

[Tetrahedron: Asymmetry, **6**, 2109-2112, 1995]

[Lab. of Pharm. Synthetic Chemistry]

**Chiral C₂-Symmetric 2,5-Disubstituted Pyrrolidine Derivatives
as Chiral Catalyst Ligands in the Reaction of Diethylzinc
with Arylaldehydes.**

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Two kinds of chiral C₂-symmetric 2,5-disubstituted pyrrolidine derivatives having a β -aminoalcohol moiety were successfully synthesized and their catalytic abilities of asymmetric induction were examined in the reaction of diethylzinc with arylaldehydes. The production of *sec*-alcohols in high yields and high enantiomeric excesses having the *R*-configuration could be achieved when *N*-(2',2'-diphenyl-2'-hydroxyethyl)-(2*R*,5*R*)-bis(methoxymethyl)pyrrolidine was used as achiral ligand. On the other hand, when *N*-methyl-(2*R*,5*R*)-bis(diarylhydroxymethyl)pyrrolidine was used as a catalyst, the enantiomeric excesses of the *sec*-alcohols went down and the inversion of the enantioselectivity was observed in the reaction of *m*-chloro-, *p*-chloro-, and *m*-fluorobenzaldehyde with diethylzinc.

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**Epoxidation of Chalcone Derivatives using Diethylzinc or Diethylcadmium
under an Oxygen Atmosphere.**

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Reaction of diethylzinc or diethylcadmium with chalcone derivatives in various organic solvents under an oxygen atmosphere proceeds smoothly to give high yields of the corresponding epoxides.

[Synth. Commun., **25**, 1981-1987 (1995)]

[Lab. of Pharm. Synthetic Chemistry]

**Dicyanoketene Ethylene Acetal as a Mild and Efficient Catalyst
for Tetrahydropyranylation of Alcohols.**

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Alcohols can react with 3,4-dihydro-2*H*-pyran in the presence of a catalytic amount of dicyanoketene ethylene acetal under neutral conditions to afford the corresponding tetrahydropyranyl ethers in good yields.