

RABIA TANVIR (B.Sc (Hons.), M.S, PhD)

Assistant Professor,

Institute of Microbiology, University of Veterinary and Animal Sciences, Lahore 54600, Pakistan

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Teaching and Research:

Activities are focussed towards 1) teaching various undergraduate and postgraduate courses along with 2) public health disease diagnostics, optimization and validation of conventional and bacteriological diagnosis, 3) isolation and characterization of new antibiotic producers against pathogens of public health importance, 4) screening of active compounds against pathogens of public health importance 5) pharmaceutical and nutraceutical compounds in natural reservoirs such as medicinal plants and their endophytes

Employment History:

2016 - present **Assistant Professor** of Microbiology

Honors, Awards and Professional Memberships:

2023-TD **Membership** in Applied Microbiology International (ID: 459096), United Kingdom

2022-TD **Registered scientific expert** for HEC, Pakistan

2022-TD **Scientific expert** for THE, United Kingdom

2019-TD **Membership** in American Chemistry Society (ID: 31846516), USA

2018-TD **Registered scientific expert** for REPRIME MIUR, Italy

2019 **Congress attendance grant** by Federation of European Microbiological Societies (FEMS)

2018 **Early career scientist meeting grant** by Federation of European Microbiological Societies (FEMS)

2016 HEC, Pakistan funded **research and travel grant** for attendance of 33rd Symposium of the Malaysian Society for Microbiology, Malaysia

2012 HEC, Pakistan funded **IRSIP fellowship** for PhD research at the Universitat Tubingen, Germany

2010-TD **Global Outreach Membership** in American Society for Microbiology (ID: 35655690), USA

Research projects (Completed):

- Higher Education Commission of Pakistan (2017-18). Isolation, characterization and *in vitro* bioactivity screening of endophytic actinomycetes from important medicinal plants against multidrug resistant pathogens. Value \$2,722. Role: PI

Brief Academic/Research Summary:

Publications: **32** research manuscripts/reviews and **05** international book chapters and **07** international conference papers and **01** review for international book project, **03** review for international grant project and **03** evaluation for 'Times Higher Education World University Rankings.' (2021, 2022, 2023), Thesis evaluation: **12** B.Sc (Hons.) **06** M.Sc **11** M.S/MPHil. Postgraduate students: M. Phil [**Supervised n=16, Under-supervision n=06**]

Selected Peer-reviewed Publications:

- Tanvir, R., Ijaz, S., Sajid, I. *et al.* Multifunctional *in vitro*, *in silico* and DFT analyses on antimicrobial BagremycinA biosynthesized by *Micromonospora chokoriensis* CR3 from *Hieracium canadense*. *Sci Rep* **14**, 10976 (2024). <https://doi.org/10.1038/s41598-024-61490-9>
- Khan, I., Nawaz, M., Anjum, A.A., Tanvir, R., Sarwar, N., Ashraf, M.A., Mehmood, A. and Aqib, M., 2023. *Limosilactobacillus fermentum* IKP 111 reduces pathogen load and improves immunity of broilers when challenged with *Salmonella enteritidis*. *Microbial Pathogenesis*, **185**, p.106401.
- Sardar, N., Aziz, M.W., Mukhtar, N., Yaqub, T., Anjum, A.A., Javed, M., Ashraf, M.A., Tanvir, R., Wolfe, A.J., Schabacker, D.S. and Forrester, S., 2023. One Health Assessment of Bacillus anthracis Incidence and Detection in Anthrax-Endemic Areas of Pakistan. *Microorganisms*, **11**(10), p.2462.
- Tanvir, R., Sajid, I., Rehman, Y. and Hasnain, S., 2023. Fatty acid based antimicrobials from *Streptomyces* sp. SORS-24, an endophyte isolated from *Sonchus oleraceus*. *Letters in Applied Microbiology*, **76**(8), p.ovad080.
- Aziz, M.W., Mukhtar, N., Anjum, A.A., Mushtaq, M.H., Ashraf, M.A., Nasir, A., Shahid, M.F., Nawaz, M., Shabbir, M.Z., Sarwar, N. and Tanvir, R., 2023. Genomic Diversity and Evolution of SARS-CoV-2 Lineages in Pakistan. *Viruses*, **15**(7), p.1450.
- Absar, N.U.; Tanvir, R.; Sarwar, N.; Nisa, Q.U. Impact of *Chenopodium album* and *Allium sativum* Extracts Alone and in Combination against Mastitogens. *Med. Sci. Forum* **2022**, **14**, 83. <https://doi.org/10.3390/ECMC2022-13168>
- Rasheed, L.; Tanvir, R.; Ahsan, F.; Shehzad, W. Bioactive Potential of *Hibiscus rosa sinensis* and *Jasminum sambac* Extracts against Food Borne Pathogens. *Med. Sci. Forum* **2022**, **14**, 92. <https://doi.org/10.3390/ECMC2022-13169>
- Huda, N.U.; Tanvir, R.; Badar, J.; Rehman, Y. (2022) Arsenic-resistant Plant Growth Promoting *Pseudoxanthomonas mexicana* S254 and *Stenotrophomonas maltophilia* S255 Isolated from Agriculture Soil Contaminated by Industrial Effluent. *Sustainability* -1826736

9. Ilyas A., Tanvir R., Rehman Y. (2021) Indo-Pak medicinal plants and their endophytes: An emphasis on nutraceutical and bioactive potential. In: Patil R.H., Maheswari V.L. (Eds.) Endophytes, potential source of compounds of commercial and therapeutic applications. http://doi.org/10.1007/978-981-15-9371-0_4
10. Saleem H., Mohsin H., Asif A., Tanvir R., Rehman Y. (2021) Metagenomics in deciphering microbial communities associated with medicinal plants. In: Yadav A.N., Singh J., Singh C., Yadav N. (eds) Current Trends in Microbial Biotechnology for Sustainable Agriculture. Environmental and Microbial Biotechnology. Springer, Singapore. https://doi.org/10.1007/978-981-15-6949-4_3
11. Ashraf E, Tanvir R, Anjum A A, Mushtaq M H (2020) Screening of endophytic actinomycetes of medicinal plants of Pakistan for their antifungal and cytotoxic potential. 6th International Electronic Conference on Medicinal Chemistry, Organized by MDPI (Multidisciplinary Digital Publishing Institute) Switzerland. DOI: 10.3390/ECMC2020-07273
12. Shahzadi H, Tanvir R, Sheikh A A, Shehzad W (2020) Comparison of the bioactivity of tulsi and neem plant extracts with their related endophytic actinomycetes against ESBL producers. 6th International Electronic Conference on Medicinal Chemistry, Organized by MDPI (Multidisciplinary Digital Publishing Institute) Switzerland. DOI: 10.3390/ECMC2020-07262
13. Tanvir R, Sheikh A A, Javeed A (2020) In: Hatha M A A, Lakshmanaperumalsamy A (eds) A Closer Look at Actinomycetes, Nova Science publishers, USA ISBN: 978-1-53617-046-7
14. Saleem H., Mohsin H., Tanvir R., Rehman Y. (2020) culturable endophytic fungal communities associated with cereal crops and their role in plant growth promotion. In: Yadav A., Singh J., Rastegari A., Yadav N. (eds) Plant Microbiomes for Sustainable Agriculture. Sustainable Development and Biodiversity, vol 25. Springer, Cham.
15. R. Tanvir (2020) Phytoremediation of Selenium By Plants. The Journal of Microbiology and Molecular Genetics (JMMG) Vol. 1, No. 1 (2020), Article No. 5, pp. 62-78
16. F. Yasin, A. A. Sheikh, M. Rabbani, A. Aslam, M. I. Rasheed and R. Tanvir (2019). Study of the current resistant pattern to quinolones and other antimicrobials by multidrug resistant *Escherichia coli* recovered from retail chicken meat. The Journal of Animal & Plant Sciences, 29(6):1580-1586.
17. Iqbal, S., A. Javeed, A. Sattar, and R. Tanvir. "Pharmacokinetics of Thymoquinone in Layer Chickens Following Oral and Intravenous Administration." J Vet Pharmacol Ther 42, no. 6 (Nov 2019): 707-12.
18. 5th International Electronic Conference on Medicinal Chemistry, Organized by MDPI (Multidisciplinary Digital Publishing Institute) Switzerland.
19. Tanvir, Rabia, Ali Ahmad Sheikh, and Aqeel Javeed. "Endophytic Actinomycetes in the Biosynthesis of Bioactive Metabolites: Chemical Diversity and the Role of Medicinal Plants." In *Studies in Natural Products Chemistry*, vol. 60, pp. 399-424. Elsevier, 2018.
20. Tanvir R, Javeed A, Y. Rehman. Fatty acids and their amide derivatives from endophytes: New therapeutic possibilities from a hidden source. FEMS Microbiology Letters. 2018 DOI 10.1093/femsle/fny114
21. Abstract proceeding for the Third International Electronic Conference on Medicinal Chemistry (ECMC-3) (Mayence, A., and Eynde, J. J. V. (2018). Third International Electronic Conference on Medicinal Chemistry (ECMC-3). *Pharmaceuticals* 2018, 11, 18
22. Abstract proceeding for the VIII International Conference on Environmental, Industrial and Applied Microbiology – BioMicroWorld 2018 Torremolinos-Malaga (Spain) 24-25th May, 2018
23. Abstract proceeding for the MMG 2018, A conference on Microbiology and Molecular Genetics, University of the Punjab, Lahore 07-09 February, 2018
24. Asif A, Mohsin H, Tanvir R, Rehman Y. Revisiting the Mechanisms Involved in Calcium Chloride Induced Bacterial Transformation. *Frontiers in Microbiology*. 2017 Nov 7;8:2169
25. Tanvir R, Sajid I, Hasnain S, Kulik A, Grond S. Bioprospecting of Asteraceae medicinal plants of Pakistan for their associated bioactive endophytic actinomycetes for new drug targets (A004) *Pharmaceuticals* 2017, 10, 20
26. Tanvir R, Javeed A, Bajwa AG. Endophyte bioprospecting in South Asian medicinal plants: an attractive resource for biopharmaceuticals. *Applied Microbiology and Biotechnology*. 2017;101(5):1831-44
27. Tanvir R, Sajid I, Hasnain S, Kulik A, Grond S. Rare actinomycetes *Nocardia caishijiensis* and *Pseudonocardia carboxydivorans* as endophytes, their bioactivity and metabolites evaluation. *Microbiological Research*. 2016;185:22-35
28. Tanvir R, Sajid I, Hasnain S. Biotechnological potential of endophytic actinomycetes associated with *Asteraceae* plants: Isolation, biodiversity and bioactivities. *Biotechnology Letters*. 2014;36(4):767-73
29. Tanvir, R., Sajid, I., Hasnain, S., (2014) Larvicidal potential of *Asteraceae* family endophytic actinomycetes against *Culex quinquefasciatus* mosquito larvae. *Nat. Prod. Res.* 28, 2048-2052
30. Tanvir R, Sajid I, Hasnain S. Screening for type I polyketide synthases genes of endophytic Streptomycetes isolated from *Parthenium hysterophorus* L. *Mol Genet Microbiol Virol*. 2013;28(1):32-9
31. Tanvir R, Sajid I, Hasnain S. Screening of endophytic Streptomycetes isolated from *Parthenium hysterophorus* L. against nosocomial pathogens. *Pak J Pharm Sci*. 2013;26:277-83

32. Tanvir R, Hafeez R, Hasnain S. Prevalence of multiple drug resistant *Escherichia coli* in patients of urinary tract infection registering at a diagnostic laboratory in Lahore Pakistan. Pak J Zool. 2012;44(3):707-12

Selected Trainings (Organized/Resource Person):

1. 4-days hands on training on techniques in microbiology, organized by Institute of Microbiology (IOM), UVAS dated 20-24th February, 2024
2. One day training workshop on “Immunophenotyping of poultry immune cells for vaccine research using flow cytometry” by the institute of microbiology (IOM), UVAS dated 6th June 2023
3. Onsite training on antimicrobial susceptibility testing (AST) using disk diffusion, LQMS and AMR data analysis using WHONET at provincial disease diagnostic lab (PDDL), organized by Ministry of national food security and research under the Fleming Fund dated 8th march 2023
4. Resource person for fifteen days hands on training on, “Microbiological techniques” organized by the Institute of Microbiology (IOM), UVAS dated 21 Sept, 2022
5. Participated as a resource person for three days hands on training on, “Molecular detection of lumpy skin disease virus (LSDV) in cattle and guidelines for its control and prevention” organized by the Institute of Microbiology (IOM), UVAS dated March 31, 2022
6. Participated as a resource person for three days hands on training on, ‘Veterinary diagnostic and surveillance techniques,’ for ADIOs and VOs of Livestock and Dairy Development Department, Govt. of Punjab, organized by the Institute of Microbiology (IOM), UVAS dated January 05, 2022
7. Participated as a resource person in ‘Laboratory biosafety, equipment maintenance and microbiological testing’ workshop organized by Institute of Microbiology (IOM), University of Veterinary and Animal Science (UVAS), Lahore dated February 22, 2021
8. Participated as a resource person for “laboratory biosafety, equipment maintenance and waste disposal” for laboratory assistant of L&DD at Institute of Microbiology, UVAS, Lahore dated October 13, 2020
9. Participated as a resource person in Resource person for ‘Lab Tools for Diagnosis of Brucellosis in Buffalo’ workshop organized by University Diagnostic Lab (UDL), University of Veterinary and Animal Science (UVAS), Lahore dated February 17, 2019
10. Participated as a resource person for ‘2nd Workshop for Biosafety Officers (BSO)’ workshop organized by Institutional Biosafety Committee (IBC), University of Veterinary and Animal Science (UVAS), Lahore dated April 13-14, 2018
11. Participated as a resource person for ‘1st Workshop for Biosafety Officers (BSO)’ workshop organized by Institutional Biosafety Committee (IBC), University of Veterinary and Animal Science (UVAS), Lahore dated April 12, 2018
12. Participated as a resource person for ‘Poultry Viral Diagnostics’ workshop organized by Dept. of Microbiology, University of Veterinary and Animal Science (UVAS), Lahore from March 5-12, 2018
13. Participated as a resource person for lab assisted disease diagnostic techniques workshop organized by university diagnostic lab (UDL) university of veterinary and animal science (UVAS), Lahore from March 5-12, 2018

Internal/External Collaboration:

Over the years, Dr Rabia has developed collaboration with various institutes to execute multidisciplinary research projects. A few of these include the University of the Punjab, Lahore (Prof. Dr. Shahida Hasnain, Prof. Dr. Anjum Nasim Sabri and Dr. Imran Sajid), The Woman University, Multan (Dr. Atia Iqbal, Dr. Saadia Ijaz, Dr. Humaira Yasmeen), University of Management and Technology, Lahore (Dr. Yasir Rehman, Dr. Muhammad Zaid)