CURRICULUM VITAE
DR. MUHAMMAD TAHIR
PROFESSOR (TENURED)

PERSONAL INFORMATION:

Address: Dept. of Agricultural Sciences and Technology (AST), Atta-ur-Rahman School of Applied Biosciences (ASAB), National University of Sciences & Technology (NUST), Sector H-12, Islamabad, Pakistan

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Mobile: (+92) 322-4415661
Date of birth: 09 January 1975
Place of birth: Lahore, Pakistan
Marital status: Married
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RESEARCH INTERESTS:

The research interests cover both basic and applied problems in plant virology and plant virus diagnosis. The main research interest is in tropical plant viruses, plant-virus-vector interactions, and, specifically, the identification and validation of resistant genes by knockdown experiments.

Along with this, the focus is on begomoviruses, Barley yellow dwarf virus (BYDV), Sugarcane mosaic virus (SCMV), and Citrus tristeza virus (CTV) diversity, multiple transgenic resistance(s) in significant cash crops, and the development of antibodies against them.

Curiosity is to standardize a protocol for Agrobacterium-mediated wheat/sugarcane transformation and to create transgenic resistance in model plant systems targeting Barley yellow dwarf virus, Sugarcane mosaic virus, and Citrus tristeza virus. A great intention is the utilization of plant systems for the development of vaccines against human and poultry viral diseases.

EDUCATION

Post-Doctorate: University of Arizona, USA — Jan 2015

Ph.D. University of the Punjab, Lahore, Pakistan Biological Sciences — May 2009
Dissertation: "Molecular and biological analysis of begomoviruses; inside and outside the cotton zone in Pakistan"

M.Sc. University of the Punjab, Lahore, Pakistan, Botany — Aug 1998
Dissertation: "Heavy metal contents of Pakistani wheat varieties"

B.Sc. University of the Punjab, Lahore, Pakistan, — May 1995
Minored in Botany, Zoology, Geography

WORK EXPERIENCE

Aug 2020 to date	Tenured Professor, Atta-ur-Rahman School of Applied Biosciences (ASAB), National University of Sciences & Technology (NUST), Sector H-12, Islamabad Pakistan
May 2015 to Aug 2020	Tenured Associate Professor, Atta-ur-Rahman School of Applied Biosciences (ASAB), National University of Sciences & Technology (NUST), Sector H-12, Islamabad Pakistan
Feb 2010 to May 2015	Assistant Professor (Tenure Track), ASAB, NUST, Islamabad, Pakistan
June 2009 to Jan 2010	Research Associate School of Biological Sciences, Lahore, Pakistan. Worked on a project entitled "Novel approach to generate wide spectrum resistance to all cotton begomoviruses infecting cotton and other cultivated crops."
July 2008 to June 2009	Research Fellow School of Biological Sciences, Lahore, Pakistan

GRANTS AWARDED

Transgenic resistant cotton development through virus-induced programmed cell death (VIPCD) - A novel concept. (**NUST Flagship Project** $90,000; 2024-2027**)**

Sugarcane productivity enhancement by the development of transgenic virus resistance through expression of hairpin RNA (hpRNA) carrying Sugarcane mosaic virus-derived sequences. (**Funding agency, Higher Education Commission of Pakistan**; $54,000; 2017-2021; Submitted as PI).

Development of cotton-infecting begomoviral induced cell death via. a modified betasatellite containing the Cyt c gene and monoclonal antibodies against begomoviruses. (Funding agency, USDA-ICARDA, $298,000/- Submitted as PI).

Development of transgenic resistance in Solanum tuberosum L. against abiotic stress by the expression of DREB protein gene. (**Funding agency, Higher Education Commission of Pakistan**; $30,000; 2018-2021; Submitted as Co-PI). (**Funding agency, USDA-ICARDA**; $292,000/- 2014-2017; Submitted as PI).

Development and validation of transgenic virus resistance in Nicotiana benthamiana by expression of artificial microRNA (amiRNA) carrying begomovirus (Tomato leaf curl New Delhi Virus) derived sequences (**Funding agency, Higher Education Commission of Pakistan**; 2012- 2017 $62,000; Submitted as PI)

RESEARCH EXPERIENCE

Students Supervision

Ph.D. Projects (Completed):

Muhammad Ali: Thesis title "Engineering resistance against *Barley yellow dwarf virus* (BYDV) by expression of the viral derived gene(s) in a model plant."

Malik Nawaz Shuja: Thesis title "Development of antibodies, infectious clones, and infectivity studies of Cotton leaf curl Burewala virus."

Sehrish Akbar: Thesis title "Artificial miRNA mediated transgenic resistance against Sugarcane mosaic virus in Nicotiana benthamiana."

Shabina Ishtiaq Ahmad: Thesis title "Pharmacological basis of selected medicinal plants used in Muslim ethnobotanical culture.

Shabina Iram: Thesis title "Biological activities of western Himalayan *Artemisia* L. (*Asteraceae*)"

Hafiz Muhammad Khalid: Thesis title "Development of monoclonal antibodies as a diagnostic tool for plant virus(es)."

Naseeha Bibi: Thesis title "Development of a cross-strain effective vaccine against Hemophilus influenzae strains using in-silico and in-vivo approaches".

Qurat ul Ain: Thesis title "Development of transgenic resistance in Solanum tuberosum L. against abiotic stress, by the expression of DREB protein gene."

Ph.D. Projects (Ongoing):

Amtul Wadood Wajeeha: Thesis title "A multiple antigen peptide system-based approach for Dengue virus vaccine: serotypes prevalent in Pakistan."

Mizna Ahmed: Thesis title "Cotton productivity enhancement by the development of transgenic resistance(s) against Cotton leaf curl disease (CLCuD)"

Hina Asghar: Thesis title "Under discussion"

MS projects:

Forty (40) MS students have completed their MS degrees in various aspects of begomoviruses and vaccine development. While ten (10) students are currently working in the lab for the completion of their MS Degree

BS Projects (Completed):

Eight Bachelor of Science students completed their BS thesis.

TEACHING EXPERIENCE

I have been teaching; "Plant Biotechnology & Genetic Engineering", "Plant Biochemistry", and "Plant Virology" courses to graduate students and "Research Planning and Report Writing", "Plant virology" and "Techniques in Molecular biology" to undergraduate students "since 2010 at the National University of Sciences and Technology (NUST). For the last fourteen and a half years, the students' feedback on my taught courses ranged from 85 - 95. The average student's feedback on the courses taught in the last three years is more than 90%.

ADMINISTRATIVE EXPERIENCE

Incharge of ASAB Glasshouse facilities, plant virology, and Insectary laboratories (2014 to date).

Member Guidance and Examination Committee, NUST

Member Faculty Board of Studies, NUST

Managing Editor of NUST Journal of Natural Sciences 2021 to date

Head of steering committee "Health and Well-being, Food and Agriculture" NUST since 2020-2023.

Head Institutional Review Board "Health and Well-being, Food and Agriculture" NUST 2021-2023

Member NUST Disciplinary Committee 2012-2023

Head of Plant Biotechnology Department (2013-2018)

Director (Local Quality Enhancement Cell; 2011-2013)

Post Graduate Students Coordinator 2010-2011

Administration head for the arrangements of Conferences and workshops at ASAB.

Member Local Purchase Committee (2011-2014; 2016-2018)

PUBLICATIONS

Journal Publications

Sana, M., Keskin, S., Anwar, S., **Tahir, M.,** Ibrahim, M., Faheem, M., Zohaib, A., Doymaz, M.Z., Javed, A., (2025). Serological surveillance of Crimean-Congo Hemorrhagic fever virus in animals using targeted enzyme immune assay. Viruses (Submitted)

Khalid, M., Zaid, N.S.S., Rashid, N. **Tahir, M.** (2024). Development of an immunodiagnostic assay for the detection of Sugarcane mosaic virus. Turkish Journal of Biology 48: 390-400. doi:10.55730/1300-0152.2714

Chaudhry, K., Maryam, S., Iqbal, S., Ahmad, A., **Tahir, M.,** Hussnain, A. J. (2024). Plant growth

promoting Dictyosphaerium DHM2 derived Magnesium Peroxide nanoparticles with antibacterial, antioxidant and photocatalytic properties. Algal Research https://doi.org/10.1016/j.algal.2024.103647

Khalid M., Zaidi, N.S.S., Rashid, N., **Tahir, M.,** (2024). Development of polyclonal antibodies against the recombinant protein of Barley yellow dwarf virus. Asian Journal of Agriculture and Biology. DOI: 10.35495/ajab.2023.127.

Ali, Q., Munir, F., **Tahir, M.,** Amir, R., Gul, A. (2024) Cloning and Overexpression of the DREB30 gene enhances drought and osmotic stress tolerance in transgenic potato. *Journal of Plant Interactions*, *19*(1). https://doi.org/10.1080/17429145.2024.2364656.

Bibi, N., Wajeeha, A.W., Mukhtar, M., **Tahir, M.,** Zaidi, N.S.S., (2023). In-vivo validation of novel synthetic tbp1 peptide-based vaccine candidates against Haemophilus influenzae strains in BALB/c mice. Vaccines.11(11), 1651. https://doi.org/10.3390/vaccines11111651

Khalid, S., **Tahir, M.,** (2023). First report of Cotton leaf curl Multan virus infecting Hibiscus rosa-sinensis in Pakistan. Journal of Plant Pathology. https://doi.org/10.1007/s42161-023-01509-8.

Khalid, M., Herath, V., Ahmed, K., **Tahir, M.,** Verchot, J., (2022). Genetic diversity and molecular evolution of Sugarcane mosaic virus comparing whole genome and coat protein sequence phylogenies. Archives of Virology 167**,** 2239–2247.

Ali, Q., Mushtaq, N., Amir, R., Gul, R., **Tahir, M.,** Munir, F. (2021) Genome-wide promoter analysis, homology modelling and protein interaction network of Dehydration Responsive Element Binding (DREB) gene family in *Solanum tuberosum.* PLoS ONE 16(12): e0261215. https://doi.org/10.1371/journal.pone.0261215.

Ali., N., Paracha, R.Z., **Tahir, M**., (2021). *In silico* evaluation of molecular virus-virus Interactions taking place between *Cotton leaf curl Kokhran virus- Burewala strain* and *Tomato leaf curl New Delhi virus*. PEERJ 9:e12018 https://doi.org/10.7717/peerj.12018.

Bibi, N., Zaidi, N.S.S., **Tahir, M.,** Babar, M.M., (2021). Vaccinomics-driven proteome-wide screening of Haemophilus influenzae for the prediction of common putative vaccine candidates. Canadian Journal of Microbiology. https://doi.org/10.1139/cjm-2020-0535.

Khan, A., Imtiaz, Y., **Tahir, M**., Briddon, R.W., (2021). Complete genome sequence of hollyhock vein yellowing virus, a novel monopartite begomovirus infecting hollyhock in Pakistan. Archives of Virology. Doi. https://doi.org/10.1007/s00705-021-05134-7

Iram, S.; Hayat, M.Q.; **Tahir, M**.; Gul, A.; Abdullah; Ahmed, I. (**2019**) Chloroplast Genome Sequence of *Artemisia scoparia*: Comparative Analyses and Screening of Mutational Hotspots. *Plants. 8*: 476. https://doi.org/10.3390/plants8110476

Anwar, S., **Tahir, M**. (**2018**). Identification of a new begomovirus infecting Duranta repens in Pakistan. *Archives of Virology*. 163:809-813. https://doi.org/10.1007/s00705-017-3672-y

Shuja, M.N., **Tahir, M.**, and Briddon, R.W. (**2017**). Occurrence of a recombinant molecule carrying sequences derived from an alphasatellite and the helper virus in cotton leaf curl disease affected cotton. *Tropical Plant Pathology*. Doi. 10.1007/s40858-017-0161-5

Ali, M., **Tahir, M**., and Hameed, S. (**2017**). Phylogenetic and genome-wide pairwise distance

analysis of the Genus Luteovirus. Pakistan Journal of Agricultural Sciences. **54:** 363-371.

Akbar, S., **Tahir, M.,** and Shahid Afghan, S. (**2017**). Characterization of coat protein (CP) gene of Sugarcane mosaic virus (SCMV) from isolates of Pakistan and its phylogenetic relationships. *Journal of Animal and Plant Sciences*. **27:** 268-276

Akbar, S., **Tahir, M**., Wang, Ming-Bo, Liu, Q. (**2017**). Expression Analysis of Hairpin RNA Carrying Sugarcane mosaic virus (SCMV) Derived Sequences and Transgenic Resistance Development in a Model Rice Plant. *BioMed Research International.* doi.org/ 10.1155/2017/1646140.

Ahmed, S.I., Hayat, M.Q., Zahid, S., **Tahir, M**., et al., (**2017**). Isolation and identification of flavonoids from anticancer, and neuroprotective extracts of Trigonella foenum graceum. Tropical Journal of Pharmaceutical Research. 16: 1391-1398. http://dx.doi.org/10.4314/ tjpr.v16i6.25

Ahmed, S.I., Hayat, M.Q., **Tahir, M**., Mansoor, Q., Ismail, M., Keck, K., and Robert Bates, R.B. (**2016**) Pharmacologically active flavonoids from the anticancer, antioxidant and antimicrobial extracts of Cassia angustifolia Vahl. *BMC Complementary and Alternative Medicine.* **16:** 460. https://doi.org/10.1186/s12906-016-1443-z

Ali, M., **Tahir, M**., Hameed, S. (2016). Genetic transformation of an elite commercial wheat variety through Agrobacterium tumefaciens. *International Journal of Biosciences* **08:** 17-24.

Tahir, M., Amin, I., Haider, M.S., Mansoor, S., Briddon, R.W. (**2015**). Ageratum enation virus – a begomovirus of weeds with the potential to infect crops. *Viruses* **07**: 647-65. https:// doi.org/10.3390/v7020647

Butt, F.A., **Tahir, M.** (2015). Cloning and partial characterization of Cotton leaf curl Burewala virus from Khanewal. *NUST Journal of Natural Sciences*. **3:** 23-33

Mustujab, A., Briddon, R.W., **Tahir, M.** (2014). First report of Catharanthus yellow mosaic virus infecting *Duranta repens* in Pakistan. *Journal of Plant Pathology* Doi: 10.4454/JPP.V97I1.038.

Babar, M.M., Zaidi, N.S., **Tahir, M.** (2014). Global geno-proteomic analysis reveals cross-continental sequence conservation and druggable sites among influenza virus polymerases. *Antiviral Research*. **112:** 120-131. https://doi.org/10.1016/j.antiviral.2014.10.013

Ali, M., Hameed, S, **Tahir, M.** (2014). Luteovirus - insights into pathogenicity. *Archives of Virology.* **159:** 2853-2860. https://doi.org/10.1007/s00705-014-2172-6

Shuja, M.N., Briddon, R.W., **Tahir. M.** (2014). Identification of a distinct strain of *Cotton leaf curl Burewala virus*. *Archives of Virology*. **159:** 2787-2790. https://doi.org/10.1007/s00705-014-2097-0

Ikram, A, Anjum, S., and **Tahir, M.** (2014). In silico identification and conservation analysis of B and T cell epitopes of HCV 3a E2 protein from Pakistan, A step towards heterologous vaccine design. *Hepatitis monthly.* https://doi.org/10.5812/hepatmon.9832

Ali, M., **Tahir, M.,** Hameed, S., Ashraf, S. (2013). Coat protein-based molecular characterization of *Barley yellow dwarf virus* isolates identified on oat plants in Pakistan. *Acta Virologica* 57:383-385.

Fareed, M. I., **Tahir, M**., Briddon, R. W. (2012). First report of *Cotton leaf curl Burewala virus* infecting Ricinus communis. *Journal of Plant Pathology* 94:102

Anwar, S., **Tahir, M**., Zaidi, N.S.S., Briddon, R. W. (2012). First report of *Clerodendron yellow mosaic virus* infecting Croton. *Journal of Plant Pathology* 94: 101.

Fatima, K., **Tahir, M.,** and Qadri, I. (2011). Development of robust in vitro serine protease assay based on recombinant Pakistani HCV NS3-4A protease. *Virus Research* 160: 230-237. https:// doi.org/10.1016/j.virusres.2011.06.020

Haider, M.S., Afghan, S., Riaz, H., **Tahir, M.**, Javed, I., Rashid, N., and Iqbal, J. (2011). Identification of two sugarcane mosaic virus (SCMV) variants from naturally infected sugarcane crop in Pakistan. *Pakistan Journal of Botany* 43 (2): 1157-1162.

Tahir, M., Haider, M. S., and Briddon, R. W. (2010). Complete nucleotide sequences of *Bitter gourd yellow vein virus* and its associated betasatellite infecting *Momordica charantia*. *Archives of Virology* 155: 1901-1905. https://doi.org/10.1007/ s00705-010-0819-5.

Tahir, M., Haider, M. S., and Briddon, R. W. (2010). Chili leaf curl betasatellite is associated with a distinct recombinant begomovirus, *Pepper leaf curl Lahore virus*, in Capsicum in Pakistan. *Virus Research* 149: 109-114. https://doi.org/10.1016/j.virusres. 2009.12.007

Tahir, M., Haider, M. S., and Briddon, R. W. (2010). First report of *Squash leaf curl China virus* in Pakistan. *Australasian Plant Disease Note* 5: 21-24. https://doi.org/10.1071/ DN10009

Tahir, M., Haider, M. S., Iqbal, J., and Briddon, R.W. (2009). Association of a distinct begomovirus and betasatellite with leaf curl symptoms of *Pedilanthus tithymaloides*. *Journal of Phytopathology* 157: 188-193. https://doi.org/10.1111/j.1439-0434.2008.01464.x

Shah, A. H., Rashid, N., Haider, M. S., Saleem, F., **Tahir, M**., Iqbal, J. (2009). An efficient, short, and cost-effective regeneration system for transformation studies of Sugarcane (*Saccharum officinarum* L.). *Pakistan Journal of Botany* 41(2): 609-614

Haider, M. S., **Tahir, M.**, Saeed, A., Ahmad, S, Parveen, R and Rashid, N. (2008). First report of a begomovirus infecting the ornamental plant *Vinca minor* L. *Australasian Plant Disease Notes* 3: 150–151. https://doi.org/10.1007/BF03211274

Haider, M. S., **Tahir, M**., Evans, A.A.F., and Markham, P.G. (2007). Coat protein gene sequence analysis of three begomovirus isolates from Pakistan and their affinities with other begomoviruses. *Pakistan Journal of Zoology* 39: 165-170

Tahir, M., Haider, M.S., Shah, A. H., Rashid, N., and Saleem, F. (2006). First report of a bipartite begomovirus associated with leaf curl disease of *Duranta repens* in Pakistan. *Journal of Plant Pathology* 88: 337.

Haider, M. S., **Tahir, M.**, Latif, S., and Briddon, R. W. (2006). First report of *Tomato leaf curl New Delhi virus* infecting *Eclipta prostrata* in Pakistan. *Plant Pathology* 55: 285. https:// doi.org/10.1111/j.1365-3059.2005.01278.x

Tahir, M., and Haider, M. S. (2006). First report of a begomovirus associated with leaf curl disease

of bell pepper in Pakistan. *Plant Pathology* 55: 570. https://doi.org/10.1111/ j.1365-3059.2006.01374.x

Tahir, M., and Haider, M. S. (2005). First report of *Tomato leaf curl New Delhi virus* infecting bitter gourd in Pakistan. *Plant Pathology* 54: 807. https://doi.org/10.1111/ j.1365-3059.2005.01215.x

Afghan, S, Haider, M. S., Shah, A. H., Rashid, N., Iqbal, J., **Tahir M.** and Akhtar, M. (2005) Detection of genetic diversity among sugarcane (*Saccharum* sp.) genotypes using Random Amplified Polymorphic DNA markers. *Sugarcane International Journal* 23: 17-21.

Journal Papers (In preparation):

Wajeeha, A. W., Tahir, M., Zaidi, N.S.S., (2025). MAP based vaccine against dengue serotypes: an evaluation of immunogenicity and safety. (In Prep)

Akbar, S., **Tahir, M.,** (2025). Development of transgenic resistance against cotton leaf curl Kokhran virus-Bur through virus-induced program cell death. Viruses (In prep)

Ahmad, K., **Tahir, M.** (2025). Sugarcane productivity enhancement by the development of transgenic virus resistance through expression of hairpin RNA (hpRNA) carrying Sugarcane mosaic virus-derived sequences. Virus Research (In prep)

Book Chapters

Zia, M.A.B, Ijaz, M., Ul-Allah, S., Aslam, R., Naeem, M., Gul, A., Butt, R.S., **Tahir, M.** (2024). "Genetic engineering techniques in potato" in "Targeted Genome engineering via CRISPR/Cas9 in Plant" Edited by Alvina Gul, Published by Elsevier Inc pp. 135-157. DOI:10.1016/B978-0-443-26614-0.00020-5.

Conference Papers

Tahir, M., Briddon, R.W. (2011). Satisfying Koch's postulates for *Ageratum enation virus*. Proceedings of *Journal of Antivirals and Antiretrovirals* 3 (4): 185.

Tahir, M., and Haider, M.S. (2006). Naturally occurring bipartite strains of begomoviruses affect some members of the *Cucurbitaceae* family inside and outside the cotton zone in Pakistan. *Cucurbitaceae* proceedings 2006, (Sep. 17-21) North Carolina State University, USA. p 527-533.

PATENTS (SUBMITTED)

Muhammad Tahir (2024) "The hairpin RNA-based binary construct (pK-3SC-CNH) for the control of sugarcane mosaic virus in Sugarcane" (in process)

Muhammad Tahir (2023) "A product of recombinant expression of mutated cotton leaf curl Kokhran virus coat protein, pET28a CP27, in Escherichia coli. (Submitted; Receipt no. 19425).

M Qasim Hayat, Muhammad Tahir, Moattar Fatima (2023) "Method of producing nutrient-rich sugar from sugarcane juice using low-temperature air drying" (Submitted; Receipt no. 19893).

Muhammad Tahir (2021) "Program cell death based binary construct (pCD-NBG) for the control of cotton infecting begomovirus(es) in *Nicotiana benthamiana* / *Nicotiana tabacum*" Pakistan, (Submitted Receipt no. 2103042329).

PRESENTATIONS AND INVITED LECTURES

Tahir, M. (2024). Journey towards the control of cotton leaf curl disease; make friends from foe". Renowned scientist talk, Science Society on 16 May 2024 at the University of Wah, Pakistan.

Tahir, M. (2023). Transgenic resistance development against tomato infecting begomovirus(es). International Conference on Mitigation and Adaptation for Climate Change (Focus on Agriculture and Food Security) held in Feb 2023 at Forman Christian College University, Lahore, Pakistan.

Tahir, M. (2021). A novel transgenic resistant strategy against Cotton leaf curl disease. Oral presentation at 1st International Conference on Water, Energy, and Environment for Sustainability, "Biotechnology for the Environment, health, and Agriculture", held during October 27-29, 2021, in Islamabad, Pakistan.

Iram, S., **Tahir, M.** Khan, A., Mansoor, Q., Ismail, M., Hayat, M.Q., (2019). Antioxidant, anticancer and enzyme inhibitory assay of the Artemisia scoparia Waldst., & Kit widely grown in the semi-arid zone (the Pothwar Plateau) of Pakistan. Presented at the belt and road international symposium on the industrial development of traditional medicine during 5-7 November 2019 in Wuhan, China.

Tahir, M. (2019). Journey towards the control of CLCVs – Friends from foe. Presented at the International Conference of Punjab University 2019, Recent innovations in molecular sciences, in November 2019 in Lahore, Pakistan.

Tahir, M. (2015). Plant viruses – Resistance strategies for their control. Oral presentation. The first Belarus-Pakistan scientific workshop was held from 3-5 Oct 2015 in Minsk, Belarus.

Tahir, M. (2015). The potential of plant biotechnology research in Pakistan. Oral presentation. German-Pakistani research cooperation workshop held from 26-27 Oct 2015 at Bonn, Germany.

Tahir, M., Brown, J.K. (2014). Development and validation of cotton infecting begomoviral induced cell death via. a modified betasatellite containing the cytochrome c gene. Poster presentation held on Nov 10, 2014, at the University of Arizona, USA.

Tahir, M., Briddon, R. W. (2011). Satisfying Koch's postulates for Ageratum enation virus. Presented as an Oral presentation at the "International Conference and Exhibition on Virology" held from Sept 05-07, 2011, in Baltimore, USA.

Tahir, M., Haider, M. S., Iqbal. J., and Briddon, R. W. (2008). Complete nucleotide sequence and phylogenetic analysis of the bipartite begomovirus squash leaf curl China virus infecting *Cucurbita pepo* in Pakistan. Presented as Poster Presentation in the 6th Canadian Plant Genomics Workshop, held from June 23-26, 2008, in Toronto, Ontario. Canada.

Tahir, M., Haider, M. S., Akhtar, M, and Briddon, R. W. (2007). A new species of begomovirus, "*Pepper leaf curl Lahore virus*", infecting *Capsicum annuum* var. grossum under natural conditions. 5th International Geminivirus Symposium, (May 20 to 26, 2007) Ouro Preto, Brazil.

HONOURS AND AWARDS

Top Performer Award (2023) by the National University of Sciences and Technology (NUST), Islamabad.

Represented NUST in the First Belarus-Pakistan scientific workshop held from 3-5 Oct 2015 at Minsk, Belarus. Plant viruses – Resistance strategies for their control. Oral presentation. Invited Speaker: The potential of plant biotechnology research in Pakistan. Oral presentation. German Pakistani research cooperation workshop held on 26-27 Oct 2015 at Bonn, Germany.

Research Productivity Award (2015) by Pakistan Council for Science and Technology, Ministry of Science and Technology, Pakistan.

Best Researcher Award of the Year 2014 by the National University of Sciences and Technology, Islamabad, Pakistan.

Awarded "The Norman E. Borlaug International Agricultural Science and Technology Fellowship" 2014.

Awarded "Dr. Abdus Salam Prize" in Biology for the Year 2010.

Awarded a foreign scholarship to attend a conference (Cucurbit 2010) in Charleston, South Carolina, USA (Nov 2010) by the Higher Education Commission of Pakistan and by the National University of Sciences and Technology (NUST), Islamabad, Pakistan.

Produced begomoviral infectious clones for the first time in Pakistan.

Discovered new species of begomoviruses from the local area and suggested names to ICTV as "*Pepper leaf curl Lahore virus", "Pedilanthus leaf curl virus", "Bitter gourd yellow vein virus", Cestrum leaf curl virus" Cestrum leaf curl Islamabad virus",* and *Hollyhock yellow vein mosaic Islamabad virus.*

Selected for RCA summer school 2008, among twelve around the world, Universität Stuttgart, Biologisches Institut Abt. für Molekularbiologie und Virologie der Pflanzen Pfaffenwaldring 57 D-70550 Stuttgart, Germany.

Selected for a partial grant by IUMS (International Union of Microbiological Societies) to attend the XIV International Congress of Virology held in Istanbul in August 2008.

Awarded foreign training scholarship (January 2008 to June 2008) to work in Germany by the Higher Education Commission of Pakistan.

Winner of the KSBMB Travel Award/Fellowship for the 19th FAOBMB Seoul Conference held in Seoul (May 27-30, 2007), Republic of Korea.

Selected as a Young Scientist to attend "the 20th IUBMB International Congress of Biochemistry and Molecular Biology and 11th FAOBMB Congress on Life: Molecular Integration & Biological Diversity" held on June 18-23, 2006, in Kyoto, Japan.

Awarded "Roll of Honor" in M.Sc. final examinations.

Workshops and Conferences organized

International Conference on Integrative Life Sciences (ICILS) at ASAB, NUST on 25-27 Sept 2024.

NUST conference on Agricultural Sciences and Technology (NCAST-23) at ASAB, NUST on 14-16 March 2023.

International Conference on Water, Energy and Environment for Sustainability at ASAB, NUST on Oct 27-29, 2021.

ICGEB Course on Basic Biotechnology Techniques Jointly organized by the National Academy of Young Scientists and ASAB, NUST on 23-25 Feb 2016

OMICS of Begomoviruses and their Impact on the National Economy. A project of ICARDA-USDA at ASAB, NUST on 25-27 March 2015.

IBRO-APRC Associate School of Neuroscience, "From Basic Neuroscience to Advanced Applications" at ASAB NUST on 30 Sept to 04 Oct 2013.

COMPLETE VIRAL SEQUENCES SUBMITTED TO THE DATABASES

Barley yellow dwarf virus

HE985229 Barley yellow dwarf virus-PAV

Cotton leaf curl Multan virus

OR147810 Cotton leaf curl Multan virus- Faisalabad [Pakistan-Islamabad-Hibiscus-2023] (CLCuMV-[PK-ISB-Hib-23). DNA A, Complete genome

OR147811 Cotton leaf curl Multan betasatellite- [Pakistan-Islamabad-Hibiscus-2023] (CLCuMB-[PK-ISB-Hib-23). DNA betasatellite, Complete genome

Hollyhock yellow vein mosaic Islamabad virus

LK028571 Hollyhock yellow vein mosaic Islamabad virus-[Pakistan-Islamabad-2014] (HYVMIV- [PK-Isb-14]). DNA A Complete genome

LK028572 Kenaf leaf curl betasatellite-[Pakistan-Islamabad-Hollyhock-2014] (KLCB[PK-Isb-Hol-14]). DNA betasatellite Complete genome

LM645009 Hollyhock yellow vein mosaic Islamabad virus-[Pakistan-Islamabad-2014] (HYVMIV- [PK-Isb-14]). DNA A Complete genome

Cotton leaf curl Burewala virus

HE985227 Cotton leaf curl Kokhran virus- Bur [Pakistan-Okara-Ricinus communis-2012] (CLCuBuV-[PK-Oka-Ric-12). DNA A, Complete genome

HE985228 Cotton leaf curl Multan betasatellite-[Pakistan-Okara-Ricinus communis-2012] (CLCuMB-[PK-Oka-Ric-12). DNA Betasatellite, Complete genome

Hf549182 Cotton leaf curl Kokhran virus-Lay [Pakistan-Layyah-2011] (CLCuBuV-PK[PK-Lay-11). DNA A Complete genome

HG000665 Cotton leaf curl Multan betasatellite-[Pakistan-Layyah-2011] (CLCuMB-[PK-Lay-11). DNA Betasatellite, Complete genome

HF549180 Cotton leaf curl Kokhran virus- Bur [Pakistan-Faisalabad28-2010] (CLCuBuV-[PK-Fsd28-10). DNA A Complete genome

HF549185 Cotton leaf curl Multan betasatellite-[Pakistan-Faisalabad28-2010] (CLCuMB-[PK-Fsd28-10). DNA Betasatellite, Complete genome

HF549181 Cotton leaf curl Kokhran virus- Bur [Pakistan-Faisalabad32-2010] (CLCuBuV-[PK-Fsd32-10). DNA A Complete genome

HF549186 Cotton leaf curl Multan betasatellite-[Pakistan-Faisalabad32-2010] (CLCuMB-[PK-Fsd32-10). DNA Betasatellite, Complete genome

HF549183 Cotton leaf curl Kokhran virus- Bur [Pakistan-Bhakkar-2011] (CLCuBuV-[PK-Bha-11). DNA A Complete genome

HF549187 Cotton leaf curl Multan betasatellite- [Pakistan-Bhakkar-2011] (CLCuMB-[PK-Bha-11). DNA Betasatellite, Complete genome

HF549184 Cotton leaf curl Kokhran virus- Bur [Pakistan-Okara-2011] (CLCuBuV-[PK-Oka-11). DNA A Complete genome

HF549188 Cotton leaf curl Multan betasatellite-[Pakistan-Okara-2011] (CLCuMB-[PK-Oka-11). DNA Betasatellite, Complete genome

Cestrum yellow leaf curl virus

LM645010 Cestrum yellow leaf curl virus-[Pakistan-Islamabad-2014] ([CYLCV-[PK-Isb-14]. DNA A complete genome

LM645011 Tomato leaf curl New Delhi virus-[Pakistan-Islamabad-2014] ([ToLCNDV-[PK-Isb-Ces14]. DNA B complete genome

Clerodendron yellow mosaic virus

HE863667 Clerodendron yellow mosaic virus-[Pakistan-Lahore-Croton-2012] (CleYMV-[PK-LHR-Cro-12). DNA A Complete genome

Pedilanthus leaf curl virus

AM712436 Pedilathus leaf curl virus-Pedilanthus [Pakistan-Multan-2004] (PedLCV-Ped [PK-Mul-04]). DNA A Complete genome

AM260465 Tobacco leaf curl betasatellite-[Pakistan-Multan-Pedilanthus-2004] (TbLCBS-[PK-Mul-Ped-04]). DNA Betasatellite. Complete sequence

Pepper leaf curl Lahore virus

AM404179 Pepper leaf curl Lahore virus-[Pakistan-Lahore1-2004] (PepLCLV-[PK-Lah1-04]). DNA A. Complete genome.

AM260466 Chilli leaf curl betasatellite [Pakistan-Lahore1-2004] (ChLCB-[PK-Lah1-04]). DNA Betasatellite. Complete sequence

AM491589 Pepper leaf curl Lahore virus-[Pakistan-Lahore2-2004] (PepLCLV-[PK-Lah2-04]). DNA A. Complete genome.

AM258978 Chilli leaf curl betasatellite [Pakistan-Lahore2-2004] (ChLCB-[PK-Lah2-04]). DNA Betasatellite. Complete sequence

AM849549 Chilli leaf curl betasatellite [Pakistan-Sahiwal-2006] (ChLCB-[PK-Sw-06]). DNA Betasatellite. Complete sequence

Bitter gourd yellow vein virus

AM491590 Bitter gourd yellow vein virus [Pakistan-Lahore-Momordica charantia-2005] (BGYVV- IN[PK-Lah-Mom-05]). DNA A. Complete genome

AM709505 Bitter gourd yellow vein virus [Pakistan-Lahore-Momordica charantia-2005] (BGYVV- IN[PK-Lah-Mom-05]). DNA B. Complete genome

Ageratum enation virus

AM698011 Ageratum enation virus - [Pakistan-Lahore- 2006] (AEV-[PK-Lah-06]) DNA A. Complete genome

AM698010 Ageratum yellow leaf curl betasatellite [Pakistan-Lahore-2006] (AYLCB- [PK-

Lah-06]). DNA Betasatellite, Complete sequence

AM261836 Ageratum enation virus - [Pakistan-Lahore-Sonchus oleraceous-2005] (AEV-ss[PK-Lah-Sol-05]) DNA A. Complete genome

AM412239 Ageratum yellow leaf curl betasatellite [Pakistan-Lahore,Sonchus oleraceous-2005] (AYLCB-[PK-Lah-Sol-05]) DNA Betasatellite, Complete sequence

Squash leaf curl China virus

AM286794 Squash leaf curl China virus-India [Pakistan-Lahore-2005] (SLCCNV- IN[PK-Lah-05]). DNA A. Complete genome

AM778959 Squash leaf curl China virus-India [Pakistan-Lahore-2005] (SLCCNV- IN[PK-Lah-05]). DNA B. Complete genome

Duranta leaf curl virus

KT948069 Duranta leaf curl virus-[Pakistan-Bhera-2014] (DuLCV-[PK-BH-14] DNA A Complete genome

KT948070 Chilli leaf curl India virus-[Pakistan-Bhera-Duranta-2014] (ChiLCINV- [PK-BH-DR-14) DNA A, Complete genome.

KT948071 Tomato leaf curl New Delhi virus-[Pakistan-Bhera-Duranta-2014] (ToLCNDV-[PK-BH-DR-14) DNA B, Complete genome.

Mesta yellow vein mosaic virus

KT948076 Mesta yellow vein mosaic virus-[Pakistan-Lahore-Malvastrum-2014] (MeYVMV-[PK-LH-ML-14] DNA A, Complete genome

KT948077 Kenaf leaf curl betasatellite [Pakistan-Lahore-Malvastrum-2014] (MeYVMV-[PK-LH-ML-14] DNA Betasatellite Complete sequence.

Tomato leaf curl New Delhi virus

AM258977 Tomato leaf curl New Delhi virus-India [Pakistan-Lahore-2004] ToLCNDV-IN[PK-Lah-04] DNA A. Complete genome

AM778833 Tomato leaf curl New Delhi virus-India [Pakistan-Lahore-2004] ToLCNDV-IN[PK-Lah-04]. DNA-B, Complete genome

AM747291 Tomato leaf curl New Delhi virus - India [Pakistan-Multan-Momordica-2005] (ToLCNDV-IN[PK-Mul-Mom-05]). DNA A. Complete genome

AM849547 Tomato leaf curl New Delhi virus - India [Pakistan-Multan-Momordica charantia-2005] (ToLCNDV-IN[PK-Mul-Mom-05]) DNA B. Complete genome

AM292302 Tomato leaf curl New Delhi virus-India [Pakistan-Multan-Luffa-2004] (ToLCNDV-IN[PK-Mul-Luf-04) DNA A. Complete genome

AM849548 Tomato leaf curl New Delhi virus - India [Pakistan-Lahore-Solanum nigrum-2004] (ToLCNDV-IN[PK-Lah-Sn-04]). DNA A. Complete genome

AM392426 Tomato leaf curl New Delhi virus - India [Pakistan-Multan-Duranta repens-2005] (ToLCNDV-IN[PK-Mul-Dr-05]) DNA B. Complete genome.

KT948072 Tomato leaf curl New Delhi virus –[Pakistan-Rawalpindi-Cucurbita pepo-2012] (ToLCNDV-[PK-RP-CP-12]) DNA A, Complete genome

KT948073 Tomato leaf curl New Delhi virus –[Pakistan-Rawalpindi-Cucurbita pepo-2012] (ToLCNDV-[PK-RP-CP-12]) DNA B, Complete genome

KT948074 Papaya leaf curl betasatellite –[Pakistan-Rawalpindi-Cucurbita pepo-2012] (ToLCNDV- [PK-RP-CP-12]) DNA betasatellite, Complete sequence

KT948075 Tomato leaf curl New Delhi alphasatellite –[Pakistan-Rawalpindi-Cucurbita pepo-2012] (ToLCNDV-[PK-RP-CP-12]) DNA alphasatellite, Complete sequence