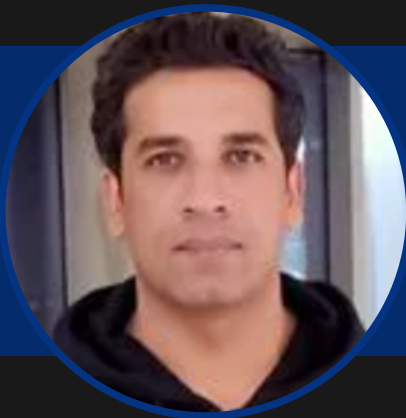




USMAN ARIF

PhD

About Me

Highly capable and motivated research professional with progressive approach, good communication, analytical and problem-solving skills. Possesses extensive knowledge in fields of plant metabolic engineering, synthetic biology, analytical chemistry and molecular biology. My long-term aspiration is to solve emerging scientific challenges for betterment of humankind.



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Centre of Excellence in
Molecular Biology
(CEMB), Lahore

Language

- English
- Urdu
- Swedish

Expertise

- Team Management
- Communication
- Problem solving
- Negotiation
- Critical Thinking
- Leadership

Area of specialization

- Plant metabolic engineering
- Synthetic Biology
- Molecular biology
- Biochemistry

Experience

Centre of Excellence in Molecular Biology, University of the Punjab, Lahore, Pakistan

2019 - Present

Assistant Professor

University of Arizona, Tucson, Arizona, USA

2018 - 2019

Postdoc Researcher

Centre of Excellence in Molecular Biology, University of the Punjab, Lahore, Pakistan

2017 - 2018

Assistant Professor

Royal Institute of Technology (KTH), Stockholm, Sweden

2014 - 2016

Postdoc Researcher

Education

Swedish University of Agricultural Sciences, Uppsala, Sweden

PhD in Biology
2013

University of Agriculture Faisalabad, Pakistan

Completed in 2006

Journal Reviewer

New Phytologist

Physiological and Molecular Plant Pathology

Journal of Experimental Botany

PLOS ONE



Awards

- 2021 | Higher Education Commission, Pakistan
Research grant under NRP program
- 2019 | University of Arizona, USA
Research Scholar stipend
- 2018 | Estonian University of Life Sciences
Invited speaker
- 2017 | Punjab University, Pakistan
Visiting faculty
- 2014 | Royal Institute of Technology, Sweden
Postdoc stipend
- 2012 | "Nilsson-Ehle Foundation, Sweden
Awarded research grant 100,000 SEK
- 2012 | Swedish University of Agricultural Sciences, Sweden
Travelling grant 17000 SEK for Internationalization of PhD Students
- 2008- 2011 | "Nilsson-Ehle Foundation, Sweden
Research grant 125000 SEK
- 2008- 2012 | Si/HEC, Sweden
Stipend for PhD studies

Selected additional training courses

Plant metabolism
Genetic Engineering
Secondary metabolites
Analytical chemistry
qPCR analysis
Confocal Microscopy
Phylogenetic analysis
Plant-Microbe interactions
Plant pathology
Environmental Impact Assessment
Information retrieval and scientific communication
Research Ethics
Lab safety
Python language

Lab skills

RNA/DNA isolation
cDNA synthesis
PCR, RT-PCR, Q-PCR, RCA
Vector construction, DNA cloning
Primary cell culturing
Gene overexpression and dsRNA-mediated gene silencing
Protein expression in E.coli and Yeast (Pichia pastoris)
SDS-PAGE and Western blotting
Protein purification, enzyme assays
Agro-electroporation, agro-infiltration, Agrobacterium-mediated plant transformations
TLC, GC-MS
HPLC
Plant tissue culturing
In situ hybridization
Light and confocal microscope
GUS-staining, promoter sequences analysis
Cell-suspension culture and isotope labeling
Phylogenetic analysis
Protein Docking
Applicable Bioinformatics
Python

Teaching experience

- 2019- Present | Centre of Excellence in Molecular Biology, Punjab University, Pakistan
Molecular Biology
- 2019- Present | Centre of Excellence in Molecular Biology, Punjab University, Pakistan
Cell Biology
- 2018 |Estonian University of Life Sciences, Estonia
Synthetic Biology
- 2018 |Centre of Excellence in Molecular Biology, Punjab University, Pakistan
Metabolic Engineering
- 2015 - 2016 | Royal Institute of Technology (KTH), Sweden
Cell Factory
- 2012 - 2013 |Swedish University of Agricultural Sciences, Sweden
Plant metabolism
- 2010- 2011 |Swedish University of Agricultural Sciences, Sweden
Genetic Engineering

Collaborations

- 1: Arizona Genome Research Institute, Arizona, USA
- 2: Department of Ecology, Environment and Plant Sciences, Stockholm University, Sweden.
- 3: Institute of Chemical Technology, Department of Food Analysis and Nutrition, Prague
- 4: Centre of Excellence in Molecular Biology (CEMB), University of Punjab, Lahore, Pakistan
- 5: National Food Agency, Uppsala, Sweden.
- 6: Dept. of Plant Biology, Stanford University, California, USA
- 7: ARC Centre of Excellence in Plant Cell Wall, University of Adelaide, Australia
- 8: Dept. of Plant Biology, SLU, Uppsala
- 9: Division of Glycoscience, School of Biotechnology, KTH, Stockholm
- 10: School of Plant Sciences, University of Arizona, Arizona,USA

International Conferences and Meetings

- 2016 | Plant Biology, USA
2013 | TERPNET2013, Crete, Greece (Poster)
2012 | Plant Biology, USA (Oral Presentation)
2011 | Linnaean Centre for Plant Biology Workshop, Sweden (Poster)
2008 | LIPIDS meeting, Sweden (Poster presentation)

1. **Glycoalkaloid and Calystegine Levels in Table Potato Cultivars Subjected to Wounding, Light, and Heat Treatments.** Usman Arif, Erik V. Petersson, Vera Schulzova, Veronika Krtková, Jana Hajšlová, Johan Meijer, Hans Christer Andersson, Lisbeth Jonsson, and Folke Sitbon. *Journal of Agricultural and Food Chemistry*. 2013 61 (24), 5893-5902. DOI: 10.1021/jf400318p.
2. **Transcript profiling of two potato cultivars during glycoalkaloid-inducing treatments shows differential expression of genes in sterol and glycoalkaloid metabolism.** Nurun Nahar, Erik Westerberg, Usman Arif, Alexandre Huchelmann, Alexandra Olarte Guasca, Lisa Beste, Kerstin Dalman, Paresh C. Dutta, Lisbeth Jonsson & Folke Sitbon. *Nature/Sci Rep* 7, 43268 (2017). <https://doi.org/10.1038/srep43268>.
3. **Metabolomic and transcriptomic analyses identify external conditions and key genes underlying high levels of toxic glycoalkaloids in tubers of stress-sensitive potato cultivars.** Irene Merino, Alexandra Olarte Guasca, Ales Krmela, Usman Arif, Ashfaq Ali, Erik Westerberg, Siddhi Kashinanth Jalmi, Jana Hajšlová, Vera Schulzova, Folke Sitbon. *Frontier in Plant Science* (2023). Sec. Plant Metabolism and Chemodiversity, Volume 14-2023 <https://doi.org/10.3389/fpls.2023.1210850>.
4. **Knockdown of ecdysteroid synthesis genes results in impaired molting and high mortality in *Bactericera cockerelli* (Hemiptera: Triozidae).** JR Paredes-Montero, U Arif, JK Brown. *Pest Management Science* (2022), volume 78: 2204-2214. <https://doi.org/10.1002/ps.6848>.
5. **Over expression of modified Isomaltulose Synthase Gene II (ImSyGII) under single and double promoters drive unprecedented sugar contents in sugarcane.** Mudassar Fareed Awan, Sajed Ali, Muhammad Farhan Sarwar, Muhammad Shafiq, Usman Arif, Qurban Ali, Abdul Munim Farooq, Shiming Han, Idrees Ahmad Nasir. *PLOS ONE* (2024), volume 19, Issue 11, <https://doi.org/10.1371/journal.pone.0311797>.
6. **Monitoring infection of tomato fruit by Tomato yellow leaf curl virus.** K. Just, U. Arif, A. Luik, A. Kvarnheden. *Plant Pathology* (2017), 66: 522-528. <https://doi.org/10.1111/ppa.12596>.

7. **Overexpression of *Gossypium arboreum* 3-ketoacyl-CoA synthase 6 (GaKCS6) gene enhanced leaf epicuticle wax in *Gossypium hirsutum* L. and improved tolerance against whitefly.** Muhammad Umair Majid, Rabiah Ashraf, Basit Jabbar, **Usman Arif**, Fatima Batool , Sameera Hassan , Bushra Rashid *. *Biocatalysis and Agricultural Biotechnology* (2024), volume 62. <https://doi.org/10.1016/j.bcab.2024.103418>.

8. **Species-specific functional divergence of MAH1-L genes enhances wax biosynthesis and drought tolerance in cotton (*Gossypium hirsutum* L.).** Ashraf, R., Rashid, B., & Arif, U. *Plant Science*, 113229, (2026).

9. Timotheous, R., Naz, H., **Arif, U.**, Dar, M.T., Sarwar, M.F., Awan, M.F., Ali, S. Rab, S.O., 2025. Virtual screening assisted identification of a phytochemical as potent inhibitor against *Candida lusitanae*; an in-silico study. *BMC Infectious Diseases*, 25(1), p.24.

10. Muhammad, K., Idrees, A., Iqbal, J., **Arif, U.**, Baloch, M.S., Shahzad, M.F., Abid, I. and AbdelGawwad, M.R., 2023. Prevalence of cattle ticks in various agro-ecological zones of Khyber Pakhtunkhwa, and evaluation of botanical extracts against *Hyalomma detritum*. *Journal of King Saud University-Science*, 35(6), p.102732.

References

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