



Dr. Abdul Raziq

Ph.D. Protected Horticulture (Abiotic Stress)



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RAZIQABDUL

VEGETABLE BOTANIST: Directorate of Vegetable Seed Production Agriculture Research Institute, Quetta 87300, Pakistan.

High-level foreign talent program Post-doctorate research associate

Post-doctorate Shandong Agricultural
University, China

Currently working on the CrRLK1 receptor kinase Fer-The maintain cell wall integrity in **halophytes** *Thellungiella halophila* under salt stress.

Area of research: Functional Genomics

Currently I am working on CrRLK1 family FER-THE pectin de-esterification maintain cell wall integrity in salt cress (NaturalScience Foundation of China)

I was investigating the underlying Transcriptome profiling of MYB-overexpressed transgenic lines provides crucial molecular insight into anthocyanin and remodel the biosynthesis regulatory network in *Nicotiana tabacum* (Published Journal of Industrial Crop and Products). In addition, as part of my postdoc work, I also working on the development of Integrating ATAC-seq and RNA-seq reveals the Dynamics of Chromatin Accessibility and

Gene Expression in Peanut and tobacco to Salt stress. I am also identifying the transcription role of R2R3MYB TF in Pink and black peanut under salt stress this work completed paper in under writing progress. Overexpression of MYB peanut genes increases tolerance to salt stress in *Nicotiana Tabacum*.

EDUCATION

Ph.D. Protected Horticulture at Nanjing

Agricultural University, China (2018-2022)

Area of research: Physiological Mechanisms of Spermidine Enhancing Salt and Heat Stress Tolerance in Tomato.

Plant abiotic stress and Polyamines, Hormone regulation, ROS scavenging and generation and signaling

During my Ph.D. research, I honored my research skills while working on the core concept of how plant systems and their molecular machinery communicate during their encounter to a variety of abiotic stresses. We especially focused on the underlying molecular mechanism of exogenous spermidine modulates polyamine metabolism and improves stress responsive mechanisms to protect tomato seedlings against salt stress.

Masters in Horticulture at Sindh Agriculture University

Tandojam, Pakistan (2010-2012)

Area of research: Plant growth performance, physiological and biochemical activities, molecular

In this research project, we performed the optimization of an efficient system for in vitro organogenesis of different gladiolus varieties from apical shoot explants using a combination of different plant growth regulators. Pre-soaking treatment and foliar application of KNO_3 on growth and flower production of gladiolus (*Gladiolus hortulanus*)

BSc (Hons) in Horticulture at University of Balochistan

Agriculture College Quetta, Pakistan(2009-2012)

Area of research: Horticulture on Apple different evolution in Balochistan Climatic Condition

Here, we mainly focused on investigating different parameters Apple evolution in Balochistan Climatic Condition and their growth performance, physio-biochemical properties and molecular mechanism for the micro propagation of various apple cultivars through the use of advanced plant tissue culture techniques.

RESEARCH PROJECTS

- CrRLK1 family Fer-The maintain cell wall integrity in halophyte salt cress (Natural Science Foundation of China).
- Transcriptome profiling of MYB-overexpressed transgenic lines provides crucial molecular insights into anthocyanin biosynthesis in *Nicotiana tabacum* (Natural Science Foundation of China).
- Integrating ATAC-seq and RNA-seq reveals the Dynamics of Chromatin Accessibility and Gene Expression in Peanut to Salt stress (high-level foreign talent program, China).
- Transcriptome profiling of Black and Pink Peanut provides crucial molecular insights into stress related and hormone signaling transduction in *Arachis hypogaea* (Natural Science Foundation of China).
- Role of spermidine modulates polyamine metabolism protect tomato seedlings against salt stress (Natural Science Foundation of China).
- A Comprehensive Evaluation of Salt Tolerance in Tomato (Var. Ailsa Craig): Responses of Physiological and Transcriptional Changes (Natural Science Foundation of China).
- Progress in understanding the crucial role of Spermidine modulates physio-molecular responses to mitigate the heat-induced in tomato (Natural Science Foundation of China).
- Crucial role of KNO₃ on growth and flower production of gladiolus (*Gladiolus hortulanus*) (National Science Foundation of Pakistan)

RESEARCH INTERESTS

- CrRLK1 family Fer-The maintain cell wall integrity in halophyte salt cress.
- Transcriptome profiling of MYB-overexpressed transgenic lines provides crucial molecular insights into anthocyanin biosynthesis in *Nicotiana tabacum*
- Role of phytohormones and polyamines in flower development, stomatal patterning, chloroplast movement, leaf formation and ROS scavenging, and.
- Regulation of polyamine metabolism to balance ROS under abiotic stress
- Regulation of plant secondary metabolism in primary root, lateral root, adventitious root, and roothair development under abiotic stress.
- Abiotic stress-induced DNA damage, epigenetic regulation and plant coping mechanisms.
- Transcriptome profiling, RNA-seq, Bioinformatics.
- Implementation, technical assistance and execution of CRISPR Cas-9 tools for gene editing applications in horticulture important crops.

SKILLS AND EXPERTISE

Experimental commands

- Hands on experience in morpho-physiology, biochemical and molecular etc.
- Hands on experience in gene cloning, plasmid extraction, HPLC and in vitro assays etc.
- Proficiency in molecular, biochemical, and physiological analyses.
- Generation and use of transgenic system including mutant and overexpressed *Arabidopsis* lines.
- Proteins characterization and quantification.

Bioinformatics tools

- Experience in bioinformatics analyses such as Go and KEGG, promoter, gene structure, conserved protein motifs & domains, as well as protein interaction network etc.

- Analysis of RNA-Seq and metabolomics data.

Scientific writing

- Conclusive and objective writing rather than reporting writing. Always try to develop reader's friendly story for the available results. Always try to support the conclusion with a conceptual model.

Data interpretation

- Keen observation, accurate data collection, appropriate data arrangement, suitable statistical test selection, and application, as per requirement graphical and tabular data presentation, grouping and arranging graphs and tables in the figures on the basis of concept relevancy.

General commands

- An excellent command on the anticipation of research problems and research gaps from the existing literature.
- Identification, new concepts development, and conceptual model development.
- Efficient in presenting an appropriate hypothesis and associated experimental design.
- Project budgeting, consumable and non-consumable product purchase and proper laboratory inventory preparation.

PUBLICATIONS

Principal/Co-first author

1. Zhang, L., Cui, X., Yang, L., [Raziq, A.](#), Hao, S., Zeng, W., ... & Duan, Q. (2024). **Non-transformation methods for studying signaling pathways and gene involved in *Brassica rapa* pollen–stigma interactions.** *Plant Physiology*, kiae445 (I.F 6.5).
2. [Abdul Raziq](#), Kun Zhang, Wei Sun, Naveed Ahmad, Huiling Zhao, Jing Ma, Muhammad Ali Raza, Atta Mohi Ud Din, Shabeer Ahmed, Shuzhen Zhao, Han Xia, Jiaowen Pan, Xingjun Wang, Chuanzhi Zhao*, **Transcriptome profiling of**

MYB-overexpressed transgenic lines provides crucial molecular insight into anthocyanin and remodel the biosynthesis regulatory network in *Nicotiana tabacum*. *Industrial Crops & Products* 213 (2024) 118374. (IF: 5.9).

3. [Raziq, A.](#); Wang, Y.; Mohi Ud Din, A.; Sun, J.; Shu, S.; Guo, S.*. **A Comprehensive Evaluation of Salt Tolerance in Tomato (Var. Ailsa Craig): Responses of Physiological and Transcriptional Changes in RBOH's and ABA Biosynthesis and Signaling Genes.** 2022. *Int. J. Mol. Sci.* 2022, 23, 1603. <https://doi.org/10.3390/ijms23031603>. (IF: 6.208).
4. [Abdul Raziq](#), Atta Mohi Ud Din, Sumera Anwar, Yu Wang, Mohammad Shah Jahan, Mingming He, Chen Guang Ling, Jin Sun, Sheng Shu, Shirong Guo*. **Exogenous spermidine modulates polyamine metabolism and improves stress responsive mechanisms to protect tomato seedlings against salt stress.** *Plant Physiology and Biochemistry* 187 (2022) 1–10. <https://doi.org/10.1016/j.plaphy.2022.07.005>. (IF: 5.437).
5. Khan N, Xu X, Khayyam M and [Raziq A](#) (2024). Toward making the field talk: assessing the relationship between digital technology and sustainable food production in agricultural regions. *Front. Nutr.* 11:1462438. doi: 10.3389/fnut.2024.1462438 (IF=4.00).
6. [Abdul Raziq](#), Atta Mohi Ud Din, Naveed Ahmad, Sumera Anwar, Yu Wang, Jin Sun, Sheng Shu, Chuanzhi Zhao, Shirong Guo*. **Spermidine application modulates physio-molecular responses to mitigate the heat-induced oxidative damages in tomato seedlings** (With Editor *Russian Journal of Plant Physiology*). (IF: 1.1)
7. [Abdul Raziq](#), Saba Amreen Memon, Muhammad Ayoub Baloch, et al, 2013. **Pre-soaking treatment and foliar application of KNO₃ on growth and flower production of gladiolus (*Gladiolus hortulanus*).** *Journal of Agricultural Technology* 2013 Vol. 9(5): 1347-1366, *Agricultural Technology* 2013, Vol. 9(5): 1347-136, ISSN 1686-9141 49(4):12509-12509. (IF=1.249)

8. Naveed Mushtaq, Shahid Iqbal, Faisal Hayat, [Abdul Raziq](#), Asma Ayaz and Wajid Zaman, * **Melatonin in Micro-Tom Tomato: Improved Drought Tolerance via the Regulation of the Photosynthetic Apparatus, Membrane Stability, Osmoprotectants, and Root System.** *Life* 2022, 12, 1922. <https://doi.org/10.3390/life12111922>. (IF: 3.253)
9. Mohammad Shah Jahan, Shirong Guo, [Abdul Raziq](#), Jin Sun, Sheng Shu, Yu Wang, Golam Jalal Ahammed, Khairul Kabir, Rana Roy; **Melatonin alleviates nickel phytotoxicity by improving photosynthesis, secondary metabolism and oxidative stress tolerance in tomato seedlings.** *Ecotoxicology and Environmental Safety*, Volume 197, 2020,110593. <https://doi.org/10.1016/j.ecoenv.2020.110593>. (IF: 7.129).
10. He, M.; Wang, Y.; Jahan, M.S.; Liu, W.; [Raziq, A.](#); Sun, J.; Shu, S.; Guo, S. **Characterization of *SIBAG* Genes from *Solanum lycopersicum* and Its Function in Response to Dark-Induced Leaf Senescence.** *Plants* 2021, 10, 947. <https://doi.org/10.3390/plants10050947>. (IF: 4.658).
11. Zaheer Ahmed, Sumera Anwar, [Abdul Raziq](#), Shabeer Ahmed, Fazal Muhammad, Nazeer Ahmed Alizai, Manzoor Ahmed, Shahbaz Khan, Shah Faisal, **Effect of Halopriming on Seed Germination and Seedling Vigor of Solanaceous Vegetables,** www.iiste.org, *Journal of Natural Sciences Research* ISSN 2224-3186 (Paper) ISSN 2225-0921 (Online), Vol.7, No.9, 2017.
12. Manzoor Ahmed Badini, Nemat Ullah, [Abdul Raziq](#), Muhammad Nawaz Kandhro, Abdul Qadir, Ahmed Ali Mengel, Shahbaz Khan, Shabeer Ahmed, Saeed Ahmad Qalanderani, Waseem Bashir, **Study of the Farmers Knowledge Regarding Pesticide Usage on Cotton Crop at District Nushki, Balochistan Province, Developing Country Studies** www.iiste.org ISSN 2224-607X (Paper) ISSN 2225-0565 (Online) Vol.7, No.2, 2017.
13. Shabeer Ahmed Badini*, [Abdul Raziq](#), Mian Khan, Sana Ullah Baloch, S.K Baloch, Hafeez Noor, Waseem Bashir, and Manzoor Ahmed Badini, **Effect of Phosphorus Levels on Growth and Yield of Chickpea (*Cicer arietinum* L.) Varieties,** *Journal of Natural Sciences Research*, ISSN 2224-3186 (Paper) ISSN 2225-0921 (Online) on: JNSR@iiste.org.

WORKSHOPS AND SYMPOSIUMS

1. Agriculture Research Institute Sariab Road Quetta, Balochistan, Pakistan
Currently working as a Vegetable Botanist/ Deputy Director 11-year worked experience (on study leave), Directorate Agriculture Research Vegetable production ARI, Sariab Quetta, Baluchistan, Pakistan.
2. Balochistan Agriculture College, Pakistan Five-year teaching worked experience undergraduate students "Department of horticultural plants, Balochistan Agriculture College Pakistan".
3. Four-year work experienced on "Physiological Mechanisms of Spermidine Enhancing Salt and Heat Stress Tolerance in Tomato" College of Horticulture, Nanjing Agricultural University, Jiangsu, China.
4. Five year English Teaching worked experience "The School of Challenger Academy", "The School of progressive English Coaching Academy" and the "The School valley of English language academy".
5. Two-year work experienced as a Principle Investigator Project entitle "ESTABLISHMENT OF PISTACHIO NURSERY" under the supervision of Louis Ferguson, University of California UC-DAVIS, USA.
6. World Health Organization (WHO) Six-year work experience as an UCPO in United Nation WHO (World Health Organization), District Quetta, Balochistan province, Pakistan. As a UCPO from 15 Nov 2011- 10 Oct 2013.
7. Agriculture Research Institute, Tandojam, Pakistan. Two-year Research work: The Effect of Pre- Soaking Treatment and exogenous Application of KNO_3 on the Growth and Flower Production of Gladiolus at ARI Tandojam.
8. Soil water testing in ARI Tandojam.
9. Six Month research work experienced Harvesting and Post Harvesting Treatment of Mango with Lime Solution to check Sapping of Mango at Tandojam University.
10. Government of Pakistan, Ministry of Food, Agriculture and livestock Islamabad, Pakistan. One-year experience in "Government of Pakistan Ministry of Food, Agriculture and Livestock Islamabad." From 06 Feb 2008- 31 Dec.
11. Working as a F.O (Field Officer), in Syngenta Company for 1 year from June 2010-July2011.

12. I have experience in marketing and Post-Harvesting Fruit in Australian Government from 20Jan-2009- September 2011.
13. Agriculture Research Institute Sariab Road Quetta, Baluchistan, Pakistan. Three year and Nine months' work experienced as a Research Officer in Agriculture Research Institute Sariab Road Quetta, Balochistan. Directorate of Fruit.
14. Established and management of Nursery. Directorate Agriculture Research Vegetable and Seed production, Baluchistan, Pakistan.
15. Working as a vegetables botanist Directorate Agriculture Research Vegetable and Seed production, Balochistan, Pakistan.
16. One-year Research Work Experience under Sindh Agriculture University Tandojam.
17. NCHD district Quetta, Balochistan, Pakistan. Two-year work experience as a data collector in NCHD district Quetta, Balochistan, Pakistan.
18. Balochistan Rural Support Program (BRSP). Two-year work experience as a logistic officer Balochistan Rural Support Program. (BRSP) District Jafferabad Balochistan.
19. One-year work experience as a nutrition officer in PDMA district Quetta Balochistan, Pakistan.
20. Agriculture Poly technique institute (ARI), NARC Islamabad 10 days training have been got on "Orchard Establishment and Management" from 3rd May-12 May, 2017 in collaboration with Agriculture and cooperative department, government of Balochistan. In assistance with: Directorate of fruit, DHRD, NARC at Agriculture Poly technique institute (ARI), NARC Islamabad.
21. National congress of Plant Biology, Nanjing China.
22. GACHERA conference world scientist award, Nanjing Agricultural University, China.

Serving as a reviewer for international journals

Serving as a reviewer for international journals Frontiers in plant science,

Journal of plant physiology and biochemistry and International journal of molecular sciences.

STUDY AWARDS

- High-level foreign talent program of the people republic of China
Postdoctoral research associate
Biotechnology Research Center, Shandong Academy of Agricultural Science, Jinan, Shandong, China.
- Talented Selection Program Scholarship Nanjing Agricultural University
September 2018-2022. Fully funded PhD studies and living allowances sponsored by Chinese Scholarship Council.
- Prime Minister Laptop Scheme, Government of Pakistan
September 2011- Awarded for best academic performance during master's studies.
- Balochistan Naway Sahar Laptop Scheme, Government of Balochistan, Pakistan
April 2009- Awarded for best academic performance during bachelor's studies.

REFERENCES

1. Professor Louise Ferguson

Prof. Louise Ferguson is currently serving as a full professor & Head in the department of Agriculture extension, University of California UC-DAVIS, USA (Pistachio Saline Study and Nursery management) Professor of Cooperative Extension. She remained my direct principle investigator during Pistachio project funded by UNICEF from 2016-2017.

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2. Professor Guo Shirong

Prof. Guo Shirong is currently serving as a full professor & Head in the department of protected Horticulture, Nanjing Agricultural University, China. He remained my direct supervisor during my Ph.D. studies in protected Horticulture department from 2018-2012.

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3. Dr Sumera Anwar (Postdoc Durham University)

Dr Sumera Anwar is currently serving as an Associate Professor in Botany, GC women University, Faisalabad, Pakistan.

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4. Dr. Shahbaz Khan

Dr Shahbaz Khan is currently serving Agronomist in Agriculture research institute Pakistan and researcher Hainan University, China.

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