
# Muhammad Summer

Ph.D. in Zoology | Lecturer Zoology, GC University Lahore, 54000, Pakistan
Email: muhammad.summer@gcu.edu.pk | Tel +92 302 8717778, +92 344 8717778
Google Scholar: https://scholar.google.com/citations?user=UpRO_AQAAAAJ
Scopus Author ID: https://www.scopus.com/authid/detail.uri?authorId=57211923636
ORCID: https://orcid.org/0000-0002-2609-520X


## Education

| Degrees | Year | Grade/ Division | CGPA/ %age | Institution | Research field |
|---|---|---|---|---|---|
| Ph.D. (Zoology) | 2021-2025 | 1st | 3.68/ 92% | Government College University Lahore, 54000, Pakistan | Stimuli-responsive Hydrogels, Nanomaterials, Characterization, Wound Healing, Inflammation |
| M.Phil. (Zoology) | 2018-2020 | 1st | 3.69/ 92% | Government College University Lahore, 54000, Pakistan | Nanomaterials, Antibacterial, Insecticidal |
| BSc. Hons. (Zoology) | 2014-2018 | 1st | 3.35/ 84% | Government College University Lahore, 54000, Pakistan | DNA Barcoding, spiders |

## Research and Professional Experience

| Position | Year | Institution | Key responsibilities |
|---|---|---|---|
| Lecturer (Zoology) | October 2022-present | Government College University Lahore, 54000, Pakistan | Teach BSc (Hons.) courses; supervise M.Phil & BSc (Hons.), coordinator, manage core instrumentation (FT-IR, UV–Vis, multi-mode reader) |
| Central Laboratory In-charge | May 2023-present | Government College University Lahore, 54000, Pakistan | Oversee lab operations, sample processing, equipment handling, and maintenance, and master trainer for lab instrumentation and safety training |
| Lecturer (Zoology) | February 2022-October 2022 | The Islamia University of Bahawalpur, Pakistan | Taught BS courses, Research write-up |
| Lecturer (Zoology) (Visiting) | 2021-2022 | University of Education Lahore & Government College University Lahore | Teaching BS students and research |
| Research Assistant | 2019-2021 | Government College University Lahore, 54000, Pakistan | Designed experiments, conducted research, and data representation, drafted articles, project documentation, and annual report writing and presentation |

## Distinction/Gold medal/scholarship

| Distinction/Scholarship | Grade/Year | Institution/organization |
|---|---|---|
| Gold Medal (M.Phil.) | 2020 | Government College University Lahore, 54000, Pakistan |
| Scholarship in BSc. (Hons.) | 2014-2018 | Punjab Education Endowment Fund (PEEF) scholarship |
| Scholarship (Intermediate) | 2013-2014 | Punjab Education Endowment Fund (PEEF) scholarship |
| Scholarship (Matriculation) | 2010-11 | Punjab Education Endowment Fund (PEEF) scholarship |

## Publications (selected)

*Total peer-reviewed papers:* **80+** (10+ first author), *h index*: 17 (Scopus), *citations*: 1000+

1. Summer *et al*. (2025). ***Bergenia ciliata* Formulations Promote Wound Healing via Antioxidant, Antibacterial, Anti-Inflammatory, and Biomarkers Modulation**. *ChemistrySelect*, *10*(40), e01395. https://doi.org/10.1002/slct.202501395
2. Summer *et al.* (2025). **Evaluating the wound healing potential of characterized *Bergenia ciliata*–loaded *Salvia hispanica* hydrogel in diabetic mice**. *Microscopy Research and Technique*, *88*(6), 1917-1934. https://doi.org/10.1002/jemt.24826
3. Faiza *et al*. (2025). **Assessing the anticancer potential of *Bergenia ciliata* conjugated silk fibroin nanoparticles through histopathological and biomarkers study**. *Journal of Molecular Histology*, *56*(4), 203. https://doi.org/10.1007/s10735-025-10484-6
4. Mumtaz *et al*. (2024). **Toxicological effects of dimethylbenzeneanthracene in Balb C mice and pharmacological intervention by silk sericin–conjugated silver nanoparticles**. *Science Progress*, *107*(1), 00368504231221670. https://doi.org/10.1177/00368504231221670
5. Riaz *et al.* (2025). **Evaluation of Burn Wound Healing and Anti-inflammatory Potential of Semi-synthetic Bergenia ciliata-loaded Carboxymethyl Cellulose Hydrogel: A Biochemical Perspective**. *Chemistry & Biodiversity*, e00925. https://doi.org/10.1002/cbdv.202500925
6. Ijaz *et al*. (2025). **Anticancer efficacy of sericin (silkworm protein) and sericin chitosan conjugated silver nanoparticles against colorectal cancer**. *Medical Oncology*, *42*(9), 423. https://doi.org/10.1007/s12032-025-02974-0
7. Summer *et al.* (2024). **Revealing the molecular mechanisms in wound healing and the effects of different physiological factors including diabetes, age, and stress**. *Journal of molecular histology*, *55*(5), 637-654. https://doi.org/10.1007/s10735-024-10223-3
8. Summer *et al.* (2023). **Bactericidal potential of different size sericin-capped silver nanoparticles synthesized by heat, light, and sonication**. *Journal of Basic Microbiology*, *63*(9), 1016-1029. https://doi.org/10.1002/jobm.202200632
9. Summer *et al.* (2024). **Inflammatory response of nanoparticles: mechanisms, consequences, and strategies for mitigation**. *Chemosphere*, *363*, 142826. https://doi.org/10.1016/j.chemosphere.2024.142826
10. Summer *et al*. (2024). **Mode of action of biogenic silver, zinc, copper, titanium and cobalt nanoparticles against antibiotics resistant pathogens**. *Journal of Inorganic and*

*Organometallic Polymers and Materials*, *34*(4), 1417-1451. https://doi.org/10.1007/s10904-023-02935-y
11. Summer *et al*. (2023). **Sonication and heat-mediated synthesis, characterization and larvicidal activity of sericin-based silver nanoparticles against dengue vector** (Aedes aegypti). *Microscopy Research and Technique*, *86*(10), 1363-1377. https://doi.org/10.1002/jemt.24333
12. Summer *et al*. (2025). **Exploring the underlying modes of organic nanoparticles in diagnosis, prevention, and treatment of cancer: a review from drug delivery to toxicity**. *International Journal of Polymeric Materials and Polymeric Biomaterials*, *74*(9), 829-845.https://doi.org/10.1080/00914037.2024.2375337
13. Ashfaq *et al.* (2025). **Quercetin-polysaccharides based hydrogels: A review of applications, molecular associations, chemical and biological modifications, toxicological implications and future perspectives**. *International Journal of Biological Macromolecules*, 144845. https://doi.org/10.1016/j.ijbiomac.2025.144845
14. Shahzad *et al*. (2025). **UV-spectrophotometric and spectroscopic observed *Vachellia nilotica* and *Nigella sativa* formulations regularized the histopathological and biochemical parameters during wound contraction**. *Microscopy Research and Technique*, *88*(1), 4-16. https://doi.org/10.1002/jemt.24673
15. Riaz *et al.* (2024). **Exploring the underlying pharmacological, immunomodulatory, and anti-inflammatory mechanisms of phytochemicals against wounds: a molecular insight**. *Inflammopharmacology*, *32*(5), 2695-2727. https://doi.org/10.1007/s10787-024-01545-5
16. Sulayman *et al.* (2024). **A comprehensive study on mechanisms of action of fibroin, aloe vera, and ginger extracts through histochemical, inflammation biomarkers, and matrix metalloproteinases analysis against diabetic wounds**. *Journal of Tissue Viability*, *33*(4), 949-959. https://doi.org/10.1016/j.jtv.2024.10.006
17. Tariq *et al*. (2021). **Silk derived formulations for accelerated wound healing in diabetic mice**. *PeerJ*, *9*, e10232. https://doi.org/10.7717/peerj.10232

## Peer review

- Reviewer for journals published by Elsevier, Wiley, Springer Nature, Dove Medical Press, etc., (120+ manuscripts)
- **Reviewing editor for Springer Nature**

## Teaching, Mentoring

- Teaching BSc. (Hons.) students (Research methods, Biostatistics, Biochemistry (P))
- Supervision: 4 M.Phil. students, 10 BSc. (Hons) thesis students (primary), 5+ BSc. (Hons) 5+ MPhil students (co-supervision) 5.
- Organizer of 2nd, 3rd, 4th, and 5th International Conference on Innovative Biological and Public Health Research, Department of Zoology, GCU Lahore, (IBPHR).

## Research skills

- **Animal models:** Rearing, maintenance, injections, oral gavage, small-animal surgery, incision/burn/diabetic wounds administration, paw edema, FCA-induced arthritis, heart puncture, tissue dissection, and preservation
- **Nanotechnology** (nanoparticles synthesis, conjugation, optimization)

- **Hydrogels** (Polymers (natural/synthetic), hydrogel synthesis, drug loading, release, and stimuli (pH, buffers, etc.) response analysis
- **Material characterization:** FT-IR, XRD, SEM, UV–Vis, DLS, Zeta, TGA, GC-MS (data representation, analysis, and interpretation)
- **Compound microscopy:** Histological analysis
- **Bioassays:** ROS assays (DPPH, Iron chelation, ABTS), inflammatory assay, Drug release assay, bactericidal assay, blood biocompatibility assay
- **Biomarkers** (results, representation, analysis, and interpretation)
- **Data analysis:** GraphPad Prism, SPSS, Origin, Excel
- **Grant & manuscript writing; peer review.** (01 ORIC Project awarded, 01 under review, 03 submitted in PARB, NRPU, and HEC)

## Certificate and Training

- Statistical data analysis and training workshop, GCU (2023)
- Teaching Excellence, Higher Education Commission (HED) (2023)
- Hands-on Training and Data analysis workshop (Mastering equipment, Excellence in research), GCU (2024).

## Personal and Professional Skills

- Effective communicator with experience in teaching, writing, and presentations
- Independent, organized, and quick to adapt to new tasks and environments
- Comfortable working across diverse teams and cultural settings

## References

**1. Dr. Shaukat Ali**
Ph.D. Supervisor/Associate Professor (Tenured), Department of Zoology, Government College University Lahore, 54000, Pakistan, Phone: +92 305 4190596, E-mail: dr.shaukatali@gcu.edu.pk

**2. Professor Dr. Muhammad Tahir**
M.Phil. Supervisor/Professor/Chairperson, Department of Zoology, Government College University Lahore, 54000, Pakistan, Phone: +92 300 4492152, E-mail: dr.hafiztahir@gcu.edu.pk.

**3. Dr. Gulzar Muhammad**
Ph.D. Co-supervisor/Assistant Professor, Department of Chemistry, Government College University Lahore, 54000, Pakistan, Phone: +92 300 4734288, E-mail: mgulzar@gcu.edu.pk