Synthesis of Novel C₂-Symmetric Chiral Bis(oxazoline) Ligands and their Application in Asymmetric Catalysis

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In the last decade, asymmetric catalysis with chiral transition metal complexes has received considerable attention and has nowadays become an invaluable tool in the art of organic synthesis.[1]

One of the most important classes of chiral ligands are C₂-symmetric bis(oxazolines) (box's), which have been thoroughly investigated in coordination chemistry and asymmetric catalysis.

Generally, chirality in these ligands originates from the optically active amino alcohols employed for the oxazoline ring formation and thus resides in the oxazoline ring. A large variety of enantiomerically pure amino alcohols is readily available.

We wish to present here a novel type of C₂-symmetric bis(oxazoline) ligands 1 based on a chiral trans-1,2-diarylcyclopropane backbone, derived from stilbene via a Sharpless asymmetric dihydroxylation. Furthermore, we want to investigate the influence of an extra α-substituent in the oxazoline ring in 2 on the enantioselectivity and the catalytic activity.[2]

References: