cigna, J., Sahi, S. T., Khan, S. H., Hameed, A., Alam, M. W., & Faure, D. (2019). First report of Pectobacterium parmentieri and Pectobacterium polaris causing potato blackleg disease in Punjab, Pakistan. Plant Disease. https://doi.org/10.1094/PDIS-08-18-1450-PDN (IF: 2.941)
41 Ahmed, H. G. M., Sajjad, M., Li, M., Azmat, M., Rizwan, M., Maqsood, R., & Khan, S. H. (2019). Selection criteria for drought tolerant bread wheat genotypes at seedling stage. Sustainability, 11(9), 2584. https://doi.org/10.3390/su11092584 (IF: 0.869)
40 Shahzad, Munawar, Khan, S. H., Sajjad, M., Nadeem, M., Khan, A. S., & Others. (2019). Allelic composition at GLU genes in a collection of spring wheat germplasm. Bangladesh Journal of Botany, 48(1), 25–31.
39 Sarfraz, S., Sahi, S. T., Ali, M. A., Khan, S. H., & Faure, D. (2019). Antagonistic potential of N-acyl-homoserine lactone degrading Bacillus species for controlling Pectobacterium based infections in potato. International Journal of Agriculture and Biology. https://doi.org/10.17957/IJAB/15.1110 (IF: 0.869)
38 Mubarik, M. S., Khan, S. H., Ahmad, A., Raza, A., Khan, Z., Sajjad, M., Sammour, R. H. A., Mustafa, A. Z., Al-Ghamdi, A. A., Alajmi, A. H., Alshamasi, F. K. I., & Elshikh, M. S. (2019). CRISPR-Cas9 based suppression of cotton leaf curl virus in Nicotiana benthamiana. International Journal of Agriculture and Biology, 22, 517–522. (IF: 0.869)
37 Khan, Z., Khan, S. H., Ahmad, A., Aslam, S., Mubarik, M. S., & Khan, S. (2019). CRISPR/dCas9-mediated inhibition of replication of begomoviruses. International Journal of Agriculture and Biology, 21, 711–718. (IF: 0.869)
36 Aslam, S., Khan, S. H., Rana, I. A., & Atif, R. M. (2019). Development of founder lines for recombinase-based gene targeting in Nicotiana benthamiana. International Journal of Agriculture and Biology, 21, 429–436. (IF: 0.869)
35 Ali, A., Khan, S. H., Khan, I. A., & Khan, A. A. (2018). SSR-based genetic diversity of date palm in Makran (Pakistan). Pakistan Journal of Agricultural Sciences, 55(4), 863–873. (IF: 0.677)
34 Sarfraz, Sohaib, Riaz, K., Oulghazi, S., Cigna, J., Sahi, S. T., Khan, S. H., & Faure, D. (2018). Pectobacterium punjabense sp. nov., isolated from blackleg symptoms of potato plants in Pakistan. International Journal of Systematic and Evolutionary Microbiology, 68(11), 3551–3556.
33 Ahmed, H. G. M.-D., Khan, A. S., Kashif, M., & Khan, S. H. (2018). Genetic analysis of yield and physical traits of spring wheat grain. Journal of the National Science Foundation of Sri Lanka, 46(1).
32 Sajjad, M., Khan, S. H., & Shahzad, M. (2018). Patterns of allelic diversity in spring wheat populations by SSR markers. Cytology and Genetics, 52(2), 155–160. (IF: 0.239)
31 Khan, Z., Khan, S. H., Sadia, B., Jamil, A., & Mansoor, S. (2018). TALE-mediated inhibition of replication of begomoviruses. International Journal of Agriculture and Biology, 20, 109–118. (IF: Not available)
30 Sajjad, M., Ma, X., Khan, S. H., Shoaib, M., Song, Y., Yang, W., Zhang, A., & Liu, D. (2017). TaFlo2-A1, an ortholog of rice Flo2, is associated with thousand grain weight in bread wheat (Triticum aestivum L.). BMC Plant Biology, 17, 164. (IF: 0.489)
29 Kamran, M., Afzal, I., Basra, S. M. A., Khan, S. H., Mahmood, A., Farooq, M., & Tan, D. K. Y. (2017). Improvement of cotton crop performance by estimating optimum sowing and picking time. International Journal of Agriculture and Biology, 19, 241–247. (IF: 0.869)

28 Ahmed, H. G. M., Khan, A. S., Kashif, M., & Khan, S. H. (2017). Genetic mechanism of leaf venation and stomatal traits for breeding drought tolerant lines in wheat. Bangladesh Journal of Botany, 46(1), 35–41. (IF: 0.214)
27 Khan, Z., Khan, S. H., Mubarik, M. S., Sadia, B., & Ahmad, A. (2017). Use of TALEs and TALEN technology for genetic improvement of plants. Plant Molecular Biology Reporter, 35, 1–19. (IF: 1.844)
26 Ahmad, M. Q., Khan, S. H., Sajjad, M., & Khan, I. A. (2015). Analysis of drought responsive traits in hexaploid wheat (Triticum aestivum L.). Pakistan Journal of Agricultural Sciences, 52(3), 701–707. (IF: 0.869)
25 Ali, M. A., Zulkiffal, M., Anwar, J., Hussain, M., Farooq, J., & Khan, S. H. (2015). Morpho-physiological diversity in advanced lines of bread wheat under drought conditions at post-anthesis stage. The Journal of Animal & Plant Sciences, 25(2), 431–441. (IF: 0.407)
24 Afzal, I., Hussain, B., Basra, S. M. A., Khan, S. H., Shakeel, Q., & Kamran, M. (2015). Foliar application of potassium improves fruit quality and yield of tomato plants. Acta Scientiarum Polonorum. Hortorum Cultus, 14(1), 3–13. (IF: 0.448)
23 Aziz-ur-Rehman, M., Sajjad, M., Khan, S. H., Peña, R. J., & Khan, N. I. (2014). Lower tendency of allelic variation of Glu genes and absence of 1BL-1RS translocation in modern Pakistani wheats. Cereal Research Communications, 42(1), 139–150. (IF: 0.489)
22 Sajjad, M., Khan, S. H., & Rana, R. M. (2014). Association mapping identifies QTLs on wheat chromosome 3A for yield related traits. Cereal Research Communications, 42(2), 177–188. (IF: 0.489)
21 Ahmad, M. Q., Khan, S. H., Kazi, A. M., Khan, A. S., & Basra, S. M. A. (2014). Identification of QTLs for drought tolerance traits on wheat chromosome 2A using association mapping. International Journal of Agriculture and Biology, 16, 862–870. (IF: 0.869)
20 Ahmad, M. F., Shehzad, S., Hussain, K., Khan, S. H., & Sajjad, M. (2014). Influence of Fusarium moniliforme inoculation on heterosis and heterobeltiosis for agronomic traits in maize (Zea mays). International Journal of Agriculture and Biology, 16, 1041–1049. (IF: 1)
19 Sajjad, M., Khan, S. H., & Rana, R. M. (2014). Family and/or friends? Gene mapping at crossroads. American Journal of Plant Sciences, 5(1), 112–118. (IF: 3)
18 Aziz-ur-Rehman, M., Sajjad, M., Khan, S. H., & Ahmad, N. (2013). Prospects of wheat breeding for durable resistance against brown, yellow and black rust fungi. International Journal of Agriculture and Biology, 15, 1209–1220. (IF: 0.869)
17 Ghaffar, A., Ehsanullah, A., Akbar, N., Khan, S. H., Jabran, K., Hashmi, R. Q., Iqbal, A., & Ali, M. A. (2012). Effect of trench spacing and micronutrients on growth and yield of sugarcane (Saccharum officinarum L.). Australian Journal of Crop Science, 6(1), 1–9. (IF: 0.677)
16 Sajjad, M., Khan, S. H., & Khan, A. S. (2012). Patterns of trait associations in various wheat populations under different growth environments. African Journal of Biotechnology, 11(22), 5970–5981. (IF: 0.869)
15 Ashfaq, M., Khan, A. S., Khan, S. H., & Ahmad, R. (2012). Association of various morphological traits with yield and genetic divergence in rice (Oryza sativa L.). International Journal of Agriculture and Biology, 14, 55–62. (IF: 0.869)
14 Al-Maskri, A. Y., Sajjad, M., & Khan, S. H. (2012). Association mapping: A step forward to discovering new alleles for crop improvement. International Journal of Agriculture and Biology, 14, 153–160. (IF: 0.869)
13 Sajjad, M., Khan, S. H., Maqbool, R., Ather, A., & Iqbal, N. (2012). Selection of Pakistani and CIMMYT wheat lines for better grain yield and quality. International Journal of Agriculture and Biology, 14, 645–649. (IF: 0.869)
12 Gulnaz, S., Khan, S. H., Shahzad, M., Nasim, W., & Sajjad, M. (2012). Genetic evaluation of spring wheat (Triticum aestivum) germplasm for yield and seedling vigor traits. Journal of Agricultural and Social Sciences, 8, 123–128. (IF: 0.869)
11 Sajjad, M., Khan, S. H., & Kazi, A. M. (2012). The low down on association mapping in hexaploid wheat (Triticum aestivum L.). Journal of Crop Science and Biotechnology, 15(3), 53–57. (IF: 0.869)
10 Ghaffar, A., Ehsanullah, N., Akbar, N., & Khan, S. H. (2011). Influence of zinc and iron on yield and quality of sugarcane planted under various trench spacings. Pakistan Journal of Agricultural Sciences, 48, 25–33. (IF: 0.677)
9 Sajjad, M., Khan, S. H., & Khan, A. S. (2011). Exploitation of germplasm for grain yield improvement in spring wheat (Triticum aestivum L.). International Journal of Agriculture and Biology, 13, 695–700. (IF: 0.869)
8 Rana, R. M., Khan, S. H., Ali, Z., Khan, A. I., & Khan, I. A. (2011). Elucidation of thermotolerance diversity in cotton (Gossypium hirsutum L.) using physio-molecular approaches. Genetics and Molecular Research, 10, 1156–1167. (IF: 2.139)

7 Gulnaz, S., Sajjad, I. M., Khaliq, M., Khan, A. S., & Khan, S. H. (2011). Relationship among coleoptile length, plant height and tillering capacity for developing improved wheat varieties. International Journal of Agriculture and Biology, 13, 130–133. (IF: 0.869)

6 Yan, X., Khan, S. H., Hase, T., Emes, M. J., & Bowsher, C. G. (2006). Differential uptake of photosynthetic and non-photosynthetic proteins by pea root plastids. FEBS Letters, 580, 6509–6512. https://doi.org/10.1016/j.febslet.2006.07.055 (IF: 2.999)

5 Mansoor, S., Khan, S. H., Hussain, M., Mushtaq, N., Zafar, Y., & Malik, K. A. (2000). Evidence that watermelon leaf curl disease in Pakistan is associated with tomato leaf curl virus-India, a bipartite Begomovirus. Plant Disease, 84, 102. (IF: 3.02)

4 Mansoor, S., Khan, S. H., Hussain, M., Zafar, Y., Pinner, M. S., Briddon, R. W., Stanley, J., & Markham, P. G. (2000). Association of a Begomovirus and Nanovirus-like Molecule with Ageratum Yellow Vein Disease in Pakistan. Plant Disease, 84, 101. (IF: 3.02)

3 Mansoor, S., Khan, S. H., Bashir, A., Saeed, M., Zafar, Y., Malik, K. A., Stanley, J., & Markham, P. (1999). Identification of a novel circular single-stranded DNA associated with cotton leaf curl disease in Pakistan. Virology, 259, 190–199. (IF: 2.139)

2 Mansoor, S., Bashir, A., Khan, S. H., Hussain, M., Saeed, M., Zafar, Y., Markham, P., & Malik, K. A. (1999). Rapid multiplex PCR for the specific detection of two whitefly-transmitted geminivirus species associated with cotton leaf curl disease in Pakistan. Pakistan Journal of Botany, 31, 115–123. (IF: 0.69)

1 Mansoor, S., Khan, S. H., Saeed, M., Bashir, A., Zafar, Y., Malik, K. A., & Markham, P. G. (1997). Evidence for the association of a bipartite geminivirus with tomato leaf curl disease in Pakistan. Plant Disease, 81, 958. (IF: 3.0)