

Ph. D. Open Seminar

Topic of seminar: “Annulation Reactions of Enaldiazo Ketones: Synthesis of Diverse Heterocycles”

Speaker: **Jagadeesh Kalepu (Thesis advisor: Dr. Sreenivas K.)** Roll No: **1020201**

Date: **30thDec, 2015** Time: **04:00pm** venue: **LHC, Room No:L3**

Abstract

Transition-metal-catalysed cycloaddition reactions of diazo compounds have gained significant importance in the synthesis of heterocyclic compounds.¹ Recently, we have designed a new class of enaldiazo compounds and demonstrated their importance in the synthesis of indoles, pyrroles, pyridoindoles and carbazoles.²

This presentation highlights my doctoral research which was mainly focussed on the study of different modes of activations of enaldiazo ketones and their new annulation reactions in the heterocycles synthesis. We have successfully developed a new synthesis of highly substituted 1,4-Oxazines *via* a co-operative Rh(II) & Au(I) catalysed [3+2] annulation of propargyl anilines and enaldiazo ketones. The strategy was extended to the synthesis of oxazino[4,3-a]quinolines³. We have also utilized the enaldiazo ketones in the Doyle-Kirmse reaction with propargyl thioethers to give γ -quaternized allenyl enals. These allenyl enals were used in the synthesis of highly functionalized furans.⁴ An interesting reaction of enaldiazo ketones with the in-situ prepared N-(triphenylphosphoranylidene)anilines gave the pyran derivatives.⁵ In contrast to enaldiazo esters, the [4+2] benzannulation reaction of indoles with the enaldiazo ketones proceeded with a reversal of regioselectivity leading to the 2-acylcarbazoles.⁶

References:

1. (a) Davies, H. M. L. et al. *J. Am. Chem. Soc.*, **2014**, *136*, 10266; (b) Sun, J. et al. *Angew. Chem. Int. Ed.* **2015**, *54*, 12962; (c) Koreeda, M. et al. *Org. Lett.* **2004**, *6*, 537; (d) Schmalz, H. G. et al. *Org. Lett.* **2005**, *7*, 4317; (e) Lee, E. A. et al. *Angew. Chem. Int. Ed.* **2008**, *47*, 4009.
2. (a) Katukojvala, S. et al. *Angew. Chem. Int. Ed.* **2014**, *53*, 4076; (b) Katukojvala, S. et al. *Org. Lett.* **2015**, *17*, 5878; (c) Katukojvala, S. et al. *Org. Lett.* **2014**, *16*, 3700; (d) Katukojvala, S. et al. *Org. Biomol. Chem.* **2014**, *12*, 8641.
3. **Jagadeesh, K.** Katukojvala, S. (*manuscript in preparation*)
4. **Jagadeesh, K.**; Komalkant, A.; Katukojvala, S. (*manuscript in preparation*)
5. **Jagadeesh, K.** Katukojvala, S. (*manuscript in preparation*)
6. **Jagadeesh, K.** Katukojvala, S. (*manuscript in preparation*)

All are cordially invited to attend