

Dr. Sandeep S. Kahandal

Designation: Assistant Professor

Department: Department of Chemistry, VPM's B. N. Bandodkar College of Science (Autonomous), Thane, India

Contact Information

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Educational Background

- **Ph.D. (Chemistry)**, Institute of Chemical Technology (ICT), Mumbai University, 2013
 - **M.Sc. Analytical Chemistry**, Pune University — *1st Rank*
 - Qualified **NET, SET, GATE** (AIR 253 & 408), IISc Ph.D. Entrance examination
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Areas of Expertise / Research Interests

- Heterogeneous catalysis
 - Surface-modified metal oxides & mixed metal oxides
 - Green and sustainable chemistry
 - Multicomponent reactions
 - Organic transformations (Buchwald–Hartwig, iodination, amidation, etc.)
 - Nanomaterials for catalytic and sensing applications
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Teaching Interests

- Analytical Chemistry
 - Green Chemistry
 - Heterogeneous Catalysis
 - Instrumental Methods of Analysis
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Professional Experience

- **Assistant Professor**, VPM's B. N. Bandodkar College of Science, Thane, 2014 – Till a date
 - **Assistant Professor**, K. K. Wagh College, Nashik, 2013 – 2014
 - **Officer – Analytical Development Laboratory**, Lupin Pharmaceuticals Ltd., Boisar 2007 – 2008
 - **Research Guide** for Ph.D. and M.Sc. (By Research), University of Mumbai
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Publications & Research

- **Research Citations:** 413 | **h-index:** 8
- **Minor Research Project (Completed):** *Catalytic activity studies of bifunctional catalysts for the synthesis of xanthenes* (University of Mumbai)

Research Publications

- [1] Synthesis of Au-Pd@CeO₂ Nanocomposite as a Potential catalyst for the Buchwald-Hartwig Cross Coupling and Amination of Benzyl Alcohol Reactions, **Journal of Chemical Sciences** (Journal of Chemical Sciences, 2024, 136(2), 40).
- [2] Revisiting the role of sulfated oxides for the synthesis of pharmaceutically important heterocycles: Understanding, challenges, and future prospects, **Sandeep S. Kahandal**, Anand S. Burange, Thomson A. Fernandes, **Tetrahedron Green Chem** 2 (2023) 100031 <https://doi.org/10.1016/j.tgchem.2023.100031>
- [3] One Pot Synthesis of CuO-CuFe₂O₄@rGO Nanostructure with Synergistic Effect for Efficient Electrochemical Sensing Application of Paracetamol, Jagdish C. Bhangoji, **Sandeep S. Kahandal**, Rahul S. Patil, Trimurti L. Lambat, Shirinaz I. Khan, Gurumeet Wadhava, Sami H. Mahmood, and Suresh S. Shendage, **ECS Advances**, 2023 2 026503, DOI 10.1149/2754-2734/acd800
- [4] Highly efficient magnetically separable Zn-Ag@L-arginine Fe₃O₄ catalyst for synthesis of 2-aryl-substituted benzimidazoles and multicomponent synthesis of pyrimidines, Padmakar A. Kulkarni, **Sandeep S. Kahandal**, Nitin A. Mirgane, Ashis Kumar Satpati, **Results in Chemistry**, <https://doi.org/10.1016/j.rechem.2022.100655>, <https://www.sciencedirect.com/science/article/pii/S2211715622003745>.
- [5] Comparative evaluation of drying methods on Vitamin C and protein content of moringa oleifera Leaves. **Sandeep S. Kahandal**, Pratibha S. Kadam, Ayesha Khan, Dhanashree Ahire, Urma Shaikh, Shikha Singh, Preeti Mishra, Priyanka Varma and Moitreyee Saha, **JBNB: A Multidisciplinary Journal**, 2020, 50-56.
- [6] An efficient route to 1,8-dioxo-octahydroxanthenes and -decahydroacridines using a sulfated zirconia catalyst. **Sandeep Kahandal**, Anand S. Burange, Sandip R. Kale, Radha V. Jayaram, **Catalysis Communications**, Volume 97, 5, 2017, Pages 138-145, <https://doi.org/10.1016/j.catcom.2017.03.017>, <https://www.sciencedirect.com/science/article/abs/pii/S1566736717301036>.

- [7] A Sustainable and Efficient Synthesis of Benzyl Phosphonates using PEG/KI Catalytic System. Shamrao Disale, Sandip Kale, **Sandeep Kahandal**, G. K Abraham, Manoj B. Gawande, *Frontiers in Chemistry*, 4, 35, 2016, 1-6. <https://doi.org/10.3389/fchem.2016.00035>, <https://www.frontiersin.org/articles/10.3389/fchem.2016.00035/full>.
- [8] A mild route for one pot synthesis of 5,6-unsubstituted 1,4-dihydropyridines catalyzed by sulphated mixed metal oxides, **Sandeep S. Kahandal**, Sandip R. Kale, Manoj B. Gawande, Radha V. Jayaram, *Catalysis Science & Technology*, 4(3): 2014, 672-680. <https://doi.org/10.1039/C3CY00651D>, <https://pubs.rsc.org/en/content/articlelanding/2014/cy/c3cy00651d>.
- [9] Greener iodination of arenes using sulphated ceria-zirconia catalysts in polyethylene glycol, **Sandeep Kahandal**, Sandip R. Kale, Dr. Manoj B. Gawande, Radha V. Jayaram. *RSC Adv.*, 2014, 4, 6267-6274. <https://doi.org/10.1039/C3RA46537C>, <https://pubs.rsc.org/en/content/articlelanding/2014/ra/c3ra46537c>. **Highlighted in ChemInform, 2014, 41- 042, O 0235.**
- [10] A Benign synthesis of 2-amino-4H-chromene in aqueous medium using hydrotalcite (HT) as a heterogeneous base catalyst. Sandip R. Kale, **Sandeep Kahandal**, Anand S. Burange, Radha V. Jayaram, *Catal. Sci. Technol.*, 2013, 3, 2050-2056. <https://doi.org/10.1039/C3CY20856G>, <https://pubs.rsc.org/en/content/articlelanding/2013/cy/c3cy20856g>.
- [11] Magnetically recyclable γ -Fe₂O₃-HAP nanoparticles for the cycloaddition reaction of alkynes, halides and azides in aqueous media, Sandip R. Kale, **Sandeep Kahandal**, Manoj B. Gawande, Radha V. Jayaram, *RSC Advances*, 3 (22), 2013, 8184-8192. <https://doi.org/10.1039/C3RA00038A>, <https://pubs.rsc.org/en/content/articlelanding/2013/ra/c3ra00038a>.
- [12] Sequential synthesis of β -amino alcohols using a CeO₂-ZrO₂ bifunctional catalyst system, Kalpesh D. Parghi, Sandip R. Kale, **Sandeep S. Kahandal**, Manoj B. Gawande and Radha V. Jayaram, *Catal. Sci. Technol.*, 2013, 3, 1308-1313, <https://doi.org/10.1039/C3CY20806K>, <https://pubs.rsc.org/en/content/articlelanding/2013/cy/c3cy20806k>.
- [13] Sulphated yttria-zirconia as a regioselective catalyst system for the alcoholysis of epoxides, **Sandeep S. Kahandal**, Sandip R. Kale, Shamrao T. Disale, Radha V. Jayaram, *Catal. Sci. Technol.*, 2012, 2, 1493-1499, <https://doi.org/10.1039/C2CY20116J>, <https://pubs.rsc.org/en/content/articlelanding/2012/cy/c2cy20116j>.
- [14] SO₄²⁻/Ce_xZr_{1-x}O₂ -Catalyzed Synthesis of N-tert-Butylamides from Various Nitriles under Solvent-Free Conditions, **Sandeep S. Kahandal**, Sandip R. Kale, Shamrao T. Disale and Radha V. Jayaram, *Chemistry Letters*, 41, 2012, 738-740. <https://doi.org/10.1246/cl.2012.738>, <https://www.journal.csj.jp/doi/abs/10.1246/cl.2012.738>. **Highlighted in Synfacts 8, 10, 2012, 1161.**
Highlighted in ChemInform 49 (43), 2012, 325, DOI: 10.1002/chin.201249043

- [15] Conventional and microwave-assisted multicomponent reaction of alkyne, halide and sodium azide catalyzed by copper apatite as heterogeneous base and catalyst in water, Sandip Kale, **Sandeep Kahandal**, Shamrao Disale and Radha Jayaram, *Current Chemistry Letters*, 1 2012, 69–80., doi: 10.5267/j.ccl.2012.3.002.
<http://growingscience.com/beta/ccl/801-conventional-and-microwave-assisted-multicomponent-reaction-of-alkyne-halide-and-sodium-azide-catalyzed-by-copper-apatite-as-heterogeneous-base-and-catalyst-in-water.html>.
- [16] Choline chloride-2ZnCl₂ ionic liquid: An efficient and reusable catalyst for the solvent free Kabachnik-Fields reaction, Shamrao T. Disale, S. R. Kale, **Sandeep Kahandal**, Radha V. Jayaram, *Tetrahedron Letters*, 53, 53, 2012, 2277-2279.
<https://doi.org/10.1016/j.tetlet.2012.02.054>.
<https://www.sciencedirect.com/science/article/abs/pii/S0040403912002900>.
 Highlighted in ChemInform 34- 165, 2012, S 0080.

Book Chapters

- [1] Graphene and Related Nanomaterials for Water Remediation, **Sandeep Kahandal**, Modern Research and Environmental Sustainability Volume – 2, Pg No. 127-142, AkiNik Publications New Delhi, ISBN; 978-93-5570-593-8.
- [2] Current advancements in COVID-19 and related human coronavirus disease therapeutic agents and vaccines, **Sandeep Kahandal**, Innovative Research Trends in Science and Humanities, Pg. No. 45-54, INSC Publishing House (IPH),
[ISBN:978-1-954461-44-4](https://doi.org/10.1016/j.tetlet.2012.02.054).
- [3] Nano Sulfated Metal Oxides Catalyzed Multicomponent Reactions, **Sandeep Kahandal**, Advances in Nanomaterials Synthesis and Their Applications (Volume–1), Pg. No., 89-103, Integrated Publications, New Delhi,
[ISBN: 978-93-90471-22-5](https://doi.org/10.1016/j.tetlet.2012.02.054).
Book DOI: <https://doi.org/10.22271/int.book.70>.
- [4] ICT: A Promising Platform for the Indian Higher Education, **Sandeep S. Kahandal**, Current Trends in ICT and Education, 01-08, ISBN: 978-93-5570-187-9,
Book DOI: <https://doi.org/10.22271/int.book.70>.
- [5] The Role of Micellar Media in Catalysis: Advancing Reaction Efficiency and Sustainability, **Sandeep S. Kahandal**, *Modern Approaches to Chemical Science: Concepts and Techniques*, Page No- 14-25, ISBN: 978-81-981142-2-8

Awards & Recognitions

- **G. M. Abhyankar Research Presentation Award**, ICT Mumbai — 2010 & 2011
- **CSIR-JRF (2009)** and **CSIR-SRF (2011)**
- **Annual Member**, American Chemical Society (ACS), 2018
- **Reviewer**, STAR Protocol, Current Catalysis, Current Green Chemistry (2021–2022)
- **Life-time Member**, Life Foundation for Health and Environment Research, 2019
- **CO₂ India Network Member**, 2020