D. H. APPELLA, Y. MORITANI, R. SHINTANI, E. M. FERREIRA, S. L. BUCHWALD*
 (MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, USA)
 Asymmetric Conjugate Reduction of α,β -Unsaturated Esters Using a Chiral Phosphine–Copper Catalyst
J. Am. Chem. Soc. **1999**, *121*, 9473–9474.

Copper-Catalyzed Enantioselective Reduction of α,β -Unsaturated Esters

Category

Metals in Synthesis

Key words

copper catalysis

conjugate reduction

silanes

Synfact
Classic

Selected examples:

Proposed mechanism:

Significance: Buchwald and co-workers reported the use of copper and chiral bisphosphine ligands for the enantioselective 1,4-reduction of α,β -unsaturated esters. Polymethylhydroxiloxane (PMHS) was employed as a stoichiometric hydride source.

Comment: Novel methodologies have been developed since this seminal report on the enantioselective hydrofunctionalization of alkenes. Use of DTBM-SEGPHOS as the ligand and other hydride sources are now available for the asymmetric reduction of less activated alkenes.

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