**Curriculum Vitae**

**Dr. Mohammad Tahir Waheed**

**Associate Professor**

**Department of Biochemistry**

**Quaid-i-Azam University**

**45320, Islamabad, Pakistan.**

**Email:** [**tahirwaheed@qau.edu.pk**](mailto:tahirwaheed@qau.edu.pk)

**Phone: +92-51-90643207**

**Cell: +92-333-9964114**

**Education**

**2008-2012** **Ph.D. (with distinction), Molecular Biology**/**Biotechnology**, University of Natural Resources and Applied Life Sciences (BOKU), **Vienna, Austria**

**2005-2007 MPhil, Biochemistry/Molecular Biology**, Quaid-i-Azam University, Islamabad, Pakistan.

**2000-2002 M.Sc. Biochemistry**, Division **1st**, Gomal University, Dera Ismail Khan, Pakistan.

**PhD Research Topic:** Expression of human papillomavirus-16 L1 capsomeres in chloroplasts of *Nicotiana tabacum*: a novel approach towards cost-effective second-generation vaccines against cervical cancer

**MPhil Research Topic:** Transformation of *Lycopersicon esculentum* using *rol* genes

**MSc Research Topic:** Isolation and Purification of Zn-dependent Acid Phosphatase enzyme from chicken heart

**Research interests and Expertise**

* **Plant-based expression of vaccine antigens against cervical cancer, Tuberculosis and other infectious diseases**
* **Cloning and Vector designing/development for expression of vaccine antigens**
* **Plant transformation and Chloroplast genetic engineering**
* **Plant cell and tissue culture**
* **Immunological studies of plant-derived vaccines *in vitro* and *in vivo***
* **Evaluation of biological and Pharmaceutical activities of natural and synthetic compounds *in vitro* and *in vivo***

**Editorial Board Member**

* **BMC Plant Biology (Associate Editor)**
* **BMC Developmental Biology (Associate Editor)**
* **BMC Molecular and Cell Biology (Associate Editor)**
* **Turkish Journal of Biology (Associate Editor)**
* **American Journal of Biochemistry and Biotechnology (Associate Editor)**

**Membership**

* European Plant Science Organization (**EPSO**)
* International Society of Plant Molecular Farming **(ISPMF)**
* Asian Council of Science Editors **(ACSE)**
* Thesis evaluation committee and subject expert for Gomal University, Dera Ismail Khan, Pakistan

**Patents**

**1. Gurel E, Sameeullah M, Waheed MT,** Lössl AG, Yildirim M, Yucesan B, Baloğlu MC, Aslam N **(filed in 2021)** Digitalis bitkisine ait genlerin kloroplast transformasyonu ile tütüne aktarilmasi ve tütün bitkilerinin geliştirilmesi. **Country: Turkey:** Application number: 2021/002571, Patent Number: 726664.

**2. Waheed MT,** Neelam Batool **(filed in 2022)** Expression of Vaccine Antigens from Human Papillomavirus (HPV) and Cervical Cancer in the Chloroplasts of Edible Broccoli Plant. **Country**: **Pakistan** (Intellectual Property Organization), Application number: 610/2022

**3.** **Waheed MT**, Ijaz F **(filed in 2023)** Expression of OmpC antigen in tobacco plant for development of vaccine against colon cancer. **Country: Pakistan** (Intellectual Property Organization), Application number: 808/2023

**Publications in International Journals (H-index: 25, Citations: 1478, Impact factor: 143, Data from Google scholar)**

1. Sameeullah M, Kayaçetin F, Khavar KM, Perkasa AY, Maesaroh S, **Waheed MT**, Vahdettin Çiftçi **(2024)** Decoding genetic diversity and population structure of Brassica species by inter primer binding site (iPBS) retrotransposon markers. **Genetic Resources and Crop Evolution**;1-11
2. Malik MS, Elahi I, Sameeullah M, Ijaz F, Batool N, Kahlid F, Gurel E, Saba K, **Waheed MT** **(2023)** In silico designing and characterization of outer membrane protein K (OmpK) from *Vibrio anguillarum* and its expression in *Nicotiana tabacum* for the development of a plant-based vaccine against fish vibriosis. **Journal of Biotechnology** 380: 51-63
3. Aslam N, Sameeullah M, Yildirim M, Baloglu MC, Yucesan B, Lössl AG, **Waheed MT**, Gurel E **(2022)** Isolation of 3β-HSD promoter from *Digitalis ferruginea* subsp. *ferruginea* and its functional characterization in *Arabidopsis thaliana.* **Molecular Biology Reports** 7:1-11.
4. Zia A, Zahoor M, Abdullah, Nisar A, Batool N, Bibi A, Saba K, Ahmed A, Karataş A, Gürel E, Waheed MT **(2022)** De novo assembly and characterisation of chloroplast genomes of broccoli cvs. Marathon and Green sprout using next generation sequencing. **Turkish Journal of Agriculture and Forestry** 46(4):525-535
5. Latif S, Gottschamel J, Syed T, Younus I, Gull K, Sameeullah M, Batool N, Lössl AG, Mariz F, Müller M, Mirza B, **Waheed MT (2022)** Inducible expression of human papillomavirus‐16 L1 capsomeres in the plastomes of *Nicotiana tabacum*: Transplastomic plants develop normal flowers and pollen. **Biotechnology and Applied Biochemistry** 69:596-611.
6. Sameeullah M, Yildirim M, Aslam N, Baloğlu MC, Yucesan B, Lössl AG, Saba K, **Waheed MT**, Gurel E **(2021)** Plastidial Expression of 3β-Hydroxysteroid Dehydrogenase and Progesterone 5β-Reductase Genes Confer Enhanced Salt Tolerance in Tobacco. **International Journal of Molecular Sciences** 22(21): 11736.
7. Ijaz F, Saba K, Latif S, Batool N, Malik MS, Shafqat K, Ali Z, Waseem S, Sameeullah M, **Waheed MT (2021)** Transformation of tobacco protoplasts using mesoporous silica nanoparticles. **Wulfenia** 28(10): 15-45.
8. Abdullah, Henriquez CL, Mehmood F, Hayat A, Sammad A, Waseem S, **Waheed MT**, Matthews PJ, Croat TB, Poczai P, Ahmed I **(2021)** Chloroplast genome evolution in the Dracunculus clade (Aroideae, Araceae). **Genomics** 113(1):183-192.
9. Ismail H, Ijaz MU, Bhatti MZ, Liaquat H, Nawaz N, Zafar I, Nassan MA, Waheed RM, Badr RH, Latif S, Malik MS, Dilshad E, Waheed MT, Batiha GE **(2021)** Effect of *Phoenix dactylifera* extracts on anti-inflammatory, anticoagulant, analgesic and antidepressant activities. **Wulfenia** 28(2): 1-16.
10. Abdullah, Shahzadi I, Ali Z, Islam M, Naeem M, Mirza B, Lockhart P, Ahmed I, **Waheed MT** **(2021)** Correlations among oligonucleotide repeats, nucleotide substitutions and insertion-deletion mutations in chloroplast genomes of plant family Malvaceae. **Journal of Systematics and Evolution** 59(2): 388-402.
11. Mehmood F, Abdullah, Ubaid Z, Shahzadi I, Ahmed I, **Waheed MT**, Poczai P, Mirza B **(2020)** Plastid genomics of Nicotiana (Solanaceae): insights into molecular evolution, positive selection and the origin of the maternal genome of Aztec tobacco (*Nicotiana rustica*). **Peer J** 8: e9552.
12. Abdullah,Henriquez CL, Mehmood F, Carlsen MM, Islam M, **Waheed MT**, Poczai P, Croat TB, Ibrar Ahmed **(2020)** Complete chloroplast genomes of *Anthurium huixtlense* and *Pothos scandens* (Pothoideae, Araceae): unique inverted repeat expansion and contraction affect rate of evolution. **Journal of Molecular Evolution** 88: 562–574.
13. Abdullah, Henriquez CL, Mehmood D, Shahzadi I, Ali Z, **Waheed MT**, Croat TB, Poczai P, Ahmed I **(2020)** Comparison of Chloroplast Genomes among Species of Unisexual and Bisexual Clades of the Monocot Family Araceae. **Plants** 9(6): 737.
14. Saba K, Sameeullah M, Asghar A, Gottschamel J, Latif S, Lössl AG, Mirza B, Mirza O, **Waheed MT** **(2020)** Expression of ESAT‐6 antigen from *Mycobacterium tuberculosis* in broccoli: An edible plant. **Biotechnology and Applied Biochemistry** 67(1): 148-157.
15. Mehmood F, Abdullah, Shahzadi I, Ahmed I, **Waheed MT**, Mirza B **(2020)** Characterization of *Withania somnifera* chloroplast genome and its comparison with other selected species of Solanaceae. **Genomics** 112(2), 1522-1530.
16. Abdullah, Mehmood F, Shahzadi I, Waseem S, Mirza B, Ahmed I, **Waheed MT (2020)** Chloroplast genome of *Hibiscus rosa-sinensis* (Malvaceae): Comparative analyses and identification of mutational hotspots. **Genomics** 112(1): 581-591.
17. Abdullah, Waseem S, Mirza B, Ahmed I, **Waheed MT** **(2020)** Comparative analyses of chloroplast genomes of *Theobroma cacao* and *Theobroma grandiflorum*. **Biologia** 75: 761–771.
18. Saba K, Gottschamel J, Younus I, Syed T, Gull K, Lössl AG, Mirza B, **Waheed MT (2019)** Chloroplast-based inducible expression of ESAT-6 antigen for development of a plant-based vaccine against tuberculosis. **Journal of Biotechnology** 305:1-10.
19. Ismail H, Kayani SS, Kayani SI, Mirza B, **Waheed MT** **(2019)** Optimization of cell suspension culture of transformed and untransformed lettuce for the enhanced production of secondary metabolites and their pharmaceutical evaluation. **3 Biotech**. 9(9): 339.
20. Abdullah, Shahzadi I, Mehmood F, Ali Z, Malik MS, Waseem S, Mirza B, Ahmed I, **Waheed MT** **(2019)** Comparative analyses of chloroplast genomes among three *Firmiana* species: Identification of mutational hotspots and phylogenetic relationship with other species of Malvaceae. **Plant Gene** 19: 100199.
21. Younus I, Ismail H, Rizvi CB, Dilshad E, Saba K, Mirza B, **Waheed MT** **(2019)** Antioxidant, analgesic and anti-inflammatory activities of *in vitro* and field-grown Iceberg lettuce extracts**. Journal of Pharmacy & Pharmacognosy Research** 7(5): 343-355.
22. Malik MS, Afzal M, Farid A, Khan FU, Mirza B, **Waheed MT (2019)** Disease Status of Afghan Refugees and Migrants in Pakistan. **Frontiers in Public Health** 7: 185.
23. Sameeullah M, Khan FA, Özer G, Aslam N, Gurel E, **Waheed MT**, Karadeniz T **(2018)** CRISPR/Cas9-mediated immunity in plants against pathogens. **Current Issue in Molecular Biology** 26: 55-64.
24. Ismail H, Dilshad E, **Waheed MT**, Mirza B **(2017)** Transformation of lettuce with *rol ABC* genes: extracts show enhanced antioxidant, analgesic, anti-Inflammatory, antidepressant and anticoagulant activities in rats. **Applied Biochemistry and Biotechnology** 181(3): 1179-1198.
25. Ismail H, Dilshad E, **Waheed MT**, Sajid M, Kayani WK, Mirza B **(2016)** Transformation of *Lactuca sativa* L. with *rol C* gene results in increased antioxidant potential and enhanced analgesic, anti-inflammatory and antidepressant activities *in vivo*. **3 Biotech** 6(2): 215.
26. **Waheed MT**, Sameeullah M, Khan FA, Syed T, Ilahi M, Gottschamel J, Lössl AG **(2016)** Need of cost-effective vaccines in developing countries: What plant biotechnology can offer? **SpringerPlus** 5: 65
27. Dilshad E, Zafar S, Ismail H, **Waheed MT**, Cusido RM, Palazon J, Mirza B **(2016)** Effect of Rol Genes on Polyphenols Biosynthesis in *Artemisia annua* and Their Effect on Antioxidant and Cytotoxic Potential of the Plant. **Applied Biochemistry and Biotechnology** 179: 1456–1468.
28. **Waheed MT**, Ismail H, Gottschamel J, Mirza B and Lössl AG (**2015**) Plastids: the Green Frontiers for Vaccine Production. **Frontiers in Plant Science** 6: 1005.
29. Fahad S, Khan FA, Pandupuspitasari NS, Ahmed MM, Liao YC, **Waheed MT** et al **(2015)** Recent developments in therapeutic protein expression technologies in plants. **Biotechnology Letters** 37(2): 265-279 .
30. Hassan SW, **Waheed MT**, Müller M, Clarke JL, Shinwari ZK, Lössl AG **(2014)** Expression of HPV-16 L1 capsomeres with glutathione-S-transferase as a fusion protein in tobacco plastids: an approach for a capsomere-based HPV vaccine. **Human Vaccines and Immunotherapeutics** 10(10): 2975-2982.
31. Arshad W, **Waheed MT**, Mysore KS, Mirza B **(2014)** *Agrobacterium*-Mediated Transformation of Tomato with *rolB* Gene Results in Enhancement of Fruit Quality and Foliar Resistance against Fungal Pathogens. **PloS one** 9(5): e96979.
32. Hassan SW, Mehmood Z, **Waheed MT**, Lössl AG **(2013)** Towards generation of transplastomic tobacco, expressing a 35 kDa protein as an antigen: a step towards affordable plant made vaccine against *Mycobacterium*. **Cloning and Transgenesis** 3: 117.
33. Gottschamel J, **Waheed MT**, Clarke JL, Lössl AG **(2013)** A novel chloroplast transformation vector compatible with the Gateway recombination cloning technology. **Transgenic Research** 22: 1273-1278.
34. Clarke JL, **Waheed MT**, Lössl AG, Martinussen I, Daniell H **(2013)** How can plant genetic engineering contribute to cost-effective fish vaccine development for promoting sustainable aquaculture? **Plant Molecular Biology** 83: 33-40.
35. **Waheed MT**, Gottschamel J, Hassan SW, Lössl AG **(2012)** Plant-derived vaccines: An approach for affordable vaccines against cervical cancer. **Human Vaccines and Immunotherapeutics** 8(3): 403-406.
36. Kozak K, Galek R, **Waheed** MT, Sawicka-Sienkiewicz E **(2012)** Anther culture of *Lupinus angustifolius*: callus formation and the development of multicellular and embryo-like structures. **Plant Growth Regulation** 66: 145-153.
37. Hassan SW, **Waheed MT**, Lössl AG **(2011)** New areas of plant-made pharmaceuticals. **Expert Review of Vaccines** 10(2): 151-153.
38. Lössl AG, **Waheed MT** **(2011)** Chloroplast-derived vaccines against human diseases: achievements, challenges and scopes. **Plant Biotechnology Journal** 09: 527-539.
39. **Waheed MT**, Thönes N, Müller M, Hassan SW, Gottschamel J, Lössl E, Kaul HP, Lössl AG **(2011)** Plastid expression of a double-pentameric vaccine candidate containing human papillomavirus-16 L1 antigen fused with LTB as adjuvant: transplastomic plants show pleiotropic phenotypes. **Plant Biotechnology Journal** 09: 651-660.
40. **Waheed MT**, Thönes N, Müller M, Hassan SW, Razavi MN, Lössl E, Kaul HP, Lössl AG **(2011)** Transplastomic expression of a modified human papillomavirus L1 protein leading to the assembly of capsomeres in tobacco: a step towards cost-effective second-generation vaccines. **Transgenic Research** 20: 271-282.

**Book Chapters**

**1.** Saba K, Ijaz F, Malik MS, Batool N, Lössl AG, **Waheed MT** **(2023)** Targeting Chloroplasts for Plant Molecular Farming. In: Tools & Techniques of Plant Molecular Farming. ISBN978-981-99-4858-1. Vol 1: p. 251-271. **Springer**

**2.** Malik MS, Batool N, Ijaz F, Saba K, Lössl AG, Sameeullah M, **Waheed MT** **(2023)** Plant Molecular Farming for Developing Countries: Current Status and Future Perspectives. In: Tools & Techniques of Plant Molecular Farming. ISBN978-981-99-4858-1. Vol 1: p. 273-293. **Springer**.

**3. Waheed MT**, Malik MS, Saba K, Younus I, Ahmad N, Mirza B, Lössl AG **(2022)** Plant-based Vaccines against Livestock Diseases: Way to Achieve Several Sustainable Development Goals. In: Applications in Plant Biotechnology Focus on Plant Secondary Metabolism and Plant Molecular Pharming (ISBN: 9780367344467). p. 204-238. **Science Publishers, an imprint of CRC Press/Taylor & Francis Group**.

**4.** Saba K, Malik MS, Latif S, Ijaz F, Sameeullah M, **Waheed MT** **(2021)** Plant Molecular Pharming For Human Diseases. In: Frontiers in Molecular Pharming (Eds: Muhammad Sarwar Khan), ISBN: 978-981-5036-67-0, p. 226-266, **Bentham Science Publishers.**

**5.** Ahmad N, Raza G, **Waheed MT**,Zahid Mukhtar **(2020)** Food Safety Issues and Challenges of GM Crops. In book: Policy Issues in Genetically Modified Crops: A Global Perspective. Edition: 1st, Chapter: 16, pp: 355-369 Publisher: Elsevier Academic Press.

**6.** Andreas Lössl, Syed W. Hassan, **Tahir M. Waheed,** Mona Najafian Razavi and Elke Lössl **(2011**) Molecular Farming: The Production of Vaccines in Plants. In: Essays on Agriculture and Environment. Eva Maleviti and Costas Stathopoulos Eds., ISBN: 978-960-6672-99-6, p.35-44, ATINAR Publishers, Athens, Greece.

**Conferences and Scientific Meetings**

* **Mohammad Tahir Waheed**, Nadja Thönes, S. Waqas Hassan, Florian Mayer and Andreas G. Lössl (2009) “Transplastomic expression of modified HPV-L1 antigen in comparison to an adjuvant fused protein” at “Third International Conference on Plant-Based Vaccines & Antibodies”, University of Verona, **Italy**, June 15-17, 2009.
* **Mohammad Tahir Waheed**, Nadja Thönes, S. Waqas Hassan, Hans-Peter Kaul and Andreas G. Lössl (2010) “Cytoplasmic male sterility in tobacco plants caused by expression of a gene encoding for a viral coat protein in chloroplasts” at “Green Plant Breeding Technologies”, Vienna University of Economics, Vienna, **Austria**. February 2-5, 2010.
* Andreas G. Lössl, **Mohammad Tahir Waheed**, S. Waqas Hassan and Hans-Peter Kaul (2010) “Cytoplasmic male sterility (CMS)–Regulated by an inducible trans-activation system” at conference “Green Plant Breeding Technologies”, Vienna University of Economics, Vienna, **Austria**. February 2-5, 2010.
* **Mohammad Tahir Waheed**, Nadja Thönes, S. Waqas Hassan, Hans-Peter Kaul and Andreas G. Lössl (2010) “Chlorosis and cytoplasmic male sterility in tobacco plants caused by transplastomic expression of a mutated HPV-16 L1 fusion protein” at conference “Molecular Aspects of Plant Development”, Vienna University of Economics, Vienna, **Austria**. February 23-26, 2010.
* **Mohammad Tahir Waheed**, Nadja Thönes, Martin Müller, Syed Waqas Hassan, N. Mona Razavi, Elke Lössl, Hans-Peter Kaul and Andreas G. Lössl (2010) “Viral Capsomeres formation in transplastomic tobacco expressing a modified human papillomavirus L1 protein: A novel approach towards low cost vaccine production for developing countries” at “2nd International Symposium on Chloroplast Genomics and Genetic Engineering”, National University of Ireland (NUI), Maynooth, **Ireland**. June 20-23, 2010.
* **Mohammad Tahir Waheed**, Elke Lössl, S. Waqas Hassan, Nadja Thönes, Johanna Gottschamel, Hans-Peter Kaul and Andreas G. Lössl (2010) “Chloroplast-based expression of a modified human papillomavirus (HPV16) L1 protein forming capsomeres in tobacco” at COST Action meeting “Molecular Farming: Plant as a Production Platform for High Value Proteins”, Vico Equense (Naples), **Italy**, October 6-8, 2010.
* **Mohammad Tahir Waheed**, Nadja Thönes, Martin Müller, S. Waqas Hassan, Johanna Gottschamel, Elke Lössl, Hans-Peter Kaul and Andreas G. Lössl (2010) Transplastomic expression of a modified human papillomavirus L1 gene fused with *Escherichia coli* heat-labile enterotoxin subunit B (LTB) as adjuvant” at scientific meeting “Recombinant pharmaceutical manufacturing from plants - the future of molecular farming”, BioPark Hertfordshire, Welwyn Garden City, Hertfordshire, **United Kingdom**. October 15th, 2010.
* **Mohammad Tahir Waheed,** Nadja Thönes, Martin Müller, S. Waqas Hassan, Johanna Gottschamel, Elke Lössl, Hans-Peter Kaul and Andreas G. Lössl (2011) “Expression of an antigen-adjuvant fusion protein against human papillomavirus in tobacco chloroplasts: transplastomic plants show pleiotropic phenotypes” at conference “Plant Transformation Technologies II”, Altes AKH, Vienna, **Austria**. February 19-22, 2011.
* **Mohammad Tahir Waheed**, Johanna Gottschamel, S. Waqas Hassan, Elke Lössl, Martin Müller, Jihong Clarke and Andreas G. Lössl (2011) “Vaccines produced in plant chloroplasts: A safe and cost-effective alternative” at “6th Conference on Global Health and Vaccination Research”, Soria Moria Hotel & Conference center, Oslo, **Norway**. September 12-13, 2011.
* **Mohammad Tahir Waheed**, Elke Lössl, Nadja Thönes, Martin Müller, S. Waqas Hassan, Johanna Gottschamel and Andreas G. Lössl (2011) “Chloroplast expression of a double-pentameric vaccine candidate containing human papillomavirus (HPV)-16 L1 antigen translationally fused with LTB” at conference “Plant-Based Vaccines & Antibodies, Plant Expression systems for recombinant Pharmacologics”, Tiara Park Atlantico, Porto, **Portugal**. June 8-10, 2011.
* Johanna Gottschamel, **Mohammad Tahir Waheed**, Even Sannes Riiser, Elke Lössl, Martin Mülle, Jihong Liu Clarke, Andreas G. Lössl (2012) “Recombinant protein expression in plastids: adjuvants, viral capsomeres and envelope domains” at conference “Molecular farming: plants as a production platform for high value proteins”, COST Meeting, FA0804, **Vienna**. February 16-17, 2012.
* Andreas G. Lössl, Johanna Gottschamel, Martin Müller, **Mohammad Tahir Waheed**, Jihong Liu Clarke (2012) “Production of Dengue and HPV vaccine candidates by an inducible expression system in tobacco plastids” at conference “Molecular Pharming: Recent progress in manufacturing medicines in plants” Stevenage, London, **United Kingdom**. September 21, 2012.
* Andreas G. Lössl, **Mohammad Tahir Waheed**, Johanna Gottschamel, Martin Müller, Jihong Liu Clarke (2012) “A double-pentameric capsomere-adjuvant combination expressed in plant chloroplasts: LTB and modified HPV-16 L1” at conference “Virus-Like Particle & Nano-Particle Vaccines” Cannes, **France**. November 28-30, 2012.
* Johanna Gottschamel, **Mohammad Tahir Waheed**, Andreas G. Lössl, Jihong Liu Clarke (2013) “Expression of envelope domain III (EDIII) based dengue antigens in tobacco chloroplasts and their molecular analyses” at conference “PlantBio: the Second National Plant Biology Conference”, Tromsø, **Norway**. November 7-8, 2013.
* Johanna Gottschamel, **Mohammad Tahir Waheed**, Jihong Liu Clarke, Andreas G. Lössl (2013) “Convenient construction of chloroplast transformation vectors by a recombinant cloning technology” at conference “The 3rd International Symposium on Chloroplast Genomics and Genetic Engineering (3rd ISCGGE)”, New Brunswick, NJ, **USA**. May 8-11, 2013.
* **Mohammad Tahir Waheed**, Johanna Gottschamel, Jihong Liu Clarke and Andreas Lössl (2013) “Overcoming chlorosis and growth retardation in tobacco transplastomic LTB-L1 plants via inducible expression” at conference “The 3rd International Symposium on Chloroplast Genomics and Genetic Engineering (3rd ISCGGE)”, New Brunswick, NJ, **USA**. May 8-11, 2013.
* Johanna Gottschamel, **Mohammad Tahir Waheed**, Jihong Liu Clarke, Andreas G. Lössl (2014) “A novel chloroplast transformation vector compatible with the Gateway® recombination cloning technology” at conference “Plant Transformation Technologies III”, Vienna, **Austria**. February 12-14, 2014.
* Participated in “Capacity Building Sessions with the Biosafety Regulators”, organized by Pakistan Biotechnology Information Center (PABIC), held from **August 11-12, 2016** at Serena Hotel, **Islamabad, Pakistan.**
* Sabeen Malik, **Mohammad Tahir Waheed (2017)** Study of Different Factors Affecting the Growth of Cucumber cv. Dynasty and Amazon in Tissue Culture and *Agrobacterium*-mediated Transient Expression at 1st National Conference on Bioactivity of Phytochemicals (NCBP), held at Institute of Molecular Biology and Biotechnology (IMBB), University of Lahore, Lahore, Pakistan, organized by Institute of Molecular Biology and Biotechnology (IMBB) and Centre for Research in Molecular Medicine (CRiMM), University of Lahore, from **4-6 October, 2017**. (1st Poster prize).
* Kehkshan Gull, Iqra Younas, Bushra Mirza, **Mohammad Tahir Waheed** **(2017)** Establishment of Ethanol Inducible System and Protein Analysis of LTB-L1 Expressing Transplastomic *Nicotiana tabacum* Plants, at 2nd International symposium on “Advances in Molecular Biology of Plants and Health Sciences”, held from **21-23 November, 2017**, at National Centre of Excellence in Molecular Biology (CEMB), University of Punjab, Lahore, Pakistan, organized by National Centre of Excellence in Molecular Biology (CEMB), University of Punjab, Lahore, Pakistan. (3rd Poster Prize)
* Kiran Saba, Mohammad Tahir Waheed **(2018)** Expression of ESAT-6 antigen in edible plant species to develop a plant-based vaccine against Tuberculosis. 1st International conference on Advances in Drug Discovery and Development at National Agricultural Research Centre (NARC), Islamabad, Pakistan, held **3-5 January 2018**, organized by Abdul Wali Khan University Mardan, Pakistan and Pakistan Agricultural Research Council (PARC)
* Sara Latif, Kehkshan Gul, Iqra Younus, Tahira Syed, Johanna Gottschamel, Andreas Lössl, Bushra Mirza, **Mohammad Tahir Waheed (2018)** Inducible expression of LTB-L1 antigens in tobacco plastomes: a plant-friendly approach for developing a plant-based, cost-effective vaccine against cervical cancer. 5th International Conference on Drug Development-Natural and Synthetic, Current Approaches and Emerging Trends for the Development and Discovery of the Drugs, held at Center for Advanced Drug Research (CADR), CIIT, Abbottabad, Pakistan, from **28-29 June, 2018**. Organizers: CIIT, Abbottabad Campus. (1st poster prize).
* “Launch of ISAAA Brief 55 and Seminar on Science Communication and Public Engagement”, held on **March 09, 2021**, jointly organized by COMSTECH (the Ministerial Standing Committee on Scientific and Technological Cooperation of the Organization of Islamic Cooperation) ICCBS (International Center for Chemical and Biological Sciences) and PABIC (Pakistan Biotechnology Information Center), Karachi Chapter.
* Webinar: The Future of HPV Research – Capitalizing on Current Opportunities", Dated: **Apr 22, 2021**, Organized by International Papillomavirus Society.
* Webinar: “Current issues in HPV testing: implications for the elimination target”, arranged by International Papillomavirus Society (IPVS) on **27 August, 2021**, Organized by International Papillomavirus Society.
* Webinar:“Single-Dose HPV Vaccination: Challenges and Opportunities”, organized by International Papillomavirus Society (IPVS) on **2 November, 2022**.
* Virtual Seminar: **“**Academic Creativity to Accelerate Technological Transfer for a COVID-19 Vaccine”, organized by Wiley, on **22 November, 2022**.
* Webinar:“Update on WHO recommendations on HPV vaccine schedule optimization and implications for the field”, organized by International Papillomavirus Society (IPVS) on **22 February, 2023**.
* Webinar: “One Less Worry – Improving Access to Screening to Prevent HPV-related Cancer”, organized by organized by International Papillomavirus Society (IPVS) on **03 March, 2023**.
* Webinar: “How I Learned to Stop Worrying and Love Flow Cytometry Analysis”, organized by Wiley, on **21 March, 2023**.
* Webinar: “The Future of HPV research, featuring IPVS early career recognition awardee 2023”, organized by International Papillomavirus Society (IPVS) on **16 May, 2023**.

**Professional Trainings**

**1.** Professional Competency Enhancement Program for Teachers **(PCEPT)** in **2012**.

**2.** Infectious Substances Shippers Training (ISST), organized by World Health Organization (WHO), at Best Western Hotel, Islamabad, Pakistan, from **18-19 October, 2017**.

**3.** Funding hacks for researchers (online), organized by Elsevier Publishing Campus, on **07 July 2017.**

**Conferences/Symposium/Trainings Organized**

**1)** RSC Pakistan 1st International Conference on Medicinal Chemistry and Drug Discovery. 18-19 October 2018, COMSTECH, Islamabad, Organized by Royal Society of Chemistry (RSC), UK, COMSTECH, Islamabad, Quaid-i-Azam University, Islamabad.

**2.** ISESCO Women in Science Conference-Contribution of Pakistani Women in Scientific and Social Development **(March 8, 2016)** held at Department of Biochemistry, Quaid-i-Azam University, Islamabad, Pakistan.

**3)** International Conference on the Applications of Molecular Biology in Medicine and Agriculture **(August 20-22, 2013)** held at Quaid-i-Azam University, Islamabad, Pakistan.

**4)** 12th National and 3rd International Conference of Botany **(1st – 3rd September 2012)** at Quaid-i-Azam University, Islamabad, Pakistan, organized by Pakistan Botanical Society and Quaid-i-Azam University, Islamabad, Pakistan.

**5)** Organized HEC’s Professional Competency Enhancement Program for Teachers (PCEPT), held at Quaid-i-Azam University in **June-July 2012**.

**Teaching Experience (Total Years of Teaching/Research experience: 11 years)**

* Worked as **Assistant Professor** at **Department of Biochemistry and Molecular Biology**, **Faculty of Biological Sciences,** **Quaid-i-Azam University**, Islamabad, Pakistan, from 1st June 2012 to 28th June 2020.
* Working as **Associate Professor** at **Department of Biochemistry and Molecular Biology**, **Faculty of Biological Sciences,** **Quaid-i-Azam University**, Islamabad, Pakistan, from 29th June 2020 to present.

**Courses Taught**

Taught following courses at the Department of Biochemistry, Quaid-i-Azam University.

**1. Research Planning and Report Writing**

**2. Current Trends in Biotechnology**

**3. Plant Cell and Tissue Culture (Lectures + Lab)**

**4. Biopharming in plants: Principles and Techniques (a newly developed course)**

**5. Principles of Pharmacology**

**6. Biotechnology**

**7. Nutritional Biochemistry**

**8. Industrial Biochemistry**

**9. Virology**

**10. Amino Acids and Proteins**

**11. Laboratory Course of Gene Manipulation**

**12. Laboratory Course of Recombinant DNA Technology**

**Research students Supervised/under supervision**

The detail of research students supervised and currently under supervision is as follows:

**MPhil students supervised:** **48**

**MPhil students currently under supervision:** **5**

**PhD supervised: 3**

**PhD under supervision: 5**

**BS students supervised: 6**

**Projects**

**1.** Isolation and regeneration of protoplasts of *Nicotiana tabacum*: optimization of tissue culture conditions for plastid-based vaccine production (2012). Funded by Higher Education Commission (HEC) of Pakistan. Amount: Rs. 500,000/-. (Completed)

**2.** Development of a cost-effective vaccine against cervical cancer - a prophylactic approach (2016). Funded by Eureka-Eurostars. Amount: Rs. 150,00,00 (as subcontract), completed.

**3.** Metabolic engineering, metabolome and promoter analyses of 3β-HSD, P5βR1 and P5βR2 genes from digitalis plant species (2016), funded by Tubitak, Turkey (completed): acted as co-advisor on the project.

**4.** Development of a plant-based cost-effective edible vaccine against human papillomavirus infection and cervical cancer (2019). Funded by Higher Education Commission (HEC), Pakistan. Amount: Rs.4.84 million (Completed).

**Administrative/other Experience/services:**

* Served as Purchase and Store Officer: managing the purchase of chemicals and scientific equipment for the Department of Biochemistry, Quaid-i-Azam University.
* Course Coordinator, Department of Biochemistry, Quaid-i-Azam University
* Served as BS Coordinator
* Served as Departmental Focal person for Prime Minister Laptop Scheme
* Served as Focal Person for National Internship Program
* Member Degree Equivalence Committee, Department of Biochemistry, Quaid-i-Azam University, Pakistan
* Member BS, BS Lateral, MPhil and PhD admission committees, Department of Biochemistry, Quaid-i-Azam University, Pakistan
* Member Board of Studies, Department of Biochemistry, Quaid-i-Azam University, Pakistan
* Member Board of Faculty, Department of Biochemistry, Quaid-i-Azam University, Pakistan
* Member of QAU Patent Review Committee of Quaid-i-Azam University, Pakistan
* Member Scrutiny and Selection committee for Visiting faculty and Teaching Assistants, Department of Biochemistry, Quaid-i-Azam University, Pakistan
* Member of BS and MS theses evaluation committees of COMSATS University Islamabad (CUI), Pakistan
* Member of BS, MS and PhD theses evaluation committees of Fatima Jinnah Women University, Islamabad, Pakistan

**Reviewer for Journals** (<https://publons.com/researcher/1347260/mohammad-tahir-waheed/>)

* Plant Molecular Biology
* Plant Biotechnology Journal
* Vaccine
* Journal of Genetic engineering and Biotechnology
* Journal of Biotechnology
* Chinese Herbal Medicines
* Pharmacognosy Magazine
* Journal of Basic and Clinical Physiology and Pharmacology
* Protein and Peptide Letters
* Biotechnology and Applied Biochemistry
* 3 Biotech
* Planta
* DNA and Cell Biology
* South African Journal of Botany
* Sugar Tech
* International Journal of Tropical Disease and Health
* PeerJ
* Jordan Journal of Biological Sciences
* Plant Cell, Tissue and Organ Culture
* Plos One
* Zoonoses
* Biochimie

**International Collaborations**

**1. Dr. Andres Lössl:** Austrian Institute of Technology, GmbH, Donau-City-Straße 1, 1220 Vienna, Austria; Department of Applied Plant Sciences and Plant Biotechnology, University of Natural Resources and Applied Life Sciences (BOKU), Vienna, Austria.

**2. Prof. Dr. Martin Müller:** German Cancer Research Centre (DKFZ), Heidelberg, Germany.

**3. Prof. Dr. Eva Stöger:** Institute of Applied Genetics and Cell Biology (IAGZ), BOKU, Vienna, Austria.

**4. Prof. Dr. Ekrem Gurel:** Biology Department, Abant Izzet Baysal University, Bolu, Turkey.

**5. Dr. Abdullah Makhzoum:** Bioinformatics, Data Science and High Performance Computing, Earth & Environmental Sciences, Faculty of Sciences, Botswana International University of Science and Technology, Botswana.

**6. Dr. Wenping Gong:** Army Tuberculosis Prevention and Control Key Laboratory, Beijing Key Laboratory of New Techniques of Tuberculosis Diagnosis and Treatment, Institute for Tuberculosis Research, The 8th Medical Center, Chinese PLA General Hospital, Beijing, China.

**Language/Communication Skills**

* **English Excellent**
* **Urdu Excellent**
* **Saraiki Excellent**
* **Pashto Satisfactory**
* **Arabic Satisfactory**
* **German Satisfactory**

**References**

**Prof. Dr. Bushra Mirza**

Department of Biochemistry,

Faculty of Biological Sciences,

Quaid-i-Azam University,

Islamabad, Pakistan.

Tel: 0092 051 9064-3007

Email: [bushramirza@qau.edu.pk](mailto:bushramirza@qau.edu.pk)

**Prof. Dr. Hans-Peter Kaul**

Head of the Department of Crop Sciences,

University of Natural Resources and Applied Life Sciences (BOKU),

Vienna, Austria.

Tel: 0043 1 47654 3306

Email: [hans-peter.kaul@boku.ac.at](mailto:hans-peter.kaul@boku.ac.at)