

Special Invited Lecture
57th Annual Convention of Chemists (ACC) - Indian Chemical Society (ICS)
Recent Trends in Chemical Sciences (RTCS 2020)

Spiroaziridine Oxindoles: Unique Chemistry and Sustainable Applications

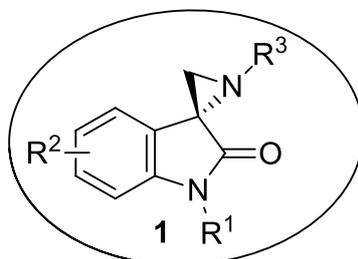
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Abstract: The aziridines are versatile synthetic precursors in organic synthesis. Recently, spiroaziridine oxindoles **1**, a new entry in the subgroup of this smallest three membered N-heterocycles, have been recognized as a dynamic and flourishing building block due to its unique structural feature. From synthetic point of view, spiroaziridine oxindoles have been acknowledged for its high reactivity conferred by the three membered aziridine ring. Our group introduced and explored the chemistry of C-3 functionalization of spiroaziridines with carbon- and hetero- nucleophiles under sustainable conditions for the synthesis of various 3,3-disubstituted- and spirocyclic oxindoles,¹ which are privileged pharmacophores and are present in many biologically active natural products and synthetic compounds. Details of the synthesis and chemistry of spiroaziridine oxindole and its sustainable application in CO₂ fixation and defixation will be presented in the symposium.

Figure



References and Notes:

1. (a) Hajra, S.; Aziz, S. M.; Jana, B.; Mahish, P.; Das, D. *Org. Lett.*, **2016**, *18*, 532; (b) Hajra, S.; Singha Roy, S.; Aziz, S. M.; Das, D. *Org. Lett.*, **2017**, *19*, 4082-4085; (c) Hajra, S.; Singha Roy, S.; Biswas, Saleh, S. A. *J. Org. Chem.* **2018**, *83*, 3633-3644; (d) Hajra, S.; Hazra, A.; Mandal, P. *Org. Lett.*, **2018**, *20*, 6471-6475; (e) Hajra, S.; Hazra, A.; Saleh, S. A. *J. Org. Chem.* **2019**, *84*, 10412-10421; (f) Hajra, S.; Saleh, S. A.; Hazra, A.; Singh, M. S. *J. Org. Chem.* **2019**, *84*, 8194-8201; (g) Hajra, S.; Hazra, A.; Saleh, S. A. Mondal, A. S. *Org. Lett.* **2019**, *21*, 10154-10158; (h) S. Hajra, A. Biswas, *Org. Lett.*, **2020**, *22*, *13*, 4990-4994; (i) Hajra, S.; A. Biswas, *Sci. Rep.*, **2020**, *10*, 15825.

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Bio-Sketch of Speaker



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Saumen Hajra has done his B.Sc. (Chem. Hons.) from RKM Vidyamandira, Belur Math and M.Sc. in Organic Chemistry from Calcutta University (Raja Bazar Science College). He obtained Ph.D. in Organic Chemistry (Photo-induced Electron Transfer Chemistry) under supervision of Dr. Ganesh Pandey from National Chemical Laboratory, Pune in 1997. He subsequently held postdoctoral positions at the North Dakota State University, USA with Prof. Mukund P. Sibi (1997-98) and Alexander von Humboldt Fellow with Prof. Waldemar Adam (1999-2000) at University of Wurzburg, Germany. In August 2000, he joined as an Assistant Professor of Chemistry at IIT Kharagpur and became Full Professor in 2011. After serving 14 years at IIT Kharagpur, he has moved to Centre of Biomedical Research (CBMR), Lucknow in 2014.

His research interests include development of new and unified strategies for the synthesis of biologically important molecules in optically pure form, asymmetric catalysis, stereodivergent synthesis of compounds having multi-stereocenters.