Dr. Ratan Wamanrao Jadhav

Department of Chemistry and Analytical Chemistry,

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https://scholar.google.com/citations?user=hew6P2EAAAAJ&hl=en&oi=ao

Career Objective

To grow both professionally and personally through continuous upgradation of knowledge in the field of Chemistry. I am motivated to pursue research in modern interdisciplinary and multidisciplinary fields, especially the design and synthesis of small organic materials for supramolecular self-assembly (non-equilibrium), and their applications in catalysis, energy, and environmental applications. Additionally, I pursue my best abilities and impart leadership to my juniors.

Academic Details

June 2025-Present	**Assistant Professor,** (CHB) at Rajarshi Shahu Mahavidyalaya (Autonomous), Latur, Maharashtra - 413512
April 2024 – April 2025	**Post-Doctoral Research Associate** **Project**: Sustained autonomy in out-of-equilibrium supramolecular materials **Advisor:** Dr. Dibyendu Das, Associate Professor, Department of Chemical Sciences, IISER Kolkata-741246, India.
Nov 2018 - Nov 2023	**Ph.D. in *Organic Supramolecular Chemistry*** **Thesis Title:** Functionalization of Aminoglycoside Antibiotics: Synthesis, Self-assemblies, and Sensing Applications. **Advisor:** Prof. Sheshanath V. Bhosale, UGC-FRP Professor, School of Chemical Sciences, Goa University, Taleigao Plateau, Goa-403206, India.

NET	**Qualified** National Eligibility Test for Junior Research Fellow (**NET-JRF**) conducted by Council of Scientific and Industrial Research (CSIR) in **December 2017** with AIR-51 & in **June 2018** with AIR 60.
SET	**Qualified** Maharashtra State Eligibility Test for Assistant Professor (**MH-SET**) conducted by Savitribai Phule Pune University in January 2018.
GATE	**Qualified** Graduate Aptitude Test in Engineering (**GATE**) in Chemical Sciences in February 2018.
June 2015 - Apr 2017	**M.Sc. *(Organic Chemistry),*** Rajarshi Shahu Mahavidyalaya, Latur (Autonomous). **(85.91%)**
June 2012 - Apr 2015	**B.Sc. *(Chemistry, Microbiology, and Environmental Science)***, Maharashtra Udayagiri Mahavidyalaya, Udgir. (**83.16%)**
June 2012	**HSC,** Latur Board **(First Class, 70.17%)**
June 2010	**SSC**, Latur Board **(First Class with distinction, 81.45%)**

Research Interest

- Host-Guest Chemistry
- Non-Equilibrium Assembly
- Functional Organic Materials

Research Skills

- Design and execution of organic reactions. Expertise in multi-step synthesis and column chromatography of organic compounds, recrystallization purification techniques, and handling air and moisture-sensitive compounds.
- Experience using hazardous chemicals like n-BuLi, $TiCl_4$, LAH, $NaBH_4$, $SOCl_2$, Pd-C, and NaH, and handling sensitive reagents and palladium catalysts for coupling reactions.
- Familiar with conventional spectroscopic and analytical techniques such as HPLC, UV-Visible, Fluorescence Spectrophotometer, NMR, HRMS, FT-IR, XPS.
- Expertise in operating and morphological analysis of data from Confocal Microscopy, Scanning Electron Microscopy, and TEM.
- Expertise in Origin 8.5 pro software, including linear and non-linear curve fitting, MS Office, ChemDraw, and Bruker's Topspin.
- Experience in data interpretation and manuscript writing according to journal requirements.

- Capable of performing both independent and collaborative work.

Publications

Important note: Each publication has been marked as follows:

* = Corresponding author; † = First author; No mark = Co-author

S. No.	Title	Authors	Publication detail	Citations	Impact factor
27*	Emerging Trends in Carbon Dots as Next Generation Biomaterials	P. P. Khobrekar; **R. W. Jadhav***; R. A. Kunkalkar; S. T. Bugde.	*ACS Appl. Bio Mater.* 2025, 8, 6722–6744. https://doi.org/10.1021/acsabm.5c01128.	-	4.7
26*	Citric acid functionalized neomycin carbon dots for cytotoxicity and sensing application	P. P. Khobrekar; G. A. Zalmi; A. P. Raiturker; **R. W. Jadhav*;** A. Ganguly; A. D'Costa; S. T. Bugde; S. V. Bhosale.	*J. Mol. Struct.* **2025**, *1323*, 140769. https://doi.org/10.1016/j.molstruc.2024.140769.	8	4.7
25†	Self-Assembled Kanamycin Antibiotic-Inorganic Microflower and their Application as a Photocatalyst for the Removal of Organic Dyes	**R. W. Jadhav**; D. D. La; V. G. More; Vo, H. Tung; D. A. Nguyen; D. L. Tran; S. V. Bhosale.	*Sci. Rep.* **2020**, *10*, 154. https://doi.org/10.1038/s41598-019-57044-z	25	4.379
24†	The First Connection of Carbonyl-Bridged Triarylamine and Diketopyrrolopyrrole Functionalities to Generate a Three-Dimensional, Non-Fullerene Electron Acceptor	**R. W. Jadhav**; R. V. Hangarge; M. D. Aljabri; K. S. More; J. Y. Chen; L. A. Jones; R. A. Evans; J. L. Li; S. V. Bhosale; A. Gupta.	*Mater. Chem. Front.* **2020**, *4*, 2176–2183. https://doi.org/10.1039/D0QM00041H	11	6.4
23†	The Controllable Nanostructure and Photocatalytic Behaviour of 5,10,15,20-Tetra-(3,4,5 Trimethoxyphenyl)Porphyrin through Solvophobic Supramolecular Self-Assembly	**R. W. Jadhav**; D. D. La; T. N. Truong; S. V. Khalap; D. V. Quang; S. V. Bhosale.	*New J. Chem.* **2021**, *44*, 18442–18448. https://doi.org/10.1039/D0NJ03355C	8	3.591
22†	Aminoglycoside Antibiotic Kanamycin Functionalized Tetraphenylethylene	**R. W. Jadhav**; S. M. Wagalgave; B.V.	*Sci. Rep.* **2022**, *12*, 11526.	6	4.379

	Molecular Probe for Highly Selective Detection of Bovine Serum Albumin Protein	Kumbhar; S. V. Bhosale; S. V. Bhosale.	https://doi.org/10.1038/s41598-022-15890-4		
21†	Nanoarchitectonics of Neomycin-Derived Fluorescent Carbon Dots for Selective Detection of Fe^{3+} Ion	**R. W. Jadhav;** P. P. Khobrekar; S. T. Bugde; S. V. Bhosale.	*Anal. Methods* **2022**, *14*, 3289-3298. https://doi.org/10.1039/D2AY01040B	28	3.532
20†	Supramolecular Nanoarchitectonics with TPPS Porphyrin as a Fluorescent Probe for Detection of Aminoglycoside Antibiotics and Their Photocatalytic Applications for the Degradation of Rhodamine B Dye	**R. W. Jadhav**; D. D. La; C. Q. Nguyen; S. V. Bhosale.	*J. Photochem. Photobiol. A Chem.* **2023**, *437*, 114436. https://doi.org/10.1016/j.jphotochem.2022.114436	9	4.7
19†	The Supramolecular Self-Assembly of Aminoglycoside Antibiotics and Their Applications	**R. W. Jadhav**; M. Al Kobaisi; L. A. Jones; A. Vinu; S. V. Bhosale.	*ChemistryOpen* **2019**, *8*, 1154–1166. https://doi.org/10.1002/open.201900193	20	2.3
18†	Mimicking the Natural World with Nanoarchitectonics for Self-Assembled Superstructures	**R. W. Jadhav;** D. N. Nadimetla; V. K. Gawade; L. A. Jones; S. V. Bhosale.	*Chem. Rec.* **2022**, *23*, e202200180. https://doi.org/10.1002/tcr.202200180	9	7.5
17	Antenna-like Ring Structures via Self-Assembly of Octaphosphonate Tetraphenyl Porphyrin with Nucleobases	M. D. Aljabri; **R. W. Jadhav**; M. Al Kobaisi; L. A. Jones; S. V. Bhosale; S. V. Bhosale.	*ACS Omega* **2019**, *4*, 11408–11413. https://doi.org/10.1021/acsomega.9b00909	9	4.3
16	Nature-Inspired Organic Semiconductor via Solvophobic Self-Assembly of Porphyrin Derivative as an Effective Photocatalyst for Degradation of Rhodamine B Dye	D. D. La; **R. W. Jadhav**; N. M. Gosavi; E. R. Rene; T. A. Nguyen; W. J. Chung; S. W. Chang; X. H. Nguyen; L. D. Tran; S. V. Bhosale.	*J. Water Process Eng.* **2021**, *40*, 101876. https://doi.org/10.1016/j.jwpe.2020.101876	22	6.7
15	Naphthalenediimide-based nanoarchitectonics for fluorescent chemosensor with highly selective and sensitive detection of cyanide ion	V. K. Gawade; **R. W. Jadhav**; V. R. Chari; R. V Hangarge; S. V. Bhosale.	*Anal. Methods*. **2023**, *15*, 3727-3734. https://doi.org/10.1039/D3AY00615H	6	3.532

14	AIE-Active 'Turn-On' Sensors for Highly Selective Detection of Bovine Serum Albumin**	V. K. Gawade; **R. W. Jadhav**; P.K. Singh; S. V. Bhosale.	*ChemistrySelect.* **2023**, *8*, e202302474. https://doi.org/10.1002/slct.202302474	3	1.9
13	Crafting carbon quantum dots from acetone: dual purpose Fe^{3+} ion and pH sensing platform	L.F.B. D'Souza; **R. W. Jadhav**; S.V. Bhosale; S. T. Bugde.	*Emergent mater.* **2024**, 1-12. https://doi.org/10.1007/s42247-024-00792-0		4.1
12	Supramolecular nanoarchitectonics of oligo(p-phenylenevinylene) for nitroaromatic detection	V.K. Gawade; **R. W. Jadhav**; P.K. Singh; A.L. Puyad; S.V. Bhosale.	*J. Mol. Struct.* **2025**, *1325*, 141042. https://doi.org/10.1016/j.molstruc.2024.141042.	2	4.7
11	Supramolecular Nanomaterials with Photocatalytic Activity Obtained via Self-Assembly of a Fluorinated Porphyrin Derivative	M. D. Aljabri; D. D. La; **R. W. Jadhav**; L. A. Jones; D. D. Nguyen; S. W. Chang; L. D. Tran; S. V. Bhosale.	*Fuel* **2019**, *254*, 115639. https://doi.org/10.1016/j.fuel.2019.115639	35	7.5
10	Aggregation-Induced Emission Characteristics and Solvent Triggered Hierarchical Self-Assembled Chiral Superstructures of Naphthalenediimide Amphiphiles	D. A. Shejul; S. M. Wagalgave; **R. W. Jadhav**; M. Al Kobaisi; D. D. La; L. A. Jones; R. S. Bhosale; S. V. Bhosale; S. V. Bhosale.	*New J. Chem.* **2020**, *44*, 1615–1623. https://doi.org/10.1039/C9NJ05137F	27	3.591
9	Hydrothermal Synthesis of Tartaric Acid Functionalized Amino Acid CQD for Sensing of Hg^{2+} and Fe^{3+} Ions in Aqueous Medium	G. A. Zalmi; P. Khobrekar; **R. W. Jadhav**; R. R. Naik; S. Sinari; S. T. Bugde; S. V. Bhosale.	*ChemistrySelect.* **2024**, *9*, 12782–12791. https://doi.org/10.1002/slct.202304825.	5	1.9
8	Porphyrin-based carbon dots as a fluorescence probe for sensing of Fe^{3+} ion and S^{2-} anion in aqueous solution	P. P. Khobrekar; V. K. Gawade; **R. W. Jadhav**; S. T. Bugde; S. V Bhosale.	*J. Dispers. Sci. Technol.* **2024**, 1–11. https://doi.org/10.1080/01932691.2024.2392171	3	2.2
7	Visible-light-induced aerobic C-3 thiocyanation of indoles using carbon dots as photoredox catalyst	P. P. Khobrekar; P. V. Shreechippa; R. R. Gawas; **R. W. Jadhav**; V. R. Chari; S.V.Bhosale; S.T.Bugde.	*Synth. Commun.* **2025**, *160*, 1–12. https://doi.org/10.1016/j.tetlet.2025.155545.		2.1

6	A New 'Off–On' System Based on Core-Substituted Naphthalene Diimide with Dimethylamine for Reversible Acid–Base Sensing	V. G. More; D. N. Nadimetla; G. A. Zalmi; V. K. Gawade; **R. W. Jadhav**; Y. D. Mane; S.V. Bhosale.	*ChemistryOpen* **2022**, *11*, e202200060. https://doi.org/10.1002/open.202200060	2	2.3
5	Light Triggered Encapsulation and Release of C60 with a Photoswitchable TPE-Based Supramolecular Tweezers	M. Samanta; A. Rananaware; D. N. Nadimetla; S. A. Rahaman; M. Saha; **R. W. Jadhav**; S. V. Bhosale; S. Bandyopadhyay.	*Sci. Rep*. **2019**, 9, 1–7. https://doi.org/10.1038/s41598-019-46242-4	13	4.379
4	Recent Advances in Aggregation-Induced Emission Active Materials for Sensing of Biologically Important Molecules and Drug Delivery System	G. A. Zalmi; **R. W. Jadhav**; H. A. Mirgane; S. V. Bhosale.	*Molecules* **2022**, *27,* 150. https://doi.org/10.3390/molecules27010150	37	4.6
3	AIE-Based & Organic Luminescent Materials: Nanoarchitectonics and Advanced Applications	V. K. Gawade; **R. W. Jadhav**; S. V. Bhosale.	*Chem. Asian J.* **2024**, *19*, e202400682. https://doi.org/10.1002/asia.202400682.	13	3.3
2	Naphthalene diimides: perspectives and promise	S. V. Bhosale; M. Al Kobaisi; **R. W. Jadhav**; P. P. Morajkar; L. A. Jones; S. George.	*Chem. Soc. Rev.* **2021**, *50*, 9845–9998. https://doi.org/10.1039/D0CS00239A	288	39.0
1	Flower-Like Superstructures: Structural Features, Applications, and Future Perspectives	S. V. Bhosale; M. Al Kobaisi, **R. W. Jadhav**; L. A. Jones.	*Chem. Rec.* **2021**, *21*, 257–283. https://doi.org/10.1002/tcr.202000129	21	7.5

Book chapter:

1. V. G. More, **R. W. Jadhav,** M. Al Kobaisi, L. A. Jones, and S. V. Bhosale. (2022). Development of a New Class of AIEgens. In Handbook of Aggregation-Induced Emission. Wiley; **2022**, p. 221–53 (eds Y. Tang and B.Z. Tang). https://doi.org/10.1002/9781119643098.ch29

Conferences

1. Participated and presented poster in the international symposium on "***Exploring New Horizons in Chemical Sciences***" (ENHCS-2019) organized by the Department of Chemistry, Deogiri College, Aurangabad, on 10th -12th January 2019.
2. Attended one day seminar on the theme "***Recent Trends in Structural Chemistry***" organized by department of chemistry, Goa University, Goa on February 16,2019.
3. Participated in National Conference on "***New Horizons in Green Chemistry and Toxicology***" organized on 2nd April, 2019 by Department of Chemistry at D.P. Bhosale College, Koregaon and presented a paper entitled ***"Kanamycin: Self-assembled into flower like superstructure in the presence of Cu^{2+}."***
4. Participated and presented a poster in two- day workshop on "***Material Science***" between University of Coimbra, University of Porto and Goa University on 18th and 19th November 2019 at School of Chemical Sciences Goa University.
5. Participated and presented poster in national conference on ***"New Frontiers in Chemistry-from Fundamentals to Applications***" Organized by Department of chemistry, BITs Goa, December 20-22, 2019.
6. Attended the National Conference (Virtual) on "***Nanomaterials for Environmental Applications***" organized by Post-graduate Department of Chemistry, P.E. S's R.S.N. College of Arts and Science, Farmagudi, Ponda-Goa on 28th & 29th December 2020.
7. Participated in the virtual ***International Conference on Porous Materials for Energy and Environment*** **(PMEE 2021)** held at Department of Chemistry, Govt. College of Arts, Science and Commerce, Khandola Goa during 12th and 13th March 2021
8. Attended the One Day International Workshop on "***Development of Technical and Professional Skills amongst Chemists: Platform for Budding-2022***" organized by the Department of Chemistry & Analytical Chemistry of Rajarshi Shahu Mahavidyalaya (Autonomous), Latur, conducted on 17.02.2022.
9. Participated in the National webinar on "***Emerging Trends in Heavy Metal Detection Sensors & C-H Functionalization***" organized by Department of Chemistry-DCT's Dhempe college of Arts & Science, Miramar-Goa on 22nd April 2022
10. Participated in three days workshop on "***X-rays Crystallography***" held on 21st – 23rd July 2022 organized by School of Chemical Sciences and School of Physical and Applied Sciences, Goa University, Goa.
11. Participated in the One Day Workshop on "***Writing Manuscript & Publishing in Quality Research journals***" (Offline) held on 27.08.2022, at SCS, Goa University.
12. Participated in the one-day national seminar on "**RECENT TRENDS IN APPLIED ORGANIC SYNTHESIS"** organized by Goa University, School of Chemical Sciences (SCS), in association with Chemistry Department Faculty & Alumini Association (CDFAA) & Syngenta Biosciences Pvt. Ltd., Goa on 26th November 2022.

Other Activities:

1. Served as an invigilator for the Junior Engineer RECRUITMENT EXAMINATION held on Sunday, 30th October 2021 at the Goa University Centre.
2. Served as an invigilator for the MTS examination held on Sunday, 31st October 2021 at the Goa University Centre.

References

1. Prof. Sheshanath V. Bhosale,
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Personal Details

Name: Dr. Ratan Wamanrao Jadhav

Permanent Address: Ambegaon, Tehsil: Deoni, District: Latur, Maharashtra-413519

DOB: 10/06/1994

Marital status: Married

Nationality: Indian

Language Known: Marathi, English, Hindi

Passport No.: T0314486

Declaration

I hereby declare that all the above statements are true to the best of my knowledge and belief.

Yours sincerely,

Dr. Ratan Wamanrao Jadhav