



Taskeen Ali Khan

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ABOUT ME

I hold a Master of Philosophy in Medical Microbiology (M.PHIL.) from top-notch Pakistan Quaid-i-Azam University and a Bachelor of Science in Microbiology from Shaheed Benazir Bhutto Women's University. I am focusing on biochemistry and biomedicine, rooted in molecular biology, understanding the human genome, transcriptome, proteome, physiome, and metabolome, diagnosis, and therapy Molecular Medicine, Pathology, and Microbiology lab work, physiological processes, molecular interactions contributing to the development of future healthcare professionals and bridging the gap between fundamental science and practical applications in medicine. My aim to develop new therapies that target the underlying causes of disease, rather than just the symptoms. I have taught Microbiology and Medical Instrumentation courses at Riphah International University Pakistan Swat campus. Now I am working as a Research Assistant at Govt Paramedical Institute for Medical Health Technologies Saidu Sharif Swat.

EDUCATION AND TRAINING

MASTER'S OF PHILOSOPHY IN MEDICAL MICROBIOLOGY (M.PHIL.)

Quaid-i-azam University, Islamabad, Pakistan. [13/02/2020 – 02/11/2022]

Field(s) of study: Medical Microbiology | **Final grade:** 3.9/4.0 | **Thesis:** Master's (2 years).

Thesis Title: Title "Biosynthesis of silver nanoparticles from novel Bischofia Javanica plant loaded chitosan hydrogel: as antimicrobial and wound healing agent"

Thesis Summary: The current study aimed to develop a new anti-bacterial approach that would surpass antibiotics in therapeutics and will efficiently deal with diverse nature of microbes. The study comprised of synthesis of Ag nano particles using green synthesis technology and its characterization by **XRD**, **FTIR** and **SEM**. Biochemical identification of bacterial species, anti-microbial susceptibility profile, anti-biofilm assay and application of Ag nano particles on wound healing in rat model. NPs were applied on burnt wound of rat model and its activity was recorded up to 21 days. A good epithelialization was achieved, as well as a strong wound closure. In comparison to chitosan, silver nanoparticles incorporating membranes demonstrated a high amount of angiogenesis and speedy wound healing.

DOI: 10.1007/s13399-022-02960-w

BACHELOR OF SCIENCE IN MICROBIOLOGY

Shaheed Benazir Bhutto women university, Peshawar, Pakistan. [10/10/2013 – 16/04/2018]

Field(s) of study: Microbiology | **Final grade:** 3.21/4.0 | **Thesis:** Bachelor's (4 years).

Thesis Title: Title " Molecular detection of Active HCV in Peshawar (April-Dec 2017)".

Thesis Summary: Hepatitis C virus (HCV), a blood-borne virus that infects the liver, affects an estimated 4 million Americans, with 3.2 million chronically infected. A study looking at HCV prevalence among 221 people (mostly men) aged 18-80 found a higher infection rate in males (11%) compared to females (8%). The study also showed the highest infection rate (16.41%) in those aged 41-60, with no infections detected in the 10-20 age group. These findings highlight the need for an HCV vaccine to prevent infection, especially considering that behaviors like unsafe drug use and unclean medical instruments can spread the virus.

PROJECTS

Research Assistant

Biosynthesis of silver nanoparticles from novel *Bischofia Javanica* plant loaded chitosan hydrogel: as antimicrobial and wound healing agent (Quaid-i-Azam university, Islamabad, Top Noch University of Pakistan, Feb 2020- March 2022).

- Worked on Bio-synthesis of novel nanomaterials as Antimicrobial, Anticancer and wound healing agent.
- Developing metallic nanoparticles (Ag, Fe, Cu) for diverse applications.
- The current study has made a solution to antibiotic resistance by determining the individual and combined efficacies of nanoparticles and antibiotics.
- The study has found that nanoparticles or their combination with antibiotics is a potential alternative way to solve microbial resistance problems.
- In addition, mixing a hydrogel matrix with AgNPs provides considerable wound-healing and antimicrobial activity.
- Concluded that AgNPs should be a selective therapeutic in the field of medicine.
- Expected results were obtained from experiments that were performed.
- Published research findings and presented at conferences .
- Presented at **International Science seminar organized by Dr Zyta Ziora (The university of Queensland Australia) 28 March 2024.**

Molecular detection of active HCV:

- This molecular study was carried out on active Hepatitis C Virus infection in Peshawar region between April-December 2017.
- The present study was conducted at GENE Tech Diagnostic and Research Laboratory Peshawar, Pakistan.

Project on HCV in the lab of Peshawar Medical Collage (Oct-December 2017).

Internship as microbiologist in Khyber Teaching Hospital (December 2017-Feb 2018).

Link: https://uqz.zoom.us/rec/play/TUFSr5XbbRg-N_UPBUK7qw7Bp6BnAk7OIh_uA77I_2feOBnBAIZ0NOcPBveOILYDucMuql8qPIP8N2K9.4tzcu7_mZwOAJpaw?canPlayFromShare=true&from=share_recording_detail&continueMode=true&componentName=rec-play&originRequestUrl=https%3A%2F%2Fuqz.zoom.us%2Frec%2Fshare%2F0uUEQ_zdkiW1m5JDuoMjQuJwLNCI5pvbTWp7AVU7Z57rXrYrr9gMOeCarSqnxZW.IFkScUtKwgdK7T5H

WORK EXPERIENCE

Research Assistant

Government Paramedical Institute of Medical Technologies [01/09/2022 – Current]

City: Saidu Sharif Swat, | Country: Pakistan

- **Focus areas:** Biochemistry, Molecular Medicine, Pathology and Microbiology Lab Work.
- Teaching English, Islamiyat, Biochemistry, Pathology and computer
- Contributing to the development of future healthcare professionals.
- Bridging the gap between fundamental science and practical applications in medicine.
- Plays a vital role in understanding human health and disease.
- Develop new drugs, diagnostics, and treatments for a variety of medical conditions.
- Uses techniques from molecular biology, genetics, microbiology and biochemistry to understand the genetic and molecular basis of disease.
- Aims to develop new therapies that target the underlying causes of disease, rather than just the symptoms.
- Conducted hands-on lab activities, guiding students through experiments and analysis.

Lecturer

Riphah international University Pakistan Swat campus (Part time) [01/08/2022 – 01/08/2023]

City: Saidu sharif swat | Country: Pakistan

- **Courses taught:** Microbiology, Medical Instrumentation
- **Responsibilities:** Empowering future healthcare professionals.

- Guiding students through laboratory practicals, Microbiology and pathology labs.
- Bridging the gap between scientific knowledge and its medical application.
- Development of new therapies, such as targeted therapy and immunotherapy.

HONOURS AND AWARDS

Received

Excellent student school award 2008-2010.

School topper award in matric 2010.

Laptop from the Government of Pakistan for talented students Scheme.(2014).

Funding Member of Shaukat Khanum Memorial Hospital Peshawar (2011-2017).

Govt.Paramedical Institute of Medical Technologies Swat Best Lecturer performance Award by **DG health, KPK** (2024).

DIGITAL SKILLS

Research Paper Writing / Microsoft Office (Outlook, Excel, Word, PowerPoint) / Python, Python(Machine Learning) / Weka ML / Analytical skills / Organizational and planning skills / research on PubMed / Team-work oriented / Critical thinking

LAB EXPERIENCE

Key skills

Spectrophotometry / FTIR / EDX / UV-Vis Spectroscopy / SEM / HPLC / SDS-PAGE / Gel-electrophoresis / ELISA DNA, RNA extraction / PCR / Gel Doc / NANODROP / Enzyme kinetics / Chromatography / Gram staining / Microscopy / Microbial isolation, culturing and identification / Autoclave / Antioxidant assays / Gram staining / Synthesis and characterization of Nanoparticles / Production of bioplastic (PLA) / Fermentation / Instrumental analysis / Plant Stress/ Antibiotics Characterization/ Antibacterial peptides Characterization.

SEMINAR AND ACTIVITIES

Certificates and Participations

- Professional Experience in Tuberculosis Awareness and Biorisk Management
- Certified professional in tuberculosis awareness seminar on 9th April 2015.
- Participated in World Ozone prevention day on 16th September 2016.
- Held career counselling workshop for female students on 23-24 May 2016.
- Served as a relief international on Biorisk Management from 5-9 Sep 2016.
- Attended international training in randomized controlled trails at COMSTECH, Islamabad.
- Served as a member of Blood Donor Society Islamia College, Peshawar (2011-12).
- Funding member of Shaukat Khanum Memorial Hospital Peshawar (2011-2016).

LANGUAGE SKILLS

Other language(s):

English

LISTENING C2 READING C2 WRITING C2

SPOKEN PRODUCTION C2 SPOKEN INTERACTION C2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

PUBLICATIONS

Biosynthesis of silver nanoparticles from novel *Bischofia javanica* plant loaded chitosan hydrogel: as antimicrobial and wound healing agent

Khan, T.A. et al. Biosynthesis of silver nanoparticles from novel *Bischofia javanica* plant loaded chitosan hydrogel: as antimicrobial and wound healing agent. *Biomass Conv. Bioref.* **13**, 15531–15541 (2022).
<https://doi.org/10.1007/s13399-022-02960-w> (WOS IF= 3.5)

[2024]

Multi-Source Cyber Intrusion Detection Using Ensemble Machine Learning

Khan, T. A., Abbas, S., Senapati, B., Anand, M. R., Ghafoor, M. I., Pradhan, S. & Almeida, F. (2025). Multi-Source Cyber Intrusion Detection Using Ensemble Machine Learning. *Journal of Computer Science*, 21(1), 111-123. <https://doi.org/10.3844/jcssp.2025.111.123>

Khan, T. A., Abbas, S., Senapati, B., Anand, M. R., Ghafoor, M. I., Pradhan, S. & Almeida, F. (2025)

[2024]

A Study on Web User's Attitude and Knowledge towards Data Security and Privacy Issues of Web Browser Extensions

B. Senapati et al., "A Study on Web User's Attitude and Knowledge Towards Data Security and Privacy Issues of Web Browser Extensions," 2024 4th International Conference on Electrical, Computer, Communications and Mechatronics Engineering (ICECCME), Male, Maldives, 2024, pp. 1-8, doi: 10.1109/ICECCME62383.2024.10796625.

Biswaranjan Senapati, Awad Bin Naeem, Taskeen Ali Khan

[2025]

A Sensor-Based Technique for the Identification of Cardiac Disorders Utilizing Feature Extraction and Artificial Neural Networks

This study suggests a novel approach to person identification by combining signal processing and feature extraction techniques. It uses an artificial neural network (ANN) and 10 metal oxide semiconductor sensors to identify each person's distinct scent patterns. The first step in using ANN patterns is to scan and acquire sensor data. You must first scan and collect sensory information from the sensor data before using ANN patterns to create patterns from it. Each participant in the several studies—which cover a range of periods and include 5, 10, 15, and 20 people—is identified and scanned for more than a thousand unique traits. Arduino receives analogue sensor inputs and uses changing periods to convert them to digital form. The architecture has to be trained using the recently generated data set. Metrics like sensitivity, f-measures, specificity, and accuracy are used to evaluate the proposed model for human odour identification. Research uses the assessment metrics, and the results show that this model is generally accurate to within 15% of the true value. The findings point to potential applications of feature extraction techniques to improve overall person identification and human odour detection.

Biswaranjan Senapati* , Awad Bin Naeem , Taskeen Ali Khan

[2024]

CLASSIFICATION OF HYBRID MRI IMAGES FOR BRAIN TUMOR DETECTION USING DEEP LEARNING

Journal of Computer Science, Science publication

Under Review (Impact Factor=1.12)

REFEREES

Dr. Aamer Ali Shah

Chairperson (2020-2022)

Professor at Department of Microbiology, Quaid-i-Azam, University Islamabad, Pakistan.

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Prof. Dr. Naeem Ali

Chairperson and Professor at Department of Microbiology, Quaid-i-Azam University, Islamabad, Pakistan.

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