

Dr. Muhammad Zubair Khan, (PhD Japan)

Permanent Address:

Drake, C/o Rizwan Yousaf, Tehsil and Post Office Rawalakot, District Poonch Azad Jammu and Kashmir.

Date of Birth: October 10, 1980

Marital Status: Married

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HEC Approved PhD Supervisor



Education

PhD (Japan)

April 2014-March 2017

Bio-Function Development (Molecular Plant Breeding, Genetic and Metabolic Pathway Engineering)

Research Institute for Bioresources and Biotechnology, Laboratory of Plant Gene Function, Graduate School of Bio-Resources and Environmental Sciences, Division of Sciences for Biological Function, Ishikawa Prefectural University, Japan.

Thesis Title:

Functional Analysis of Carotenoids Biosynthesis Genes in Sweetpotato (*Ipomoea batatas*).

MSc (Hons)

May 2006-May 2009

Plant Breeding and Molecular Genetics

Department of Plant Breeding and Molecular Genetics, Faculty of Agriculture, University of Azad Jammu and Kashmir.

Thesis Title:

Hybridization of Elite Autumn Olive (*Elaeagnus umbellata* Thunb.) Ecotypes for the Improvement of Medicinally Important Biochemicals.

BSc (Hons)

December 2000-December 2004

Plant Breeding and Molecular Genetics

Department of Plant Breeding and Molecular Genetics, Faculty of Agriculture, University of Azad Jammu and Kashmir.

Thesis Title:

Morpho-molecular Variation in Autumn Olive: A Single Plant with Multiple Micronutrient Genes.

Research Experience in Developed Country

Three Years as PhD Research Scholar in High Tech. Labs of the Research Institute of Bioresources and Biotechnology Ishikawa Prefectural University, Japan.

Job History

University of Poonch Rawalakot	As an Assistant Professor (TTS) at the Department of Plant Breeding and Molecular Genetics from November 22, 2019 (Continue)
University of Kotli	As an Assistant Professor (HEC IPFP) at the Department of Biotechnology from August 01, 2017 to 31-07-18 and on contract from 01-08-2018 to 21-11-2019.
Government of AJK	As an Agriculture Officer at the Department of Agriculture, Ministry of AJK, Pakistan from May 21, 2012 to September 26, 2013.
Banking Industry	As an Agriculture Finance Officer in Habib Bank Ltd.(HBL), Pakistan from December 07, 2006 to May 18, 2012.

Awards

March 2013	Japanese Govt. (MEXT) Research Scholarship for PhD in Japan. Awarded by Ministry of Education, Culture, Sports, Science and Technology of Japan.
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Skills

Professional Knowledge and Skills	Basic Agriculture, Plant Biology, Horticulture, Food Technology, Biofunction Development in Bacteria and Plants, Lab. Techniques in; Molecular Breeding, Molecular Genetics, Gene Cloning, Identification & Expression Analysis, Electrophoresis, SDS-PAGE, RNA Extraction, cDNA synthesis and RACE-PCR Techniques , Bacterial and Plant Cell Culture and Molecular Cell Biology General Techniques, Genomics, Bioinformatics, Carotenoids Genes Analysis and Functional Identification, Secondary Metabolites such as Carotenoids and other Isoprenoids Gene Engineering in Plants and Bacteria, Professional Presentation Skills, Project Designing, Research and Management, Banking/Agriculture Finance etc.
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Languages	English, Japanese, Urdu, Arabic, Punjabi, and Pahrhi.
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Scientific Memberships/Interpersonal Skills	Molecular Biology Society of Japan, Japan Science Society, The Japan Society for Bioscience, Biotechnology, and Agrochemistry (JSBBA) International Carotenoids Society, JASSO, JSPS, RIKEN etc. Reviewer and Editor of Acta Scientific Agriculture, Reviewer of BMC Plant Biology etc.
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Objectives	To excel in the newest challenging era of molecular research, innovation, services and business by joining a research/educational institute or company that would insight and excel to boost up mutual growth and interests for the sake of economic progress in the above sectors by industrial linking and achieving the highest standards.
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International Collaborative Research Projects in Hands

Pathway Engineering of *Escherichia coli* for the biosynthesis of carotenoids and other isoprenoids. (Academic Research Collaboration with Prof. Dr. Norhiko Misawa Laboratory/Research Group at Ishikawa Prefectural University, Japan)

Interests/Hobbies

Professional

Molecular Studies and Research on Microbial & Plant based Secondary Metabolites especially the Carotenoids and other Isoprenoids and their Pathways Engineering for Industrial Gains, Writing Scientific Articles, Participating in International Conferences/Seminars and Competing for Research Grants from Different National and International Funding Bodies etc.

Personal

Travelling, General Studies on Nature, Human Behavior Development, Sociology, Religious and Spiritual Studies, International Relationships, Foreign Language and Culture Studies and Teaching especially the Japanese Language and Culture.

Major Publications

Rafique, N., Bashir, S., **Khan, M.Z.**, Hayat, I., Orts, W., Wong, D.W.S. (2021). Metabolic engineering of *Bacillus subtilis* with an endopolygalacturonase gene isolated from *Pectobacterium. carotovorum*; a plant pathogenic bacterial strain. PLOS ONE. PLOS ONE; 16(12):e0256562:01-20.

Khan, M. Z., Takemura, M., Maoka, T., Otani, M., and Misawa, N. (2016). Carotenoid analysis of sweetpotato *Ipomoea batatas* and functional identification of its lycopene β - and ϵ -cyclase genes. *Z. Naturforsch. C*, 71 (9-10): 313-322.

Maoka, T., Otani, M., **Khan, M. Zubair**, Takemura, M., Hattan, J., and Misawa, N. (2016). Novel carotenoids produced on the interaction of the foreign carotenoid ketolase *CrtW* and endogenous epoxycarotenoids unique to sweetpotato tubers. *Tetrahedron Lett.*, 57 (42): 4746-4748.

Muhammad Zubair Khan. 2017. Functional analysis of carotenoid biosynthesis genes in sweetpotato *Ipomoea batatas* (サツマイモ *Ipomoea batatas* 由来カロテノイド生合成遺伝子の機能解析), *PhD Thesis*. Rseacrh Institute for Bioresources and Biotechnology, Ishikawa Prefectural University, Ishikawa, Japan (Approved manuscript for the ceremonial issuance of degree on 21st March, 2017).

Ahmad, S.D., Sabir, S.M. and **Zubair, M.** (2006). Ecotypes diversity in autumn olive (*Elaeagnus umbellata Thunb.*): a single plant with multiple micronutrient genes. *Chemistry and Ecology*, 22: 509–521.

- Khan, M. Zubair**, Takemura, M., and Misawa, N. (2021). Functional identification of cytochrome P450 genes involved in carotenoid biosynthesis in sweetpotato *Ipomoea batatas*. (Latest Submission).
- Sabir, S. M., Khalid, R., **Khan M. Z.**, Sarfraz, R., Akbar, N. (2021). Phytochemical analysis, antioxidant and inhibitory effect of *Ficus carica* fruit and leaves extracts International Journal of Food Science and Technology.[Latest Submission].
- Shah,A. H., **Khan, M. Z.**, Zahid, S., Jannat, S., Rasheed, S., Ishaque, Z. (2021).Phytochemistry and bioactivity of Barberry (*Berberis lycium* R.) fruit at a glance: a multipurpose gift of nature flourishing in beautiful mountains of Kashmir. Saudi Journal of Biological Sciences. [Latest Submission].
- Khan, S. B. Awan, M. S., Farrukh, M. A., Khan, S. A., Imran Hayat, Mushtaq M. H., Hussain, I., Rafique, N., Ijaz, R., , **Khan, M. Z.**, Shamim, A. (2021). In-vivo and in-vitro assimilation and toxicity of zinc oxide nanoparticles in food materials. Pharmaceuticals. [Latest Submission].

Books/Book Chapters

- Muhammad Zubair Khan**, Norihiko Misawa, Miho Takemura, Takahashi Maoka, Motoyasu Otani, Jun-Ichiro Hattan (2021). Molecular Breeding of Sweetpotato Carotenoids. In: Food Additives.A Book Edited by Dr. Miguel Ángel Prieto Lage editor (s) IntechOpen Publishers. ISBN 978-1-83968-960-4 [In Press: Accepted Book Chapter].
- Syed Dilnawaz Gerdezi and **Muhammad Zubair Khan**. (2010). Autumn Olive a Medicinal Plant from Azad Jammu & Kashmir; ©LAP Lambert Academic Publishing AG and Co., KG.DudweilerLandster.Saarbrücken, Germany. p., 1-128. ISBN: 978-3-8383-5979-3.

Conferences Presentations/Papers

- Muhammad Zubair Khan** and Asad Hussain Shah (2021). Biochemical characterization of beta-carotene contents in sweet potato (*Ipomoea batatas*) cultivars grown in Pakistan. Oral Presentation in: 1st virtual international conference on carotenoids [VICC 2021] Organised by; International Carotenoids Society, in Collaboration with Case Western Reserve University in Cleveland, Ohio, USA, June 22-25. Abstract no. 22, p. 55.
- Muhammad Zubair Khan**, Miho Takemura, Takashi Maoka, Motoyasu Otani and Norihiko Misawa. (2019). Metabolic screening of carotenoids and elucidation of a carotenoids metabolic pathway in sweetpotato (*Ipomoea batatas*). E-Poster Presentation in: 15th International Conference and Exhibition on Metabolomics & Systems Biology, April 29-30, 2019 in Kyoto, Japan.

Muhammad Zubair Khan, Norihiko Misawa, Miho Takemura, Motoyasu Otani, Jun-ichiro Hattan. (2018). Isolation, sequencing and functional identification of carotenoids biosynthetic pathway genes in sweetpotato (*Ipomoea batatas* L) by *E. coli* heterologous gene complementation expression system. International Conference on Natural Sciences at the Interface of Climate Change, Food Security and Sustainability (NSICFSS) 24-26th October 2018, Faculty of Sciences, University of Kotli Azad Jammu and Kashmir.

Muhammad Zubair Khan, Miho Takemura, Motoyasu Otani, Jun-ichiro Hattan, Norihiko Misawa. (2016). Isolation and functional characterization of carotenoid cyclase genes from sweetpotato plants. A Poster Presentation, In: The 2016 Annual Conference of the Japan Society for Bioscience, Biotechnology and Agrochemistry, March 27-31, 2016. Sapporo Convention Center; Sapporo Business Innovation Center, Hokkaido, Japan.

M. Zubair, S. D. Ahmed, and Abdul Qayyum. (2010). Clinical based evaluation of Autumn –Olive (*Elaeagnus umbellata* Thunb.) For Antibacterial, Antihypertensive, and Anti-Cancer Activities. In: *International Conference on Utilization of Modern Agriculture Technology in Changing Environmental Perspective*. 21-23 July, 2010. Faculty of Agriculture Rawalakot, the University of Azad Jammu and Kashmir.

Ahmed, S. D., M. Sabir and **M. Zubair**. (2006). Autumn-olive, a single source of multiple micronutrient genes for cereal bio-fortification. *National Symposium on Biotechnology for Economic Prosperity* July 24-26, 2006. National Commission on Biotechnology, Ministry of Science and Technology, Nathiagali, Pakistan.

Ahmad, S.D., Sabir, M., and **Zubair. M.** (2005). Morphological and Biochemical Variation in *Elaeagnus umbellata* Thunb. Populations; a Multipurpose Plant for Sustainable Development of Fragile Mountains of Pakistan. *PLANT GENETICS. In: Proceedings of the 6th National Congress on Genetics*, 12-14 May 2005, Kuala Lumpur, Malaysia.

References

Professor Dr. Norihiko Misawa. Research Institute for Bioresources and Biotechnology, Ishikawa Prefectural University, 1-308 Suematsu, Nonoichi-shi, 921-8836 Ishikawa, Japan. Phone: +81 76 227 7525; Mobile: +81 90 1886 5128; email: n-misawa@ishikawa-pu.ac.jp

Professor Dr. Syed Dilnawaz Ahmad Gardezi. Vice Chancellor, University of Kotli, AJK, Pakistan. Phone: +92 301 5280796; email: dilnawazgardezi@yahoo.com