

Heterogeneous enantioselective hydrogenation over Pt supported on M-doped alumina (M = Mg, Ni, Ti, Ce, Y, and Fe)

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Pt/Al₂O₃ modified by cinchonidine is the most effective heterogeneous catalyst for the enantioselective hydrogenation of α -ketoesters. In this study, we conducted the screening test to investigate the effect of doped-alumina supports on enantioselective hydrogenations of ethyl pyruvate. Transition metals (M) including Mg, Ni, Ti, Ce, Y and Fe were used for the preparation of doped-alumina supports, 0.95Al-0.05M. In order to obtain ordered mesoporous structure, the supports were synthesized by a soft templating method. These supports revealed high surface areas ($> 185 \text{ m}^2/\text{g}$) and narrow pore size distributions in the range 7.9~12 nm. Among the Pt catalysts supported on M-doped alumina, Mg-doped one showed the highest enantiomeric excess. However, the pyridine FT-IR and NH₃-TPD results showed that there is no clear correlation between the acidity properties of the supports and enantiomeric excess.