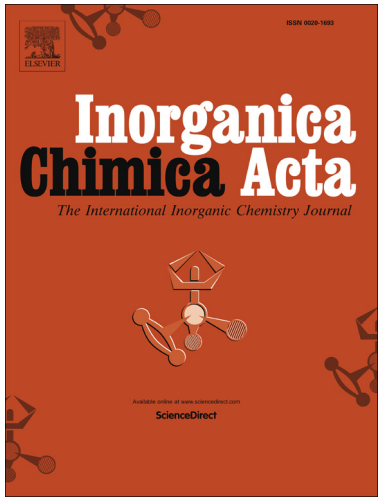

Research paper

Chiral C_2 -Symmetric η ^{6}-*p*-cymene-Ru(II)-phosphinite Complexes: Synthesis, and Catalytic Activity in Asymmetric Reduction of Aromatic, Methyl Alkyl and Alkyl/Aryl Ketones

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Chiral C_2-Symmetric η^6-*p*-cymene-Ru(II)-phosphinite Complexes: Synthesis, and Catalytic Activity in Asymmetric Reduction of Aromatic, Methyl Alkyl and Alkyl/Aryl Ketones

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Abstract

Chiral C_2-symmetric bis(phosphinite) ligands and their binuclear ruthenium(II) complexes have been synthesized and used as catalysts in the ruthenium-catalyzed asymmetric transfer hydrogenation of aromatic, methyl alkyl and alkyl/aryl ketones using 2-propanol as both the hydrogen source and solvent in the presence of KOH. Under optimized conditions, all complexes showed high catalytic activity as catalysts in the reduction of various ketones to corresponding chiral secondary alcohols. Products were obtained with high conversions (99%) and moderate to good enantioselectivities (82% *ee*). Furthermore, C_2-symmetric bis(phosphinite) ligands and their binuclear ruthenium(II) complexes were characterized by multinuclear NMR spectroscopy, FT-IR spectroscopy, LC/MS-MS and elemental analysis.

Keywords: Ruthenium(II), C_2-symmetry, phosphinite, asymmetric transfer hydrogenation, ketones.

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