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Octahedral complexes as enantioselective catalysts in organic syntheses

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The contemporary challenges faced by synthetic organic chemists are the development of highly efficient, environmentally benign enantioselective protocols for the synthesis of drugs in enantiomerically pure form, as it is very important in the area of agricultural and pharmaceutical chemistry. Asymmetric catalysis which is mainly relied on chiral ligand is one of the available key technologies used to address the above mentioned challenges. Recently new class of catalyst based on octahedral complexes is gaining interest (Fig. 1). These complexes have been conveniently applied to wide varieties of enantioselective organic transformations where chirality is mainly controlled by octahedral metal centre. The recent development and our contribution in the field of octahedral chiral-at-metal catalysts will be discussed.

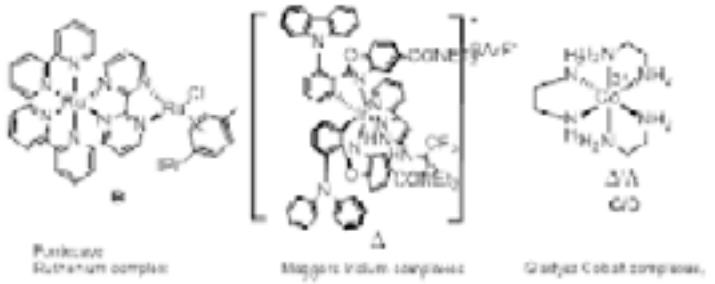

Figure 1: Representative Octahedral Chiral-at-Metal Catalysts

Biography

Kumar A has obtained his PhD from the University of Jammu in 2008 under the supervision of Professor Kamal K Kapoor. He joined the Faculty of Science at SMVD University as Assistant Professor (2008-2017). During this period, he visited the Department of Chemistry, Texas A&M University, USA for his Post-Doctoral Fellowship (2013-2014) with Professor John A Gladysz, where he worked on the development of Werner octahedral complexes as enantioselective catalysts. His research interests are organic synthesis, chiral-at-metal catalysts, and design and synthesis bioactive molecules especially heterocyclic compounds.

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