

# PhD Open Seminar

Department of Chemistry, IISER Bhopal

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Roll No.: 1220208

Topic of Seminar: "Divergent Reactivity of Diazoenals in the Construction of N/O-Heterocycles."

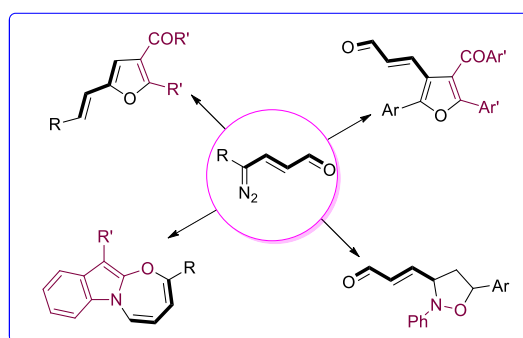
Date: Aug.18, 2017

Time: 10:00 AM

Venue:AB-2(401)

## Abstract

Diazo compounds are versatile building blocks in organic synthesis. In particular, metallocarbenes derived from diazo compounds undergo various reactions including, cyclopropanation, X-H bond insertion, C-H functionalization, ylide rearrangements, and cycloaddition.<sup>1</sup> However, the new discoveries from the metal carbene chemistry are limited by the available classes of diazo compounds. Recently, our group designed a new class of enal functionalized diazo compounds (diazoenals). The Rh-enalcarbenoids derived from diazoenals have been shown to undergo annulation reactions with the electron rich  $\pi$ -bonds such as [4+2]-benzannulation, [4+2]-pyridannulation leading to the valuable indoles, carbazoles and pyridoindoles.<sup>2</sup> Moreover, diazoenals undergo dienamine activation under the combined Rh(II)/Brønsted acid catalysis which were subsequently utilized in the multicomponent synthesis of functionalized pyrroles and 1,4-oxazines via [4+1] and [3+3] annulations respectively.<sup>3</sup> In continuation of our studies on the diazoenals, I would like to present my doctoral research work on the distinct reactivity of diazoenals in the construction of multisubstituted furans,<sup>4</sup> [1,3]oxazepino[3,2-a]indoles,<sup>5</sup> and isoxazolidines.<sup>6</sup>



## References

1. Selected reviews: (a) M. P. Doyle, *Chem. Rev.* **1986**, 86, 919; (b) H. M. L. Davies, R. E. J. Beckwith, *Chem. Rev.* **2003**, 103, 2861; (c) X. Guo, W. Hu, *Acc. Chem. Res.* **2013**, 46, 2427; (d) A. Ford, H. Miel, A. Ring, C. N. Slattery, A. R. Maguire, M. A. McKervey, *Chem. Rev.* **2015**, 115, 9981.
2. (a) Dawande, S. G.; Kanchupalli, V.; Kalepu, J.; Chennamsetti, H.; Lad, B. S.; Katukojvala, S. *Angew.Chem. Int. Ed.* **2014**, 53, 4076; (b) Rathore, K. S.; Harode, M.; Katukojvala, S. *Org. Biomol. Chem.* **2014**, 12, 8641; (c) Rathore, K. S.; Lad, B. S.; Chennamsetti, H.; Katukojvala, S. *Chem. Commun.*, **2016**, 52, 5812; (d) Kanchupalli, V.; Joseph, D; Katukojvala, S. *Org. Lett.* **2015**, 17, 5878.
3. (a) Dawande, S. G.; Kanchupalli, V.; Lad, B. S.; Rai, J.; Katukojvala, S. *Org. Lett.* **2014**, 16, 3700; (b) Kalepu, J. Katukojvala, S. *Angew. Chem., Int. Ed.* **2016**, 55, 7831.
4. Lad, B. S.; Katukojvala, S. *Manuscript under preparation*
5. Lad, B. S.; Katukojvala, S. *Manuscript under preparation*
6. Lad, B. S.; Katukojvala, S. *Manuscript under preparation*