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Chiral octahedral complexes as catalysts for enantioselective organic synthesis

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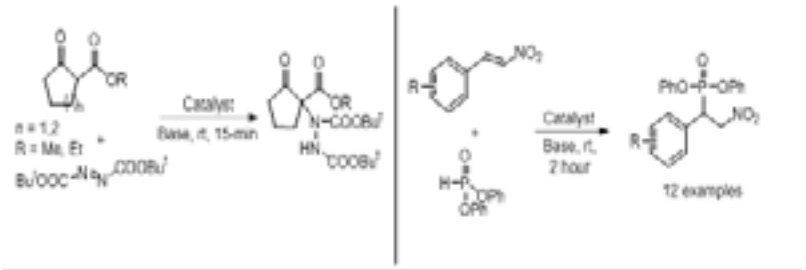
Hydrogen bond donor catalysis for asymmetric synthesis has attracted intense research efforts in recent years. Recently a new family of inexpensive and readily available chiral hydrogen bond donor catalysts based on Cobalt (III) Werner complexes with 1,2-diphenylethylenediamine ligands have been developed and successfully used for the enantioselective organic synthesis. This new and unexplored family of catalysts opens up new prospects for the investigation of new reactions and also for the improvement of highly effective catalysts for the known reactions. In order to establish broad synthetic utility of these catalyst, we have investigated enantioselective α-aminations of 1,3-dicarbonyls which proceeded in excellent yields and enantioselectivities with low catalyst loadings under mild conditions. In addition to this, we shall discuss the outcome of the other investigated reactions such as Michael reaction of diphenyl phosphite to a range of nitroalkenes and transfer hydrogen reaction of nitroalkene with hantzsch ester by utilizing inexpensive and easily available Werner complexes.



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