Catalytic Enantioselective Reformatsky Reaction with Cyclic Imines

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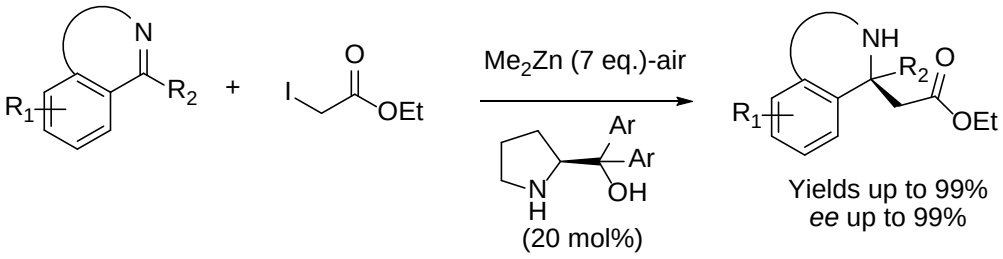
The classical Reformatsky reaction was introduced in 1887[1] and consists in the zinc mediated addition reaction of α-halocarbonyl compounds to aldehydes and ketones to form β-hydroxy carbonyl compounds. This reaction can also be performed with imines, affording the corresponding β-amino carbonyl compounds. This structural motif in enantiomerically pure form and their derivatives can be found in several pharmaceutical and agrochemical compounds.[2]

Several asymmetric versions of the Reformatsky reaction have been reported with aldehydes and ketones.[3] However, to date, only one example of a catalytic enantioselective imino-Reformatsky reaction is described in the literature by Cozzi.[4]

In this communication we present the enantioselective Reformatsky reaction of six membered cyclic imines (benzo[*e*][1,2,3]oxathiazine)[5] and seven membered cyclic imines (dibenzo[*b,f*][1,4]-oxazepines)[6] in high yields and excellent enantioselectivities using a diarylprolinol as chiral ligand and Me_2Zn as a zinc source under air atmosphere..



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