

Plugs Effect on Chiral Enhancement in Asymmetric Catalysis by l-Proline Functionalized Mesoporous Silica

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l-Proline was immobilized onto mesoporous silica through the direct synthesis method using microwave. Uniquely, the obtained samples showed that the addition of l-proline precursor could change the morphology systematically. Directly synthesized l-Proline mesoporous silica was proven to possess short channeled morphology due to disk type and plugs in the pore structure. The presence of plugs inside of mesopores was ascribed to the providing chiral enhancement in the diethyl malonate addition and Aldol condensation reactions. Moreover, this chiral enhancement of plugged proline mesoporous silica was also demonstrated in the chiral adsorption of D/L alanine and cyclo dichroism (CD) technique.