

## Heterogeneous asymmetric hydrogenation over silica-supported Pt catalysts

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The growing demand for enantiomerically pure compounds in fine chemical industries has stimulated an interest in asymmetric catalysis. Heterogeneous enantioselective catalysis is a fascinating method to produce the enantiopure chemicals. Adsorption of chiral organic modifiers on metal surface has been widely used for chiral modification. Here, we report catalytic performances of silica-supported Pt catalysts for asymmetric hydrogenation of  $\alpha$ -ketoester. The Pt catalysts were supported AEROSIL SiO<sub>2</sub>, MCM-41, SBA-15, KIT-6, and MCF via a facile impregnation. They were characterized by XRD, TEM, N<sub>2</sub> physisorption and CO chemisorption techniques. Among the Pt catalysts, cinchonidine-modified Pt/MCF catalyst with the largest pore of 23 nm, showed the highest enantiomeric excess and conversion under 1 bar of H<sub>2</sub> pressure. The Pt/MCF catalyst exhibited no distinct loss in activity and enantioselectivity for 10 cycles of reactions. These results indicate that Pt/MCF catalyst is the most promising catalyst in this reaction. It implies that the structure of mesoporous silica supports can play a vital role in controlling the enantioselectivity.