

# Iqbal Ahmad Alvi (PhD)

Assistant Professor Microbiology  
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Department of Microbiology, Hazara University Mansehra KP  
Pakistan

## PERSONAL INFORMATION

Father Name: Muhammad Asghar Alvi

Date of Birth: 10-08-1983

Nationality: Pakistani

CNIC #: 13504-1875514-3

Languages: English, Urdu, Punjabi,  
Pashto, Hidko

## QUALIFICATION

- **Post Doctoral Research Associate**, IDRC  
*Funded Project, Phage Research Lab, Institute of Microbiology and Molecular Genetics, University of the Punjab (2022-2023)*
- **Ph.D.** Microbiology and Molecular Genetics,  
*University of the Punjab, Lahore (2014 to 2020).*
- **M.Phil** Microbiology, Hazara University,  
*Mansehra (2009-2012)*
- **BSc (Hons.)** Microbiology, Hazara University,  
*Mansehra (2003-2007).*
- **F.Sc Pre- Medical** (Biology, Chemistry), Govt.  
*Postgraduate College, Mansehra*

## DISTINCTIONS

Secured HEC indigenous scholarship for Ph.D (2015-2020)

## RESEARCH EXPERIENCE

**Post Doctoral Research Associate at Phage Research Lab. Institute of Microbiology and Molecular Genetics, University of the Punjab, Lahore Pakistan (April, 2022- August, 2023)**

- Development of Engineered Bacteriophages
- Genome Editing Using CRISPR-Cas 9 System
- Development of Avian model of Infection
- Testing therapeutic efficacy of wild type lytic and recombinant bacteriophages
- Real time detection of pathogenic bacteria in Liver, Spleen and Intestine of the infected and healthy birds
- Microbiome analysis of the gut microbiota
- Leading the Research Team
- Writing Manuscripts
- Presenting the research findings in different conferences

**PhD Research Scholar at Institute of Microbiology and Molecular Genetics, University of the Punjab, Lahore Pakistan (2014-2020)**

**Thesis Title:** In-Vitro and In-Vivo studies of phages active against Multi Drug Resistant Bacteria

- Phenotypic, biochemical, and molecular typing along with antibiotic susceptibility profiling of *Pseudomonas aeruginosa* clinical isolates
- Isolation and characterization (host range, stability at various physiological limits, latent time, burst size, time kill curve, emergence of bacteriophage insensitive mutants, and physiological characterization) of lytic phages.
- Development of Animal Model of Infection
- Therapeutic studies of bacteriophages alone and in cocktails in animal model of infections
- Antibiofilm activity of bacteriophages
- Pharmacokinetics study of bacteriophages
- Whole-genome sequencing and annotation of bacteriophages
- Cloning and expression of phage encoded proteins and assessment of their antibacterial activity alone and in-synergism
- Purification of the proteins

**M.Phil Research Scholar at Department of Microbiology, Hazara University, Mansehra Pakistan (2009-2012)**

**Thesis Title:** Frequency and distribution of Methicillin Resistant *Staphylococcus aureus* (MRSA) in District Mansehra

- Phenotypic, biochemical identification of bacterial strains
- Isolation of *Staphylococcus aureus* from different clinical infections
- Disc Diffusion method for antibiotic susceptibility

**Principle investigator, Department of Microbiology, Hazara University, Mansehra, Pakistan (2008-Present)**

**Projects**

- Isolation and Characterization of Bacteriophages against ESKAPE pathogens
- Determination of Antibiofilm activity of bacteriophages against *Escherichia coli*
- Isolation of Bacteriophages against the bacteria causing Diabetic Foot Ulcer
- Host range of various isolated bacteriophages

**Supervised MS/M.Phil Thesis:**

- Isolation and characterization of bacteriophages effective against Salmonella species isolated from different environmental samples by Shubana Hayat M.Phil Microbiology, Hazara University, Mansehra
- Isolation and characterization of bacteriophage against pathogenic bacteria isolated from diabetic foot ulcer by Sajjad Ahmad M.Phil Microbiology, Hazara University, Mansehra
- Isolation and characterization of bacteriophages against *Acinetobacter baumannii* from different hospital waste by Sanaullah Khan M.Phil Microbiology, Hazara University, Mansehra
- In-Vitro Anti-Biofilm Potential of Selected Bacteriophages against *Enterobacter cloacae* by Robina Khan M.Phil Microbiology, Hazara University, Mansehra
- Analysis of storage stabilities and growth characteristics of bacteriophages effective against selected uropathogenic *E.coli* by Kamil Khan M.Phil Microbiology, Hazara University, Mansehra
- Isolation and characterization of bacteriophages against methicillin resistant *Staphylococcus aureus* by Zahid Ahmad M.Phil Microbiology, Hazara University, Mansehra.
- Determination of Host Range and Bacterial Growth Reduction Potential of Bacteriophages Isolated from Sewage Water by Ziaullah M.Phil Microbiology, Hazara University, Mansehra
- Assessment of bacteriophages variable multiplicity of infection on bacterial growth reduction By Attaullah M.Phil Microbiology, Hazara University, Mansehra
- Determination of antibiofilm and antibacterial potential of bacteriophages isolated against selected uropathogens by Atia Ijaz M.Phil Microbiology, Hazara University, Mansehra

- Isolation, characterization and in vitro efficacy assessment of bacteriophages isolated from poultry waste against *Salmonella gallinarum* by Abid Ali M.Phil Microbiology, Hazara University, Mansehra

#### **Co-supervised MS/M.Phil Thesis:**

- Molecular Study of Bacteriophage Novel Genes and Their Antibacterial Activity Against Selected Bacteria by BakhtZada M.Phil Microbiology, Hazara University, Mansehra
- Identification, Characterization and Expression of Hypothetical Proteins of RLP Bacteriophages by Muhammad Qasim Khan M.Phil Microbiology, Hazara University, Mansehra
- Cloning , expression and study of antibacterial activity of hypothetical protein from Bacteriophage by Fazal Hameed, M.Phil Microbiology Hazara University, Mansehra
- Efficacy of bacteriophages against multi drug resistant *Pseudomonas aeruginosa* isolated from cystic fibrosis patients by Muhammad Bilal M.Phil MLT, University of Haripur.
- Isolation and Characterization of Bacteriophage From Poultry Sources against *Staphylococcus aureus* by Maria Gul, M.Phil Microbiology, University of Haripur
- Antibiofilm capacity of bacteriophage SaPL and IttPL against Multidrug resistant *Pseudomonas aeruginosa* by Muhammad Hassan, MPhil MLS, University of Haripur
- Combined Antibacterial Efficacy of SaPL Phage and *Ajuga bracteosa* Extract against *Pseudomonas aeruginosa* by Zainab Khan M.Phil Microbiology Hazara University, Mansehra
- Individual and Synergistic Effect of Bacteriophages against Multi-Drug Resistant Bacteria by Kiran Suleman M.Phil Microbiology Hazara University, Mansehra
- Prevalence of bacterial diseases in poultry at different farms in district Mansehra, by Naila Khan, M.Phil, Department of Zoology, Hazara University, Mansehra

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#### **RESEARCH/TECHNICAL SKILLS**

- Bacterial Isolation and Identification
  - Phage isolation, purification, characterization, and genome analysis
  - Hand on Trainer in Molecular techniques like DNA isolation, PCR, Agarose and SDS-Gel Electrophoresis, cloning and Expression of genes, CRISPR-Cas based genome editing.
  - Competent in handling animal model of infections ( Mice, Poultry Birds)
  - NGS data handling, genome assembly, and annotation
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**TEACHING EXPERIENCE****Assistant Professor Microbiology, Department of Microbiology, Hazara University, Mansehra**

Feb,2023 to present

**Responsibilities**

- Lectures and demonstrations to undergraduate and graduate students
- Supervision of Laboratory
- Demonstration of lab work to students and lab personnels
- Supervision of graduate research students
- Member Graduate Research Committee
- Maintenance of record for curricular activities
- Paper setting and examination
- Member Board of studies

**Lecturer Microbiology**

April 2008 to Jan, 2023

**Responsibilities**

- Lectures and demonstrations to undergraduate students
- Supervision of Laboratory
- Coordination of undergraduate students for lecture, rotations and research activities
- Demonstration of lab work to students and lab personnels
- Supervision of undergraduate research students
- Maintenance of record for curricular activities
- Paper setting and examination
- Member curriculum development committee
- General Secretary Campus Health Committee during Corona Pandemic

**Courses Taught:**

- Fundamentals of Microbiology
- General Bacteriology
- General Virology
- Soil Microbiology
- Food and Dairy Microbiology
- Molecular Biology
- Immunology
- Immunotoxicology
- Genetic Engineering
- Research Methodology
- Microbial Genetics
- Advances in Microbial Genetics

**PUBLICATIONS**

- **Alvi, I. A.**, Asif, M., & ur Rehman, S. (2021). A Single dose of a virulent bacteriophage vB PaeP-SaPL, rescues bacteremic mice infected with multi drugresistant *Pseudomonas aeruginosa*. *Virus Research*, 198250.
- **Alvi, I. A.**, Asif, M., Tabassum, R., Aslam, R., Abbas, Z., & Rehman, S. U. (2020). RLP, a bacteriophage of the family Podoviridae, rescues mice from bacteremia causedby multi-drug-resistant *Pseudomonas aeruginosa*. *Archives of Virology*, 1289-1297.
- **Alvi, I. A.**, Asif, M., Tabassum, R., Abbas, Z., & ur Rehman, S. (2018). Storage of Bacteriophages at 4 C Leads to no Loss in Their Titer after One Year. *Pakistan Journal of Zoology*, 50(6).
- Asif, M., **Alvi, I. A.**, Waqas, M., Basit, A., Raza, F. A., & Rehman, S. U. (2023). A K-17 serotype specific Klebsiella phage JKP2 with biofilm reduction potential. *Virus Research*, 329, 199107.
- Tabassum, R, Basit, A., **Alvi, I. A.**, & Asif, M. (2022). TSP, a virulent Podovirus, can control the growth of *Staphylococcus aureus* for 12 h. *Scientific reports*, 12(1), 1-12.
- Asif, M., Naseem, H., **Alvi, I. A.**, Basit, A., & Rehman, S. U. (2021). Characterization of a lytic EBP bacteriophage with large size genome against *Enterobacter cloacae*. *Apmis*, 129(8), 461-469.

- Ajaz, A., Rehman, S. U., Niaz, Z., Ahmad, Z., Saqib, S., Ahmad, Q. A., & Alvi, I. A. (2023). Bacteriophage cocktail exhibited superb antibacterial and antibiofilm activity against selected uropathogens. *The journal of microbiology and molecular genetics*, 4(2), 1-14.
- Khan, M. F., Khattak, A. A., Saleem, A., Rizwan, M., Asif, M., & Alvi, I. A. (2023). Efficient Reduction of *Pseudomonas aeruginosa* Biofilms Using the Myoviridae Lytic Bacteriophage vBPaeM MLG. *Lahore Garrison University Journal of Life Sciences*, 7(03), 262-279.
- Ahmad, J., Ahmad, F., Zareen, Z., Khalid, H., Akram, M. B., Khan, Alvi, I. A., & Javed, S. (2021). Demographics and Critical Analysis of Smear-Positive Tuberculosis in District Abbottabad, Pakistan: Implementations for Future Challenges. *Pak-Euro Journal of Medical and Life Sciences*, 4(4), 319-326.
- Asif, M., Alvi, I. A., Tabassum, R., & Rehman, S. U. (2020). TAC1, an unclassified bacteriophage of the family Myoviridae infecting *Acinetobacter baumannii* with a large burst size and a short latent period. *Archives of Virology*, 165(2), 419-424.
- Asif, M., Alvi, I. A., & Rehman, S. U. (2018). Insight into *Acinetobacter baumannii*: pathogenesis, global resistance, mechanisms of resistance, treatment options, and alternative modalities. *Infection and Drug Resistance*, 11, 1249.
- Tabassum, R., Shafique, M., Khawaja, K. A., Alvi, I. A., Rehman, Y., Sheik, C. S., & Abbas, Z. (2018). Complete genome analysis of a Siphoviridae phage TSK1 showing biofilm removal potential against *Klebsiella pneumoniae*. *Scientific reports*, 8(1), 1- 11.
- Shafique, M., Alvi, I. A., Abbas, Z., & ur Rehman, S. (2017). Assessment of biofilm removal capacity of a broad host range bacteriophage JHP against *Pseudomonas aeruginosa*. *Apmis*, 125(6), 579-584.
- Ullah, Z., Alvi, I. A., Niaz, Z., Ullah, I., Ullah, A., & Rehman, S. U. (2024). Reducing Multidrug-Resistant (MDR) *Klebsiella pneumoniae* via the Efficient Use of Bacteriophages ZI3 and HI3. *Current Trends in OMICS*, 4(1).
- Khan, S., Fiaz, M., Alvi, I. A., Ikram, M., Yasmin, H., Ahmad, J., Ullah, A., Niaz, Z., Hayat, S., Ahmad, A., Kaushik, P., & Farid, A. (2023). Molecular Profiling, Characterization and Antimicrobial Efficacy of Silver Nanoparticles Synthesized from *Calvatia gigantea* and *Mycena leaiana* Against Multidrug-Resistant Pathogens. *Molecules*, 28(17), 6291. <https://doi.org/10.3390/molecules28176291>
- Ali Syed, I., Alvi, I. A., Fiaz, M., Ahmad, J., Butt, S., Ullah, A., ... & Farid, A. (2024). Synthesis of silver nanoparticles from *Ganoderma* species and their activity against multi drug resistant pathogens. *Chemistry & Biodiversity*, 21(4), e202301304.
- Khan, F., Naseem, H., Asif, M., Alvi, I., ur Rehman, S., & Rehman, A. (2025). Bacteriophages RCF and 1-6bf can control the growth of avian pathogenic *Escherichia coli*. *Poultry Science*, 104(2), 104790.
- Najeeb, S., Khan, I., Muhammad, J., Jahangir, M., Alvi, I. A., Abbas, A., ... & Khan, A. (2025). Characterization and genomic analysis of a Herelleviridae bacteriophage UHP46 infecting mastitis-causing *Staphylococcus aureus*. *Frontiers in Microbiology*, 16, 1496919.
- Arshad, H., Alvi, I. A., Khan, M. F., Hassan, M., Muhammad, J., & Saleem, A. (2024). In Vitro Evaluation of Bacteriophage Efficacy against Diarrhea-Causing *Escherichia coli*. *The Journal Of Microbiology And Molecular Genetics*, 5(2), 133-142.

## NATIONAL AND INTERNATIONAL CONFERENCE PAPER PRESENTATION

1. 1st UMT International Conference of Life Sciences; Exploring the Frontiers in Biological Research, Dec, 2023. Bacteriophage lytic enzymes as Enzybiotics.
2. 14<sup>th</sup> International Biennial Conference of the Pakistan Society for Microbiology, Nov 2023. Bacteriophage Mediated Biological Control of *Xanthomonas Axonopodis* the causative agent of Citrus Canker
3. 1<sup>st</sup> International Conference on Allied Health Sciences, Oct, 2023 at PC Lahore. Bacteriophages; A Ray of Hope in the Era of Antibiotic Resistance
4. 12<sup>th</sup> Biennial International Conference of Pakistan Society of Microbiology, Feb 2019. Genome analysis of bacteriophage RSP and RLP isolated from River Ravi Lahore against *P. aeruginosa*. AUST, Abbottabad
5. 1st National Conference on Microbiology for Food and Agriculture, April 2018. Isolation and characterization of Bacteriophage SaPL from hospital sewage.
6. MMG 2018- A conference on Microbiology and Molecular Genetics, 7-9 Feb 2018. Isolation and Characterization of Bacteriophages against *P. aeruginosa*
7. 2<sup>nd</sup> National Conference on Recent Trends in Microbiology, December 2016. Bacteriophages as therapeutics.
8. 10<sup>th</sup> Biennial International Conference of Pakistan Society of Microbiology, Exploring Microbes for Future Endeavors. March 25-28, 2015. Antibiofilm Activity of Bacteriophage JHP against *P. aeruginosa*.

## CONFERENCES AND WORKSHOPS ORGANIZED

1. 3 Days International Workshop entitled “ Phage in Focus: Isolation and Computational Genomic Analysis” at University of Haripur, 29-31, January, 2025
2. 2 days workshop entitled “Bacteriophage: Microbial Warriors Against Antibiotic Resistance” at Kinniard college, Lahore. 15<sup>th</sup> November, 2024
3. Pre-conference workshop on “ Isolation and Characterization of Bacteriophages for Phage Therapy (PCW-N-20), 6<sup>th</sup> October, 2023
4. One Day International Workshop on Bacteriophage based therapies for One Health Approach to Combat Infectious Diseases, 4<sup>th</sup> October, 2023.
5. Online Awareness Seminars series on Prevention of SARS-CoV
6. 2 Days Hands-on Training Workshop on Isolation and Characterization of Bacteriophages for Phage Therapy 17-18 March 2023.
7. 12<sup>th</sup> Biennial International Conference of Pakistan Society of Microbiology, Feb 2019
8. Two day workshop on Advances in Phage Therapy On 28-29 May 2017 at Department of Medical Lab Technology, University of Haripur.
9. Two day workshop on Advances in Phage Therapy On 4-5 April 2017 at Microbiology department Hazara University Mansehra.
10. Preconference workshop on isolation, propagation and purification of phages on Recent Trends in Microbiology held on 19 December 2016 at Abbottabad Pakistan.
11. 10<sup>th</sup> Biennial International Conference of Pakistan Society of Microbiology, Exploring Microbes for Future Endeavors. March 25-28, 2015. At MMG, PU, Lahore.

## MEMBERSHIPS

- Founder Member of Pakistan Society for Bacteriophages ([www.phagepakistan.com](http://www.phagepakistan.com))
- American Society for Microbiology (ASM). Membership Number : 57263220
- Pakistan Biological Safety Association (PBSA). Membership Number 860
- International Society for Viruses of Microorganisms (ISVM)

## COMPUTER SKILLS

- Microsoft Office 2016, 2013, 2010, 2007 and 2003
- Research and statistical tools like Endnote, GraphPad Prism,
- Tools for Genome Analysis

## REFERENCE

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| <ul style="list-style-type: none"> <li>• <b>Prof. Dr. Mujaddad Ur Rehman Malik</b><br/>Vice Chancellor / Dean<br/>Professor of Microbiology<br/>Abbottabad University of Science and<br/>Technology, Abbottabad<br/><a href="mailto:mujaddad@aust.edu.pk">mujaddad@aust.edu.pk</a><br/>+92-331-1166115</li> </ul> | <ul style="list-style-type: none"> <li>• <b>Dr. Shafiq-Ur-Rehman</b><br/>Professor<br/>Institute of Microbiology and Molecular<br/>Genetics<br/>University of the Punjab, Lahore, Pakistan<br/><a href="mailto:Shafiq.mmg@pu.edu.pk">Shafiq.mmg@pu.edu.pk</a><br/>+92-321-4905423</li> </ul> |
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