

Research Proposal Seminar

Application of Strained Three-membered Rings in Organic Synthesis

K. Ramachandran (CY15D007)

Department of Chemistry, Indian Institute of Technology Madras, Chennai- 600036

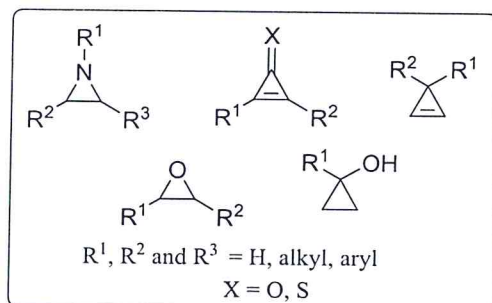
Date: 11.12.2019

Venue: CB310

Time: 3.00 pm

Abstract:

Three-membered ring carbo and heterocycles have played a dominant role in organic synthesis for the synthesis of complex heteroatom-containing products, due to the intrinsic ring strain in these compounds that prepares them for facile ring-opening. In particular, transition metals have the potential to render ring-opening reactions under mild conditions, selectivity to the chemistry of three-membered ring heterocycles, and allow unique bond constructions, which affords potential and fruitful direction for reaction discovery.¹⁻⁴ On the hand, C-H bonds functionalization of organic substrates catalysed by transition metal catalysts with three-membered carbo and heterocycles offered highly stereo and regioselective construction of organic molecules.⁵⁻⁶ In the seminar, I would like to highlight the application of three-membered rings in organic synthesis and their recent advancement.



w/o Metal
with Metal

CO insertion
1, 2 Addition
Cycloaddition
Spiro compounds
Isomerization
Alkylation
C-H bond functionalization

Reference:

- [1] Huang, H-Y.; Doyle, A. G. *Chem. Rev.* **2014**, *114*, 8153.
- [2] Lu, B-L.; Dai, L.; Shi, M. *Chem. Soc. Rev.* **2012**, *41*, 3318.
- [3] Dai, L-X.; Hou, X-L.; Zhou, Y-G. *Pure Appl. Chem.* **1999**, *71*, 369.
- [4] Zhou, X., Yu, S., Kong, L., Li, X. *ACS Catal.* **2016**, *6*, 647.
- [5] Gandeepan, G.; Muller, T.; Zell, D.; Cera, G.; Warrantz, S.; Ackerman, L. *Chem. Rev.* **2019**, *119*, 2192.
- [6] Mishra, N. K.; Sharma, S.; Park, J.; Han, S.; Kim, I.-S. *ACS Catal.* **2017**, *7*, 2821.

Research Guide
Dr. P. Anbarasan

Coordinator
Dr. Mahiuddin Baidya

Head of the Department
Prof. K. Mangala Sunder
DEPT. OF CHEMISTRY

INDIAN INSTITUTE OF TECHNOLOGY, MADRAS
भारतीय प्राद्योगिकी संस्थान, मद्रास
CHENNAI - 600 036.
चेन्नी - 600 036.