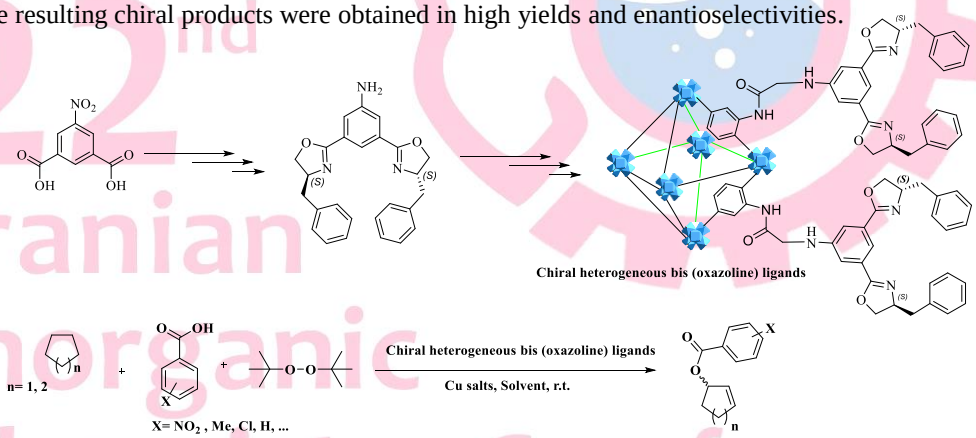
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Synthesis of novel chiral heterogeneous bisoxazoline-based catalyst and its application in the synthesis of chiral allylic esters by synchronous dehydrogenation and allylic oxidation of alkanes

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Over the past couple of decades, chiral bisoxazoline (BOX) ligands, mainly prepared from the reaction of various dicarboxylic acids and a range of chiral β-amino alcohols, have gathered increasing attention as promising ligands in numerous catalytic asymmetric transformations [1, 2]. Besides, according to the importance of recyclability of these ligands due to their high value, an excellent selection of a good substrate for immobilization of them could be a suitable idea. Herein, the new chiral amino bisoxazoline ligand was synthesized from the starting material 5-nitro-isophthalic acid in several steps and then immobilized on the functionalized UiO-66-NH_2 metal organic framework [3]. The structure of synthesized chiral heterogeneous ligand was characterized by XRD, FE-SEM, BET, FT-IR and TGA techniques. Finally, in order to investigate the catalytic activity of the prepared heterogeneous chiral ligand, it was used in concurrent dehydrogenation of alkanes and allylic oxidation of alkenes as a rare synchronous reaction for the synthesis of chiral allylic esters with various benzoic acid derivatives and oxidants under different conditions (Scheme 1) [4, 5]. The resulting chiral products were obtained in high yields and enantioselectivities.



Scheme 1: Synthesis of chiral allylic esters by using chiral heterogeneous bisoxazoline-based catalysts

Keywords: Chiral bisoxazoline ligands, Dehydrogenation, Allylic oxidation, Chiral allylic esters, Functionalized UiO-66-NH_2

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