Abstract

Catalytic enantioselective desymmetrization of *meso*-epoxides is widely used in many areas of chemistry. Such process is usually catalyzed by a transition metal complex with a chiral ligand. Recently, a synthesis of an analogue of Bolm's 2,2'-bipyridine ligand was developed and its combination with metal salts were tested in various reactions. In this master's thesis, a catalytic system composed of $Sc(OTf)_3$/Bolm's ligand analogue was studied in alcoholysis and aminolysis of the *meso*-epoxides. The reaction has been extended to a broad range of alcohols providing 1,2-diol monoethers in excellent enantioselectivity up to 99% ee. The aminolysis of *meso*-epoxides has been optimized, as well. The catalyst loading could be lowered to 1 mol% with only marginal effects on the enantioselectivity.

Key words: *epoxides, enantioselective catalysis, chiral ligands*.