PhD Open Seminar

Speaker: **Nagaraju Molleti (PhD Supervisor: Prof. Vinod K. Singh)**

Topic of Seminar: **Organocatalyzed Enantioselective Michael Addition Reactions to α,β –Unsaturated Carbonyl Compounds**

Date: **February 13, 2015**
Time: **12:00 PM**
Venue: **AB2-401**

Abstract

Asymmetric organocatalysis has become a field of central importance for the synthesis of chiral molecules. Michael addition is the most fundamental and straightforward tool for the formation of C-C and C-X bonds with wide applications in organic synthesis and medicinal chemistry. In the last two decades, proline, cinchona alkaloid and their derivatives have appeared to be efficient organcatalysts in asymmetric synthesis.

In this context, during my doctoral studies, we have developed highly enantioselective Michael addition reactions of 2-enoyl pyridines and α,β-unsaturated aldehydes by utilizing cinchona-alkaloids and proline derived catalysts. This seminar highlights the cinchona derived urea catalyzed enantioselective Michael reactions of 2-enoylpyridines to access, enantioenriched δ-lactams and 2,4-diaryl polyhydroquinolines. In continuation, we have studied cinchona-derived bis-squaramide as an efficient catalyst for the synthesis of optically pure naphthoquinones, coumarins and pyranonaphthoquinones. The other highlights of the work are the synthesis of highly substituted chiral lactones and benzazepine derivatives by Michael/lactonization.

References:

1. **Molleti, N**.; Rana, N. K.; Singh, V. K**.** *Org. Lett.* **2012**, *14,* 4322
2. **Molleti, N**.; Allu, S.; Ray, S. K.; Singh, V. K. *Tetrahedron Lett.* **2013**, *54*, 3241
3. **Molleti, N**.; Singh, V. K. (Submitted)
4. Agrawal, S.; **Molleti, N**.; Singh, V. K. (Under preparation)