## CURRICULUM VITAE OF DR. GOUTAM BRAHMACHARI (As of 25.04.2025)

In Brief: Goutam Brahmachari, PhD, D.Sc., FRSC, is a full professor of organic chemistry at Visva-Bharati University, Santiniketan, India. His group contributed significantly to developing effective and practical synthetic methods for carbon-carbon and carbon-heteroatom bond formation in constructing medicinally important heterocyclic scaffolds using C-H functionalization, cascade and cross-coupling approaches. Prof. Brahmachari also made outstanding contributions to natural product chemistry by unearthing the chemical profiles of several traditionally used Indian medicinal plants, studying their chemistry and biology, and thus presenting novel phytochemicals of interest. With over 26 years of experience in teaching and research, he has produced 285 scientific publications, including original research papers, review articles, books, and invited book chapters in synthetic organic chemistry and natural products chemistry. He has already authored/edited 28 books from the leading scientific publishers. He is the Series Editor of the Elsevier Book Series 'Natural Product Drug Discovery'. Prof. Brahmachari is an Elected Fellow of the Royal Society of Chemistry and a recipient of Dr. Satyajit Chakraborti Memorial Award-2025 (global contribution to chemical science) from IEM, Kolkata, CRSI (Chemical Research Society of India) Bronze Medal-2021 (contributions to research in chemistry), Dr. Basudev Banerjee Memorial Award-2021 (Contribution in chemical sciences) from the Indian Chemical Society, INSA (Indian National Science Academy) Teachers Award-2019, Dr. Kalam Best Teaching Faculty Award-2017, and Academic Brilliance Award-2015 (Excellence in Research). Prof. Brahmachari was featured in the World Ranking of the Top 2% Scientists (Organic Chemistry Category) in 2020-24 (both in whole career and single years), in the AD Scientific World Ranking of Scientists -2022-2024, as the ScholarGPS Highly Ranked Scholar-2022-2024 (Lifetime, securing a position in the top 0.05% of all scholars worldwide).

## (ORCID: <u>http://orcid.org/0000-0001-9925-6281)</u> VIDWAN: <u>https://vidwan.inflibnet.ac.in/profile/152899</u>

1.	Name in Full:	BRAHMACHARI //	GOUTAM
		Surname	Forename

- Designation and Name of the Institution: Full Professor of Chemistry, Department of Chemistry, Siksha-Bhavana, VISVA-BHARATI (A Central University), Santiniketan-731235, West Bengal, India [University Employee ID No. 1998048]
- 3. a. Date of Birth: 14<sup>th</sup> April 1969 (14.04.1969) b. Citizen: Indian c. Gender: Male
- 4. Fellow & Life membership



Prof. G. Brahmachari (CRSI Bronze Medal Awadee-2021; Dr. Basudev Banerjee Memorial Awardee 2021; INSA Teachers Awardee-2019)

- (a) Fellow: Royal Society of Chemistry, London (UK) (FRSC)(b) Life Member: CRSI (LM 1914), ISCA (L24650), ICS (8547)
- 5. Address
  - (a) Official: Laboratory of Natural Products & Organic Synthesis, Department of Chemistry, Siksha-Bhavana, Visva-Bharati (A Central University), Santiniketan-731235, Birbhum, West Bengal, India
  - (b) Residential: Dinendrapalli, Simantapalli (North), Santiniketan-731235, Birbhum, WB, India
  - (c) Email: <u>brahmg2001@yahoo.co.in; brahmg2001@gmail.com;</u> goutam.brahmachari@visva-bharati.ac.in

(d) Mobile No./Contact No: + 91-9434385744 / +91-8617324394

- 6. Subject: CHEMICAL SCIENCES (Organic Chemistry)
- 7. Educational Qualifications: M.Sc. (1st Class 1st), Ph.D. (Organic Chemistry), D.Sc. (Organic Chemistry)

## 8. **Professional Experience**

Teaching and Research (Independent) at the University Level: More than 26 years

### 9. Field of Research

Synthetic organic chemistry, Green chemistry, Natural Product Chemistry

- 10. Administrative experiences: Head/Chairman of the Department of Chemistry, Visva-Bharati University for the period of 04.03.2020 to 22.12.2023; In-Charge/Co-Ordinator of the University International Collaboration Wing; Member of Students' Grievance Redressal Committee of the University
- 11. Master's and Doctoral Dissertations Supervised Ph. D. students supervised: 20 Present PhD fellows working with: 05 Master's Dissertations supervised: 55

## 12. Project Coordinator (Sponsored Research Projects)

Successfully completed several research projects sponsored by UGC (New Delhi), CSIR (New Delhi), DST (West Bengal), DBT (New Delhi) and SERB-DST (New Delhi)

- I. Completed
- Research Project entitled "Studies on the chemical constituents and biological activities of *Casia sophera* Linn. (Caesalpiniaceae) an important Indian medicinal plant" sponsored by CSIR, New Delhi, No. 02(0260)/16/EMR-II dt 28.04.16; (1.6.2016 to 31.05.2019) Amount: INR 20 Lakh [Completed].
- Research Project entitled "*Design for Energy-Efficient Synthesis of Biologically Relevant Heterocycles*" sponsored by Science and Engineering Research Board (SERB), Department of Science and Technology (DST), New Delhi, No. EMR/2014/001220 dt 08.09.2015 (2015-2018); Amount: INR 35.26 Lakh [Completed].
- Research Project entitled "A sincere drive to develop eco-friendly methodologies for some useful organic transformations in the absence of organic solvents" sponsored by CSIR, New Delhi, No. 02(0110)/12/EMR-II dt 01.11.2012 (2012-2015); Amount: INR 12.65 Lakh [Completed].
- Research Project entitled "Acaciaside A from Acacia auriculiformis: a novel compound for the control of bancroftian filariasis" sponsored by Department of Biotechnology, Ministry of Science & Technology, Govt. of India, No. BT/PR8779/Med/14/1282/2007 dt. 24.09.2008 (period 24.09.2008-23.09.2011), Amount: INR 45.81 Lakh [as project Joint-investigator] [Completed].
- Research Project entitled "*Naturally Occurring Flavonoids: Isolation, Chemistry and Assessment of Bio-Activity*" sponsored by UGC, New Delhi, No. F.34-357/2008(SR) dt 02.01.2009 (period 01.02.2009 31.01.2012). Amount: INR 6,76,800/- [Completed].
- Research Project entitled "Studies on chemical constituents of Limnophila plants available around Santiniketan (Birbhum, West Bengal)" sponsored by the Department of Science & Technology (West Bengal) [No. 230(Sanc.)/ST/P/S&T/2G-7/2007 dt. 24.07.2008 (2008-2011)]. Amount: INR 7,01,500/- [Completed].

• Research Project entitled "*Studies on naturally occurring flavonoids*" sponsored by UGC, New Delhi, No. F.31-152/2005(SR) dt. 31.03.2006 (period 01.05.2006 – 30.04.2008) Amount: INR 55,000/- [Completed].

## **II) Ongoing Major Research Projects:**

- Research Project entitled "*Electrosynthesis of functionalized heterocycles via C-H functionalization*" sponsored by Science and Engineering Research Board (SERB), Department of Science and Technology (DST), New Delhi, No. No. CRG/2022/000275 dated 08.12.2022 (2012-2025); Amount: INR 50 Lakh.
- Research Project entitled "electrochemical synthesis of functionalized heterocycles of biological relevance" sponsored by CSIR, New Delhi, No. No. 02/0464/23/EMR-II dated 07.07.2023 (2023-2026) Amount: INR 30 Lakh.

## **13.** Academic career and professional attainments:

#### (a) Academic career

Degree	Institution	Year	Remarks
Bachelors [B.Sc. (Hons.) in Chemistry]	VISVA-BHARATI	1990	First Class Second
Masters [M.Sc. in Chemistry (Organic Chemistry Specialization)]	VISVA-BHARATI	1992	First Class First
Ph.D.	VISVA-BHARATI	1997	Organic Chemistry
D.Sc.	VISVA-BHARATI	2023	Organic Chemistry

#### **(b) Professional attainments**

Positions held	Institution	From (year)	To (year)	Remarks
Full Professor of Chemistry	Chemistry Department, Visva-Bharati (a Central University), WB, India		Continuing	
Head of the Department	-do-	4.03.2020	22.12.2023	About 4 years
Associate Professor	-do-	24.08.2008	23.07.2011	
Reader (selected and joined afresh in an open post)	-do-	24.07.2005	23.07.2008	
Lecturer (Senior scale)	-do-	08.12.2002	23.07.2005	
Lecturer in Chemistry	-do-	08.12.1998	07.12.2002	

#### (c) Awards & Recognition

(23) Awarded Doctor of Science (D.Sc.) Degree in 2023 (Visva-Bharati University); (22) Research abstarcts in the prestigeous **Organic Chemistry** Portal (https://www.organicchemistry.org/abstracts/lit9/241.shtm; https://www.organic-chemistry.org/abstracts/lit9/738.shtm); (21) Dr. Satyajit Chakraborti Memorial Award-2025 (global contribution to chemical science) from IEM, Kolkata; (20) Dr. Basudev Banerjee Memorial Award-2021 (contributions in chemical sciences) from the Indian Chemical Society; (19) CRSI Bronze Medal Award-2021 (for his contribution to research in Chemistry) by the Chemical Research Society of India; (18) Elected Fellow, Royal Society of Chemistry (FRSC, since 2017); (17) Featured in"the World Ranking of Top 2% Scientists" in the Organic Chemistry category (both whole career and single years) - 2020-23 (published by Standford University Scientists); (16) Featured in the "AD Scientific World Ranking of Scientists" in 2022-2024; (15) Featured as the ScholarGPS Highly Ranked Scholar-2022 (Lifetime, securing a position in the top 0.05% of all scholars worldwide) (Highly Ranked Scholars ScholarGPS); (14) CAS Registry® Innovator-2020 by ACS; (13) INSA Teachers Award-2019 (by Indian National Science Academy, New Delhi); (12) Dr. Kalam Best Teaching Award-2017 (Dr. Kalam Educational Trust, Chennai); (11) Reviewer Excellence Awardee-2019 by the Journal of Chemical Sciences; (10) Publons 1% Top Reviewer Award-2018 & 2019; (9) Academic Brilliance Award-2015 (Award for Excellence in Research); (8) Elsevier Book Series Editor (Natural Product Drug Discovery); (7) Co-Editor-Chief for Current Green Chemistry; (6) Guest-Editor for: Current Organocatalysis (one thematic issue), Current Green Chemistry (three thematic issues); (5) Author/editor of 27 major research reference books published by leading publishing houses, including Elsevier, Royal Society of Chemistry, Academic Press, Wiley-VCH, CRC Press (Taylor & Francis), World Scientific, etc.; (4) Member, Editorial Advisory Board Member: Tetrahedron Green Chemistry, University Journal of Green Chemistry, Current Catalysis, Current Organocatalysis, Current Green Chemistry; Rasayan Journal of Chemistry; Journal of Biochemistry and Molecular Biology Research; Journal of Scientific Research and Advances; Iranian Chemical Communication, and others; (3) Highly cited author (2014-15) for ACS Sustainable Chemistry & Engineering; (2) Session Chairing in Seminars/Conferences and Invited Talks delivered at several national and international symposia; (1) Life-member of Scientific Organizations: Indian Chemical Society (ICS) of India (Life Member, No. 8547), Indian Science Congress Association (ISCA) (ISCA, L24650), and Chemical Research Society of India (CRSI) (CRSI, LM 1914).

#### 14. Website Pages for Public Viewing

VB Webpage: https://www.visvabharati.ac.in/GautamBrahamachari.html Departmental website: http://vbchem.ac.in/GoutamBrahamachari/ ORCID ID: http://orcid.org/0000-0001-9925-6281 Google Scholar: https://scholar.google.co.in/citations?hl=en&user=aj7NvGQAAAAJ&view\_op=list\_works Research Gate Page: https://www.researchgate.net/profile/Goutam\_Brahmachari2/publications LinkedIn page: https://in.linkedin.com/in/goutam-brahmachari-9308b662 VIDWAN: https://vidwan.inflibnet.ac.in/profile/152899 Scopus Page: https://www.scopus.com/authid/detail.uri?authorId=6603056427 Exaly Project Webpage: https://exaly.com/author/2358812/g-brahmachari/rankings Web of Science: https://www.webofscience.com/wos/author/record/736637

## **15. Citation Indices**

Citations: 7241; h-index: 43; i10-index: 137 (as accessed on 25.04.2025 as per Google Scholar;

https://scholar.google.co.in/citations?user=aj7NvGQAAAAJ&hl=en

#### **16. Editorship of Book Series**

Elsevier Series Editor – Book Series 'Natural Product Drug Discovery' (<u>https://www.elsevier.com/catalog/all/all/all/natural-product-drug-discovery</u>)

**17.** A list of ten (10) best research publications published in recent times (Please note: All the works were planned, designed and performed exclusively working in India)

No.	Paper details	Remarks
1.	Debojyoti Mukherjee, Indrajit Karmakar, Goutam Brahmachari* (2025). Sono- and mechanochemical dual syntheses of bio-relevant aryldiazenyl- substituted phosphine oxides/phosphonates via P(O)- H functionalisation. <i>Green Chemistry</i> , <b>27</b> , 2565- 2577.	Conceptualization of the problem, design and development of the strategy, monitoring, data analyses, and writing and editing of the manuscript
2.	Debojyoti Mukherjee, Indrajit Karmakar, <b>Goutam</b> <b>Brahmachari</b> * (2024). Electro- and mechanochemical strategy as a dual synthetic approach for biologically relevant 3-nitro-imidazo- [1,2- <i>a</i> ]pyridines. <i>The Journal of Organic</i> <i>Chemistry</i> , <b>89</b> , 12071-12084.	Conceptualization of the problem, design and development of the strategy, monitoring, data analyses, and writing and editing of the manuscript
3.	Indrajit Karmakar, <b>Goutam Brahmachari</b> * (2024). Electro-rearranged di-functionalization of 4-hydroxy-α-benzopyrones. <i>The Journal of Organic</i> <i>Chemistry</i> , <b>89</b> , 10524-10537.	Conceptualization of the problem, design and development of the strategy, monitoring, data analyses, and writing and editing of the manuscript
4.	Anindita Bhowmick, <b>Goutam Brahmachari</b> * (2023). C(sp)–C(sp3) Bond formation through ligand- and additive-free CuO-mediated decarboxylative direct cross-coupling of coumarin- /chromone-3-carboxylic acids and terminal alkynes. <i>Organic Letters</i> , <b>25</b> , 7095-7099.	Conceptualization of the problem, design and development of the strategy, monitoring, data analyses, and writing and editing of the manuscript
5.	Pintu Karmakar, Indrajit Karmakar, Debojyoti Mukherjee, Anindita Bhowmick, <b>Goutam</b> <b>Brahmachari*</b> (2023). Mechanochemical solvent- free one-pot synthesis of poly-functionalized 5- (arylselanyl)-1 <i>H</i> -1,2,3-triazoles through a copper(I)- catalyzed click reaction. <i>Chemistry – a European</i> <i>Journal</i> , <b>29</b> , e202302539.	Conceptualization of the problem, design and development of the strategy, monitoring, data analyses, and writing and editing of the manuscript
6.	Indrajit Karmakar and <b>Goutam Brahmachari</b> * (2022), Electrochemical and mechanochemical synthesis of dihydrofuro[3,2- <i>c</i> ]chromenones via	Conceptualization of the problem, design and development of the strategy, monitoring, data analyses,

	intramolecular C <sub>sp3</sub> –H cross-dehydrogenative	and writing and editing of the
	oxygenation within warfarin frameworks: an	manuscript
	efficient and straightforward dual approach. Green	
	Chemistry, 24, 2825-2838.	
	(Selected as a 2022 HOT Green Chemistry	
	Article)	
7.	Mullicka Mandal and Goutam Brahmachari*	Conceptualization of the problem,
	(2022), Visible light-promoted intramolecular C-O	design and development of the
	bond formation via Csp3-H functionalization: a	strategy, monitoring, data analyses,
	straightforward synthetic route to biorelevant	and writing and editing of the
	dihydrofuro[3,2-c]chromenone derivatives. The	manuscript
	Journal of Organic Chemistry, 87, 4777-4787.	
8.	Goutam Brahmachari*, Indrajit Karmakar and Pintu	Conceptualization of the problem,
	Karmakar (2021), Catalyst- and solvent-free	design and development of the strategy,
	Csp2-H functionalization of 4-hydroxycoumarins	monitoring, data analyses, and writing
	via C-3 dehydrogenative aza-coupling under ball-	and editing of the manuscript
	milling. Green Chemistry, 23, 4762-4770.	
9.	Goutam Brahmachari* (2020). Catalyst- and	Single-authored
	additive-free decarboxylative C-4 phosphorylation	
	of coumarin-3-carboxylic acids at ambient	
	conditions. Advanced Synthesis & Catalysis, 362,	
	5411-5421.	
10.	Goutam Brahmachari*, Nayana Nayek, Indrajit	
	Karmakar, Khondekar Nurjamal, Swapan K.	design and development of the
	Chandra, Anindita Bhowmick (2020). Series of	strategy, monitoring, data analyses,
	functionalized 5-(2-arylimidazo[1,2- <i>a</i> ]pyridin-3-	and writing and editing of the
	yl)pyrimidine-2,4(1 <i>H</i> ,3 <i>H</i> )-diones: a water-mediated	manuscript
	three-component catalyst-free protocol revisited. <i>The</i>	
	Journal of Organic Chemistry, 85, 8405-8414.	

# **18. Detailed List of Publications**

# Publication Summary at a glance

Total publications: 285 (as of 25.04.2025)	
Original Research Articles: <b>164</b> Accounts/Featured articles: <b>03</b> Scientific Reviews: <b>27</b> Educational/popular articles/reports: <b>03</b> Editorials in guest-edited journal issues: <b>04</b> Invited Book Chapters in edited volumes: <b>56</b> Books: <b>28</b>	<b>Others</b> Conference Proceedings: 160 Invited Talks: About 60

## 18 a) Invited Accounts/Featured articles:

- 3. Goutam Brahmachari\* (2024). Practice of green chemistry strategies in synthetic organic chemistry: a glimpse of our sincere efforts in green chemistry research. *Chemical Communications*, 60, 8153-8169. doi: 10.1039/D4CC02249A (*Invited Feature Article*)
- 2. Goutam Brahmachari\* (2024). Photo- and electrochemical organic transformations involving radical pathway: a retrospection of our green chemistry-inspired synthetic endeavors. *Synlett*, **35**, 2273-2288. doi: 10.1055/s-0043-1775382 (*Invited Personal Account*)
- Goutam Brahmachari\* (2016). Designing of organic transformations at ambient conditions: our sincere efforts to the cause of green chemistry practice. *Chemical Record*, 16, 98-123. doi: 10.1002/tcr.201500229 (*Invited Personal Account*)

### **18 b)** Original Research Papers Published

- 164. Pintu Karmakar, Atanu Diger, Goutam Brahmachari\* (2025). Mechanochemistry-Driven Synthetic Approach for Halogenated Derivatives of 2-Amino-1,4-Naphthoquinones, Indoles, Indazoles and Coumarins. Green Chemistry, 27, 2565-2577. Asian Journal of Organic Chemistry, e-first article, <u>https://doi.org/10.1002/ajoc.202500428</u>
- 163. Debojyoti Mukherjee, Indrajit Karmakar, **Goutam Brahmachari**\* (2025). Sono- and mechanochemical dual syntheses of bio-relevant aryldiazenyl-substituted phosphine oxides/phosphonates via P(O)-H functionalisation. *Green Chemistry*, **27**, 2565-2577.
- 163. Anindita Bhowmick, Goutam Brahmachari\* (2025). Iron(III) triflate-assisted skeletal rearrangement of warfarin framework: A direct synthetic route to a diverse series of biorelevant flavone-coumarin molecular hybrids. *Asian Journal of Organic Chemistry*, 14, e202400676.
- 161. Goutam Brahmachari,\* Sasadhar Majhi, Sohini Chatterjee, Bhagirath Mandal, Narayan Chandra Mandal, and Suchandra Chatterjee (2025). Chemical composition and biological activities of natural essential oil extracted from flowers of *Cassia sophera* Linn. *Current Indian Science*, **3**, e2210299X338639.
- 160. T. Yadav\*, I. Karmakar, A. K. Vishwkarma, E. Shakerzadeh, Goutam Brahmachari\*, Pramod K. Singh, N. Masmali, S. N. F. Yusuf (2025). The impact of bromine substitution on molecular structure and spectroscopic properties of (*E*)-3-(2-phenylhydrazineylidene) chromane-2,4-dione. *Journal of the Indian Chemical Society*, **102**, 101531.
- 159. Debojyoti Mukherjee, Indrajit Karmakar, **Goutam Brahmachari**\* (2024). Electro- and mechanochemical strategy as a dual synthetic approach for biologically relevant 3-nitroimidazo-[1,2-*a*]pyridines. *The Journal of Organic Chemistry*, **89**, 12071-12084.
- 158. Indrajit Karmakar, **Goutam Brahmachari**\* (2024). Electro-rearranged di-functionalization of 4-hydroxy-α-benzopyrones. *The Journal of Organic Chemistry*, **89**, 10524-10537.

- 157. Goutam Brahmachari,\* Indrajit Karmakar, Mullicka Mandal, Bhagirath Mandal (2024). Ultrasound-assisted catalyst-free Knoevenagel condensation of carbonyl compounds with C – H acids in water. *Current Green Chemistry*, 11, 210-220.
- 156. Pintu Karmakar, Indrajit Karmakar, Debojyoti Mukherjee, Anindita Bhowmick, Goutam Brahmachari\* (2023). Mechanochemical solvent-free one-pot synthesis of poly-functionalized 5-(arylselanyl)-1*H*-1,2,3-triazoles through a copper(I)-catalyzed click reaction. *Chemistry a European Journal*, 29, e202302539.
- 155. Anindita Bhowmick, **Goutam Brahmachari**\* (2023). C(sp)–C(sp3) Bond formation through ligand- and additive-free CuO-mediated decarboxylative direct cross-coupling of coumarin-/chromone-3-carboxylic acids and terminal alkynes. *Organic Letters*, **25**, 7095-7099.
- 154. A. K. Vishwkarma, T. Yadav,\* E. Shakerzadeh, I. Karmakar, Goutam Brahmachari,\* A. Kumar, P. K. Singh, M. Srivastava, A. Pathak (2023). Structural and vibrational spectroscopic signature of a bio-relevant molecule: (*E*)-3-(2-(4-methoxyphenyl)hydrazineylidene)chromane-2, 4-dione. *Computational and Theoretical Chemistry*, 1229, 114306.
- 153. S. Dutta, S. Mahalanobish, S. Saha, M. Mandal, S. Begam, P. Sadhukhan, S. Ghosh, Goutam Brahmachari, P. C. Sil (2023). Biological evaluation of the novel 3,3'-((4-nitrophenyl)methylene)bis(4-hydroxy-2*H*-chromen-2-one) derivative as potential anticancer agents via the selective induction of reactive oxygen species-mediated apoptosis. *Cellular Signalling*, **111**, 110886.
- 152. Pintu Karmakar, Indrajit Karmakar, Debopam Pal, Suravi Das, Goutam Brahmachari\* (2023). Electrochemical regioselective C(*sp2*)–H selenylation and sulfenylation of substituted 2-amino-1,4-naphthoquinones. *The Journal of Organic Chemistry*, **88**, 1049-1060.
- 151. Anindita Bhowmick, Goutam Brahmachari\* (2023). PhI(OAc)<sub>2</sub>/I<sub>2</sub>-Mediated Decarboxylative C<sub>4</sub>-amination of coumarin-3-carboxylic acids via C sp2 –H dehydrogenative C–N cross-coupling under ambient conditions. *European Journal of Organic Chemistry*, 26, e202300192.
- 150. Nayana Nayek, **Goutam Brahmachari**\* (2023). Visible-light-mediated self-sensitized oxidative and regioselective C(sp2)–H selenylation and sulfenylation of substituted 2-amino-1,4-naphthoquinones. *European Journal of Organic Chemistry*, **26**, e202201343.
- 149. A. K. Vishwkarma, T. Yadav,\* Goutam Brahmachari,\* I. Karmakar, P. Yadav, S. Saha, C. Mahapatra, G. N. Pandey, C. S. P. Tripathi, P. K. Tripathi, V. K. Verma, A. Pathak (2023). Conformational search and spectroscopic analysis of biorelevant molecule: 5-chloro-2-hydroxy-*N*-isobutyl-3-oxo-2,3-dihydrobenzofuran-2-carboxamide. *Polycyclic Aromatic Compounds*, 43, 7474-7488.
- 148. A. K. Vishwkarma, T., Yadav, A. Pathak, Goutam Brahmachari (2023). Interaction of a synthetic bio-relevant drug-molecule with C<sub>24</sub> and B<sub>12</sub>N<sub>12</sub> fullerene: A first-principles quantum chemical investigation. *Diamond and Related Materials*, **132**, 109639.

- 147. T. Yadav,\* A. K., Vishwkarma, M., Mandal, I., Karmakar, Pathak, A., Goutam Brahmachari,\* P. K. Tripathi, A. K., Maddheshiya, N. P. Yadav, C. Mahapatra (2023). Molecular modeling, vibrational dynamics and NBO analysis of a synthetic bio-relevant warfarin analog. *Journal of Molecular Structure*, **1284**, 135347.
- 146. Ambrish Kumar Srivastava, Abhishek Kumar, Harshita Srivastava, Saurabh Pandey, Narendra Kumar, Goutam Brahmachari, Neeraj, Misra (2023). Molecular dynamics and quantum chemical studies on piperine, a naturally occurring alkaloid. SSRN Electronic Journal, doi: 10.2139/ssrn.4377414
- 145. Varun Sharma, Anindita Bhowmick, Indrajit Karmakar, Goutam Brahmachari, Vivek Kumar Gupta (2023). Synthesis, characterization, Hirshfeld surface analysis and molecular docking studies of 3-(cyclohexylthio)-4-hydroxy-6-methyl-2*H*-chromen-2-one, *Molecular Crystals and Liquid Crystals*, 757:1, 62-77.
- 144. Varun Sharma, Anindita Bhowmick, Indrajit Karmakar, Goutam Brahmachari, Vivek Kumar Gupta (2023). Crystallographic structure, quantum and in silico interaction analysis of 3-(benzylthio)-4-hydroxy-2H-chromen-2-one, *Molecular Crystals and Liquid Crystals*, 757:1, 1-18.
- 143. **Goutam Brahmachari**,\* Anindita Bhowmick, Indrajit Karmakar (2022). Catalyst- and additive-free C(sp3)–H functionalization of (thio)barbituric acids via C-5 dehydrogenative aza-coupling under ambient conditions. *ACS Omega*, **7**, 30051-30063.
- 142. Nayana Nayek, Pintu Karmakar, Mullicka Mandal, Indrajit Karmakar, Goutam Brahmachari\* (2022), Photochemical and electrochemical regioselective cross-dehydrogenative C(sp2)-H sulfenylation and selenylation of substituted benzo[a]phenazin-5-ols. *New Journal of Chemistry*, 46, 13483-13497.
- 141. Piyanki Das, Goutam Brahmachari, Koustav Chatterjee, Tathagata Choudhuri (2022). Synthetic antioxidants from a natural source can overtake the oncogenic stress management system and activate the stress-sensitized death of KSHV-infected cancer cells. *International Journal of Molecular Medicine*, **50**:117.
- 140. Abhishek Kumar Das, Uday Hossain, Sumit Ghosh, Sima Biswas, Mullicka Mandal, Bhagirath Mandal, Goutam Brahmachari, Angshuman Bagchi, Parames C. Sil (2022). Amelioration of oxidative stress-mediated inflammation and apoptosis in pancreatic islets by Lupeol in STZ-induced hyperglycaemic mice. *Life Sciences*, 305, 120769.
- 139. T. Yadav,\* Goutam Brahmachari,\* I. Karmakar, S. Saha, J. Chowdhury, A. Pathak, R. Kumar, R. Sharma, R. R. F. Bento, N.P. Yadav (2022). Spectroscopic investigation of electron-releasing functional groups substituted *N*-iso-butyl, *S*-2-nitro-1-phenylethyl dithiocarbamate a DFT approach. *Polycyclic Aromatic Compounds*, 42, 6917-6931.
- 138. T. Yadav\*, A. K. Vishwkarma, Goutam Brahmachari\*, Indrajit Karmakar, P. Yadav, S. Kumar, C. Mahapatra, J. Chowdhury, R. Kumar, G. N. Pandey, P. K. Tripathi, A. Pathak (2022), Structural confirmation and spectroscopic signature of *N*-Allyl-2-hydroxy-5-methyl-

3-oxo-2,3-dihydrobenzofuran-2-carboxamide and its monohydrate cluster. *Journal of Molecular Structure*, **1267**:133566.

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## 18 g) Books (authored and edited)

## (I) Single-authored books

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6	<text><text><text><text><text><text></text></text></text></text></text></text>	Catalyst-Free Organic Synthesis (under Green Chemistry Series; Book No. 51), The Royal Society of Chemistry, Cambridge, London, November 2017, ISBN: 978-1- 78262-412-7. Book review: "This book Catalyst-free organic synthesis, by Goutam Brahmachari, is very comprehensive, and has exhibited the state-of-the- art technology in green chemistry. This book is a great piece of technical literature and unique in regards to being about "Catalyst-free" as there are many books on "catalyst-based organic synthesis". The book provides a broad overview of state- of-the-art catalyst-free reactions in organic synthesis. It is strongly recommended for chemical researchers as well as for interested teachers and students, especially those who are involved in catalysis' ( <i>Green Process and Synthesis</i> , 2018, 7, 180, <u>https://doi.org/10.1515/gps-2017-0184</u> ) reviewed by Prof. Can Jin: Zhejiang University of Technology, Hangzhou 310014, P.R. China; and Department of Chemical Engineering and Chemistry, Eindhoven University of Technology, 5612 AP Eindhoven, The Netherlands.
5		<b>Room Temperature Organic Synthesis</b> ( <i>with a foreword by Prof. Paul Anastas</i> ), Elsevier, Amsterdam, The Netherlands, March 2015; ISBN: 9780128010259.

4	<text><text><text><text><text></text></text></text></text></text>	Handbook of Pharmaceutical Natural Products - Vol. 1 (Hardcover), 1 <sup>st</sup> Edition, 2010. XX, 926 Pages, ISBN-10: 3-527- 32148-9; ISBN-13: 978-3-527-32148-3. Publisher: Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim, Germany.
3		<ul> <li>Handbook of Pharmaceutical Natural Products - Vol. 2 (Hardcover), 1<sup>st</sup> Edition, 2010. XX, 926 Pages, ISBN-10: 3-527-32148-9; ISBN-13: 978-3-527-32148-3. Publisher: Wiley-VCH Verlag GmbH &amp; Co. KGaA, Weinheim, Germany.</li> <li>Book Revew-1. "the author has succeeded in compiling an impressive and highly informative reference text on many pharmaceutically relevant natural products. I would recommend this book to everyone involved in research with biologically active natural products as a convenient and practical source of high quality information" (<i>ChemMedChem</i>, 2010, 5, 10, 1788-1789) reviewed by Prof. Dr. Karl-Heinz Altmann, ETH Zrich (Switzerland).</li> <li>Book Review-2. " a useful addition to the bookshelf of every natural material specialist" – <i>Pharmazie in unserer Zeit</i>, 2010, 39(5), 415 (review in Germany).</li> <li>Book Review-3. "This book is clearly for specialists, the natural product chemist and the pharmaceutical chemist I do not know whether Goutam Brahmachari intends a revised edition in the future but I am sure there will be an ongoing demand for a book like this" (<i>Reference Reviews</i>, 2011, 25, 3, 42-43) by John Goodier, Consultant, Goldhawk Information, London, UK. Visit: http://www.wiley-vch.de/publish/en/books/ISBN3-527-32148-9/</li> </ul>

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# (II) Edited Books

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18	<section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header>	Biotechnology of Microbial Enzymes:Production, Biocatalysis and IndustrialApplications, 2nd Edition, AcademicPress, London, Elsevier, 2023,ISBN: 9780443190599

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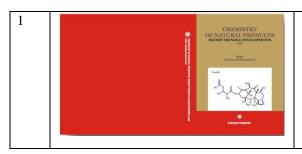
**Discovery and Development of Neuroprotective Agents from Natural Products (Natural Product Drug Discovery Series – Vol. 2)** (*with a foreword by* Dr. Volkan Kisakürek, Zürich, Switzerland), Elsevier, 2017. ISBN: 9780128095935 (June, 2017)

Book Review 1. (E. A. Abourashed, Journal of Natural Products, 2018, 81, 1917-1918) "....As health care providers continue to seek new and effective approaches for managing neurodegenerative diseases. Discovery and Development of Neuroprotective Agents from Natural Products attempts to narrow the drug discovery gap through its current and comprehensive coverage of the subject matter. The book provides a well-balanced content that spans major neurodegenerative diseases and potential therapeutic agents that may be obtained from natural sources and/or synthetic routes based on naturally occurring lead compounds.....The book should appeal to a broad audience with diverse backgrounds including chemistry, biology, pharmacy, and medicine. It can also be a valuable resource for researchers, academicians, and graduate students. In addition to enjoying the book's content, its readers will probably be able to identify viable research directions for the discovery and development of new and promising neuroprotective agents." Prof. Ehab A. Abourashed, Medical College of Wisconsin School of Pharmacy, Milwaukee, Wisconsin, United States.

Book Review 2. (S. Chandrasekhar, Current Science, 2018, 115, 2164-2165) "This book discusses about recent developments in the area of neuroprotective natural products with respect to their isolation, characterization, and their pharmaceutical applications in the area of neurodegenerative diseases.....Overall the book gives a detailed insight into natural products as neuroprotective agents and is recommended for colleges/institutions and industries working in the areas of natural products isolation and/or in the exploration of compounds for their activity on the central nervous system." Prof. Srivari Chandrasekhar, CSIR-Indian Institute of Chemical Technology, Hyderabad, India.

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10	<text><text><text><text><text><text><text><text><text><text><text><text><text></text></text></text></text></text></text></text></text></text></text></text></text></text>	Neuroprotective Natural Products: Clinical Aspects and Mode of Action, Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim, Germany, 2017 (ISBN: 978- 3527341863).
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7	<page-header><page-header><text><text><text><text><text><text><text><text></text></text></text></text></text></text></text></text></page-header></page-header>	<b>Bioactive Natural Products: Chemistry</b> & Biology (with a foreword by Prof. Bimal K Banik), Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim, Germany, 2015 (ISBN: 9783527337941).

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5	<text><text><text><text><text><text><text><text><text></text></text></text></text></text></text></text></text></text>	ChemistryandPharmacologyofNaturallyOccurringBioactiveCompounds,(with a foreword by Prof.RaphaelMechoulamandProf.Okuda),CRCPress/TaylorFrancisGroup,LLC,USA,2013 (ISBN: 978-1-4398-9167-4).
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3	<section-header></section-header>	BioactiveNaturalProducts:OpportunitiesandChallengesinMedicinalChemistry, (with a forewordby Dr. David J. Newman), World ScientificPublishingCo., Singapore, 2011 (ISBN:978-981-4335-37-9).
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**Chemistry of Natural Products: Recent Trends and Developments**, (*with a foreword by Dr. Manksukh C. Wani*), Research Signpost, Trivandrum, Kerala, India 2006 (ISBN: 81-308-0140-X).

#### 19. Scientific Contributions of Professor Goutam Brahmachari

#### (a) In Brief (50 words)

Professor Goutam Brahmachari has made a significant contribution to synthetic organic chemistry, particularly in developing effective and practical methodologies for carbon-carbon and carbonheteroatom bond formation in constructing medicinally important heterocyclic scaffolds using C-H functionalization, cascade and cross-coupling approaches. In addition, Professor Brahmachari also made outstanding contributions to the chemistry of natural products.

#### (b) Scientific contribution (200 words)

In his longstanding professional and scientific career (more than 26 years), Professor Goutam Brahmachari has demonstrated original and significant research contributions in organic chemistry. His main research activities include the development of new synthetic methodologies, green chemistry, and natural product chemistry. Brahmachari's group contributed significantly to developing effective and practical synthetic methods for carbon-carbon and carbon-heteroatom bond formation in constructing medicinally important heterocyclic scaffolds using C-H functionalization, cascade and cross-coupling approaches. In addition, Prof. Brahmachari also made outstanding contributions to natural product chemistry by unearthing the chemical profiles of several traditionally used Indian medicinal plants, studying their chemistry and biology, and thus presenting novel phytochemicals of interest. He has published 164 original research papers and 37 review/feature articles and supervised 20 Ph.D. students so far. Besides his original research, Prof. Brahmachari has contributed much by authoring and editing many highly acclaimed reference books (28) and book chapters (56) in the relevant areas. He serves the community truly.

In recognition of his academic and scientific contributions (with current citations 7241, *h*-index 43, and *i*-10: 137), Prof. Brahmachari has been conferred with several awards and accolades, including being elected Fellow of the Royal Society of Chemistry (2017), Dr. Satyajit Chakraborti Memorial Award-2025 (global contribution to chemical science) from IEM, Kolkata, CRSI Bronze Medal-2021, Dr. Basudev Banerjee Memorial Award-2021, INSA Teachers Award-2019, and Founder Series Editorship of Elsevier Book Series, '*Natural Products Drug Discovery*'. Prof. Brahmachari has also been featured in the World Ranking of the Top 2% Scientists in 2020-24, AD Scientific World Ranking of Scientists-2022-2024, as the ScholarGPS Highly Ranked (in the top 0.05%) Scholar-2022-2024.

#### (c) Scientific contribution in extended form

During more than twenty-six years of his professional and scientific career in a well-regarded Central University in India, Professor Goutam Brahmachari, *PhD, DSc., FRSC*, has executed commendable scientific endeavours with utmost sincerity in Chemical Sciences. Beyond serving the role of a university teacher in training and motivating thousands of his undergraduate and postgraduate students during this longstanding tenure to helping them to become successful

human resources of our great nation in their fields (as teachers, chemists, scientists and molecular inventors), he has also been contributing in the domain of scientific knowledge concerned by dint of undertaking dedicated research programmes supported by the leading funding bodies in India, such as UGC, CSIR, SERB-DST and DBT. His main research contributions address the broad field of organic chemistry, categorized into two distinct sections: Synthetic Organic Chemistry, focusing on Green and Sustainable Chemistry, and *Natural Product Chemistry*. Brahmachari's primary research interests include (i) Synthetic organic chemistry, (ii) the Practice of green and sustainable chemistry, (iii) Bioactive natural products from traditionally used medicinal plants, (iv) Semi-synthetic studies with natural products, and (v) Evaluation of biological activities and pharmacological potential of natural and synthetic compounds.

Brahmachari's group contributed significantly to developing effective and practical synthetic methods for carbon-carbon and carbon-heteroatom bond formation in constructing medicinally important heterocyclic scaffolds using C-H functionalization, cascade and cross-coupling approaches. As part of his ongoing research in this domain, he has developed a legacy in practising green and sustainable chemistry by designing several distinct and innovative green protocols for many new series of bio-relevant heterocyclic scaffolds based on his views 'Benign by Design'. His dedicated endeavour to the green and sustainable chemistry research programme focuses on energy-efficiency issues besides other usual greener aspects in designing relatively ecofriendly synthetic protocols for functional organic molecules. Using conventional energy sources (fossil fuels) is one of the major causes of environmental pollution, with all kinds of subsequent outcomes, including rapid depletion of traditional energy sources. In resonance with this view, his dedicated research programme aims to attain energy efficiency in performing a chemical reaction by carefully screening reaction conditions capable of carrying out a particular transformation at ambient conditions. Besides, designing catalyst-free synthetic processes is a somewhat challenging concept toward a safe, cost-effective, waste-free, simple, and sustainable environment! His research group has published a significant amount of research in designing room temperature-based and/or catalyst-free synthetic methods for biologically relevant organic scaffolds (satisfying recent trends in molecular hybridizations) without cooling and/or heating to make good use of Nature's spontaneous energy source to find out an effective way-out toward the steps in protecting our environment and its sustainability from the perspective of a chemical inventor. In addition, he and his team explored the practical applications of several green energy tools, such as ball-milling, ultrasound irradiation, visible light (including abundant sunlight) and electrosynthesis in developing new synthetic methodologies and their intriguing chemistry.

As a natural product chemist, he has unearthed chemical profiles of several traditionally used Indian medicinal plants, studied their chemistry and biology, and thus presented novel naturally occurring leads and their derivatives for their further exploration in the field of ongoing research in drug discovery and development by the organic, medicinal and pharmaceutical chemists working globally in this remarkable area of prime interest. Besides his dedicated research in this remarkable field, he has also been contributing to this goal by serving as the founder series editor of the Elsevier book series, '*Natural Product Drug Discovery*'. In addition, he has also contributed to the theoretical/computational exploration of many of these novel natural and synthetic molecules and their X-ray crystallographic behaviour.

All such credentials are reflected in his 285 scientific publications, including original research papers (164), review/feature articles (37), books (28) and invited book chapters (56) in edited

volumes in the field of organic synthesis and natural products, published from internationally reputed presses, including ACS, RSC, Elsevier, Wiley, Springer, Taylor & Francis, CSIR, and others. Dr. Brahmachari serves in several international journals as an editorial advisory board member and co-editor-in-chief for *Current Green Chemistry*. He guest-edited a couples of internationally reputed journal special issues as well. He has been contributing regularly (focusing on green advances in the field since its 45<sup>th</sup> volume) to the RSC's SPR on Organophosphorus Chemistry – one of the most prestigious book series. In addition, he serves the scientific community professionally in many other ways; he also serves CRSI, IACS and ISCA as a life member and RSC as its Fellow. Dr. Brahmachari delivered invited/plenary/keynote lectures in several national and international seminars/conferences/workshops to motivate the next generation of chemists.

In addition to his original research contributions, Dr. Brahmachari is also deeply involved in authoring and editing major reference books with a motto to boost ongoing global research and contribute to knowledge in the existing domain. Such major reference works would guide and help advanced students and young researchers in the field. As mentioned in the publication list, Dr. Brahmachari has already produced quite a large number of such books (major references; authored and edited; 28 so far), which have been published by internationally reputed publishing houses, such as Academic Press, Elsevier, Wiley-VCH, CRC Press/Taylor & Francis, World Scientific, Alpha Science International, and the Royal Society of Chemistry. These books received forewords from internationally distinguished scientists, and many of these publications were also reviewed in reputed journals by eminent scholars. In the recent past, Dr. Brahmachari authored three landmarking books – 'Visible Light-Driven Organic Synthesis (ISBN: 9780323958936)' (2024) and 'Room Temperature Organic Synthesis (ISBN: 9780128010259)' (2015) from Elsevier, and 'Catalyst-free Organic Synthesis (ISBN: 978-1-78262-412-7) (2018) from RSC under their Green Chemistry Series) for the first time of their kinds in the global scientific platform, and a twovolume set edited book 'Green Synthetic Approaches for Biologically Relevant Heterocycles – Vol. 1 & 2 (ISBN: 978-0-12-820586-0 & ISBN: 978-0-12-820792-5)' (2021) from Elsevier. Dr. Brahmachari has also produced 56 authoritative book chapters in edited volumes.

He has produced **285** independent scientific publications, including original research papers, review articles, books, and invited book chapters in synthetic organic chemistry and natural products chemistry. Twenty students completed their PhDs under Prof. Brahmachari's supervision. *His current h-index is 43, i-10 is 137, and total citations are 7241* [as on 25.04.2025; https://scholar.google.co.in/citations?user=aj7NvGQAAAAJ&hl=en]. In recognition of his academic and scientific contributions, Prof. Brahmachari has been conferred with several awards and accolades, including elected Fellow of the Royal Society of Chemistry, Dr. Satyajit Chakraborti Memorial Award-2025 (global contribution to chemical science) from IEM, Kolkata, CRSI Bronze Medal-2021, Dr. Basudev Banerjee Memorial Award-2021 (Contribution in chemical sciences) from the Indian Chemical Society, INSA Teachers Award-2019, Founder Series Editorship of Elsevier Book Series, '*Natural Product Drug Discovery*'. Prof. Brahmachari has also been featured in the World Ranking of the Top 2% Scientists (Organic Chemistry Category) in 2020-24 (both in whole career and single years), in the AD Scientific World Ranking of Scientists-2022-2024, as the ScholarGPS Highly Ranked Scholar-2022-2024 (Lifetime, securing a position in the top 0.05% ao all scholars worldwide).