

Dr. Basir Ahmad, Ph.D.

UGC-Assistant Professor of Biological Sciences
School of Chemical and Life Sciences, Dept. of Medical Elementology & Toxicology
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Education

- **Ph.D., Biotechnology**, Aligarh Muslim University, Aligarh, India, 2008
- **M.Sc., Biotechnology**, Aligarh Muslim University, Aligarh, India, 2002
- **B.Sc. (Hons.), Chemistry**, Aligarh Muslim University, Aligarh, India, 1999

Professional Appointments

- **UGC-Assistant professor**, Jamia Hamdard, SCLS, New Delhi., 2019-present
- **UGC-Assistant professor**, UM-DAE Centre for Excellence in Basic Sciences., 2014-2018
- **Reader-F**, UM-DAE Centre for Excellence in Basic Sciences, Mumbai., 2013-2014
- **Visiting Scientist**, UM-DAE Centre for Excellence in Basic Sciences Mumbai., 2012-2013
- **Visiting Research Associate**, Michigan State University, Michigan, USA. 2010-2012
- **Postdoctoral Fellow**, University of Florence, Italy, 2007-2009
- **CSIR-Senior Research Fellow**, Interdisciplinary Biotechnology Unit, AMU, Aligarh., 2005-2007
- **CSIR-Junior Research Fellow**, Interdisciplinary Biotechnology Unit, AMU, Aligarh., 2003-2005

Areas of Specialization

- Molecular Biotechnology
- Biophysical Chemistry & Molecular Spectroscopy
- Protein Aggregation and amyloidosis

Research Interests

- Developing AI-driven spectral deconvolution tools to monitor real-time interactions between complex phytochemical mixtures and aggregation-prone proteins.
- Molecular mechanisms of protein misfolding and aggregation
- Development of drugs targeting aggregation-based diseases using AI-driven drug discovery
- Novel utilization of amyloid in materials science and nanotechnology

Publications

(Selected, Full list on Scopus)

Scopus ID: 7005674055 | <https://www.scopus.com/authid/detail.uri?authorId=7005674055>

* Corresponding Author

1. Qureshi, A., Muslim, M., Chauhan, C., Muthu, S. A., Ahmad, M., Parvez, S., & **Ahmad, B***. (2025). A cobalt coordination complex binds on a unique binding site between domain-I and domain-III of serum albumin. *Journal of Molecular Structure*, 1322, 140345.
2. Chauhan, C., Singh, P., Muthu, S. A., Parvez, S., Selvapandiyar, A., & **Ahmad, B***. (2024). Plumbagin accelerates serum albumin's amyloid aggregation kinetics and generates fibril polymorphism by inducing non-native β -sheet structures. *Biochimica et Biophysica Acta (BBA)-Proteins and Proteomics*, 1872(5), 141028.
3. Bisaria, I., Chauhan, C., Muthu, S. A., Parvez, S., & **Ahmad, B***. (2024). The effect of chrysin binding on the conformational dynamics and unfolding pathway of human serum albumin. *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, 316, 124332.
4. Sharma, R., Muthu, S. A., Agarwal, M., Mehto, N. K., Pahuja, I., Grover, A., Dwivedi, V.P., **Ahmad, B***, & Grover, S*. (2023). Atosiban and Ruti n exhibit anti-mycobacterial activity-An integrated computational and biophysical insight toward drug repurposing strategy against Mycobacterium tuberculosis targeting its essential enzyme HemD. *International Journal of Biological Macromolecules*, 253, 127208.
5. Muthu, S. A., Sharma, R., Qureshi, A., Parvez, S., & **Ahmad, B***. (2023). Mechanistic insights into monomer level prevention of amyloid aggregation of lysozyme by glycyrrhizic acid. *International Journal of Biological Macromolecules*, 227, 884-895.
6. Muthu, S. A., Jadav, H. C., Srivastava, S., Pissurlenkar, R. R., & **Ahmad, B***. (2020). The reorganization of conformations, stability and aggregation of serum albumin isomers through the interaction of glycopeptide antibiotic teicoplanin: A thermodynamic and spectroscopy study. *International Journal of Biological Macromolecules*, 163, 66-78.
7. Kumari, A., Muthu, S. A., Prakash, P., & **Ahmad, B***. (2020). Herbalome of Chandraprabha vati, a polyherbal formulation of Ayurveda prevents fibrillation of lysozyme by stabilizing aggregation-prone intermediate state. *International Journal of Biological Macromolecules*, 148, 102-109.
8. Kumari, A., & **Ahmad, B***. (2019). The physical basis of fabrication of amyloid-based hydrogels by lysozyme. *RSC advances*, 9(64), 37424-37435.
9. Sonavane, S., Haider, S. Z., Kumar, A., & **Ahmad, B***. (2017). Hemin is able to disaggregate lysozyme amyloid fibrils into monomers. *Biochimica et Biophysica Acta (BBA)-Proteins and Proteomics*, 1865(11), 1315-1325.
10. Shukla, V. K., Singh, J. S., Vispute, N., **Ahmad, B.**, Kumar, A., & Hosur, R. V. (2017). Unfolding of CPR3 gets initiated at the active site and proceeds via two intermediates. *Biophysical Journal*, 112(4), 605-619.
11. Chaudhary, A. P., Vispute, N. H., Shukla, V. K., & **Ahmad, B***. (2017). A comparative study of fibrillation kinetics of two homologous proteins under identical solution condition. *Biochimie*, 132, 75-84.
12. Muthu, S. A., Mothi, N., Shiriskar, S. M., Pissurlenkar, R. R., Kumar, A., & **Ahmad, B***. (2016). Physical basis for the ofloxacin-induced acceleration of lysozyme aggregation and polymorphism in amyloid fibrils. *Archives of biochemistry and biophysics*, 592, 10-19.

13. Acharya, S., Saha, S., **Ahmad, B.**, & Lapidus, L. J. (2015). Effects of Mutations on the Reconfiguration Rate of α -Synuclein. *The Journal of Physical Chemistry B*, 119(50), 15443-15450.
14. **Ahmad, B.**, Muteeb, G., Alam, P., Varshney, A., Zaidi, N., Ishtikhar, M., ... & Khan, R. H. (2015). Thermal induced unfolding of human serum albumin isomers: Assigning residual α helices to domain II. *International journal of biological macromolecules*, 75, 447-452.
15. Borana, M. S., Mishra, P., Pissurlenkar, R. R., Hosur, R. V., & **Ahmad, B***. (2014). Curcumin and kaempferol prevent lysozyme fibril formation by modulating aggregation kinetic parameters. *Biochimica et Biophysica Acta (BBA)-Proteins and Proteomics*, 1844(3), 670-680.
16. **Ahmad, B.**, & Lapidus, L. J. (2012). Curcumin prevents aggregation in α -synuclein by increasing reconfiguration rate. *Journal of Biological Chemistry*, 287(12), 9193-9199.
17. **Ahmad, B.**, Chen, Y., & Lapidus, L. J. (2012). Aggregation of α -synuclein is kinetically controlled by intramolecular diffusion. *Proceedings of the National Academy of Sciences*, 109(7), 2336-2341.
18. **Ahmad, B.**, Vigliotta, I., Tatini, F., Campioni, S., Mannini, B., Winkelmann, J., ... & Chiti, F. (2011). The induction of α -helical structure in partially unfolded HypF-N does not affect its aggregation propensity. *Protein Engineering, Design & Selection*, 24(7), 553-563.
19. **Ahmad, B.**, Winkelmann, J., Tiribilli, B., & Chiti, F. (2010). Searching for conditions to form stable protein oligomers with amyloid-like characteristics: the unexplored basic pH. *Biochimica et Biophysica Acta (BBA)-Proteins and Proteomics*, 1804(1), 223-234.
20. **Ahmad, B.**, Parveen, S., & Khan, R. H. (2006). Effect of albumin conformation on the binding of ciprofloxacin to human serum albumin: a novel approach directly assigning binding site. *Biomacromolecules*, 7(4), 1350-1356.

Grant and Funding

- UGC-FRP Assistant Professorship ~Rs 35 Lakhs/per year for Salary and allowances (2014-present)
- UGC Startup grant Rs 6 lakhs (2015-2017)
- DBT's Program for the NE Co-PI, Rs 85'04 Lakhs (2016-2019)

Research Guidance Experience

Level	Supervisor	Co-Supervisor
Ph.D. (Awarded)	02	01
Ph.D. (Ongoing)	07	07
M.Sc. Awarded	18	01
M.Sc. (Ongoing)	03	01
B.Sc. Awarded	11	—

Teaching Experience

- UM-DAE Centre for excellence in Basic Sciences, 2012-2019
- School of Chemical and Life Sciences, Jamia Hamdard, 2019-present

Undergraduate Courses Taught

- Biochemistry (CB 301)
- Chemistry of Life (BTX-DSC101)
- Protein Toxicant Interaction (BTX-DSC402)
- Basic Principle of Pharmacology (BTX-CC08)
- Biomolecules (BTX-CC3P)
- Biophysical Chemistry (CB 601)
- Drug Discovery (BTX-CC15)

Postgraduate Courses Taught:

- CE1001 Protein Chemistry and Conformational Diseases
- CE 1002 Physical Biology
- MTX-CC201 Food and Cosmetic Toxicology
- CE1001 Advanced Chemical Biology

Professional Service

- **Grant Reviewer:** The Netherlands Organisation for Scientific Research (NWO), Iran National Science Foundation (INSF), CRG, DST-SERB India, 2015–Present
- **Journal Reviewer:** Archives of Biochemistry and Biophysics, Biochemical and Biophysical Research Communications, Journal of Physical Chemistry, Biophysical Journal, 2015–Present
- **Departmental Board of Study**, Member, Jamia Hamdard, 2019–Present
- **School Board of Study**, Member, Jamia Hamdard, 2022–Present
- **Coordinator:** M.Sc. Seminar, Jamia Hamdard, 2020–2024; UG & PG Dissertation, Jamia Hamdard, 2020–Present; Students Best Practices, Jamia Hamdard, 2020-present, Department Examination, Jamia Hamdard, 2020-present

Professional Development

- Induction/Orientation Programme for Faculty in Universities/Colleges/Institutes of Higher Education" New Delhi (Online) 26/06/2020 to 24/07/2020 2020, Teaching Learning Centre, Ramanujan College University of Delhi
- INTER-DISCIPLINARY ONLINE TWO - WEEK REFRESHER COURSE/FACULTY DEVELOPMENT PROGRAMME on "Managing Online Classes & Co- creating MOOCS 7.0" New Delhi (Online) 05/08/2021 to 19/08/2021 Teaching Learning Centre, Ramanujan College, University of Delhi
- Orientation Programme on MOOCs and Blended Learning, New Delhi (In-person) 25/11/2021 to 25/11/2021, IQAC, Jamia Hamdard, Hamdard Nagar, New Delhi
- Orientation Programme on Outcome Based Education and Curriculum Design, New Delhi 02/02/2022 to 02/02/2022, IQAC, Jamia Hamdard, Hamdard Nagar, New Delhi
- NEP 2020 Orientation & Sensitization Programme under Malaviya Mission Teacher Training Programme (MM-TTP) of University Grants Commission (UGC), Hyderabad (Online) 20/05/2024 to 30/05/24, UGC-MMTTC Maulana Azad National Urdu University

Fellowships/Awards/honours

- UGC-Assistant Professor, UGC Faculty Recharge Program, 2014
- Japan Society for the Promotion of Science (JSPS) Postdoctoral Fellowship, 2010
- Postdoctoral Fellowship, National Science Foundation (NSF), USA, 2010
- EURAMY-Systemic Amyloidosis in Europe Postdoctoral Fellowship, Italy, 2007
- CSIR Senior Research Fellowship, CSIR Govt. of India, 2005
- CSIR Junior Research Fellowship, CSIR Govt. of India, 2003
- DBT-Merit Studentship for M.Sc., 2000–2002

Selected Talks / Conferences

1. Oral Lecture Session Chairperson Two days National Symposium on Recent Advances in Neurochemistry and Neurosciences New Delhi 25/4/2024 26/4/2024 SNCI & Jamia Hamdard
2. Moderator of Scientific Session 4th Asian Congress for Alternative to Animal Experiments (4ACAAE) & 7th Annual Conference of Society for Alternatives to Animal Experiments-India New Delh 12/12/2024 to 14/12/2024 SAAE & Jamia Hamdard
3. NATIONAL SYMPOSIUM ON “MATERIALS IN HEALTHCARE”, September 6-8, 2018, GITAM, Hyderabad, (Invited Talk) The physical basis of protein aggregation and disaggregation: Potential drugs to treat amyloidosis.
4. 42nd Annual Meeting of the Indian Biophysical Society (IBS), March 9-11, 2018 IISER Pune (Poster) Can small molecules reverse amyloid fibrils into monomeric state?
5. Invited talk Protein Aggregation in Human Health and Disease. Student's Orientation for the co curricular development of the students Mumbai 29/09/2018 to 29/09/2018 Department of Life Science, University of Mumbai
6. Resource person Fluorescence spectroscopy: A primary research tool in Biomedical Sciences. Training Program on "Techniques in Modern Biology (TMB)" with focus on Infection Biology New Delhi 18/11/2019 to 14/12/2019, ICMR & Jamia Hamdard
7. The Physical Basis of Preventing Aggregation in Conformational Diseases. *National Symposium on FRONTIERS OF BIOPHYSICS, BIOTECHNOLOGY & BIOINFORMATICS*. University of Mumbai, Mumbai (13th -16th January 2013)
8. Interaction of Ofloxacin with Bovine Serum Albumin: Spectroscopic and Förster Resonance Energy Transfer (FRET) Studies. *National Symposium on FRONTIERS OF BIOPHYSICS, BIOTECHNOLOGY & BIOINFORMATICS*. University of Mumbai, Mumbai (13th -16th January 2013)
9. Modulation of Intramolecular Diffusion in Intrinsically Disordered Protein α -Synuclein under Aggregating Conditions. *55th Annual Meeting of Biophysical Society*, March 5-11, 2011, Baltimore, Maryland (USA). 5th -11th March 2011
10. Intramolecular diffusion rates control the aggregation propensity of intrinsically unfolded protein α -synuclein. *6th Midwest Conference on Protein Folding, Assembly and Molecular Motions*, University of Notre Dame, Indiana (USA) (7th May 2011)
11. Modulation of Intramolecular Diffusion in Intrinsically Disordered Protein α -Synuclein under Aggregating Conditions. *2nd USA-Mexico Workshop in Biological Chemistry: protein folding misfolding and design*. March 18-21, 2011, UNAM, Mexico City (Mexico) (18th -21st March 2011)
12. Intramolecular diffusion rates control the aggregation propensity of intrinsically unfolded protein α -synuclein. *5th Midwest Conference on Protein Folding, Assembly and Molecular Motions*, April 24, 2010, University of Notre Dame, Indiana (USA) (24th April 2010)

Professional Service

- Grant Reviewer, The Netherlands Organisation for Scientific Research (NWO), Iran National Science Foundation (INSF), CRG, DST-SERB India
- Journal Reviewer, ABB, BBRC, JPC, BJ and other major journals
- Departmental Board of Study, Member 2019-present
- School Board of Study, Member, 2022-present
- Member Academic Affairs committee 2015- 2018
- Member Women's cell Aug 2015-2018
- Member Education cell Aug 2015-2018
- Member Hostel Committee &Warden 2012-2017

Press Releases (selected)

- ***Medical News Today:*** *Researcher Identify Path to Treat Parkinson's disease at its Inception.*
<http://www.medicalnewstoday.com/releases/240423.php>
- ***The State News (USA) :*** *MSU Team takes on Parkinson's disease.*
http://www.statenews.com/index.php/article/2012/01/msu_team_takes_on_parkinsons_disease
- ***MSUTODAY:*** *Curcumin shows promise in attacking Parkinson's disease*
<https://msutoday.msu.edu/news/2012/curcumin-shows-promise-in-attacking-parkinson>
- ***Deccan herald:*** *Turmeric compound may hold key to Parkinson's cure: Study*
<https://www.deccanherald.com/content/236199/turmeric-compound-may-hold-key.html>
- ***EurekAlert!:*** *Native state is fortunate trap in the journey of protein to its destination, fibril state.*
<https://www.eurekalert.org/news-releases/582329>