

## CURRICULUM VITAE

# Huma Saleem

Department of Plant Breeding and Genetics, University of Agriculture, Faisalabad, Pakistan

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<https://scholar.google.com.pk/citations?user=SZWMde8AAAAJ&hl=en>

## Summary/Research Expertise/interests

- 10+ years of experience in the field of Plant disease resistance Genetics and breeding approaches.
- Proficiency and work experience (PhD/Postdoc) on molecular biology techniques, Pathology/Virology, Tissue culture, sequencing and Bioinformatics
- Experience in working with DNA/RNA and Mycoviruses, Fungi, host mediated engineered microbiome, plant-microbe/Host pathogen interaction, Viral replication, and recombination analysis.
- Managerial and project management experience in lab, greenhouse and field.
- Experience in designing experiments, excellent verbal and written communication skills that facilitate effective scientific communication and manuscript writing.

## Employment Record

Feb 2022 to Present	<b>Assistant Professor (Tenured)</b> , Department of Plant Breeding and Genetics University of Agriculture, Faisalabad, Pakistan
May 2018-Apr 2019	<b>Postdoctoral Research Associate</b> , Biology and Microbiology Department South Dakota State University, USA
Project:	Exploring New Microbial Pathway for Nutrient Control to Increase Agroecosystem Sustainability funded by SD Nutrient Research & Education Council (NREC)
Feb 2017- Apr 2018	<b>Assistant Professor</b> , Department of Botany, Government College Women University, Faisalabad, Pakistan
Sep 2013-Jan 2014	<b>Teaching Assistant</b> , Department of Plant Breeding and Genetics University of Agriculture, Faisalabad
Aug 2012-Dec 2012	<b>Research Officer/Lab Manager</b> , Higher Education Commission (HEC) Pakistan Centre of Agricultural Biochemistry and Biotechnology, University of Agriculture,
Projects:	1. Identification and characterization of host factors interacting with the replicase complex of cotton leaf curl disease associated Geminiviruses funded by HEC. 2. Interaction studies of host polymerases with replication associated protein of cotton leaf curl disease funded by International Foundation for Science (IFS).
Sep 2003-Dec 2003	<b>Assistant Research Officer</b> , Vegetable Research Institute, Ayub Agriculture Research Institute (AARI), Faisalabad, Pakistan

## Academic Qualification

2011-2016	<b>PhD</b> Plant Breeding and Genetics, University of Agriculture, Faisalabad, Pakistan
Thesis Title:	Diversity Recombination and Replication in Cotton Leaf Curl Geminiviruses
2001-2003	<b>MSc (Hons)</b> Plant Breeding and Genetics, University of Agriculture, Faisalabad, Pakistan
Thesis Title:	Assessment of genetic variability in cotton germplasm for fiber yield, quality, and resistance to cotton leaf curl begomovirus (CGPA: 3.89/4.0)
1997-2001	<b>B.Sc (Hons)</b> Plant Breeding and Genetics, University of Agriculture. Faisalabad, Pakistan (CGPA: 3.78/4.0)

## **Publications**

1. Sharif, I., Aleem, S., Junaid, J.A. Aleem M · Jamshaid K, **Saleem H** et al. Evaluation of Genotype × Environment Interaction and Yield Stability of Cotton (*Gossypium hirsutum* L) Genotypes Under Heat Stress Conditions. **Journal of Crop Health** 77, 16 (2025). <https://doi.org/10.1007/s10343-024-01079-4>
2. Zafar MM, Razzaq A, Chattha WS, Ali A, Parvaiz A, Amin J, **Saleem H**, Shoukat A, Elhindi KM, Shakeel A, Ercisli S, Qiao F, Jiang X. **2024**. Investigation of salt tolerance in cotton germplasm by analyzing agro-physiological traits and ERF genes expression. **Scientific Reports** Sci Rep. 23;14(1):11809. doi: 10.1038/s41598-024-60778-0.
3. Chattha, W S, **Saleem. H**, Raja. S, Ihsan. M Z, Ghazy. AH, Gul. T, Siddique. F, Afzal. M, Rana U S and JA Junaid. **2024**. Xylem-phloem cell area aid in salinity tolerance of Tomato plant. **Scientia Horticulturae**. ISSN 0304-4238. <https://doi.org/10.1016/j.scienta.2024.112919>
4. Junaid, J A **Saleem. H**, Jamshaid. K, Sharif I, Khan. MA, Rana U S and Saba Akram. **2023**. Effect of chromium and lead on seedlings and yield contributing parameters of Maize (*Zea mays* L.) **World Journal of Biology and Biotechnology**. doi: <https://doi.org/10.33865/wjb.009.02.1158>
5. Hussain. A, Tariq. R, Aslam. A, **Saleem. H**, Mumtaz. H, Khan. I, Sajid. M and Basim. H. **2023**. Unboxing the bZIP transcription factor family exhibiting their role under Cold and Salt stresses in indica Rice. **Plant Stress**. <https://doi.org/10.1016/j.stress.2023.100299>
6. Zafar MM, Chattha WS, Khan AI, Zafar S, Subhan M, **Saleem H**, Ali A, Ijaz A, Anwar Z, Qiao F, Shakeel A, Seleiman MF, Wasonga DO, Parvaiz A, Razzaq A and Xuefei J. **2023**. Drought and Heat Stress in Cotton Genotypes suggested Agro-physiological and Biochemical features for Climate Resilience. **Frontier in Plant Science** 14:1265700. doi: 10.3389/fpls.2023.1265700
7. Feng C., Feng J, Wang Z, Pedersen C, Wang X, **Saleem H**, Domier L, Marzano S-YL. **2021**. Identification of the viral determinant of hypovirulence and host range in Sclerotiniaceae of a genomovirus reconstructed from the plant metagenome. **Journal of Virology** 95:e00264-21. <https://doi.org/10.1128/JVI.00264-21>.
8. Neupane A., Feng C, Mochama PK, **Saleem H** and Lee Marzano S-Y. **2019**. Roles of Argonautes and Dicers on *Sclerotinia sclerotiorum* Antiviral RNA Silencing. **Front. Plant Sci.** 10:976. doi: 10.3389/fpls.2019.00976
9. May J, Johnson P, **Saleem, H**, Simon AE. 2017. A Sequence-Independent, Unstructured Internal Ribosome Entry Site Is Responsible for Internal Expression of the Coat Protein of Turnip Crinkle Virus. **Journal of Virology**. 91(8):e02421-16. doi:10.1128/JVI.02421-16. 91(8) doi: 10.1128/JVI.02421-16
10. **Saleem H.**, M. T. Azhar, M. S. N. Rehman and A. A. Khan. 2017. Molecular screening of cotton germplasm for cotton leaf curl disease. **International Journal of Agriculture and Biology**. 19: 125-130
11. **Saleem H**, Nahid N, Shakir S, Ijaz S, Murtaza G, Khan AA, et al. 2016. Diversity, Mutation and Recombination Analysis of Cotton Leaf Curl Geminiviruses. **PLoS ONE** 11(3): e0151161. doi: 10.1371/journal.pone.0151161

## **Book Chapters, Articles and Conference Proceedings**

1. Ashfaq. S, Javaid A, AzamM, Khan AI, Chattha WS, Salman M and **Saleem H**. Biotechnological overview of Cauliflower for Biofortification. In: Azhar, M.T., M. Q. Ahmad, R. M. Atif and I.A. Rana. 2024. Biofortification of Grain and Vegetable Crops. Elsevier, UK, ISBN: 9780323917353
2. Saba. M, Junaid JA, S Mustafa, Javaid A, Raja S and **Saleem H**. Cassava: A Potential Candidate for Biofortification Exploration. In: Azhar, M.T., M. Q. Ahmad, R. M. Atif and I.A. Rana. 2024. Biofortification of Grain and Vegetable Crops. Elsevier, UK, ISBN: 9780323917353
3. Javaid A, Junaid JA, Ayub B, Chattha Ws, Khan AI and **Saleem H**. Biofortified Lettuce (*Lactuca sativa*): A Potential Option to Fight Hunger. In: Azhar, M.T., M. Q. Ahmad, R. M. Atif and I.A. Rana. 2024. Biofortification of Grain and Vegetable Crops. Elsevier, UK, ISBN: 9780323917353
4. **Saleem H**, Iftikhar MS, Rana US, Khan AI, Shakeel A, Junaid, JA, Ayub B and Anwar I. 2024 “Interaction of Phytohormones with Cotton Fiber Cell Development” <http://www.icra-cotton.org/page/cotton-innovations>. ISSN 6611-2788

5. Junaid, JA, **Saleem H**, Khan AI, Azam. M, Rana US, Aslam, D and Shahzadi N. 2023. "Heat Stress: A Review on Mitigating Breeding Strategies to reduce its Effects on Cotton Plant" <http://www.icra-cotton.org/page/cotton-innovations>.ISSN: 2788-6611
6. Junaid, JA, **Saleem H**, Rana US, Khan AI, Azam. M, Ghous HF, Rani, S and Ali A.2023. "Biotic Stress in Cotton; A Review on Mitigating Stress through Cotton Antibiosis Mechanism of Resistance". <http://www.icra-cotton.org/page/cotton-innovations>. ISSN: 2788-6611
7. Shahwar, M. Ayub, B. Afzal, A. **Saleem, H**. 2023. "Climate Change: Impact on Cotton Production in Pakistan". <http://www.icra-cotton.org/page/cotton-innovations>.ISSN: 2788-6611
8. **Saleem, H.**, Ayub, B. Azhar, M, T. 2022. Overview: Smart Breeding and Genetic Approaches in determining the Role of Gossypol as a Friend or a Foe. World Cotton Research Conference on Sustainable Cotton. ISBN:978-1-7923-8630-5 (eBook)
9. **Saleem, H.**, M. T. Chaudhary, A. Shakeel, S. H. Wani, X. Du and M. T. Azhar. 2021. Wild cotton genepool: An unopened treasure. In: Wild Germplasm for Genetic Improvement in Crop Plants, Ed. Azhar, M.T. and S. H. Wani. Elsevier, UK, ISBN: 9780128221372
10. **Saleem, H** and Salman M. 2021. "Current Scenario of Cotton in Pakistan". <http://www.icra-cotton.org/page/cotton-innovations>. ISSN:2788-6611
11. **Saleem, H.**, Khan AA, Azhar MT, Rehman MSN and Mubin M. 2018. Identification of potential parents for introgression of CLCuD resistance in upland cotton. Conference Proceeding of 1<sup>st</sup> International Conference "Challenges and Opportunities to Boost Agriculture in Changing Climate" Mar 26-28<sup>th</sup>, 2018. College of Agriculture, Bahauddin Zakariya University Multan, Bahadur Campus, Layyah, Pakistan
12. **Saleem, H.**, Khan AA, Azhar MT, Rehman MSN and Mubin M. 2017. Evidence of diversification of alphasatellites associated with cotton leaf curl disease, Conference Proceeding of SINO-PAK International Conference on Innovations in Cotton Breeding and Biotechnology
13. **Saleem, H.**, Khan AA, Azhar MT, Rehman MSN and Mubin M, 2017.Global Scenario of Cotton Leaf Curl Disease, 2017, Conference Proceeding, International Plant Breeding Congress, Tarakya University, Turkish Republic of Northern Cyprus (TRNC).

## **Skills**

- Isolation, Infectivity analysis and in vitro replication of viruses and their satellites
- Real-Time PCR, RT-qPCR, ELISA
- Southern/Northern blot/ Western blot (Protein purification and analysis)
- Plant/Soil microbiome analysis
- Cloning (Infectious clones) and gene expression
- Protoplast culture and in-vitro studies in aseptic conditions
- Transformation in yeast, E. coli, plants
- Tissue culturing and micropropagation
- Breeding field crops against biotic and abiotic stresses
- Data analysis by using R and bioinformatic tools.

## **Honors, Awards & Research Grants**

- Enhancement of germplasm diversity through wide cross hybridization for cotton improvement and sustainability (ongoing under EFS program as PI) ) worth 3.108 million
- Development of High Fiber Yielding and Climate Resilient Industrial Hemp Lines by Using Conventional and Molecular Breeding (Shortlisted under EFS program as PI)
- Genetic diversity enhancement, acclimatization, and hybridization of linseed as an alternate source of fiber crop (Shortlisted under ALP program as PI)
- Genetic Diversity enhancement through cross hybridization and establishment of germplasm Center for revive improvement and sustainability of cotton (Shortlisted under ALP program as Co-PI)
- Awarded Research project "Defining the Cucumber mosaic virus host range in local flora of Faisalabad District" under start-up research Program (0.5m PKR) by Higher Education Commission, Pakistan

- Awarded scholarship for PhD research under **International Research Support Initiative Program** (9000 US\$) and visited Prof. Anne Simon's lab at University of Maryland, USA, funded by Higher Education Commission (HEC), Pakistan
- Awarded **Indigenous Merit Based Scholarship Scheme for PhD** by Higher Education Commission (HEC), Pakistan
- Invited as speaker by, Institute for Global Health and Development, The AGA Khan University on Climate Change and Agriculture Solution's Impact on Nutrition (Oct 2024)
- Invited as speaker by Department of Plant Breeding and Genetics, University of Agriculture Faisalabad to present excellent contribution in science through my PhD Research work.
- Manager Career Counselling Centre, Punjab Higher Education Commission, (PHEC), Lahore, GC Women University Faisalabad (2017-2018)
- Mentor Student Start up Business Centre, GC Women University Faisalabad (2017-2018)
- Oral Presentation in 3 Days SINO-PAK International Conference on "Innovation in Cotton Breeding and biotechnology", MNS University of Agriculture, Multan, Pakistan (2018)
- Oral Presentation in International Plant Breeding Congress, Tarakya University, Turkey (Kyrenia, Turkish Republic of Northern Cyprus) Travel grant supported by HEC, Pakistan (2017)
- Awarded merit scholarship in BSC (Hons) and MSc (Hons)

### **Professional Memberships**

- Member of Pakistan Society of Plant Breeders and Geneticist\*, UAF (2000-present)
- Member of International Cotton Genome Initiative (ICGI) (Apr 2017-Present)
- Member of International Cotton Researchers Association (ICRA)(Dec2020-Present)

### **Editor and Reviewer**

- International Journal of Plant and Soil Science (Editor)
- Trends in Biotechnology and Plant Sciences (Editor)
- American Journal of Plant Sciences
- International Journal of Environment and Climate Change
- International Journal of Agriculture and Biology (IJAB)
- PEER J
- Pure and Applied Biology
- Journal of Experimental Agriculture International

### **Teaching**

- Cell Biology, Genetics and Evolution
- Applied Mutation Breeding
- Introduction to Plant Biotechnology
- Bacteriology and Virology
- Breeding Fibre, Pulse & Minor Crops
- Molecular Biology
- Innovation in Vegetable Breeding
- Germplasm Resources of Field Crops
- Biosafety Measures in GM Crops
- Preparation of Research Project and Scientific Writing

### **Additional Responsibilities**

- Undergraduate student Coordinator, Department of PBG, UAF (Sep 2023-Present)
- Member Board of Studies, Department of PBG, UAF (Feb 2022-Present)
- Member Course Curriculum Committee, Department of PBG, UAF (June 2022-Present)
- Secretary Board of Advisory Society of Plant Breeding and Geneticist, UAF (Nov 2022 Present)
- Associate Senior Tutor, UAF (April 2023-Present)
- Member Advisory Board Student Magazine Kisht e Nau, UAF (June 2023- Present)
- Member Synopsis Scrutiny Committee, Department of PBG, UAF (July 2023-Present)