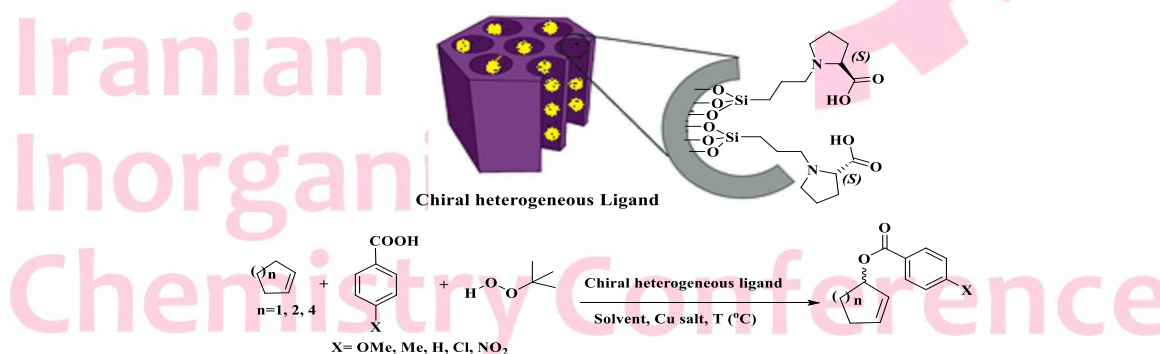


Immobilization of L-proline on functionalized MCM-41 and its application in the synthesis of chiral allylic esters

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Recently, metal-catalyzed organic reactions through C-H bond activation have attracted a lot of attention from the point of view of atom economy, and also various types of catalytic processes have been developed using different modes to activate the existing bond [1]. Allylic esters which can be prepared through allylic oxidation, play an important role as effective intermediates in the preparation of organic and pharmaceutical compounds [2]. Using chiral catalysts is an available, low-cost and effective method for the preparation of chiral products. Most of organic catalysts are homogeneous and require high molar concentrations; As a result, they increase the cost of separation. One of the ways to recover homogeneous catalysts is the immobilization of them on different substrates, including inorganic substrates [3]. In the meantime, mesoporous MCM-41 has attracted countless attention due to its different advantages such as higher and better efficiency compared to other similar compounds [4]. For this purpose, MCM-41 was prepared and functionalized by 3-chloropropyl trimethoxy silane. Afterwards, the chiral L-proline ((2S)-pyrrolidine-2-carboxylic acid), was immobilized on it. Finally, the copper complex of synthesized chiral heterogeneous ligand was used for the preparation of chiral allylic esters and the resulting chiral products were obtained in relatively good yields and enantioselectivities (Scheme 1).



Scheme1: Asymmetric allylic oxidation of olefins in the presence of chiral hetroeneous ligand

Keywords: L- proline, MCM-41, Chiral heterogeneous catalyst, Chiral allylic ester

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