

Dr. ASIM BADAR

- Ph.D. (Medical) Biochemistry

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Educational Qualifications

- Ph.D. – (Medical) Biochemistry (2021):**
Department of Biochemistry, Jawaharlal Nehru Medical College,
Faculty of Medicine, Aligarh Muslim University (AMU), Aligarh, India.

Teaching and Biochemical Lab Experience (2.5 years and continuing)

S. No.	Particulars of the Post	Period of Service			Roles and Responsibilities	Name and Address of the Employer
		From	To	Total Period		
01.	Senior Resident/Tutor	28 th January 2023	Continuing	2.5 years and continuing	Teaching M.B.B.S. and BDS	Department of Biochemistry, J.N. Medical College, Aligarh Muslim University, Aligarh, Uttar Pradesh, India

List of Research Publications and Book Chapters

- Menon, P., **Badar, A.**, Zaheer, S., Akram, M., Philip, K.P., Alam, K. and Arif, Z. (2025). Beyond the tumor: The silent influence of lung carcinoma milieu on the architectural and obligational facets of human serum albumin. *Journal of Molecular Liquids*, p.128042.
- Islam, S.N., Arif, Z., **Badar, A.**, Moinuddin, Khan, M.A. and Alam, K. (2024). Glycooxidation of mammalian whole histone generates highly immunogenic aggregates: Sera of SLE patients contain autoantibodies against aggregates. *Scandinavian Journal of Immunology*, p.e13389.
- Bushra, S., Faizan, S., **Badar, A.**, Kumari, R. and Pandey, E. (2024). Application of Rhizobium Alleviates the Cadmium Stress-Induced Damage to Growth, Photosynthetic

Efficiency, Cell Viability and Yield by Up-Regulating Antioxidants in *Cicer arietinum* L. *Journal of Plant Growth Regulation*, 1-13.

4. Bushra, S., Faizan, S., **Badar, A.**, Pandey, E., Kumari, R. and Akhtar, M.S. (2024). AMF-Mediated mitigation of Cd-Induced toxicity in *Cicer arietinum* and their influence on growth, Photosynthesis efficiency, Cell viability, Antioxidants and yield attributes. *South African Journal of Botany*, 164, 9-22.
5. Gupta, A., Khursheed, M., Arif, Z., **Badar, A.** and Alam, K. (2022). Methylglyoxal-induces multiple stable changes in human serum albumin before forming nephrotoxic advanced glycation end-products: Injury demonstration in human embryonic kidney cells. *International Journal of Biological Macromolecules*, 214, 252-263.
6. Jabeen, S., Arif, Z., **Badar, A.**, & Alam, K. (2022). Monitoring of Herbicide Alachlor-Plasmid DNA Interaction by Spectroscopy Techniques. *Applied Biological Research*, 24,494-502
7. Iqbal, M. A., Arif, Z., **Badar, A.**, & Alam, K. (2022). Biophysical and Immunological Characterization of Carbamylated-DNA: Serum Autoantibodies of Diabetic Nephropathy Patients Exhibit Strong Binding with Carbamylated-DNA. *Applied Biological Research*, 317-326.
8. Islam, S. N., Arif, Z., **Badar, A.**, & Alam, K. (2021). Biophysical, biochemical and microscopic studies on whole histone glycated by deoxyribose. *Applied Biological Research*,196-208.
9. **Badar, A.**, Arif, Z., Qais, F. A., Islam, S. N., & Alam, K. (2020). Carbamylation of human serum albumin generates high-molecular weight aggregates: fine characterization by multi- spectroscopic methods and electron microscopy. *International Journal of Biological Macromolecules*, 164, 2380-2388.
10. Arif, Z., Tarannum, A., Arfat, M.Y., Arif, B., Shahab, S., Arif, M., Nelofar, K., **Badar, A.**, Islam, S.N., Zaman, A. and Ahmad, S. (2020). Impact of endogenous stress on albumin structure in systemic lupus erythematosus (SLE) patients. *International Journal of Biological Macromolecules*, 151, 891-900.
11. **Badar, A.**, Arif, Z., Islam, S.N. and Alam, K. (2019). Physicochemical characterization of carbamylated human serum albumin: an in vitro study. *RSC advances*, 9, 36508-36516.
12. **Badar, A.**, Arif, Z., & Alam, K. (2018). Role of carbamylated biomolecules in human diseases. *IUBMB Life*, 70, 267-275.
13. Arif, Z., Neelofar, K., Arfat, M.Y., Zaman, A., Tarannum, A., Parveen, I., Ahmad, S., Khan, M.A., **Badar, A.** and Islam, S.N. (2018). Hyperglycemia induced reactive species trigger structural changes in human serum albumin of type 1 diabetic subjects. *International Journal of Biological Macromolecules*, 107, 2141-2149.
14. Arif, Z., Neelofar, K., Tarannum, A., Arfat, M.Y., Ahmad, S., Zaman, A., Khan, M.A., **Badar, A.**, Islam, S.N. and Iqbal, M.A. (2018). SLE autoantibodies are well recognized

by peroxynitrite-modified-HSA: Its implications in the pathogenesis of SLE. *International Journal of Biological Macromolecules*, 106, 1240-1249.

15. Arif, Z., Arfat, M.Y., Neelofar, K., Ahmad, S., **Badar, A.**, Khan, M.A., Zaman, A. and Ahmad, J. (2017). Effect of peroxynitrite on human serum albumin: a multi technique approach. *Journal of Biomolecular Structure and Dynamics*, 35, 2066-2076.
16. Bushra S., Faizan S., **Badar A** and Kumari R. (2025), Heavy Metal Tolerance Ability of Microbial Consortia. Apple Academic Press, (211-230).
17. Bushra S., Faizan S., **Badar A.**, Hussain A., and Pandey E. Mycorrhizae mediated mitigation of metal induced toxicity, Apple Academic Press. (Communicated)

Research Experience

- **2015-2021: Ph.D. Biochemistry**, Department of Biochemistry, Jawaharlal Nehru Medical College (JNMC), Aligarh Muslim University (AMU), Aligarh, India.

Supervisor: Prof. Khursheed Alam

Title: Studies on carbamylated-human serum albumin: Role in development of arteriosclerosis, nephrotoxicity and hepatotoxicity

During my Ph.D., I have analyzed the immunobiology of the carbamylated human serum albumin in chronic kidney disease patients (CKD). I have explored the structural and functional aspects of human serum albumin in the presence of potassium cyanate (a carbamylating agent) (**Badar, A. et al., (2019)**, published in RSC Advances with an impact factor of IF 3.9.

The studies performed in my thesis work revealed that both the structural and functional aspects of human serum albumin are compromised due to carbamylation. Further studies revealed the formation of aggregates which could be an aggravating factor for generation of antibodies (**Badar. A et al., 2020, published in International Journal of Biological Macromolecules IF 7.7**). Furthermore, the immunological properties of carbamylated-human serum albumin was further studied in rabbit model which showed generation of high titre of antibodies against carbamylated-human serum albumin (Under communication).

I have also published a review article in a reputed journal on the role of various carbamylated biomolecules in various human diseases such as chronic kidney disease, arteriosclerosis, etc. (**IF 3.7**)

My M.Sc. dissertation work involved the “Effect of arsenate toxicity on kidney of rats and its protection by Nigella sativa oil”.

Awards, Fellowships, and Other Achievements

- **Council of Scientific and Industrial Research (CSIR) Senior Research Fellowship (SRF)**, Aligarh Muslim University, India
- Awarded by **Prof. L.M. Srivastava and Prof. K.K. Srivastava Young Innovator Award 2017** by the Indian Academy of Biomedical Sciences, organized by SKIIMS, Srinagar, India

Conferences, Seminars, Workshops, and Other Activities

- Attended and Presented research work in 20 international and national conferences and workshops.
- Member of INDIAN SCIENCE CONGRESS (2014).

Technical Skills

- **Protein Sciences:** Purification and characterization (UV, Fluorescence, Circular Dichroism, IR) spectroscopy, PAGE-SDS & Native, Ion- exchange, Affinity, HPLC, uHPLC and other column chromatography
- **Animal Handling:** Rabbit (Immunization, Subcutaneous and intra-muscular Injection, bleeding, sera preparation, and antibody purification)
- **Cell culture:** MTT assay, XTT assay, LDH assay, DAPI staining, DCFHDA assay, microbial culturing
- **Microscopy:** TEM, SEM, Confocal, fluorescence microscopy, Inverted fluorescence
- **Biophysical Techniques:** UV-Vis and Fluorescence spectrophotometry, CD (basic handling), Fourier Transform Infra-Red (FTIR) spectroscopy, Dynamic Light Scattering (DLS), Isothermal Titration Calorimetry (ITC), etc.
- **Immunological techniques:** Enzyme-linked Immunosorbent assay (ELISA), Dot Blot Assay, and Western Blotting.

Academic References

1. Dr. Khursheed Alam (Ph.D. supervisor)

Professor

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