

PRABUDDHA BHATTACHARYA



Designation: Assistant Professor

Affiliation: Dept. of Chemistry, Mrinalini Datta Mahavidyapith, Kolkata - 700051

Mobile: +91-8902043784

E-mail: b.prabuddha3@gmail.com

Educational Qualification:

Examination	University/Institute	Year	Marks (Percentage)
B.Sc. (Chemistry Hons.)	University of Calcutta (St. Xavier's College, Kolkata)	2008	73.75
M.Sc. (Specialisation in Organic Chemistry)	University of Calcutta (Raja Bazar Science College)	2010	76.8
Ph.D.	Indian Institute of Technology, Kharagpur	2016	-

Research Background:

Type of Research	Supervisor	University/Institute	Topic	Duration
Ph.D.	Prof. Amit Basak	Department of Chemistry, Indian Institute of Technology Kharagpur	Synthesis of Bio-Active Heterocycles from Alkenyl Propargyl Ethers and Sulfones	2011-2016
Post-Doctoral Research (As Institute Project Fellow)	Prof. Amit Basak	Department of Chemistry, Indian Institute of Technology Kharagpur	Synthesis and DNA Binding Studies of Chroman	2016-2017

Research Interests

Bio-organic chemistry, Computer Aided Drug Design, Organic Synthesis

Awards and Achievements

- **Departmental Gold Medallist from St. Xavier's Kolkata** (Under Calcutta University), for securing the highest marks in B.Sc (3 Years) Chemistry Honours (2005-2008).
- **Qualified NET** (National Eligibility Test), December 2009 and awarded **CSIR-JRF fellowship** by CSIR-UGC (Govt. of India) (AIR 114)
- **Qualified GATE**, 2010 (AIR 149)
- **Best Poster Award** at the International seminar on "Innovations, Expansion, Impacts and Challenges in Chemistry and Biological Sciences" organized by the Department of Chemistry, Surendranath College, Kolkata on 4.1.23.
- **Best Presenter Award** from the Science Group at 13th UGC Faculty Induction Programme organized by the HRDC, University of North Bengal, from 26.07.2023 to 25.08.2023.

Teaching experience

- **Assistant Professor**, Department of Chemistry, Mrinalini Datta Mahavidyapith, Kolkata (August 2020 – present)
- **Assistant Professor**, Department of Chemistry, Adamas University, Kolkata (June 2017 – July 2020)
- **Teaching Assistant (TA)** in the following NPTEL courses conducted by IIT Kharagpur, under Ministry of Education, Govt. of India (2020 – present): a) Structure, Stereochemistry and Reactivity of Organic Compounds and Intermediates: A Problem-Solving Approach (*Level: PG*); b) Organic Chemistry in Biology and Drug Development (*Level: PG*); c) Stereochemistry (*Level: UG*)
- **Teaching Assistant (TA)** at IIT Kharagpur: M. Sc. Biochemistry lab - 1 semester; B.Tech Organic lab - 3 semesters; B.Tech Organic tutorial - 4 semesters.

Publications

1. **Bhattacharya, P.**; Basak, A.* An unexpected one step domino conversion of TMS-alkyne to protected ketones in 4-chromenone system. *Tetrahedron Lett.* **2013**, *54*, 5137.
2. Mitra, T.; Jana, S.; Pandey, S.; **Bhattacharya, P.**; Khamrai, U. K.; Anoop, A.; Basak, A.* Asymmetric Garratt-Braverman Cyclization: A Route to Axially Chiral Aryl Naphthalene-Amino Acid Hybrids. *J. Org. Chem.* **2014**, *79*, 5608.
3. **Bhattacharya, P.**; Senapati, K.; Chatterjee, K.; Mandal, S. M.; Basak, A.* Synthesis of benzochromenes and dihydrophenanthridines with helical motifs using Garratt-Braverman and Buchwald-Hartwig reactions. *RSC Adv.* **2015**, *5*, 61562.

4. **Bhattacharya, P.**; Mandal, S. M.; Basak, A.* Synthesis of DNA-Intercalating 6H-Benzo[c]chromen-6- one Derivatives through a Strategic Combination of Garratt–Braverman and Minisci Acyloxylation. Reactions. *Eur. J. Org. Chem.* **2016**, 1439.
5. Das, M.⁺; Senapati, K.⁺; Panda, S. S.; **Bhattacharya, P.**; Jana, S.; Mandal, S. M.; Basak, A.* π -Stacking assisted redox active peptide–gallol conjugate: synthesis of a new generation of low toxicity antimicrobial silver nanoparticles. *RSC Adv.*, **2016**, 6, 85254. (+ = equal contribution)
6. Mandal, A.; Maity, A.; Bag, S.; **Bhattacharya, P.**; Das, A. K.; Basak, A.* Design and synthesis of dual probes for detection of metal ions by LALDI MS and fluorescence: application in Zn(II) imaging in cells. *RSC Adv.* **2017**, 7, 7163.
7. **Bhattacharya, P.**; Dutta, S.; Chandra, K.; Basak, A.* The never-ending story of β -lactams: Use as molecular scaffolds and building blocks. In *Beta-Lactams: Novel Synthetic Pathways and Applications*. Banik, B. K. Ed.; Springer International Publishing: Switzerland, **2017**, pp 373-419. (BOOK CHAPTER) [ISBN: 978-3-319-55620-8 (Print), 978-3-319-55621-5 (Online)].
8. Ghosh, D.; Basu, S.; Singha, M.; Das, J.; **Bhattacharya, P.***; Basak, A.* Synthesis of Crescent Shaped Heterocycle-fused Aromatics via Garratt-Braverman Cyclization and Their DNA-binding Studies. *Tetrahedron Lett.* **2017**, 58, 2014. (**As joint corresponding author**).
9. Singha, M.*; Roy, S.; Bag, S. S.; Pandey, S. D.; **Bhattacharya, P.**; Das, M.; Ghosh, A. S.; Ray, D.; Basak, A.* Use of azidonaphthalimide carboxylic acids as fluorescent templates with a built-in photoreactive group and a flexible linker simplifies protein labeling studies: applications in selective tagging of HCAII and penicillin binding proteins. *Chem. Commun.* **2017**, 53, 13015.
10. **Bhattacharya, P.**; Basak, A.*; Campbell, A.; Alabugin, I. V.* Photochemical Activation of Eneidyne Warheads: A Potential Tool for Targeted Antitumor Therapy. *Mol. Pharmaceutics* **2018**, 15, 768.
11. **Bhattacharya, P.**; Singha, M.; Senapati, K.; Saha, S.; Mandal, S.; Mandal, S. M. *; Ghosh, A. K.; Basak, A.* Chloramphenicol-borate/boronate complex: A New Antibacterial Agent to control Infections by Chloramphenicol resistant Gram-negative bacilli. *RSC Adv.* **2018**, 8, 18016.
12. **Bhattacharya, P.***; Singha, M.; Das, E.; Mandal, A.; Maji, M.; Basak, A.* Recent Advances in Garratt-Braverman Cyclization: Mechanistic and Synthetic Explorations. *Tetrahedron Lett.* **2018**, 59, 3033. (**As first and joint corresponding author**).
13. Mandal, A.⁺, **Bhattacharya, P.***, Das, A. K., Basak, A.⁺. A Garratt-Braverman Cyclization Route towards the Synthesis of Phenanthridine Derivatives and their DNA-Binding Studies. (+ = equal contribution) (**As joint first and joint corresponding author**) *Tetrahedron* **2019**, 75, 1975.
14. **Bhattacharya, P.***; Mukherjee, S.; Mandal, S. M.*. Fluoroquinolone antibiotics show genotoxic effect through DNA-binding and oxidative damage. *Spectrochim. Acta A* **2020**, 75, 117634. (**As first and joint corresponding author**).
15. **Bhattacharya, P.**; Singha, M.; Das, E.; Gupta, M.; Basak, A*. Pseudoasymmetry Paradox: A Suggestion to Introduce the Term Pseudostereogenicity and Address Reflection Issues. *Tetrahedron* **2020**, 76, 131244.
16. Singha, M.; **Bhattacharya, P.**; Ray, d.; Basak, A.* Sterically hindering the trajectory of nucleophilic attack towards *p*-benzynes by a properly oriented hydrogen atom: an approach to achieve regioselectivity. *Org. Biomol. Chem.* **2021**, 19, 5148.
17. Angle Distortion Model for Predicting Eneidyne Activation Towards Bergman Cyclization: An Alternate to the Distance Theory. **Bhattacharya, P.***; Chakraborty, S.; Balaji, A.; Basak, A.* *RSC Adv.*, **2022**, 12, 23552. (**As first and joint corresponding author**)
18. Jana, I. D.*; **Bhattacharya, P.***; Mayilsamy, K.; Banerjee, S.; Bhattacharje, G.; Das, S.; Aditya, S.; Ghosh, A.; McGill, A. R.; Srikrishnan, S.; Das, A. K.; Basak, A.; Mohapatra, S. S.; Chandran, B.; Bhimsaria, D.; Mohapatra, S.*; Roy, A.*; Mondal, A.* Targeting an evolutionarily conserved “E-L-L” motif in spike protein to identify a small molecule fusion inhibitor against SARS-CoV-2. *PNAS Nexus*, **2022**, 1, pgac198 (**As joint first author**) (+ = equal contribution)
19. Fatimaa, A.*; Arora, H.*; **Bhattacharya, P.**; Siddiqui, N.; Abualnaja, K. M.; Garg, P.; Javed, S. DFT, Molecular Docking, Molecular Dynamics Simulation, MMGBSA Calculation and Hirshfeld Surface Analysis of 5-Sulfosalicylic Acid. (+ = equal contribution). *J. Mol. Struct.* **2023**, 1273, 134242.
20. Agarwal, N.; Fatima, A.; **Bhattacharya, P.**; Muthu, S.; Arora, H.; Siddiqui, N.*; Javed, S.* Evaluation of experimental, computational, molecular docking and dynamic simulation of flucytosine. *J. Biomol. Struct. Dyn.* **2022**, 10430-10449 .
21. **Bhattacharya, P.**; Abualnaja, K. M.; Javed, S. Theoretical Studies, Spectroscopic Investigation, Molecular Docking, Molecular Dynamics and MMGBSA Calculations with 2-Hydrazinoquinoline *J. Mol. Struct.* **2023**, 1273, 134242.
22. Fatima, A.; Khanum, G.; Srivastava, S.K.; **Bhattacharya, P.**; Ali, A.; Arora, H.; Siddiqui, N.*; Javed, S.* Exploring quantum computational, molecular docking, and molecular dynamics simulation with MMGBSA studies of ethyl-2-amino-4-methyl thiophene-3-carboxylate. *J. Biomol. Struct. Dyn.* **2023**, 41, 10411-10429
23. **Bhattacharya, P.**; Basak, A*. The reflection invariance problems in stereochemical nomenclature for absolute configuration. *Chem. Teach. Int.*, **2023**, 5, 299-310.
24. **Bhattacharya, P.**; Basak, A*. A Student-Friendly Approach to Introduce the Evolution of Planar Chirality. *J. Chem. Educ.*, **2024**, 101, 392-397.
25. **Bhattacharya, P.***; Mandal, A. Identification of amentoflavone as a potent SARS-CoV-2 Mpro inhibitor: a combination of computational studies and in vitro biological evaluation. *J. Biomol. Struct. Dyn.*, **2024**, 1–19. (**As first and corresponding author**)

Project Students Guided

As Research Scholar

- **Mr. Sriram Kumar**, University of Delhi, M.Sc. Chem., Indian National Academy of Science Fellow, **M.Sc. Summer Internship**
- **Ms. Vibha Kanale**, University of Hyderabad, M.Sc. Chem., Indian National Academy of Science Fellow, **M.Sc. Summer Internship**.
- **Mr. Indrajit Adhikary**, IIT Kharagpur, M.Sc Chem., **1 year-M.Sc. project**.

As Faculty

- **Mr. Subham Choudhury**, Adamas University, B.Sc. Chem.
- **Ms. Sarmita Neogi**, Adamas University, B.Sc. Chem.
- **Ms. Srasta Mukherjee**, Adamas University, M.Sc. Chem.
- **Ms. Zaina Waris**, M.Sc. Sem-IV, Department of Biochemistry, West Bengal State University
- **Ms. Samima Khatun**, M.Sc. Sem-IV, Department of Biochemistry, West Bengal State University
- **Mr. Siddhirtha Bala**, M.Sc. Sem-IV, Department of Biochemistry, West Bengal State University
- **Mr. Sumit Majhi**, M.Sc. Sem-IV, Department of Biochemistry, West Bengal State University
- **Mr. Dibyendy Naskar**, M.Sc. Sem-IV, Department of Biochemistry, West Bengal State University
- **Mr. Ritam Maharana**, M.Sc. Sem-IV, Department of Biochemistry, West Bengal State University
- **Mr. Rohan Chowdhury**, M.Sc. Sem-IV, Department of Biochemistry, West Bengal State University
- **Ms. Sheefa Ali**, M.Sc. Sem-IV, Department of Biochemistry, West Bengal State University
- **Ms. Nayna Gupta**, M.Sc. Sem-IV, Department of Biochemistry, West Bengal State University
- **Mr. Sourish Das**, M.Sc. Sem-IV, Department of Biochemistry, West Bengal State University
- **Mr. Bikram Mistry**, M.Sc. Sem-IV, Department of Biochemistry, West Bengal State University
- **Mr. Aniket Ghosal**, M.Sc. Sem-IV, Department of Chemistry, APC College (affiliated to West Bengal State University)
- **Mr. Dipankar Pal**, M.Sc. Sem-IV, Department of Chemistry, APC College (affiliated to West Bengal State University)
- **Mr. Shayan Chatterjee**, M.Sc. Sem-IV, Department of Chemistry, APC College (affiliated to West Bengal State University)
- **Ms. Payal Dutta**, M.Sc. Sem-II, Department of Chemistry, Christ University, Bangalore
- **Ms. Saddikuti Manasa**, M.Sc. Sem-II, Department of Chemistry, Christ University, Bangalore
- **Mr. Iqbal Mallick**, M.Sc. Sem-II, Department of Biochemistry, Kalyani University
- **Ms. Aheli Bera**, M.Sc. Sem-II, Department of Molecular Biology, Central University of Andhra Pradesh

Conference/Symposium/Oral Presentation/Faculty Induction Program/Short Term Programs/Refresher Course

- Diamond Jubilee Symposium on Recent Trends in Chemistry, (Oct 21st – 23rd, 2011), organized by the Department of Chemistry, Indian Institute of Technology Kharagpur, India.
- ACS on Campus (Nov 23rd, 2013), organized by the Department of Chemistry, Indian Institute of Technology Kharagpur, India.
- 22nd Conference of NMR Society of India, (Feb 18th – 21st, 2016), organized by the Department of Chemistry, Indian Institute of Technology Kharagpur, India.
- **Poster Presentation** at One Day Symposium organized by Royal Society of Chemistry on “INTERFACE BETWEEN CHEMISTRY AND BIOLOGY”, on 21st December, 2016, Indian Institute of Chemical Biology, Kolkata.
- **Poster Presentation** at One Day International Symposium organized by St. Xavier’s College, Kolkata, on “FACETS OF CHEMISTRY IN BIOLOGY” (FOCB-II, 2017), on 12th January, 2017, St. Xavier’s College, Kolkata.
- **Poster Presentation** at One Day National Symposium on ‘Organic Molecules: Synthesis and Applications (OMSA)’, (Feb 17th -18th, 2017), organized by the Department of Chemistry, Indian Institute of Technology Kharagpur, India.
- **Poster Presentation** at One Day National Symposium organized by Adamas University, Kolkata, entitled, “INTERFACE BETWEEN CHEMISTRY AND BIOLOGY” (ICB-2017), on 1st December, 2017.
- **Oral Presentation** at Two Day National Symposium organized by St. Xavier’s College, Kolkata, entitled, “FACETS OF CHEMISTRY IN MATERIALS AND BIOLOGY” (FOCMB-2018), on 16th and 17th February, 2018, St. Xavier’s College, Kolkata.
- **Poster Presentation** at UGC-SAP, CSIR & Visva-Bharati Supported One Day National Symposium on “RECENT ADVANCES IN CHEMISTRY RESEARCH” (RACR-2018), on 11th March, 2018, organized by Visva-Bharati University.
- **Oral Presentation** at Two Day National Symposium jointly organized by Royal Society of Chemistry (RSC) Eastern India section and St. Xavier’s College, Kolkata, entitled, “MODERN RESEARCH TRENDS IN CHEMISTRY” (MRTC-2019), on 22nd and 23rd February, 2019, St. Xavier’s College, Kolkata.

- **Poster Presentation at One Day National Symposium** organized by St. Xavier's College, Kolkata, entitled, "RECENT ADVANCES IN CHEMICAL AND BIOLOGICAL SCIENCES" (RACB-2019), on 23rd September, 2019, St. Xavier's College, Kolkata.
- **Poster Presentation at Two Days Interational Symposium** organized by Surendranath College, Kolkata, entitled, "INNOVATION, EXPANSION, IMPACTS AND CHALLENGES IN CHEMICAL AND BIOLOGICAL SCIENCES" (ICBS-2020), on 8th and 9th January, 2020, Surendranath College, Kolkata.
- **Invited Lecture** on "STRUCTURAL CHEMISTRY OF PROTEINS: INTRODUCTION TO DRUG DESIGN" as a Resource Person at "CHEMONATION-6" organized by Surendranath College, Kolkata on 1st April, 2022.
- **Poster Presentation at Two Days National Symposium** organized by St. Xavier's College, Kolkata, entitled, "NATIONAL SYMPOSIUM ON CHEMICAL SCIENCES" (NSCS), on 15th and 16th of September 2022, St. Xavier's College, Kolkata.
- **Invited to Chair a Scientific Session** at "NATIONAL SYMPOSIUM ON CHEMICAL SCIENCES" (NSCS), on 15th and 16th of September 2022, St. Xavier's College, Kolkata.
- **Poster Presentation at the International seminar** on "Innovations, Expansion, Impacts and Challenges in Chemistry and Biological Sciences" organized by the Department of Chemistry, Surendranath College, Kolkata on 4.1.23.
- Attended **Short Term Training Program** on 'Computational Chemistry Methods and Techniques for Beginners (CCMTB-2023)' organized by Sardar Vallabhbhai National Institute of Technology (SVNIT), Surat, Gujrat, during 28.02.2023 – 04.03.2023
- **Poster Presentation** at the **National Conference** on "EMERGING DIMENSIONS IN CHEMICAL SCIENCES (EDCS-2023)" organized by the Department of Chemistry, University of Kalyani and Chemical Research Society of India, Kolkata Chapter, on March 28-29, 2023.
- Attended **13th UGC Faculty Induction Programme** from 26.07.2023 to 25.08.2023, organized by the HRDC, University of North Bengal.
- Attended **UGC sponsored Short Term Course** on 'Workshop on Heterocyclic Drug Design, Materials Science & Nanotechnology', from 06.02. 2024 to 08.02.2024, organized by the UGC Malaviya Mission Teacher Training Center, University of North Bengal.
- Attended **UGC sponsored Two-week Refresher Course on Chemical Sciences**, from 19.02. 2024 to 02.03. 2024, organized by the UGC Malaviya Mission Teacher Training Center (formerly UGC HRDC), University of Jammu.

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Date: 1.6.2024