

CURRICULUM VITAE: DR. MUHAMMAD AKBAR SHAHID

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SUMMARY

Currently working as an Assistant Professor (Veterinary Microbiology) at Bahauddin Zakariya University, Multan, Pakistan. I have completed an Australian Endeavour Postdoctoral Research Fellowship at The University of Melbourne, Australia, and a fixed-term contract-type job as an Assistant Professor of Microbiology at The University of Veterinary and Animal Sciences, Lahore, Pakistan. I have professional teaching and research experience of more than 15 years in Pakistan and Australia in different capacities including Assistant Professor, Doctoral/Postdoctoral Researcher (Molecular Microbiology), and Veterinary Officer.

PROFESSIONAL EDUCATION / TRAINING

Postdoctoral Fellowship, August 2016-February 2017, Australian Endeavour Postdoctoral Research Fellow, Faculty of Veterinary and Agricultural Sciences, The University of Melbourne, Australia

Ph.D. Vet. Microbiology, June 2009-July 2014, The University of Melbourne, Australia

Thesis title: Molecular basis of attenuation of *Mycoplasma synoviae*

M.Sc. (Hons.) Vet. Microbiology, September 2004-September 2006, CGPA 3.96/4.00, Marks 779/920 (84.67%), University of Agriculture, Faisalabad, Pakistan

Thesis title: Determination of oxytetracycline residues in poultry meat using microbiological assay and high-performance liquid chromatography

Major subjects studied: Advanced Immunology, Advanced Veterinary Bacteriology, Advanced Virology

Doctor of Veterinary Medicine (DVM), December 2000-September 2004, CGPA 3.81/4.00, Marks 3115/3880 (80.28%), University of Agriculture, Faisalabad, Pakistan

Major subjects studied: Veterinary Surgery, Veterinary Medicine, Veterinary Pharmacology, Veterinary Pathology, Veterinary Physiology, Veterinary Anatomy & Histology, Biochemistry, General Microbiology & Immunology, Systemic Bacteriology & Mycology, Veterinary Parasitology & Protozoology, Veterinary Entomology, General & Systemic Virology

Higher Secondary Certificate Examination, April 1996-November 1998, Marks 827/1100 (75.18%), Board of Intermediate & Secondary Education, Bahawalpur, Pakistan

Secondary School Certificate Examination (Matriculation), November 1994-March 1996, Marks 740/850, (87.05%), Board of Intermediate & Secondary Education, Bahawalpur, Pakistan

EMPLOYMENT HISTORY/ CHRONOLOGICAL LIST OF POSITIONS

12/03/2018 – Present	Assistant Professor (TTS), Veterinary Microbiology , Department of Pathobiology, Faculty of Veterinary Sciences, Bahauddin Zakariya University, Multan, Pakistan. <u>Job description/Responsibilities:</u> Teaching under- and postgraduate course(s) in Microbiology, preparation/submission of research project proposals for competitive research grants, supervising postgraduate research students
15/08/2016 – 14/02/2017	Australian Endeavour Postdoctoral Research Fellow (Honorary Fellow; employee ID: 087152): Faculty of Veterinary and Agricultural Sciences, The University of Melbourne, Australia.

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- Job description/Responsibilities: I worked on the construction of various expression vectors for *Mycoplasma synoviae* to identify, characterize and determine the effect of different promoters on the expression of downstream gene *obg*. Also, drafted manuscripts and assisted postgraduate students in their research work.
- 16/12/2014 – 29/02/2016** **Assistant Professor, Microbiology**, Quality Operations Laboratory, University of Veterinary and Animal Sciences, Lahore, Pakistan.
- Job description/Responsibilities: Teaching under- and postgraduate course(s) in Microbiology, genotyping of Foot and Mouth Disease Virus (FMDV) and Fowl Adenoviruses, a study of host entry factors in FMDV pathogenesis, and preparation/submission of research project proposals for competitive research grants.
- 05/01/2014 – 25/08/2014** **Research Fellow** (Casual employee; ID: 087152), Department of Veterinary Microbiology, Faculty of Veterinary and Agricultural Sciences, The University of Melbourne, Australia.
- Job description: I worked on the effects of overexpression of GTP binding protein *Obg* on growth characteristics of *M. synoviae* strain 86079/7NS. Also, drafted manuscripts and assisted postgraduate students in research work.
- 01/10/2010 – 01/01/2014** **Demonstrator/Teaching Assistant** (Casual employee; employee ID: 087152), Faculty of Veterinary and Agricultural Sciences, the University of Melbourne, Australia.
- Job description: As a demonstrator, I assisted B.V.Sc. class in conducting postmortem examinations of chickens
- 26/06/2009 – 08/07/2014** **Ph.D. Microbiology Research Scholar**, Department of Veterinary Biosciences, Faculty of Veterinary and Agricultural Sciences, The University of Melbourne, Australia (Thesis submitted on 25th December 2013 and Ph.D. conferred on 8th July 2014).
- Research Project: I worked on understanding the molecular basis of *Mycoplasma synoviae* attenuation.
- 18/03/2008 – 05/09/2008** **Ph.D. Microbiology Research Scholar**, Department of Microbiology, Faculty of Sciences, Mahidol University, Bangkok, Thailand.
- Major subjects studied: Cell and Molecular Biology, Molecular Bioscience, Cell Science.
- 30/01/2006 – 29/02/2008** **Veterinary Officer (Health) and Researcher** at Poultry Research Institute, Rawalpindi, Pakistan vide Government of Punjab, Department of Livestock & Dairy Development, Lahore, Pakistan.
- Job description/Responsibilities: I remained involved in research on various poultry pathogens including Avian Influenza Virus H5N1, diagnosis of poultry diseases, postmortem examination of birds/chickens, the team leader in surveillance of disease outbreaks (Newcastle Disease and Avian Influenza), and publishing lab research work.

RESEARCH INTERESTS

Molecular Microbiology (Bacterial genomics and proteomics), Veterinary Microbiology, Mycoplasma, Antimicrobial Resistance, Bacteriophage biology, Virology

PROFILES AT SCIENTIFIC/RESEARCH WEBSITES

1. **PROFILE AT BZU WEBSITE:** <https://profiles.bzu.edu.pk/muhammadakbarshahid>
2. **ORCID ID:** <https://orcid.org/0000-0003-2554-5990>
3. **PUBLONS:** <https://publons.com/researcher/1760194/muhammad-akbar-shahid/>

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4. WEB OF SCIENCE AUTHOR PROFILE:

<https://www.webofscience.com/wos/author/record/836985>

5. WEB OF SCIENCE RESEARCHER ID: M-7608-2019

6. WEB OF SCIENCE AUTHOR PROFILE: <https://www.webofscience.com/wos/author/record/AFN-3429-2022>

7. WEB OF SCIENCE RESEARCHER ID: AFN-3429-2022

8. LINKEDIN PROFILE: <https://www.linkedin.com/in/drakbarshahid>

9. GOOGLE SCHOLAR: <https://scholar.google.com/citations?hl=en&user=jO66g0cAAAAJ>

10. RESEARCHGATE: https://www.researchgate.net/profile/Muhammad_Akbar_Shahid

11. SCOPUS ID: <http://www.scopus.com/authid/detail.uri?authorId=55651674900>

12. SCOPUS ID: <https://www.scopus.com/authid/detail.uri?authorId=58169165000>

13. FRONTIERS LOOP ID: <https://loop.frontiersin.org/people/77885/overview>

PUBLICATIONS

A. DISSERTATIONS

1. Shahid, Muhammad Akbar – Molecular basis of attenuation of *Mycoplasma synoviae*, Ph.D. thesis, The University of Melbourne, Australia, (2014) <https://minerva-access.unimelb.edu.au/handle/11343/40807>
2. Shahid, Muhammad Akbar – Determination of oxytetracycline residues in poultry meat using microbiological assay and high-performance liquid chromatography, M.Sc. (Hons) thesis, University of Agriculture, Faisalabad, Pakistan, (2006)

B. BOOKS / MONOGRAPHS

- 1) **Muhammad Akbar Shahid, 2010.** Antibiotic residues in meat, Microbiological and chromatographic methods of antibiotic residues detection; Germany, VDM Verlag Dr. Muller Aktiengesellschaft and Co. KG, 56 pages, ISBN-10: 3639271475

C. BOOK CHAPTERS

- 1) Muhammad Asif Zahoor, Muhammad Kashif Zahoor, Abu Baker Siddique, Muhammad Shafique, Zeeshan Nawaz, Aysha Yasmin, Muhammad Fiaz Qamar and **Muhammad Akbar Shahid** (November 05, **2018**). Welfare of Pet Birds and Potential Zoonoses, In: Animal Welfare, Edited by Muhammad Abubakar and Shumaila Manzoor, IntechOpen, DOI: 10.5772/intechopen.72282. Available from: <https://www.intechopen.com/books/animal-welfare/welfare-of-pet-birds-and-potential-zoonoses>. InTechOpen, Janeza Trdine 9, 51000 Rijeka, Croatia, ISBN: 978-1-78923-798-6.
- 2) **Muhammad Akbar Shahid**, Somayeh Kordafshari, Ling Zhu, Mian Muhammad Awais, Sadeeq Ur Rahman, Muhammad Farooq Tahir, and Muhammad Irfan Anwar, **2020.** *Mycoplasma synoviae*, In: Advances in Animal Science and Zoology, Volume 15, Edited by Owen P. Jenkins, Nova Science Publishers, Inc., USA, ISBN: 978-1-53618-283-5. <https://novapublishers.com/shop/advances-in-animal-science-and-zoology-volume-15/>
- 3) **Muhammad A. Shahid***, Ahmad J. Sabir, Muhammad I. Arshad, Sadeeq ur Rahman, Muhammad F. Tahir, Muhammad N. Zahid and Muhammad A. Zahoor, **2022.** Infectious laryngotracheitis; molecular biology, pathobiology, and control; In: Emerging Trends in Veterinary Virology, Edited by Muhammad Abubakar, Jonas Johansson Wensman. Bentham Science Publisher, ISBN 978-981-5036-97-8. <https://doi.org/10.2174/97898150369611220101>
- 4) **Muhammad Akbar, S.**, Ali, S., Sadeeq Ur, R., Mian Muhammad, S., Sheraz Ahmed, B., Muhammad Mudasser, N., Muhammad Nauman, Z. **2023.** Pathobiology, public health significance, and control of *Campylobacter* infections, In: Liang Wang, Bing Gu, Li Zhang and Zuo-bin Zhu (Eds.) Recent Advances in Bacterial Biofilm Studies - Formation, Regulation, and Eradication in Human Infections. IntechOpen, Rijeka, Ch. 5. DOI: 10.5772/intechopen.112216
- 5) **Shahid MA**, Bhatti SA, Rizwan M. **2023.** Farmyard Manure. In: Waheed A, Faraz A, editors. Basics of Animal Production Sciences. 1 ed. Department of Livestock and Poultry Production, Bahauddin Zakariya

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University, Multan-Pakistan: Books & Readers, Muhammad Plaza, Sabzazar Metro Station, Bosan Road, Multan. p. 187-195. ISBN 978-969-23854-0-4

- 6) Bhatti SA, **Shahid MA**, Rizwan M. **2023**. Health Assessment. In: Waheed A, Faraz A, editors. Basics of Animal Production Sciences. 1 ed. Department of Livestock and Poultry Production, Bahauddin Zakariya University, Multan-Pakistan: Books & Readers, Muhammad Plaza, Sabzazar Metro Station, Bosan Road, Multan. p. 195-201. ISBN 978-969-23854-0-4

D. RESEARCH PAPERS PUBLISHED IN REFEREED JOURNALS

No	Article Information	Publication Year	†IF (HJRS/HEC Category)
1.	Inam-u-llah, Humera Nazir, Mizna Arif, Irum Javid, Eina Hoor Hashmi, Rabiya Naz, Muhammad Akbar Shahid , Nabiha Naeem. (2024). Unraveling the tapestry: a comprehensive analysis of Echinococcus granulosus diversity in Pakistani livestock and its implications for public health. <i>Journal of Population Therapeutics and Clinical Pharmacology</i> , 31(6), 2234–2241. https://doi.org/10.53555/jptcp.v31i6.6859	2024	(X)
2.	Khan MA, Khan IA, Tahir AH, Shahid MA , Nazish N, Zafar MA, Bhatti SA, Pasha RH, Abbas Y, Sadiq S and Jamil B, 2024. Isolation and identification of deleterious fungi associated with stored grains and cattle feedstuff of Potohar region of Pakistan. <i>Pak Vet J</i> . http://dx.doi.org/10.29261/pakvetj/2024.189 (Online)	2024	1.803 (X)
3.	Asif, M., Qureshi, S., Sajid, H., Kosar, N., Gilani, M.A., Ayub, K., Arshad, M., Azeem, M., Shahid, M.A. , Farooq, U., Mahmood, T., 2024. Sensing Performance of Heptazine-Based C3N4 Quantum Dot Toward Highly Toxic Environmental Pollutants, Amides, and Acetyl Derivatives. <i>Journal of Inorganic and Organometallic Polymers and Materials</i> . 34, 79–92. https://doi.org/10.1007/s10904-023-02798-3	2024	4.000 (W)
4.	Zou, W., Lu, S., Wang, J., Xu, Y., Shahid, M.A. , Saleem, M.U., Mehmood, K., Li, K., 2023. Environmental Microplastic Exposure Changes Gut Microbiota in Chickens. <i>Animals</i> 13, 2503. https://doi.org/10.3390/ani13152503	2023	3.231 (W)
5.	Habib, M., Ul-Rahman, A., Zia ur, R., Shahid, M.A. , Sarwar, N., Bilal, M., Imran, M.S., Munir, M., Abbas, S., Shabbir, M.Z., 2023. Comparative immunocompetence and interspecies transmission of avian orthoavulavirus-1 in feral birds originating from rural and urban settings. <i>Comp. Immunol. Microbiol. Infect. Dis.</i> 100, 102036. https://doi.org/10.1016/j.cimid.2023.102036	2023	2.729 (W)
6.	He, X., Hao, P., Wang, Y., Wu, C., Yin, W., Shahid, M.A. , Wu, S., Nawaz, S., Du, W., Xu, Y., Yu, Y., Wu, Y., Ye, Y., Fan, J., Mehmood, K., Li, K., Ju, J., 2023. Swertia bimaculata moderated liver damage in mice by regulating intestine microbiota. <i>Ecotoxicol. Environ. Saf.</i> 263, 115223. https://doi.org/10.1016/j.ecoenv.2023.115223	2023	7.129 (W)
7.	Zhu Y, Cidan Y, Sun G, Li X, Shahid MA , Luosang Z, Suolang Z, Suo L and Basang W (2023) Comparative analysis of gut fungal composition and structure of the yaks under different feeding models. <i>Front. Vet. Sci.</i> 10:1193558. https://doi.org/10.3389/fvets.2023.1193558	2023	3.471 (W)

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8.	Idrees, M.M., Saeed, K., Shahid, M.A. , Akhtar, M., Qammar, K., Hassan, J., Khaliq, T., Saeed, A., 2023. Prevalence of mecA- and mecC-Associated Methicillin-Resistant Staphylococcus aureus in Clinical Specimens, Punjab, Pakistan. <i>Biomedicines</i> 11. https://doi.org/10.3390/biomedicines11030878	2023	4.757 (W)
9.	Nauman Zahid, M., Asif, M., Sajid, H., Kosar, N., Akbar Shahid, M. , Allangawi, A., Ayub, K., Azeem, M., Mahmood, T., 2023. Therapeutic efficiency of B3O3 quantum dot as a targeted drug delivery system toward Foscarnet anti-HIV drug. <i>Computational and Theoretical Chemistry</i> 1224, 114107. https://doi.org/10.1016/j.comptc.2023.114107	2023	2.292 (X)
10.	Wang, M., Wang, L., Shabbir, S., Zhou, D., Shahid, M.A. , Luo, H., Li, H., Li, Z., Sun, X., Wu, C., Zhao, Y., 2023. Effects of thiram exposure on liver metabolism of chickens. <i>Front Vet Sci</i> 10, 1139815. https://doi.org/10.3389/fvets.2023.1139815	2023	3.471 (W)
11.	Bilal H, Hou B, Shafiq M, Chen X, Shahid MA and Zeng Y (2022) Antifungal susceptibility pattern of Candida isolated from cutaneous candidiasis patients in eastern Guangdong region: A retrospective study of the past 10 years. <i>Front. Microbiol.</i> 13:981181. https://doi.org/10.3389/fmicb.2022.981181	2022	6.064 (W)
12.	Malik F, Nawaz M, Anjum AA, Firyal S, Shahid MA , Irfan S, Ahmed F, Bhatti AA 2022. Molecular characterization of antibiotic resistance in poultry gut origin Enterococci and horizontal gene transfer of antibiotic resistance to Staphylococcus aureus. <i>Pak Vet J</i> , 2022, 42(3): 383-389 http://dx.doi.org/10.29261/pakvetj/2022.035	2022	1.803 (X)
13.	Ishaq K, Ahmad A, Rafique A, Aslam R, Ali S, Shahid MA , Sarwar N, Aslam MA, Aslam B, Arshad MI 2022. Occurrence and antimicrobial susceptibility of Proteus mirabilis from chicken carcass. <i>Pak Vet J</i> , 2022, 42(4): 576-579 http://dx.doi.org/10.29261/pakvetj/2022.026	2022	1.803 (X)
14.	Somayeh Kordafshari, Marc S. Marenda, Rebecca Agnew, Pollob Shil, Muhammad A. Shahid , Christina Marth, Barbara M. Konsak & Amir H. Noormohammadi. 2020. Complementation of the Mycoplasma synoviae MS-H vaccine strain with wild-type oppF1 influences its growth characteristics, <i>Avian Pathology</i> , 49:3, 275-285, https://doi.org/10.1080/03079457.2020.1729957	2020	2.721 (W)
15.	Zahid, M.N., *Shahid, M.A. , Imran, H.M., Oneeb, M., Ahmed, M., Rehman, Z.U., Arooj, N. and Yaqub, T., 2020. Integrins and heparan sulfate play crucial role in pathogenesis of foot-and-mouth disease virus. <i>Pak Vet J</i> . 40(3): 403-406. http://dx.doi.org/10.29261/pakvetj/2020.016	2020	1.803 (X)
16.	Rahman, A., Rahman, S.U., Ahmad, A., Sajid, A., Hussain, M.A., Salman, M.M., Khan, N., Khan, K., Rabbani, F., Shahid, M.A. , Ahmad, I., Ahmad, S., 2019. Pathology of Experimentally Induced Hydropericardium Syndrome in Ostrich. <i>Pakistan Journal of Zoology</i> 51, 1179-1182. http://dx.doi.org/10.17582/journal.pjz/2019.51.3.SC1	2019	0.687 (X)
17.	Zhu, L., **Shahid, M.A. , Markham, J., Browning, G.F., Noormohammadi, A.H., Marenda, M.S., 2019. Comparative genomic analyses of <i>Mycoplasma synoviae</i> vaccine strain MS-H and its wild-type parent strain 86079/7NS: implications for the identification of virulence factors and applications in	2019	2.721 (W)

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	diagnosis of <i>M. synoviae</i> . Avian Pathol , 48, 537-548. https://doi.org/10.1080/03079457.2019.1637514		
18.	Tahir, M.F., Abbas, M.A., Ghafoor, T., Dil, S., Shahid, M.A. , Bullo, M.M.H., Ain, Q.U., Ranjha, M.A., Khan, M.A., Naseem, M.T., 2019 . Seroprevalence and risk factors of avian influenza H9 virus among poultry professionals in Rawalpindi, Pakistan. J. Infect. Public Health. , 12: 482-485 https://doi.org/10.1016/j.jiph.2018.11.009	2019	7.537 (W)
19.	Wajid, A., Basharat, A., Shahid, M.A. , Muntaha, S.T., Basit, A., Hussain, T., Tahir, M.F., Azhar, M., Babar, M.E., Rehmani, S.F., 2018 . Molecular Characterization and Phylogenetic Analysis of Fowl Adenoviruses Isolated from Commercial Poultry Flocks in Pakistan during 2014-15. Pakistan Journal of Zoology 50, 1863-1873 http://dx.doi.org/10.17582/journal.pjz/2018.50.5.1863.1873	2018	0.687 (Y)
20.	Rahman, S.U., Ahmad, S., Khan, H., Shahid, M.A. , Ahmad, I., 2018 . Expression and analysis of two-partner secretion system of Neisseria meningitidis using heterologous host <i>Escherichia coli</i> . International Journal of Agriculture and Biology 20, 2097–2102 DOI: 10.17957/IJAB/15.0738	2018	0.746 (Y)
21.	* Shahid, M.A. , Marendra, M.S., Markham, P.F., Noormohammadi, A.H., 2018 . Complementation of the Mycoplasma synoviae MS-H vaccine strain with wild-type obg influencing its growth characteristics. PLoS ONE 13, e0194528. https://doi.org/10.1371/journal.pone.0194528	2018	3.752 (W)
22.	Ling, Z., Shahid, M.A. , Markham, F., Browning, G. F., Noormohammadi, A.H., Marendra, M.S., 2018 . Genome analysis of Mycoplasma synoviae strain MS-H, the most common <i>M. synoviae</i> strain with a worldwide distribution. BMC Genomics 19, 117. https://doi.org/10.1186/s12864-018-4501-8	2018	4.547 (W)
23.	* Shahid, M.A. , Marendra, M.S., Markham, P.F., Noormohammadi, A.H., 2014 . Development of an oriC vector for use in <i>Mycoplasma synoviae</i> . Journal of Microbiological Methods , 103, 70-76. https://doi.org/10.1016/j.mimet.2014.05.014	2014	2.622 (X)
24.	* Shahid, M.A. , Markham, P.F., Marendra, M.S., Agnew-Crumpton, R., Noormohammadi, A.H., 2014 . High-resolution melting-curve analysis of obg gene to differentiate the temperature-sensitive <i>Mycoplasma synoviae</i> vaccine strain MS-H from non-temperature-sensitive strains, PLoS ONE 9, e92215 https://doi.org/10.1371/journal.pone.0092215	2014	3.752 (W)
25.	* Shahid, M.A. , Markham, P.F., Markham, J.F., Marendra, M.S., Noormohammadi, A.H., 2013 . Mutations in GTP binding protein Obg of <i>Mycoplasma synoviae</i> vaccine strain MS-H: implications in temperature-sensitivity phenotype. PLoS ONE 8, e73954. https://doi.org/10.1371/journal.pone.0073954	2013	3.752 (W)
26.	* Shahid, M.A. , Ghorashi, S. A., Agnew-Crumpton, R., Markham, P. F., Marendra, M. S. & Noormohammadi, A. H., 2013 . Combination of differential growth at two different temperatures with a quantitative real time PCR to determine temperature-sensitive phenotype of <i>Mycoplasma synoviae</i> . Avian Pathology , 42:185-191. http://dx.doi.org/10.1080/03079457.2013.779363	2013	2.721 (W)

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27.	Hameed, S., Arshad, M., Ashraf, M., Avais, M., Shahid, M.A. , 2012. Cross-Sectional Epidemiological Studies on Mastitis in Cattle and Buffaloes of Tehsil Burewala, Pakistan. The Journal of Animal and Plant Sciences 22, 371-376. http://www.thejaps.org.pk/Supplementary/s-3/default.php	2012	0.57
28.	Shahid, M. A. , S. Hassan, M. Abubakar, S. Hameed, 2009. Avian influenza virus (H5N1); Effects of physico-chemical factors on its survival. Virology Journal., 6 (38) (Ranked Highly cited article by BMC) https://doi.org/10.1186/1743-422X-6-38	2009	5.913 (W)
29.	Hameed, S., Arshad, M., Ashraf, M., Avais, M., Shahid, M.A. , 2008. Prevalence of common mastitogens and their antibiotic susceptibility in tehsil Burewala, Pakistan. Pakistan Journal of Agricultural Sciences 45, 181-183. https://pakjas.com.pk/viewpapers.aspx?valv=38&vali=98	2008	0.856 (Y)
30.	Ahmad, A., Hanif, A., Shahid, M.A. , Ahmad, M.D., 2008. Study of Disease Outbreak in Layer Flocks in and Around Sammundri Area. Pakistan Journal of Life and Social Sciences 6, 59-62. http://www.pjlss.edu.pk/Archive/Volume_6_No_1_2008.htm (HJRS Y Category)	2008	Y
31.	Numan, M., Siddique, M., Shahid, M.A. , Yousaf, M.S., 2008. Characterization of isolated avian influenza virus. Journal of Veterinary Animal Sciences 1, 24-30. http://www.jvas.com.pk/title/archive/2008/title.asp	2008	
32.	* Shahid, M.A. , Siddique, M., Rehman, S., Hameed, S., Hussain, A., 2007b. Evaluation of a microbiological growth inhibition assay as a screening test for the presence of antibiotic residues in poultry meat. American Journal of Food Technology 2 (5), 457-461. DOI: 10.3923/ajft.2007.457.461 (HJRS Y Category)	2007	Y
33.	* Shahid, M.A. , Siddique, M., Abubakar, M., Arshed, M.J., Asif, M., Ahmad, A., 2007a. Status of oxytetracycline residues in chicken meat in Rawalpindi/Islamabad area of Pakistan. Asian Journal of Poultry Science 1, 8-15 DOI: 10.3923/ajpsaj.2007.8.15 (HJRS Y Category)	2007	Y
34.	Hussain, A., Shakoor, A., * Shahid, M.A. , Numan, M., Gulraiz, F., 2007. Clinical and subclinical Staphylococcus aureus mastitis in dairy buffaloes: Disease characteristics and antibiotic susceptibility profiles of isolates. International Journal of Agricultural Research 2, 804-811 DOI: 10.3923/ijar.2007.804.811 (HJRS Y Category)	2007	Y
35.	Imran, M., Irshad, M., * Shahid, M.A. , Ashraf, M., 2007. Studies on the carrier status of Pasteurella multocida in healthy cattle and Buffalo in district Faisalabad. International Journal of Dairy Science 2, 398-400 DOI: 10.3923/ijds.2007.398.400 (HJRS Y Category)	2007	Y
36.	Abubakar, M., Ibrahim, K., Arshed, M.J., Shahid, M.A. , 2006. Primary and Secondary Immune Response to Formalin Inactivated Escherichia coli Mastitis Isolate in Rabbits. Pakistan Journal of Life and Social Sciences 4, 48-51. (HJRS Y Category) http://www.pjlss.edu.pk/Archive/Volume_4_No_1-2_2006.htm	2006	Y

* Corresponding author, ** Ling Zhu and Muhammad A. Shahid contributed equally to this paper.

Total Impact Factor: 87.177; RG (Research Gate) Score: 340.3; Google Scholar Citations: 524; h-index: 14; i-10 index: 17

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E. ARTICLES / ABSTRACTS PUBLISHED IN PROCEEDINGS OF NATIONAL / INTERNATIONAL CONFERENCES AND SYMPOSIUMS

- 1) Hameed, S., M. Arshad, M. Ashraf, M. Avais and **M. A. Shahid**, 2009. Cross-sectional epidemiological studies on mastitis in cattle and buffaloes of tehsil Burewala, Pakistan. Book of Abstract 6th. Asian Buffalo Congress held on October 27-30, 2009 at Lahore, Pakistan, p. 53.
- 2) **Shahid, M.A.**, 2010. Towards understanding the molecular basis of *Mycoplasma synoviae* pathogenesis. In: Veterinary Science Postgraduate Symposium, Werribee, Victoria, Australia, November 19th, 2010.
- 3) **Shahid, M.A.**, 2012. Development of oriC shuttle vector for *Mycoplasma synoviae* and its use in gene complementation in MS-H vaccine strain. In: Faculty of Veterinary Science Postgraduate Symposium, Werribee, Victoria, Australia, November 16th, 2012.
- 4) **Shahid, M.A.**, Ghorashi, S.A., Agnew-Crumpton, R., Markham, P.F., Marendra, M.S., Noormohammadi, A.H., 2012. Combination of differential growth at two different temperatures with a quantitative real time PCR to determine temperature-sensitive phenotype of *Mycoplasma synoviae*. In: International Congress of the International Organization for Mycoplasma, Toulouse, France, July 15-20, 2012, p. 50.
- 5) **Shahid, M.A.**, Marendra, M.S., Markham, P.F., Noormohammadi, A.H., 2013. Development of first shuttle vector for gene cloning and homologous recombination in *Mycoplasma synoviae*. In: The 3rd Molecular Microbiology Meeting, Sydney, New South Wales, Australia, March 6-7, 2013, p. 5.
- 6) **Shahid, M.A.**, Markham, P.F., Marendra, M.S., Agnew-Crumpton, R., Noormohammadi, A.H., 2013. High-resolution melt curve analysis of obg gene to identify temperature-sensitive *Mycoplasma synoviae* vaccine strain MS-H. In: International Congress of the World Veterinary Poultry Association, Nantes, France, August 19-23, 2013, p. 233.
- 7) Ling Zhu, **Muhammad A. Shahid**, Amir H. Noormohammadi, Glenn F. Browning, Marc S. Marendra, 2016. Expression of IBV genes in *Mycoplasma synoviae* strain of MS-H. In: 21st Congress of the International Organization for Mycoplasma, Brisbane, Australia, July 3-7, 2016, p. 70.
- 8) Ling Zhu, **Muhammad A. Shahid**, Amir H. Noormohammadi, Glenn F. Browning, Marc S. Marendra, 2016. Determination of virulence factors of *Mycoplasma synoviae*. In: 21st Congress of the International Organization for Mycoplasma, Brisbane, Australia, July 3-7, 2016, p. 130-131.
- 9) **Muhammad Shahid**, Marc Marendra, Philip Markham, Amir Noormohammadi, 2017. Complementation of MS-H vaccine strain with wild-type obg influencing its growth characteristics. In: XXTH World Veterinary Poultry Association Congress, Edinburgh, Scotland, September 4-8, 2017, p. 130-131.
- 10) **Muhammad Akbar Shahid**, 2018. Prevalence, Antimicrobial Resistance, and Genetic Diversity of *Campylobacter* Species in Southern Punjab, Pakistan. In: Pakistan One-Health Fellowships Planning Symposium, National Academy of Sciences, USA, Bangkok, Thailand, July 9-13, 2018, p. 27-28.
- 11) Muhammad Khalil, Muhammad Zeeshan Zakir, **Muhammad Akbar Shahid**, 2020. Antibiotic susceptibility profile of housefly-borne *E. coli* isolates in and surrounding areas of Multan, Pakistan. In: Virtual One-Health International Conference (OHC-2020), University of Veterinary Animals Sciences, Pakistan, November 25-26, 2020, p. 124
- 12) Muhammad Khalil, Muhammad Zeeshan Zakir, **Muhammad Akbar Shahid**, 2020. Antibiotic susceptibility profile of housefly-borne *Salmonella* isolates in and surrounding areas of Muzaffargarh, Pakistan. In: Virtual One-Health International Conference (OHC-2020), University of Veterinary Animals Sciences, Pakistan, November 25-26, 2020, p. 125

SIGNIFICANT CONTRIBUTIONS TO THE FIELD OF MICROBIOLOGY

During Ph.D., I developed novel molecular techniques for genetic manipulation of *Mycoplasma synoviae*. I also developed diagnostic tests for rapid identification and differentiation of *M. synoviae* vaccine strain MS-H (Vaxsafe MS[®], Bioproperties Ltd., Australia) from field strains of mycoplasmas in poultry.

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1. **Developed a diagnostic test, *obg* PCR-HRM** (Shahid et al. 2014, PLoS ONE 9, e92215), for MS-H vaccine identification and differentiation from non-vaccine strains. This technique is now being used by other diagnostic laboratories in the world (please see Catania et al. BMC Veterinary Research (2016) 12:52).
2. **Developed a diagnostic test, *vlhA* quantitative PCR (*vlhA*-qPCR)** for rapid temperature-sensitive phenotyping of *M. synoviae* strains as a potential alternative of conventional microtitration technique (Shahid et al. 2013, Avian Pathology, 42:185-191).
3. **Developed first-ever *oriC* (origin of replication) shuttle vectors (pMAS-Lori & pKS-VOTL) for gene cloning and expression in *M. synoviae*** (Shahid et al. 2014, Journal of Microbiological Methods, 103, 70-76) and utilized *vlhA* gene promoter for foreign gene expression in *M. synoviae*. This technique is being used to develop recombinant, multivalent, live *M. synoviae* vaccine (Ling et al. 2016. In: 21st Congress of the International Organization for Mycoplasma, July 3-7, p. 70).
4. **Completed whole-bacterial-genome sequencing, annotation, and analysis of two *Mycoplasma synoviae* strains including live temperature-sensitive vaccine strain MS-H (Vaxsafe MS[®], Bioproperties Ltd., Australia) and its parent strain 86079/7NS** (Ling et al. 2019, Avian Pathology, DOI: 10.1080/03079457.2019.1637514 & Ling et al. 2018, BMC Genomics 19, 117. <https://doi.org/10.1186/s12864-018-4501-8>)
5. **Submitted Nucleotide Sequences to GenBank: Complete *obg* gene** (1275 bp) of *M. synoviae* under accession numbers KC990840, KC990837, KC990838 and KC990839; **partial *M. synoviae obg* gene** (801 bp) under accession numbers KF875990 to KF875999; ***oriC* region** (2147 bp) of *M. synoviae* strain 86079/7NS under accession number KF055853; **whole-genome sequences** (818,848 bp) for *M. synoviae* strains MS-H and 86079/7NS under accession numbers CP021129 and CP029258, respectively.

ADVISORY / ADMINISTRATIVE / PROFESSIONAL / COMMUNITY SERVICES RENDERED

A. NATIONAL/UNIVERSITY LEVEL

1. Higher Education Commission (HEC), Pakistan Approved Supervisor for postgraduate research students (HEC/HRD/ASA/2019/32860)
2. Member with departmental admission committee for M. Phil. in Microbiology, B. Z. University, Multan (2018, 2019)
3. Member with Departmental Admission Committee of Department of Pathobiology (Fall 2024 onward), Faculty of Veterinary Sciences, B. Z. University, Multan
4. Member with M. Phil comprehensive examination committee (2019, 2020, 2021)
5. Member with a committee to look after the affairs of the under-construction website of Faculty of Veterinary Sciences, BZU, Multan (2018)
6. Member Epidemic Control Committee, Bahauddin Zakariya University, Multan, 2022 onward
7. Store Incharge, Department of Pathobiology, Faculty of Veterinary Sciences, Bahauddin Zakariya University, Multan (2020 to date)
8. Focal person for reporting online class activity, Department of Pathobiology, FVS, BZU, Multan (2020 to date)
9. External Examiner for the evaluation of M. Phil thesis of Ms. Sehrish Ishtiaq, Regd. No. 2018-VA-41, Institute of Microbiology, University of Veterinary and Animal Sciences, Lahore, Pakistan (No. CE/146/2020, dated 12/10/2020)
10. Subject Expert (Microbiology) to attend a Selection Board held on 22 November, 2022, Baghdad-ul-Jadeed Campus, Islamia University of Bahawalpur, Bahawalpur, Pakistan

B. INTERNATIONAL LEVEL

1. **Assisted in a Ph.D. project, University of Melbourne, Australia:** I have contributed towards a Ph.D. project "Determination of the virulence factors of *Mycoplasma synoviae* and development of recombinant vaccines for its control" (2013-2018) in the Faculty of Veterinary and Agricultural Sciences, The University of Melbourne, Australia. Responsibilities as a project member: I regularly

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advised a Ph.D. student (Ling Zhu) on the assembly and annotation of the complete genome sequence of *Mycoplasma synoviae* vaccine strain MS-H and its parent strain 86079/7NS. I also assisted with the development of a novel recombinant *M. synoviae* vaccine strain expressing infectious bronchitis virus immunodominant genes S-1 and N.

2. **Acted as Associate Editor** for *Frontiers in Sustainable Food Systems* (ISSN 2571-581X) (<http://review.frontiersin.org/review/1448608/11/77885#tab/History>)
3. **Acting as Editor** of *South Asian Journal of Life Sciences* (ISSN 2311-0589) (http://nexusacademicpublishers.com/journal_details/25/Editorial_Board)
4. **Acted as Guest Editor** for a special issue “Epidemiology of *Mycoplasma* Infections in Animals” in the journal *Veterinary Sciences: Research and Reviews* (ISSN: 2397-3463) (<http://researcherslinks.com/journal-details/Veterinary-Sciences-Research-and-Reviews/18/open-special-issues>)
5. **Acting as a Review Editor** for *Frontiers in Microbiology* (Electronic ISSN: 1664-302X), *Frontiers in Veterinary Science* (Electronic ISSN: 2297-1769), and *Frontiers in Cellular and Infection Microbiology* (Electronic ISSN: 2235-2988) <https://loop.frontiersin.org/people/77885/editorial>
6. **Acting as Reviewer with various International Peer Reviewed Journals:** *PLOS ONE* (ISSN: 1932-6203), *Microbial Drug Resistance* (ISSN: 1076-6294), *Avian Pathology* (ISSN: 0307-9457), *Pakistan Journal of Zoology* (ISSN: 0030-9923), *Pakistan Journal of Life and Social Sciences* (E-ISSN: 2221-7630; P-ISSN: 1727-4915), *Pakistan Veterinary Journal* (pISSN: 0253-8318; eISSN 2074-7764), *Journal of the Chemical Society of Pakistan* (ISSN: 0253-5106), *Transboundary and Emerging Diseases* (ISSN: 1865-1682), *Future Science OA* (ISSN online: 2056-5623), *Journal of Infection and Molecular Biology* (ISSN: 2307-5716), *Journal of Infection and Public Health* (ISSN: 1876-0341), *Journal of Clinical Microbiology* (0095-1137 (print); 1098-660X (web)), *Anaesthesia, Pain & Intensive Care* (pISSN 1607-8322, eISSN 2220-5799), *Journal of Applied Animal Research* (pISSN: 0971-2119, eISSN: 0974-1844), *Medicine* (Print ISSN: 0025-7974, eISSN: 1536-5964), and *BioMed Research International* (pISSN: 2314-6133, eISSN: 2314-6141)

Citation: (2015) PLOS ONE 2014 Reviewer Thank You. PLoS ONE 10(2): e0121093. doi:10.1371/journal.pone.0121093

Citation: (2016) PLOS ONE 2015 Reviewer Thank You. PLoS ONE 11(2): e0150341. doi:10.1371/journal.pone.0150341

Publons/Web of Science Verified Reviews: 57 (Dated 29/09/2024)

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<https://publons.com/researcher/1760194/muhammad-akbar-shahid/peer-review/>

<https://www.webofscience.com/wos/author/record/836985>

DISTINCTIONS / AWARDS / HONOURS / SCHOLARSHIPS / FELLOWSHIPS

- 1) Selected as one of the **Finalists for Pakistan One-Health Fellowships Planning Symposium by National Academy of Sciences, USA**, 2018, Bangkok, Thailand
- 2) Awarded **Endeavor Research Fellowship**, Australian Government, Department of Education and Training, 2016, (**24,500 AUD**), for Postdoctoral Research/training in University of Melbourne, Australia
- 3) Awarded **Houghton Trust Travelling Scholarship**, United Kingdom, 2013, to attend World Veterinary and Poultry Association (WVPA) conference in France (19-24 August 2013) (**950 GBP**)
- 4) **Faculty Fee Remission (FFR) scholarship** from Faculty of Veterinary and Agricultural Sciences, the University of Melbourne, Australia, January 2013 to December 2013
- 5) Awarded **Student Travel Support Grant**, 2012 (**1000 AUD**) from Faculty of Veterinary and Agricultural Sciences, University of Melbourne, Australia
- 6) Awarded **Melbourne Abroad Travelling Scholarship (MATS) 2012 (1200 AUD)** from the University of Melbourne, Australia

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- 7) Awarded **Houghton Trust Travelling Scholarship**, United Kingdom, 2012 to attend IOM meeting in France (**1200 AUD**)
- 8) Awarded **Travelling scholarship** from International Organization for Mycoplasma (IOM), 2012 (**1000 USD**) to attend 19th IOM conference in France
- 9) Awarded **Ph.D. scholarship from China Scholarship Council (CSC)**, Zhejiang University, Hangzhou, 2009
- 10) Awarded **Ph.D. Microbiology Scholarship** for International Students, 2008, Mahidol University, Bangkok, Thailand
- 11) Awarded **Ph.D. scholarship** by HEC (Higher Education Commission) of Pakistan under the scheme “Overseas Scholarships Scheme for MS/MPhil leading to Ph.D. in selected fields (Phase-II) Batch-III, September 18, 2008 (**131,800 Euro**)
- 12) **Certificate of Appreciation/Honour** for cricket runner up in annual faculty sports (2003) and member of students sports advisory council (Hockey Postgraduate) (2004-05)
- 13) **M.Sc. (Hons.) Silver medal** (Summa cum laude) for 1st position, year 2006, from FVS, University of Agriculture, Faisalabad, Pakistan
- 14) **Certificate of Honour** from University of Agriculture, Faisalabad, Pakistan year 2005-2006 for 1st position in each semester of M.Sc. (Hons.)
- 15) **University Merit Scholarship** from University of Agriculture, Faisalabad, Pakistan from 2002-2004
- 16) **DVM, Silver medal** (Magna cum laude) for 2nd position, year 2004, from FVS, University of Agriculture, Faisalabad, Pakistan
- 17) **Certificate of Honour** from University of Agriculture, Faisalabad, Pakistan year 2002-2004 for 2nd position in each semester of DVM
- 18) **The National Cadet Corps (NCC) Certificate of Service** by The Director General National Guards for services rendered in Khawaja Fareed Govt College Rahim Yar Khan, with “A” company Rahim Yar Khan Battalion from 1 December 1996 to 24 December 1997

RESEARCH GRANTS (GRANTS RECEIVED/APPLICATIONS SUBMITTED & PEER REVIEWED)

1. **Faculty Research Grant, Higher Education Commission of Pakistan, SRGP No. 509, (2015-16).** Development of a rapid genotyping technique for fowl adenoviruses from field cases of hydropericardium syndrome and inclusion body hepatitis of chickens. Value \$ 4,830. **Role: PI (Project Awarded)**
2. **Faculty Research Grant, Higher Education Commission of Pakistan, SRGP No. 520, (2015-16).** Sequencing and understanding towards genetic variations in Peste des petits ruminants virus isolates from Punjab province. Value \$ 5,000. **Role: Co-PI (Project Awarded)**
3. **PARB CGS System, 2015.** Development and evaluation of temperature-sensitive mutant of Mycoplasma gallisepticum as live vaccine in chickens. **Value: PKR 26.74 million, Role: PI (Submitted-Project Not Awarded)**
4. **Pakistan Science Foundation, 2019,** Project No. PSF/CRP/P-BZU/T-Helix. Genotypic and Phenotypic Characterization of Indigenous Mycoplasma Gallisepticum Isolates and Their Use in the Development and Evaluation of an Inactivated M. Gallisepticum Vaccine for Chickens. **Value: PKR 9.1 million Role: PI (Submitted-Shortlisted-Reviewed-Project Not Awarded)**
5. **HEC-Pakistan, NRPU, 2019-20.** Survey of Small Ruminants for Mycoplasmas Associated with Contagious Agalactia and Contagious Caprine Pleuropneumonia in South Punjab. [NRPU Project # 11188, Application ID: 496] **Value: PKR 11.69 million, Role: PI (Submitted-Shortlisted-Reviewed-Project Not Awarded)**
6. **Punjab Higher Education Commission (PHEC), PIRCA, 2020.** Mapping in-depth genetic diversity of Mycoplasma gallisepticum and Mycoplasma synoviae in Pakistan and development of in-house ELISA kits for rapid diagnosis in poultry [Ref No. 20070] **Value: PKR 9.98 million, Role: PI (Submitted-Shortlisted-Reviewed-Project Not Awarded)**

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7. **HEC-Pakistan, NRPU, 2021.** Mapping in-depth genetic diversity of mycoplasmas causing economically important diseases in ruminants and development of rapid pen-side diagnostic tests. Value: PKR 17.644 million [Application ID: 17333] **Role: PI (Submitted-Shortlisted-Reviewed-Project Not Awarded)**

RESEARCH PROJECTS COMPLETED

1. **Endeavour Postdoctoral Research Project, The University of Melbourne, Australia (August 2016-February 2017):** Research project was to develop vectors for the expression of Obg, a GTP binding protein, under its natural promoter and different lengths of *vlhA* gene promoter in *Mycoplasma synoviae*. Gibson Assembly cloning strategy was used to develop pMSOBG1, pMSOBG2, pMSOBG3 and pMSOBG4 plasmids containing *M. synoviae* origin of replication (*oriC*), tetracycline and ampicillin resistance genes, and *obg* gene with C-terminal His-tag under different putative promoter regions. Plasmids will be transformed into *M. synoviae* strain MS-H to determine the level of Obg expression and its effect on temperature sensitivity phenotype.
2. **Postdoctoral Research Project, The University of Melbourne, Australia (January 2014-August 2014):** I worked on a project related to my Ph.D. project after submission of Ph.D. thesis. The project involved in advanced molecular biological techniques including the transformation of 86079/7NS strain of *Mycoplasma synoviae* and studying the effect of wild-type *obg* expression on temperature sensitivity of 86079/7NS strain.
3. **Postgraduate (Ph.D.) Research Project, The University of Melbourne, Australia (June 2009-December 2013):** Ph.D. project was to understand the molecular basis of attenuation of a temperature-sensitive *Mycoplasma synoviae* vaccine MS-H (Vaxsafe MS[®], Bioproperties Ltd., Australia), the only available live vaccine strain to control *M. synoviae* infections in poultry. To underpin attenuating factors, I conducted a comparative proteomic analysis of pathogenic and nonpathogenic strains of *Mycoplasma synoviae*. Comparative complete genome sequence analysis, using next-generation sequencing technologies (e.g., SOLiD, Illumina), of *M. synoviae* vaccine strain MS-H, its parent strain (86079/7NS) and re-isolates of the vaccine strain, differing in pathogenicity and tissue tropism, were also conducted. Analysis of the Optical Mapping data of *M. synoviae* 86079/7NS whole genomic DNA was conducted to help finish the complete genome sequence assembly of *M. synoviae* strains. Draft genome sequences of two strains (MS-H and 86079/7NS) were completed and submitted to GenBank (Accession # KP704286 and CP029258, respectively). Molecular tools for genetic manipulation of *M. synoviae*, using the origin of replication (*oriC*), were developed for the first time for *M. synoviae*. Shuttle vectors for gene cloning, expression, and homologous recombination of targeted genes in *M. synoviae* were also developed. I characterized the role of Obg (GTP binding protein) in attenuated growth phenotype of temperature-sensitive MS-H vaccine strain. As part of the project, I developed a qPCR assay for rapid determination of temperature-sensitive phenotype and also developed molecular tools, based on PCR-HRM, for rapid differentiation of MS-H vaccine from *M. synoviae* field strains.
4. **Postgraduate (M.Phil.) Research Project, University of Agriculture, Faisalabad (September 2004-September 2006):** I have developed and optimized a microbiological assay employing *Bacillus subtilis* as a test organism for the detection of antibiotic residues in chicken meat. Furthermore, I quantified antibiotic (Oxytetracycline) residues levels in chicken meat samples, recovered from retail outlets, by high-performance liquid chromatography.

RESEARCH SUPERVISION

M. Phil: 10

Sr. No.	Name	Thesis title	Status
1	Muhammad Shafique (MPMICR-17-10) (Session 2017-19)	Investigations on the carrier status of <i>Pasteurella multocida</i> in ruminants in district Multan	Thesis Submitted for Viva voce examination

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2	Muhammad Zeshan Zakir (MPMICR-18-04) (Session 2018-20)	Prevalence of multidrug-resistant <i>Salmonella</i> spp. carried by houseflies present in meat markets in and surrounding areas of Muzaffargarh city	MPhil completed
3	Muhammad Khalil (MPMICR-18-05) (Session 2018-20)	Prevalence of multidrug-resistant <i>Escherichia coli</i> carried by houseflies present in meat markets in and surrounding areas of Multan city	MPhil completed
4	Muhammad Azeem Khan (MPMICR-19-05) (Session 2019-21)	Prevalence and Antimicrobial Resistance of <i>Salmonella</i> and <i>Shigella</i> Spec isolated from clinical, environmental and food sources in district Multan	Under supervision
5	Namra Karim (MPMICR-19-09) (Session 2019-21)	Antibiotic susceptibility analysis of β -lactamase producing Enterobacteriaceae from Clinical, Environmental, and Food sources in Multan, Pakistan	MPhil completed
6	Kinza Imran (MPMICR-21-04) (Session 2021-23)	Antimicrobial resistance phenotyping of <i>Klebsiella</i> species isolated from Human clinical specimens in Multan city, Pakistan	MPhil completed
7	Noor Ul Naeem (MPMICR-21-01) (Session 2021-23)	Antimicrobial resistance phenotyping of <i>Enterobacter</i> species isolated from Human clinical specimens in Multan city, Pakistan	MPhil completed
8	Dad Muhammad (MPMICR-21-02) (Session 2022-24)	Isolation and evaluation of bacteriophages targeting multidrug resistant <i>Enterobacter cloacae</i>	Under supervision
9	Iqra Nosheen (MPMICR-21-03) (Session 2022-24)	Isolation and evaluation of bacteriophages targeting multidrug resistant <i>Klebsiella pneumoniae</i>	Under supervision
10	Maryam Nawaz (MPMICR-21-04) (Session 2022-24)	Isolation and evaluation of bacteriophages targeting multidrug resistant <i>Escherichia coli</i>	Under supervision

TEACHING (UNDERGRADUATE AND POSTGRADUATE COURSES)

S. No	Course code	Course title	Credit Hours	Class	Semester	Course Taught (Individually/Shared)
1	MICR 112	General Veterinary Microbiology	3(2-1)	DVM 2 nd , M & E	Spring-2018 till date	Shared (Practical)
2	EPI 409	Milk Hygiene and Public Health	2(1-2)	DVM 7 th , M & E	Fall-2018 till date	Shared (Practical)
3	MICR 303	Veterinary Virology	3(2-1)	DVM 5 th , M & E	Fall-2018 till date	Shared (Practical)
4	MICR 209	Veterinary Immunology	2(1-1)	DVM 3 rd , M & E	Fall-2018 till date	Shared (Theory)
5	BIOL 211	Molecular Biology	2(1-1)	DVM 3 rd , M & E	Fall-2018 till date	Shared (Practical)
6	MICR-206	Veterinary Bacteriology & Mycology	3(2-1)	DVM 4 th , M & E	Spring-2019 till date	Shared (Practical)
7	EPID-304	Zoonosis & Food Safety	3(2-1)	DVM 6 th , M & E	Spring-2019 till date	Shared (Practical)
8	MICR-212	General Microbiology & Avian Immunology	4(3-1)	BPS 4 th , E	Spring-2019 till date	Shared (Theory)

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9	MICR 605	Advanced Bacteriology	3(2-2)	M.Phil. 2 nd	Spring-2018 till date	Individually
10	MICR 606	Advanced Virology	3(2-2)	M.Phil. 2 nd	Spring-2018 till date	Shared (Practical)
11	MICR 704	Techniques in molecular biology	3(2-2)	Ph.D. 2 nd	Spring-2018 till date	Individually
12	MICR-604	Advanced Immunology	3(2-2)	M.Phil. 1 st	Fall-2019 till date	Individually
13	MICR-601	Advanced Microbiological Techniques	3(2-2)	M.Phil. 1 st	Fall-2019-20 till date	Shared (Practical)

ORAL/POSTER PRESENTATIONS IN NATIONAL AND INTERNATIONAL CONFERENCES / SYMPOSIUMS

1. Oral presentation in Postgraduate Symposium of Faculty of Veterinary Science, The University of Melbourne held in Werribee, Australia on November 9, 2010
2. Oral presentation in Postgraduate Symposium of Faculty of Veterinary Sciences, The University of Melbourne held in Werribee, Australia on November 16, 2012
3. Poster presentation in the 19th Congress of International Organization for Mycoplasma (IOM) in Toulouse, France, 15-20 July 2012
4. Poster presentation in the 3rd Molecular Microbiology Meeting, Waterview, Bicentennial Park, Sydney, New South Wales, Australia on August 6-7, 2013
5. Oral presentation in World Veterinary Poultry Association (WVPA) Conference, Nantes, France, August 19-23, 2013
6. Abstract accepted for Oral presentation in XXTH World Veterinary Poultry Association Congress, Edinburgh, Scotland, September 4-8, 2017
7. Oral presentation and participation in One-Health Research Symposium organized by National Academy of Sciences, USA, Bangkok, Thailand, July 9-13, 2018
8. Poster presentation in the 2nd Virtual One-Health International Conference (OHC-2020), organized by University of Veterinary and Animal Sciences, Lahore, Pakistan, November 25-26, 2020

SEMINARS / TRAININGS / WORKSHOPS ORGANISED

1. Organized seminars (n=15) regarding Dengue control at Bahauddin Zakariya University, Multan as member Epidemic control committee, BZU, Multan-Pakistan, November 07, 2022 to December 07, 2022
2. Organized seminars (n=08) regarding Dengue control at Bahauddin Zakariya University, Multan as member Epidemic control committee, BZU, Multan-Pakistan, September 14, 2023 to November 02, 2023

TRAININGS / WORKSHOPS / SEMINARS / CONFERENCES / CERTIFICATE COURSES ATTENDED

1. Short course on "Livestock Ecology and Sustainable Land use" organized by University of Agriculture Faisalabad in collaboration with University of Humboldt Germany at University of Agriculture Faisalabad, Pakistan, January 12-24, **2004**
2. Participated in workshop on "DNA/Emerging Vaccines & Production Challenges" organized by COMSTECH (Committee on Scientific and Technological Cooperation) and HEC (Higher Education Commission), Islamabad, Pakistan, September 3-9, **2007**
3. Participated in "14th Annual Protein Expression Workshop", organized by CSIRO Materials Science and Engineering, Royal Parade, Parkville, Victoria, Australia, 31st July to 2nd August **2013**
4. Participated and co-chaired a technical session in International One-Health Conference (OHC-2017), organized by University of Veterinary and Animal Sciences, Lahore, Pakistan, November 13-15, **2017**
5. Participated in "Influence Without Authority (IWA)" workshop organized by Pakistan Biological Safety Association and Fogarty International Center, National Institute of Health, USA, at University of Lahore, Lahore, Pakistan, 17th February **2019**

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6. Participated in ASM 52-weeks of Biosafety, One-Health Training Program, In-Person Training, organized by American Society for Microbiology and Safer Behaviors, USA, at COMSTECH Secretariat, Islamabad, Pakistan, July 22-25, **2019**
7. Participated and completed Year-long Advanced Biological Risk Mitigation Program: 52 weeks of biosafety, One Health Training Program, 52 Weeks of Biosafety in Pakistan, organized by American Society for Microbiology and Safer Behaviors, USA, **2019-2020**
8. Participated and completed Online Certificate Course entitled, “Diagnosis of COVID-19: Sample Collection, RNA Extraction, PCR, and Data Interpretation”, Organized by COMSTECH Secretariat, Islamabad, in Collaboration with International Center for Chemical and Biological Sciences (ICCBS), Karachi, August 18-20, **2020**
9. Participated and completed 3-day Faculty training program on “Biorisk Management for DVM degree” organized by University of Veterinary and Animal Sciences, Lahore in collaboration with Sandia National Laboratories, USA, September 2-4, **2020**
10. Participated and completed 05-days Virtual Biorisk Management Training (Basic course) organized by Health Security Partners, USA and Association for Biorisk Management, Pakistan, October 07-11, **2020**
11. Participated in Virtual One-Health International Conference (OHC-2020), organized by UVAS, Lahore, Pakistan, November 25-26, **2020**
12. International Conference on Farriery and Allied Veterinary Sciences, organized by Afyon Kocaktepe University, Turkey under Erasmus Project titled “Reviving of Farriery, Disappeared Profession”, December 07, **2020**
13. Participated in International Red Meat Seminar organized by GLADER (The Association of Food Laboratories and Food Auditors) at the online education hall of Prof. Dr. Ferruh Dincer, May 08, **2021**
14. Participated in COMSTECH hybrid training on “Collaboration among OIC member countries for promotion of research culture in medicines and vaccines through strengthening and upgrading the clinical trials” organized by COMSTECH in collaboration with DRAP and ICCBS, June 03, **2021**
15. Participated in training entitled Advanced BRM/Trainer Development Workshop for Veterinary Education establishments in Pakistan, organized by Pakistan Veterinary Medical Council in collaboration with Sandia National Laboratories (USA), July 12-14, **2021**
16. Participated in 9th Virtual Journal Club “Microbiology and Antimicrobial Resistance” Implementing Antimicrobial Stewardship Activities using Point Prevalence Survey Data, organized by NIH, Pakistan August 11, **2021**
17. Participated in Wiley’s Dissecting the Scholarly Publication Process. A Current Overview on the Steps to Getting Published, organized by WILEY Publishers, January 26, **2022**
18. Attended/participated training workshop on "Animal health mentoring framework and farriery mentoring framework” organized by Department of Clinical Sciences, Faculty of Veterinary Sciences, BZU, Multan, dated October 17, **2023**

MEMBERSHIPS / REGISTRATION WITH PROFESSIONAL SOCIETIES

1. Registration with Pakistan Veterinary Medical Association (PVMA) as Registered Veterinary Medical Practitioner (RVMP # 2170)
2. Registration with Pakistan Veterinary Medical Association (PVMA) as Registered Veterinary Faculty Member (RVFM # 488)
3. Member of Australian Society for Microbiology (ASM) (Membership ID # 12370)
4. Global Outreach Contributing Membership with American Society for Microbiology (ASM) (Membership # 200026138)
5. Member of International Organization for Mycoplasma (IOM)
6. Member of World Veterinary Poultry Association (WVPA) Pakistan-Branch (Membership # 99)

LABORATORY TECHNIQUES AND TECHNICAL SKILLS

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- Proteomic techniques including SDS-PAGE, two-dimensional gel electrophoresis (2-DE), Western immunoblotting (colorimetric and chemiluminescent methods)
- Bacterial transformation by electroporation
- Molecular gene cloning techniques, protein expression, and purification techniques raising antisera against purified recombinant proteins in SPF chickens
- Analysis of whole genome Optical Mapping and Next Generation Sequencing (SOLiD, Illumina) data for completion of bacterial/mycoplasma genome sequences
- PCR, Real Time-PCR (RT-PCR) and High-Resolution Melting (HRM) Curve Analysis for research and diagnostic purposes
- Nucleic acid analysis using Southern blot and Northern blot hybridization
- Bioinformatic analysis of Sanger sequencing data and phylogenetic tree construction, prediction of proteins' 3D structure using Homology Modeling
- Isolation, identification & characterization of different viral (e.g., Avian Influenza Virus (AIV) serotypes H5, H7, and H9) and bacterial pathogens
- Pathogenicity testing (e.g., EID50) of H5N1 subtype of AIV
- Seroepidemiology of different viral and bacterial diseases (e.g., Newcastle disease, Infectious bronchitis, Infectious bursal disease, Avian influenza, Mycoplasma gallisepticum, Mycoplasma synoviae and Brucella abortus) by serological techniques (e.g., ELISA, RBPT, RSA, HA, HAI etc)
- Antigen preparation for rapid serum agglutination (RSA) tests of M. gallisepticum, M. synoviae, Salmonella gallinarum and Salmonella pullorum
- Experience of working on different cell lines (BHK, Vero, HEK293 etc), primary cell cultures (chicken embryo fibroblast, liver, and kidney cell cultures), calculation of TCID50 (e.g., FMDV and PPRV in BHK and Vero cell monolayers, respectively) and plasmid transfection of primary cells (CEK) and continuous cell line (HEK 293 cells)

COMPUTER AND / OR ANALYTICAL SKILLS

- Good command of using MS Word, MS Excel, MS PowerPoint
- Use of GraphPad™ for statistical analysis and publication-quality graphs
- Use of Adobe Photoshop and ImageJ for image analysis
- Use of Geneious™, MEGA6, Codon code Aligner, Argus MapSolver and similar tools for DNA sequence analysis
- Use of SWISS-MODEL for predicting 3D structures of proteins

LANGUAGE SKILLS

- **IELTS** (International English Language Testing System): Undertook test at RMIT, Melbourne, Australia (10 May 2014). Overall band 6.0 (Listening 6.0, Reading 6.0, Speaking 6.0, Writing 6.0)
- **PTE** (Pearson Test of English): Undertook test at Melbourne, Australia (01 February 2017). Overall score 64 (Listening 67, Reading 64, Speaking 45, Writing 80)

REFERENCES

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PERSONAL INFORMATION

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