BUSHRA SADIA PhD
CURRICULUM VITAE

PERSONAL DETAILS

NAME: BUSHRA SADIA
DESIGNATION: Professor and Director
ORGANIZATION: University of Agriculture, Faisalabad
E.MAIL: bushra.sadia@uaf.edu.pk

AREAS OF EXPERTISE

- Plant Protoplast technologies (Protoplast-to-plant regeneration, Protoplast fusion)
- Plant Transformation: PCR, RT PCR, Southern blot, GUS histo/ fluorometric assays
- Cryopreservation of plant cell suspension and meristems
- Doubled haploid production in wheat
- DNA fingerprinting, Association analysis and GWAS in plants

EDUCATION

PhD in Plant Sciences (1998-2002), School of Biosciences, University of Nottingham, Nottingham, UK
MSc Hons. Agriculture (1992-94), majoring Plant Breeding and Genetics, University of Agriculture, Faisalabad. Pakistan (CGPA 4.00/4.00)
BSc. Hons. Agriculture (1987-1991), majoring Plant Breeding and Genetics, University of Agriculture, Faisalabad. Pakistan (CGPA 3.95/4.00)

PROFESSIONAL EXPERIENCE

Director (CABB): 15.04.2023 till present
Professor BPS (Biotechnology): Centre of Agricultural Biochemistry and Biotechnology (CABB) University of Agriculture, Faisalabad (UAF), 22.03.2022 till present
Associate Professor BPS (Biotechnology): Centre of Agricultural Biochemistry and Biotechnology (CABB) University of Agriculture, Faisalabad (UAF), 2015 till present
Chair Biotechnology: U.S.-Pakistan Center for Advanced Studies in Agriculture and Food Security (USPCAS-AFS) University of Agriculture, Faisalabad (UAF), 2015 -2017
Assistant Professor Tenured (Biotechnology): Centre of Agricultural Biochemistry and Biotechnology (CABB) University of Agriculture, Faisalabad (UAF), 2009-2014
Assistant Professor Regular (Biotechnology): Centre of Agricultural Biochemistry and Biotechnology (CABB) University of Agriculture, Faisalabad (UAF), 2007-2009
Assistant Botanist: Agri. Biotechnology Research Institute, AARI, Faisalabad, Pakistan, 2003-2007; Pulses Research Institute, AARI, Faisalabad, Pakistan, 1998-2003
Assistant Research Officer: Agri. Biotechnology Research Institute, AARI, Faisalabad, Pakistan, 1993-1998

HONORS

1987-1994- Education Board (Sargodha, Pakistan) Merit Scholarship for FSc, BSc (Hons) studies
1991- Bronze medal in BSc Hons. Agriculture, UAF
1998- Commonwealth Scholarship for PhD Studies in UK
2001- Student travel award from The Royal Society, UK
2001- Student travel award from Society for In vitro Biology, USA
2001- Wilton R. Earle award for the best poster presentation from Society for In vitro Biology, USA

2002- Postdoctoral Research Fellowship USDA-ARS, USA for research on Ag*robacterium*-mediated transformation of sorghum

JOURNAL ARTICLES:

- Liaquat, I., R Munir, NA Abbasi, B Sadia, A Muneer, F Younas, MF Sardar, M Zahid and S Noreen. 2024. Exploring zeolite-based composites in adsorption and photocatalysis for toxic wastewater treatment: Preparation, mechanisms, and future perspectives. Environmental Pollution, p.123922.
- Munir, R., A Muneer, B Sadia, F Younas, M Zahid, M Yaseen and S Noreen. 2024. Biochar imparted constructed wetlands (CWs) for enhanced biodegradation of organic and inorganic pollutants along with its limitation. Environ Monit Assess, 196(5), p.425.
- Mustafa, G., R Munir, B Sadia, F Younas, M Sayed, A Muneer, MF Sardar, G Albasher and S Noreen. 2024. Synthesis of polymeric ferrite composites (Ni-CoFe2O4/Chitosan, Zn-$NiFe2O_4$/Starch, Co-$NiZnFe2O_4$/Polyaniline, Ni doped $CrZnFe2O_4$/Alginate, and Cr doped ZnCoFe2O4/PVA) for the removal of reactive golden yellow-160 dye from wastewater. J. Environ. Chem. Eng. p.112581.
- Ashraf, S., A Ahmad, A Jamil, B Sadia, JK Brown and SH Khan. 2023. LbCas12a mediated suppression of Cotton leaf curl Multan virus. Front. Plant Sci., 14, p.1233295.
- Hussain, S., B Sadia, HA Sadaqat and FS Awan. 2023. Evaluation of yield components and heat susceptibility of Pakistani wheat (*Triticum Aestivum* L.) germplasm subjected to induced terminal heat stress. Pak. J. Bot. 55(3). DOI:10.30848/PJB2023-3(37).
- Fazal A., FA Khan, H Razzaq and B Sadia. 2022. Development of high-yielding sesame (*Sesamum Indicum* L.) genotypes under drought stress conditions. SABRAO Journal of Breeding and Genetics 54 (5) 0-0, 2022 http://doi.org/10.54910/sabrao2022.54.5.
- Nitasha., FS Awan., HA Sadaqat and B Sadia. 2022. Comparative evaluation of different citrus cultivars for adventitious regeneration. Pak. J. Agri. Sci, 59(4), pp.589-598.
- Jameel, S., A Rehman., N Rajput and B Sadia. 2022. Molecular characterization of the pathogen causing grey mold in strawberry and its management. Appl. Ecol. & Environ Res. 20(1), pp.465-478.
- Awan, FS., S Hussain, M Habib, B Sadia, A Bernardo, PS Amand, G Bai, N Ghori, AI Khan and Z Ahmed. 2022. Genotyping by Sequencing (GBS) based molecular genetic diversity, of Pakistani Bread Wheat (Triticum aestivum L.) Accessions. *Frontiers in Genetics*, p.53.
- Numan, M., SA Bukhari, MU Rehman, G Mustafa and B Sadia. 2021. Phylogenetic analyses, protein modeling and active site prediction of two pathogenesis related (PR2 and PR3) genes from bread wheat. PloS one, 16(9), p.e0257392
- Yasmeen, S., MM Khan, SAM Abbas, B Sadia and M Azam. 2021. Evaluation of fungicides against phytophthora and fusarium (root rot spp.) of citrus rootstocks seedlings. J. glob. innov. agric. soc. sci., *9*, pp.145-154
- Habib, M, FS Awan, B Sadia and MA Zia. 2020. Genetic dissection of yield enhancing traits in pakistani spring wheat genotypes. *Pak. J. Agri. Sci*, *57*(5), pp.1243-1251
- M Habib, FS Awan, B Sadia, MA Zia. 2020. Genome-Wide Association Mapping for Stripe Rust Resistance in Pakistani Spring Wheat Genotypes. Plants, 9(9), p.1056
- Bukhari SA, G Mustafa, S Bashir, NA Akram, B Sadia, MN Alyemeni, P Ahmad. 2020. Genetic transformation of Sr22 gene in a high yielding susceptible cultivar of commercial wheat (Triticum aestivum L.). 3 Biotech, 10(5), pp.1-9
- Habib M, FS Awan, B Sadia and MA Zia. 2020. Genetic dissection of yield enhancing traits in Pakistani spring wheat genotypes. Pak. J. Agri. Sci. 57(5): 1241-1249
- Aslam N, AAKhan, HMN Cheema and B Sadia. 2020. Transcript profiling of zip genes to unzip their role in zinc assimilation in Solanum lycopersicum (L.). Pak J. Agri. Sci. 57(2): 413-423
- Habib M, FS Awan, B Sadia and MA Zia. 2020. Genome-wide association mapping for stripe rust resistance in Pakistani spring wheat genotypes. Plants. 8
- Bukhari SA., G Mustafa, S Bashir, NA Akran, M Rahman, B Sadia, MN Alyemeni and A Parvaiz. 2020. Genetic transformation of *Sr22* gene in a high yielding susceptible cultivar of commercial wheat (*Triticum aestivum* L.). 3 Biotech 10: 197
- Razzaq A, B Sadia, A Raza, MK Hameed and F Saleem. 2019. Metabolomics: A way forward for crop improvement. *Metabolites*. *9*(12): 303 https://doi.org/10.3390/metabo9120303

- Mumtaz S, M Hameed, F Ahmad and B Sadia. 2019. Structural and functional modifications in osmoregulation for ecological success in purple nutsedge (*Cyperus rotundus*). Intl. J. Agric. Biol., 22(5): 1123–1132
- Mustafa F, F Ahmad, M Hameed and B Sadia. 2019. Anatomical adaptations for drought tolerance in Lasiurus scindicus henr in Punjab, Pakistan. Intl. J. Agric. Biol. 00: 000–000 DOI: 10.17957/IJAB/15.1062
- S Kanwal, M Tahir, HA Sadaqat, B Sadia. 2019. Development of high yielding types of *Brassica napus* L. under salinity stress. Pak. J. Bot., 51(4): 1185-1190
- Jamil H, FA Khan, M Tahir and B Sadia. 2019. Screening of water deficit stress tolerance in Brassica napus L. using PEG-6000. Pak. J. Agri. Sci., 56 (3): 653-660
- Mubarik MS, SH Khan, B Sadia and A Ahmad. 2019. CRISPR-Cas9 based suppression of cotton leaf curl virus in *Nicotiana benthamina*. Intl. J. Agric. Biol., 22(3): 517–522
- Ahmad HB, HA Sadaqat, MNH Tahir and B Sadia. 2018. Study of some direct and in-direct selection indices in B. Campestris L . Pak. J. Agri. Sci., 55(2): 287-293
- Kabir Z, A Wahid, M Arfan and B. Sadia. 2018. Role of medium supplementation of ethylene biosynthesis inhibitors in improving grain yield and quality in rice. Int. J. Agric. Biol., 20: 761–768
- Naeem M, B Sadia, FS Awan and MA Zia. 2018. Enhanced Production of Streptokinase by UV- and Ethidium Bromide-Treated *Streptococus equisimilis* Mutant. Pak. J. Zool., 50(2): 655-661
- Farhat F, M Arfan, A Wahid and B Sadia. 2018. Modulation of Ionic and Water Status by *Moringa oleifera* Extract against Cadmium Toxicity in Wheat (*Triticum aestivum*). IJAB. 20(12): 2692-2700
- Khan Z, SH Khan, B Sadia, A Jamil and S Mansoor. 2018. TALE-mediated inhibition of replication of begomoviruses. Int. J. Agric. Biol. 20(1): 109-118
- Arshad SF, B Sadia, FS Awan and MJ Jaskani. 2017. Estimation of genetic divergence among sorghum germplasm of Pakistan through multivariate tools. Int. J. Agric. Biol., 19: 1099–1106
- Altaf S, IA. Khan, B Sadia, MJ Jaskani and AA Khan. 2017. Initiation and maintenance of cell suspension cultures of two citrus species for protoplast isolation. Int. J. Agric. Biol., 19: 08–12
- Razzaq H, MHN Tahir, HA Sadaqat and B Sadia. 2017. Screening of sunflower (*Helianthus annus* L.) accessions under drought stress conditions, an experimental assay. J. Soil Sci. Plant Nutr., 17(3): 662-671
- Razzaq H, MHN Tahir, HA Sadaqat and B Sadia. 2016. In Vitro Selection of the Sunflower (Helianthus Annuus L.) Accessions under the Polyethylene Glycol Mediated Drought Stress Conditions Int'l J. Advances in Agric. & Environ. Engg. (IJAAEE).,3(2):276-279
- Khan Z, SU Khan, MS Mubarik, B Sadia and A Ahmad. 2016. Use of TALEs and TALEN Technology for Genetic Improvement of Plants. Plant Molecular Biology Reporter: 1-19, doi:10.1007/s11105-016-0997-8
- Sanaullah T, A Wahid., F Javed and B Sadia. 2016. Optimization of Thiourea Level at Cellular and Whole Plant Level for Maize Hybrids (*Zea mays* L.). *Applied Ecology Environ. Research* 14 (5): 1-18
- Sanaullah T, A Wahid, B Sadia, A Hanif, N Maqbool, T Arshad and Z Kabir. 2016. Exogenous Application of Thiourea Ameliorates Salt Stress Effects by Alleviation of Oxidative Damage in Hybrid Maize. J. Agr. Sci and Tech. A 6: 220-231
- Ahmad KS, M Hameed, F Ahmad and B Sadia. 2016. Edaphic factors as major determinants of plant distribution of temperate Himalayan grasses Pak. J. Bot. 48 (2): 567-573
- Zafar SA, M Hussain, M Raza, HGMD Ahmed, IA Rana, B Sadia and RM Atif. 2016. Genome wide analysis of heat shock transcription factor (HSF) family in chickpea and its comparison with Arabidopsis. Plant Omics Jr. (POJ) 9(2): 136-141
- Zia UZ, HA Sadaqat, MHN Tahir, B Sadia, S Ahmad, I Ali, WNazeer, A Hussain, A Bibi, N Hussain and J Iqbal. 2016. Inheritance and Heterosis Studies of Achene Yield and Related Traits in Sunflower. Philippine J. Crop Sci. (PJCS): 41 (3):41-49
- Manzoor M, HA Sadaqat, MHN Tahir and B Sadia. 2016. Genetic analysis of achene yield in sunflower (Helianthus annuus l.) through pyramiding of associated genetic factors. Pak. J. Agri. Sci., Vol. 53(1), 113-120
- Imtiaz Ali, Amir Shakeel, Asif Ali and B Sadia. 2016. Genetic basis of variation for within-boll yield components in cotton. Turk J Agric For. 40: 18-24. doi:10.3906/tar-1409-117
- Atta Ullah H., F Javed, A Wahid and B Sadia. 2016. Alleviating effect of exogenous application of ascorbic acid on growth and mineral nutrients in cadmium stressed barley (Hordeum vulgare) seedlings. Int. J. Agric. Biol., 18: 73–79
- Rasul S, MA Zia, A Jamil and B Sadia. 2015. Process Optimization of Organophosphate Hydrolase Production by using Brevibacillus parabrevis SR2729. Journal of Pure and Applied Microbiology 9(1):475-481

- Razzaq H, S Kanwal, MH Tahir and B Sadia. 2015. Effects of spring and autumn seasons on the variability among sunflower (*Helianthus annuus* L.) accessions for pollen viability, germination and morphology. Int. J. Sci. Eng. Res. 6 (1). 2015 2035 ISSN 2229-5518 IJSER © 2015 http://www.ijser.org
- Sadia B. 2015. Improved isolation and culture of protoplasts from S. *chacoense* and potato: morphological and cytological evaluation of protoplast-derived regenerants of potato cv. Desiree. Pak. J. Agri. Sci., Vol. 52(1), 51-61; 2015. ISSN (Print) 0552-9034, ISSN (Online) 2076-0906
- Altaf S, MM Khan, MJ Jaskani, IA Khan, M Usman, B Sadia, FS Awan, A Ali, AI Khan. 2014. Morphogenetic characterization of seeded and seedless strains of kinnow mandarin (*Citrus reticulata* Blanco). AJCS 8(11):1542-1549
- Fardus S, A Wahid, F Javed, B Sadia. 2014. Changes in leaf phenolics concentrations determine the survival of evening primrose (*Oenothera biensis*) in various seasons. Int. J. Agric. Biol. 16(4):819-824
- Zia UZ, HA Sadaqat, MHN Tahir, B Sadia, S Bushman D Hole and W Malik. 2014. Estimation of genetic diversity using SSR markers in sunflower. Russ. J. Gen (Genetika). 50 (5): 498–507
- Zia UZ, HA Sadaqat, MHN Tahir and B Sadia. 2013. Correlation and path coefficient analysis of various traits in sunflower (*Helianthus annuus* L.). J. Glob. Innov. Agric. Soc. Sci. 1(1): 5-8
- Kareem A, MJ Jaskani, B Fatima and B Sadia. 2013. Clonal multiplication of Guava through softwood cuttings under mist conditions. Pak J. Agri. Sci. 50 (1): 23-27
- Zarif M, B Sadia, RA Kainth, IA Khan. 2013. Genotypes, explants and growth hormones influence the morphogenesis in Pakistani sorghum (*Sorghum bicolour* Moench). IJAB. 15(6): 1157–1162
- Nawaz MA, B Sadia, FS Awan, MA Zia, IA Khan. 2013. Genetic diversity in hyper Glucose Oxidase producing *Aspergillus niger* UAF mutants by using molecular markers. IJAB. 15: 362–366
- Malik W, AA Khan, B Sadia. 2013. In Situ characterization of coloured cotton genotypes. AJCS (Australian J. Crop Sci). 7(3):299-304
- Memon NN, M Qasim, MJ Jaskani, FS Awan, AI Khan, B Sadia, Z Hussain. 2012. Assessment of somaclonal variation in *in vitro* propagated cormels of Gladiolus. Pak. J. Bot., 44(2): 769-776
- Riaz S, B Sadia, FS Awan, IA Khan, HA Sadaqat, IA Khan. 2012. Development of species specific scar marker from RAPD in rose. Genet. Mol. Res. 11(1):440-447
- Hafeez I, B Sadia, HA Sadaqat, RA Kainth, MZ Iqbal, IA Khan. 2012. Establishment of efficient *in vitro* culture protocol for wheat land races of Pakistan. African J. Biotech. 11(11): 2782-2790
- Umar U, MA Khan, N Javed, B Sadia. 2011. Evaluation in resistance against PLRV in potato cultivars. Pak. J. Phytopath. 23(1):14-19 (HEC-recognized)
- Sadia B, PC Josekutty, SD Potlakayla, P Patel, S Goldman, SV Rudrabhatla. 2010. An efficient protocol for culturing meristems of sorghum hybrids. FYTON. 79: 177-181
- Ahmad F, AI Khan, B Sadia, FS Awan, HA Sadaqat, S Bahadur. 2010. Genetic diversity of chickpea (*Cicer arietinum* L.) germplasm in Pakistan as revealed by random amplified polymorphic DNA. Genet. Mol. Res. 9: 141-1420
- Iqbal A, B Sadia, AI Khan, FS Awan, RA Kainth, HA Sadaqat. 2010. Biodiversity in the sorghum (*Sorghum bicolor* L. Moench) germplasm of Pakistan. Genet. Mol. Res. 9: 756-764
- Khan AI, FS Awan, B Sadia, RM Rana, IA Khan. 2010. Genetic diversity studies among colored cotton genotypes by using RAPD markers. Pak. J. Bot. 42: 71-77
- Chishti SAS, AA Khan, B Sadia, IA Khan. 2007. Analysis of combining ability for yield, yield components and quality characters in tomato (*Lycopersicon esculentum* mill.). J. Agric. Res. 46(4): 325-332 (HEC-recognized)
- Power JB, MR Davey, B Sadia, P Anthony, KC. Lowe. 2003. Haemoglobin-enhanced mitosis in cultured plant protoplasts. Adv. Exp. Med. Biol. 540: 201-206
- Sadia B, P Anthony, KC Lowe, JB Power, MR Davey. 2003. Culture treatments for enhancing post-thaw recovery of cryopreserved cells of potato cv. Desiree. Cell. Mol. Bio. Letts. 8: 979-989

BOOK CHAPTERS

- FS Awan, B Sadia, J Altaf, M Habib, K Hameed and S Hussain. 2021. Genetic Variability through Induced Mutation. In Genetic Variation. IntechOpen

- Sadia B, FS Awan, J. Altaf, F Saleem S Frogh Arshad, ABin Umar and M Nasir. 2021. Exploring plant genetic variations with morphometric and molecular markers: Sorghum. In: Genetic Diversity. Rafael Maia, Editor. (ISBN 978-1-83881-097-9) IntechOpen.
- B Sadia, Awan FS, Saleem F, Razzaq A and Irshad B. 2019. Sorghum: an important annual feedstock for bioenergy. In: Biomass for Bioenergy - Recent Trends and Future Challenges. Abd El-Fatah Abomohra, Editor. https://www.intechopen.com/books , ISBN 978-1-78923-988-1
- B Sadia, Awan FS, Saleem F and Sadaqat HA. 2018. Genetic improvement of sorghum for biomass traits using genomic approaches. In: Biofuels: past, present future. Madhugiri Nageswara-Rao and Jaya R. Soneji Eds., IntechOpen, DOI: 10.5772/intechopen.73010
- Awan FS, Maryam, MJ Jaskani and B Sadia. 2017. Gender Identification in Date palm using molecular markers. In: Date Palm Biotechnology Protocols. In: Al-Khayri J., Jain S., Johnson D. (eds) Date Palm Biotechnology Protocols Volume II. Methods in Molecular Biology, vol 1638. Humana Press, New York, NY
- Fozia Saleem, B Sadia and FS Awan. 2017. Control of Aflatoxin Production Using Herbal Plant Extract, Aflatoxin-Control, Analysis, Detection and Health Risks, Dr. Lukman Abdulra'Uf (Ed.), InTech, DOI: 10.5772/intechopen.69867. Available from: https://www.intechopen.com/books/aflatoxin-control-analysis-detection-and-health-risks/control-of-aflatoxin-production-using-herbal-plant-extract

RESEARCH PROJECTS

Completed Projects (As PI):

- Micropropagation and Commercial Exploitation of Papaya (*Carica papaya*): A Potential Candidate for Dengue Fever Treatment (EFS, UAF)
- Creation and Exploitation of Seedless Citrus Using Protoplast Technology (Funded by HEC)
- Climate Smart Wheat: Development of heat and drought tolerant wheat for Pakistan (Funded by USAID)
- Genetic improvement of sorghum as biofuel feedstock using high throughput phenomics and genomic approaches (Funded by USAID)

STUDENTS SUPERVISED

- PhD: Completed = 2 Ongoing = 5
- MPhil / MSc Hons Agri Biotechnology: 65 (Completed), 5 (Ongoing)

MEMBERSHIPS

- Member editorial board Agricultural Sciences Journal (ASJ)
- Member editorial board The Pakistan Journal of Agricultural Sciences (PAKJAS)
- Borlaug's Global Rust Initiative (BGRI), Cornell University, USA
- Member Organization for Women in Science for the Developing World (OWSD)
- Member International Association for plant Biotechnology
- Member Commonwealth Alumni Association
- Nottingham Alumni students Association
- Member senate University of Agriculture, Faisalabad
- Member UAF Finance Committee
- Member Affiliation Committee
- Convener Ethics committee, UAF