

## **Dr. Shahan Azeem**

### **Assistant Professor**

#### **Biography**

Dr. Shahan Azeem is an Assistant Professor at the University of Veterinary and Animal Sciences in Lahore, Pakistan. He won Fulbright/HEC/USAID Scholarship in 2011 for a Ph.D. He has earned a Ph.D. in Veterinary Microbiology from the Iowa State University (ISU), Ames, Iowa, USA. He also holds a Postgraduate Diploma in Veterinary Education from the Royal Veterinary College, University of London, United Kingdom. He received his DVM and a master's in Veterinary Microbiology from the College of Veterinary Sciences, Lahore in 1998 and 2002, respectively. He has a keen interest in animal influenza viruses and he has been involved in research projects relating to these viruses of various animal species. His Ph.D. dissertation focused on characterization and surveillance tools for avian influenza viruses in migratory wild birds and poultry. While conducting his dissertation research, Shahan has also been involved in diagnostic investigations of other viral and bacterial diseases. He has published 23 research papers in refereed journals and 20 abstracts in international and national conferences. He has presented his research at 12 international conferences. He is a reviewer for 3 international and one national journal. He was given Graduate Student Travel Award by the conference organizers to present at the American Association of Veterinary Laboratory Diagnosticians, Providence, Rhode Island, in 2015 and again at North Central Avian Disease Conference, St. Paul, Minnesota, in 2017. He has attended 28 professional international and national trainings. He has mentored 13 graduate students and is currently supervising two Ph.D. and 14 M.Phil. Students. His vision for the future includes becoming a scientist with a deep understanding of and concern for the needs and problems of the poultry and livestock farming community. Personally, Shahan has a 9-year-old son and enjoys reading and outdoor activities for leisure.

## Area of Interest

- Animal influenza viruses
- Emerging viruses
- Respiratory diseases
- Public Health Microbiology
- Wildlife diseases

## Publications

### Research Papers

1. Naz G, Anjum AA, Nawaz M, Iqbal S, **Azeem S**, Ali T, Manzoor R. 2023. Evaluation of *Cinnamomum verum* Essential Oils against Ochratoxin A-producing *Aspergillus parasiticus* in Stored Wheat, Maize and Rice. Polish J. Environmental Studies 32(1):667–676.
2. Asghar MU, Anjum AA, Rabbani M, Ali MA, **Azeem S**, Khan MA. 2023. A commercial monovalent canine parvovirus vaccine performs better than a commercial combination vaccine in puppies. Journal of the Hellenic Veterinary Medical Society 73(4):4827-4832.
3. **Azeem S**, Akbar H, Ahmad L, Ashraf M, Puvanendiran S. 2023. When used in animals, a neem (*Azadirachta indica*)-based ectoparasiticide performs better than a synthetic one. Journal of the Hellenic Veterinary Medical Society 73(4):4833-4840.
4. Khan MA, Shabir S, **Azeem S**, Gill W, Ashraf K, Azhar M, Rashid I, Ashraf M, Avais M, Ahmad AS, Younas M, Badshah A, Ahmad S, Akbar H. 2023. Documentation of *Trypanosoma evansi* in captive tigers and lions in Punjab (2016-2018), Pakistan. Journal of Zoo and Wildlife Medicine 53(4):823-831.
5. **Azeem S**, Guo B, Sun D, Killian ML, Baroch JA, Yoon K-J. 2022. Evaluation of PCR-based hemagglutinin subtyping as a tool to aid in surveillance of avian influenza viruses in migratory wild birds. J. Virological Methods 308: 114594.
6. **Azeem S**, Sato Y, Guo B, Wolc A, Kim H, Hoang H, Bhandari M, Mayo K, Yuan J, Yoon J, Gauger PC, Yoon K-J. 2022. Evaluation of Feedstuffs as a Potential Carrier of Avian Influenza Virus between Feed Mills and Poultry Farms. Pathogens 11(7):755. <https://doi.org/10.3390/pathogens11070755>.
7. Batool A, Rabbani M, Raza S, Firyal S, **Azeem S**. 2022. Serological evidence of Bovine Herpes Virus-1 in cattle and buffalo population of Punjab, Pakistan. Pakistan J. Zoology 55(1): 493-496.
8. Danial A, **Azeem S**, Raza S, Mushtaq MH. 2022. Serological evidence of Bovine Herpes Virus-1 in goats in Lahore, Pakistan. Pakistan J. Zoology 54(6): 2993-2995.
9. **Azeem S**, Muneer MA, Akhtar S, Ahmad L, Pasha TN. 2022. Effects of antibiotics on growth performance, immune response, and intestinal microflora of broilers. Pakistan J. Zoology 54(6): 2629-2637.

10. Amin F, Mukhtar N, Aslam A, Sheikh AA, Sultan B, Hussain M, Shehzad R, Ali M, Shahid MF, Aziz, MW, **Azeem S**, Aslam HB, Yaqub T. 2022. Rate of Multiple Viral and Bacterial Coinfection(s) in Influenza A/H9N2–Infected Broiler Flocks. *Avian Diseases* 66(2):1-8 (2022). <https://doi.org/10.1637/aviandiseases-D-21-00114>.
11. **Azeem S**, Sharma B, Shabir S, Akbar H, Venter E. 2022. Lumpy skin disease is expanding its geographic range: A challenge for Asian livestock management and food security. *The Veterinary Journal* 279: 105785. DOI: 10.1016/j.tvjl.2021.105785.
12. Khan S, Akbar H, Rashid MI, Younus M, Farooqi SH, Rehman F-U, Badshah A, **Azeem S**. 2022. Clinical management of cutaneous bovine papillomatosis in a cow calf: a case report. *Journal of the Hellenic Veterinary Medical Society* 73 (2): 4261–4264.
13. **Azeem S**, Gauger P, Sato Y, Guo B, Wolc A, Carlson J, Harmon K, Zhang J, Hoang H, Yuan J, Bhandari M, Kim H, Gibson K, Matias-Ferreyra F, Yoon K-J. 2021. Environmental sampling for avian influenza virus detection in commercial layer facilities. *Avian Diseases* 65(3): 391-400.
14. **Azeem S**, Roy B, Van Aarde R, Bastos ADS (2020). Mass Die-Off of African Elephants in Botswana: Pathogen, Poison or a Perfect Storm? *African Journal of Wildlife Research*, 50(1):149-156.
15. Houston DD, **Azeem S**, Lundy CW, Sato Y, Guo B, Blanchong JA, Gauger PC, Marks DR, Yoon K-J, Adelman JS. 2017. Evaluating the role of wild songbirds or rodents in spreading avian influenza virus across an agricultural landscape. *PeerJ* 5:e4060; DOI 10.7717/peerj.4060.
16. Panyasing Y, Goodell C, Kittawornrat A, Wang C, Levis I, Desfresne L, Rauh R, Gauger PC, Zhang J, Lin K, **Azeem S**, Nezami S, Yoon K-J, Zimmerman J. 2016. Influenza A virus (IAV) surveillance based on pre-weaning piglet oral fluid samples. *Transboundary and Emerging Diseases*. 63(5):e328-338. doi: 10.1111/tbed.12307.
17. Dilawer MS, Khan MA, Abidin Z-U, **Azeem S**, Majeed KA, Shahbaz A, Khan AR. 2011. Effect of variable degrees of jejunal resection upon different clinic-biochemical parameters in dogs. *Korean J Vet Res*. 51(4): 309-313.
18. Chaudhry ZI, Saiddain A, Sabir N, Malik NA, **Azeem S**, Sajid A. 2011. Prevalence of pathological conditions causing skin damage and consequently reducing its market value in domestic ruminants of Punjab, Pakistan. *Veterinary Science Development*. 1 (e4): 19-23.
19. Khan MA, Ali MM, **Azeem S**. 2011. A complicated case of septic orchitis and posthitis in a race horse. *Pakistan J. Zoology* 43 (4):818-821.
20. Khan MA, Ali MM, **Azeem S**. 2011. Phallectomy and urethrostomy in a paraphimosed race horse. *Pakistan J. Zoology* 43 (2):408-411.
21. Khan MA, Ali MM, **Azeem S**, Safdar A, Ahmad I, Ziaullah, M, Sajjad T. 2011. Ileocolic intussusception in a cocker spaniel dog: A case report. *J. Plant Anim. Sci*. 21(3):635-637.
22. **Azeem S**, Khan MA, Hamid T, Chaudhry ZI, Ahmed I. 2010. Squamous cell carcinoma of the penis and prepuce with pulmonary metastasis in a horse. *Pak. J. Zool*. 42 (1):97-99.
23. Asif M, **Azeem S**, Asif S, Nazir S. 2008. Prevalence of Gastrointestinal Parasites of Sheep and Goat in and around Rawalpindi and Islamabad, *Journal of Veterinary and Animal Sciences* 1 (1):14-17.

## Oral Presentations at Conferences

1. **Shahan Azeem**, Phillip C Gauger, Yuko Sato, Baoqing Guo, Anna Wolc, James Carlson, Karen Harmon, Jianqiang Zhang, Hai Hoang, Jian Yuan, Mahesh Bhandari, Hanjun Kim, Kathleen Gibson, Franco Matias- Ferreyra, Kyoung-Jin Yoon. September 2022. Environmental Sampling for AIV Detection in Commercial Poultry Facilities. Abstract Book Poultry Science Conference. Lahore, Pakistan. September 15-17, 2022.
2. Amoon Danial, **Shahan Azeem**, Sohail Raza, Hassan Mushtaq, Farhat Nazir Awan, Hammad Ur Rehman, Iqra Nazir, Masood Rabbani. March 2021. Molecular and Serologic evaluation of Bovine Herpes Virus 1 at the Cattle-Goat Interface in Lahore, Pakistan, Conference on Recent Advances in Applied Biosciences, Lahore, Pakistan, March 30-31, 2021.
3. Iffat Huma, **Shahan Azeem**, Tahir Yaqub, Hassan Mushtaq. March 2021. Effect of storage conditions on the stability of a commercial live lyophilized Newcastle disease vaccine, Conference on Recent Advances in Applied Biosciences, Lahore, Pakistan, March 30-31, 2021.
4. **Azeem S**, Sato Y, Guo B, Kim H, Hoang H, Kim H, Bhandari M, Gibson K, Yuan J, Gauger P, Zhang J, Yoon K-J. March 2017. Evaluation of Feedstuffs as potential carrier of Avian Influenza Virus (AIV) between Feed Mills and Poultry Farms, North Central Avian Disease Conference, St. Paul, Minnesota. Mar. 13-14, 2017.
5. Gibson K, Curry S, Burrough E, Schwart K, Guo B, Schweer W, Bhandari M, Hoang H, **Azeem S**, Gabler N, Yoon K-J. June, 2016. Comparison of porcine epidemic diarrhea virus (PEDV) and porcine deltacoronavirus (PDCoV) for pathogenicity in nursery pigs. Conference of Research Workers in Animal Diseases. Chicago, Illinois. Dec. 4-6, 2016.
6. Gibson K, Curry S, Burrough E, Schwart K, Guo B, Schweer W, Bhandari M, Hoang H, **Azeem S**, Gabler N, Yoon K-J. June, 2016. Comparison of porcine epidemic diarrhea virus (PEDV) and porcine deltacoronavirus (PDCoV) for pathogenicity in nursery aged pigs. The 24th International Pig Veterinary Society Congress, Dublin, Ireland. Jun. 7-10, 2016.
7. **Azeem S**, Ghorbani-Nezami S, Allam A, Cooper VL., Burrough E, Schwartz K, Plummer P, Arruda P, Gauger P, Kinyon J, Madson D, Sahin O, Stevenson G, Yoon K-J. October, 2015. A multiplex real-time PCR panel for detection of major bacterial and viral agents causing abortion in small ruminants. American Association of Veterinary Laboratory Diagnosticians Annual Meeting in Providence, Rhode Island. Oct. 22-28, 2015.
8. **Azeem S**, O'Neill K, Kostohryz S, Allam A, Sun D, Bower L, Schwartz K, Yoon KJ. December, 2014. Survey of Iowa residential bats for influenza viruses. Conference of Research Workers in Animal Diseases. Chicago, Illinois. Dec. 7-9, 2014.

9. Panyasing Y, Goodell C, Kittawornrat A, Wang C, Levis I, Defresne L, Rauh R, Gauger P, Zhang J, Lin K, Nezami S, **Azeem S**, Yoon K-J, Zimmerman J. October 2014. Influenza A virus (IAV) surveillance using pre-weaning oral fluid samples. American Association of Extension Veterinarians. 2014 Applied Animal and Public Health Research and Extension Symposium. Kansas City, Missouri. Oct. 18, 2014.
10. Sun D, Stevenson GW, Madson D, Hoang H, **Azeem S**, Zhang J, Schwartz K, Yoon K-J. December 2013. Identification and characterization of novel parainfluenza virus type 1-like virus in pigs with influenza-like respiratory disease. Conference of Research Workers in Animal Diseases, Chicago, Illinois. Dec. 8-10, 2013.
11. **Azeem S**, Baroch J, Brade-Tretheway B, Pabilonia K, Tewari D, Killian M, McElwain T, Yoon K-J. December 2013. Molecular characterization of non-H5 and non-H7 influenza A virus isolates from wild birds of the North American migration flyways during 2006-2011. Conference of Research Workers in Animal Diseases, Chicago, Illinois. Dec. 8-10, 2013.
12. **Azeem S**, Brade-Tretheway B, Pabilonia K, Baroch J, Tewari D, McElwain T, Yoon K. July 2013. Molecular characterization of non-H5 and non-H7 avian influenza viruses from wild birds of the North American migration flyways. Annual Meeting of American Society for Virology, State College, PA, USA. July 21, 2013.

### **Training, Workshops, and Courses**

1. PGCOG-10 (Tenth Six Month Postgraduate Computer Orientation Course), Computer Training Center, Higher Education Commission, Islamabad. 2003.
2. Workshop on Identification of Problems in Livestock Sector in Punjab for Future Research and Development, Holiday Inn, Lahore. 21st June 2004.
3. Sixth HRDC National Faculty Development Program at Human Resources Development Centre, University of the Punjab. 6th-10th September 2004.
4. Workshop on Digital Library Resources by Ms. Urooj Fatima and Ms. Amina Said, Regional Coordinators-Digital Library Program of Higher Education Commission of Pakistan held at University Auditorium, UVAS, Lahore. 17th Sept. 2005.
5. Workshop on “Current Concepts in Canine Theriogenology” (Concluding Session) by Dr. Mustaq A Memon, Washington State University, Pullman USA held at Seminar Room, UVAS, Lahore. 28th Jan. 2006.
6. Self-Assessment Guidelines for University’s Academic Programs, A Two Days Workshop on Self-Assessment Procedures for the University Program organized by Higher Education Commission held at Holiday Inn, Lahore. 10-11 May 2006.
7. “Entrepreneurship: An Emerging Discipline—A Capacity-Building Workshop for Higher Education Faculty” organized by the Higher Education Commission of Pakistan held at HEC Regional Centre, Gulberg Lahore. 18-19th December, 2006.
8. Two Days Orientation Workshop on “Enhancing the Quality of Higher Education through Self-Assessment” organized by the Higher Education Commission of Pakistan held at HEC Conference Room, H-8, Islamabad. 22nd – 23rd January 2007.

9. Haggai Institute's Advanced Leadership Seminar held at Haggai Institute for Advanced Leadership Training, Singapore. 25<sup>th</sup> Feb. 2007 to 23<sup>rd</sup> Mar. 2007
10. Use and Application of TURNITIN-An Anti-plagiarism Tutorial, Video Conference Hall, University of Veterinary and Animal Sciences, Lahore 3<sup>rd</sup> September 2009.
11. "Molecular Techniques (PCR/RT-PCR) for Diagnosis of Animal Microbial Diseases" organized by the Department of Microbiology held at the Quality Operations Laboratory, University of Veterinary and Animal Sciences, Lahore Nov., 23-26, 2009.
12. Mountaineering Adventure Course for Civilians, Army High Altitude School, Rattu, Astore, Pakistan. July, 12-24, 2010.
13. "Professional Competency Enhancement Program for Teachers (PCEPT)" organized by Center for Educational Policy and Administration, University of Veterinary and Animal Sciences, Lahore. August 23-27 and Sept. 28- Oct. 1, 2010.
14. Immunology and Principles of Vaccination, Veterinary Biologics Training Program jointly organized by Institute for International Cooperation in Animal Biologics and Center for Veterinary Biologics, United States Department of Agriculture held at College of Veterinary Medicine, Iowa State University, Ames, Iowa, USA. May 8-11, 2012.
15. Procedures for Ensuring Vaccine Safety and Efficacy Vaccination, Veterinary Biologics Training Program jointly organized by Institute for International Cooperation in Animal Biologics and Center for Veterinary Biologics, United States Department of Agriculture held at College of Veterinary Medicine, Iowa State University, Ames, Iowa, USA. May 14-18, 2012.
16. Laboratory Testing Related to Biologics Evaluation, Veterinary Biologics Training Program jointly organized by Institute for International Cooperation in Animal Biologics and Center for Veterinary Biologics, United States Department of Agriculture held at National Centers for Animal Health, USDA, Ames, Iowa, USA. May 21-23, 2012.
17. Emerging and Exotic Diseases of Livestock (a web-based course approved for 18 hours of continuing education through the Registry of Approved Continuing Education of the American Association of State Boards) moderated by Dr. Jesse Hostetter, Associate Professor, College of Veterinary Medicine, Iowa State Univ. Ames, Iowa, USA. July 13-August 22, 2015.
18. Public Health Laboratory Training for Punjab organized by Punjab Healthcare Commission at Pearl Continental Hotel, Lahore. Jan. 30, 2018.
19. Mapping of DVM Curriculum for OIE Compliance and Integrated Learning Interventions organized by In-Service Training of Advance Veterinary Education and Professional Development, UVAS, Lahore. May 7-11, 2018.
20. National Joint Risk Assessment Pilot Workshop for the Control of Zoonotic Diseases organized by the World Health Organization in collaboration with the Food and Agriculture Organization of the United Nations (FAO), World Organisation for Animal Health (OIE) held at Ramada Hotel, Islamabad, April, 15-18, 2019.
21. Consultative Workshop of National Joint Risk Assessment (JRA) Team for Development of JRA Report for Rabies Using Tripartite JRA Operational Tool" organized by World Health Organization in collaboration with the Food and Agriculture Organization of the United Nations (FAO), World Organisation for Animal Health (OIE) held at Ramada Hotel, Islamabad, August, 6-8, 2019.

22. How to peer review a review article by Elsevier Researcher Academy completed online on April 03, 2020.
23. Biorisk Management for DVM Degree Program Teachers organized by Institute of Microbiology in collaboration with Sandia National Laboratories, USA September, 2-4. 2020.
24. Five days Biorisk Management Training Anthrax Lab, Institute of Microbiology in collaboration with Health Security Partners, USA held at University of Veterinary & Animal Sciences, Lahore and online. June 28- July 02, 2021.
25. Advanced Biorisk Management (BRM) / Trainer Development Workshop organized online by Sandia National Laboratories, USA July 13-15, 2021.
26. One Day Workshop on Intellectual Property Rights in Academia organized by Office of Research, Innovation, and Commercialization, UVAS held at the Veterinary Academy, UVAS, Lahore. August 26, 2021.
27. Biorisk Management One-Day Refresher Course, Institute of Microbiology in collaboration with Health Security Partners, USA held at University of Veterinary & Animal Sciences, Lahore and online. May 10, 2022.
28. Project Formulation Workshop organized by the Pakistan Science Foundation, Islamabad held at the Forman Christian College University, Lahore. May 24-25, 2023.

### **Professional Memberships**

1. Member, American Association of Zoo Veterinarians, April, 2021 to present.
2. Affiliate Member, Microbiology Society, London, United Kingdom, January, 2021 to present.
3. Member, Sydney South East Asia Society, University of Sydney, NSW, Australia, July 2020 to present.
4. Member, International Veterinary Vaccinology Network, UK, June 2019 to present.
5. Member, One Health Network South Asia, One Health Project, Massey University, Palmerston North, New Zealand, April 2018 to present.
6. Associate Member, Wildlife Health Australia, NSW, Australia, July 2016 to present.
7. Wildlife Partner, The Wildlife Society, Bethesda, MD, USA, April 2016 to present.
8. EpiCore Certified Member, EpiCore: Global Surveillance Project, April 2016 to present.
9. Supporter, Ducks Unlimited, Inc., USA, February 2016 to present.
10. Student Member, Poultry Science Association, Champaign, IL, USA. 2015 to present.
11. Member, World's Poultry Science Association-USA Branch, 2015 to present.
12. Individual Supporter, One Health Initiative, USA since March 2014 to present.
13. Member, American Society for Microbiology, USA, July 2008 to present.
14. Member, International Society for Infectious Diseases, USA, January 2012 to present.
15. Life Member, Alumni Association, Univ. Vet. & Animal Sci., Lahore, Pakistan, 2002 to present.
16. Member, Pakistan Veterinary Medical Council. RVMP/448, 1998 to present.

## Conference Papers

1. **Azeem S**, Gauger P, Sato Y, Guo B, Wolc A, Carlson J, Harmon K, Zhang J, Hoang H, Yuan J, Bhandari M, Kim H, Gibson K, Ferreyra, FM, Yoon K-J. September 2022. Environmental Sampling for AIV Detection in Commercial Poultry Facilities. Abstract Book Poultry Science Conference. Abstract # PSC-2
2. Amoon Danial, **Shahan Azeem**, Sohail Raza, Hassan Mushtaq, Farhat Nazir Awan, Hammad Ur Rehman, Iqra Nazir, Masood Rabbani. March 2021. Molecular and Serologic evaluation of Bovine Herpes Virus 1 at the Cattle-Goat Interface in Lahore, Pakistan. Proceedings, Conference on Recent Advances in Applied Biosciences, Abstract # AB03.
3. Iffat Huma, **Shahan Azeem**, Tahir Yaqub, Hassan Mushtaq. March 2021. Effect of storage conditions on the stability of a commercial live lyophilized *Newcastle* disease vaccine. Proceedings, Conference on Recent Advances in Applied Biosciences, Abstract # AB05.
4. **Azeem S**, Sato Y, Gauger P, Guo B, Wolc A, Hoang H, Kim H, Yuan J, Bhandari M, Ferreyra, FM, Yoon K-J. November 2019. Utility of Environmental Samples for AIV Surveillance in Commercial Poultry Operations. Proceedings, Conference of Research Workers in Animal Diseases, p 187.
5. **Azeem S**, Sato Y, Guo B, Kim H, Hoang H, Kim H, Bhandari M, Gibson K, Yuan J, Gauger P, Zhang J, Yoon K-J. March 2017. Evaluation of Feedstuffs as potential carrier of Avian Influenza Virus (AIV) between Feed Mills and Poultry Farms. Proceedings, North Central Avian Disease Conference, p 12.
6. Gibson K, Curry S, Burrough E, Schwartz K, Guo B, Wesley Schweer W, Bhandari M, Hoang H, **Azeem S**, Gabler N, Yoon K-J. 2016. Comparison of porcine epidemic diarrhea virus (PEDV) and porcine deltacoronavirus (PDCoV) for pathogenicity in nursery pigs. Proceedings, Conference of Research Workers in Animal Diseases, p 206-207.
7. Gibson K, Curry S, Burrough E, Schwartz K, Guo B, Wesley Schweer W, Bhandari M, Hoang H, **Azeem S**, Gabler N, Yoon K-J. 2016. Comparison of porcine epidemic diarrhea virus (PEDV) and porcine deltacoronavirus (PDCoV) for pathogenicity in nursery-aged pigs. Proceedings, International Pig Veterinary Society Congress, Abstract # O-VVD3
8. **Azeem S**, Gauger P, Guo B, Hoang H, Lin X, Harmon K, Sinha A, Yoon K-J. 2015. Avian-origin H3N2 canine influenza virus in the United States. Proceedings of Conference of Research Workers in Animal Diseases, p 108-012.
9. **Azeem Shahan**, Ghorbani-Nezami Sara, Allam Ahmad, Cooper Vickie L., Burrough Eric, Schwartz Kent, Plummer Paul, Arruda Paulo, Gauger Phil, Kinyon Joann, Madson Darin, Sahin Orhan, Stevenson Gregory, Yoon Kyoung-Jin. A multiplex real-time PCR panel for detection of major bacterial and viral agents causing abortion in small ruminants. Proceedings of American Association of Veterinary Laboratory Diagnosticians Annual Meeting in Providence, RI. Oct. 22-28, 2015. P 37.
10. **Azeem S**, O'Neill K, Kostohryz S, Allam A, Sun D, Bower L, Schwartz K, Yoon KJ. Survey of Iowa residential bats for influenza viruses. Proceedings of Conference of Research Workers in Animal Diseases. Dec. 7-9, 2014.

11. Panyasing Y, Goodell C, Kittawornrat A, Wang C, Levis I, Defresne L, Rauh R, Gauger P, Zhang J, Lin K, Nezami S, **Azeem S**, Yoon K-J, Zimmerman J. October 18, 2014. Influenza A virus (IAV) surveillance using pre-weaning oral fluid samples. Proceedings of American Association of Extension Veterinarians. 2014 Applied Animal and Public Health Research and Extension Symposium. Kansas City, Missouri (unpaginated).
12. Panyasing Y, Goodell C, Kittawornrat A, Wang C, Levis I, Desfresne L, Rauh R, Gauger P, Zhang J, Lin K, Nezami S, **Azeem S**, Yoon K-J, Zimmerman J. March 2014. Influenza A virus (IAV) surveillance using pre-weaning oral fluid samples. Proceedings of the American Association of Swine Veterinarians. Dallas, Texas, p. 421.
13. Sun D, Stevenson GW, Madson D, Hoang H, **Azeem S**, Zhang J, Schwartz K, Yoon K-J. 2013. Identification and characterization of novel parainfluenza virus type 1-like virus in pigs with influenza-like respiratory disease. Proceedings of Conference of Research Workers in Animal Diseases. Dec. 8-10, 2013.
14. **Azeem S**, Baroch J, Brade-Tretheway B, Pabilonia K, Tewari D, Killian M, McElwain T, Yoon K. 2013. Molecular characterization of non-H5 and non-H7 avian influenza viruses from wild birds of the North American migration flyways during 2006-2011. Proceedings of Conference of Research Workers in Animal Diseases (Abstract #71). Dec. 8-10, 2013.
15. **Azeem S**, Brade-Tretheway B, Pabilonia K, Baroch J, Tewari D, McElwain T, Yoon K. 2013. Molecular characterization of non-H5 and non-H7 avian influenza viruses from wild birds of the North American migration flyways. Proceedings of Annual Meeting of American Society for Virology. July 21, 2013.
16. **Azeem S**, Muneer MA, Akhtar S, Pasha TN. 2009. Effect of various Growth Promoting Antibiotics on the Immune and Digestive Systems of Broiler Chickens. Proceedings of The 7th Arab Conference for Antimicrobial Agents. Nov. 6-8, 2009.
17. F.M. Khan and **S. Azeem** (2008). Comparative anthelmintic efficacy of oral Ivermectin, Levamisole, Oxfendazole, and Ricobendazole against naturally occurring gastrointestinal nematodes of sheep in Cholistan region during summer. Proc. Int. Livestock & Poultry Cong. pp: 27-28.
18. **Azeem S**, Muneer MA, Akhtar S, Pasha TN. 2003. Effect of Various Growth Promoting Antibiotics on Immune and Digestive Systems of Broiler Chickens. Proceedings of International Animal Nutrition Conference. Mar. 19-20, 2003.
19. Hamid MI, Khan MA, **Azeem S**. 2002. Prevalence of HBS Antigen among Blood Donors in Districts Headquarter Hospital, Rahim Yar Khan. Proceedings of 33<sup>rd</sup> All Pakistan Science Conference. Dec. 25-28, 2002.
20. Rizvi, NH, Khan MA, **Azeem S**. 2002. A Study of Socio-Demographic Characteristics of Addicts in Lahore. Proceedings of 33<sup>rd</sup> All Pakistan Science Conference, Dec. 25-28, 2002.

## **Book**

**Avian Influenza: Developments and Challenges** by Prof. Dr. Muhammad Akram Munir and **Dr. Shahan Azeem** published by Higher Education Commission of Pakistan, 2009. (ISBN 978-969-417-129-6).

## **Research highlighted in international media / press (selected)**

1. UP academics part of research paper that attempts to identify the causes of elephant die-off in Botswana, University of Pretoria's official website URL: [https://www.up.ac.za/zoology-entomology/news/post\\_2913314-up-academics-part-of-research-paper-that-attempts-to-identify-the-causes-of-elephant-die-off-in-botswana](https://www.up.ac.za/zoology-entomology/news/post_2913314-up-academics-part-of-research-paper-that-attempts-to-identify-the-causes-of-elephant-die-off-in-botswana) (accessed 26 August 2021).
2. Research looks at deaths of 350 elephants in Botswana, Cape Times, South Africa, 6 Aug 2020. URL: <https://www.pressreader.com/south-africa/cape-times/20200806/281543703268167> (accessed 26 August 2021).
3. Elephants are dying in droves in Botswana. Scientists don't know why, Science News, USA, 14 May 2021. URL: <https://www.sciencenews.org/article/african-elephant-mass-death-botswana> (accessed 26 August 2021).