

Stereoselective synthesis of carbo- and heterocycles through desymmetrization reactions.

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LETTER

A Highly Efficient and Stereoselective Synthesis of Polyhydroxylated Pyridelines via Regioselective Asymmetric Aminohydroxylation (RAA) and Desymmetrization Reactions

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Dedicated to Professor Ray Lonsdale on his many contributions to organic and carbohydrate chemistry

Abstract New asymmetric organocatalytic reagents, i.e., amine hydrochlorides, have been developed for the first time in the present study. It is successful implementation of the RAA reaction in the presence of these organocatalysts that has led to the development of a new asymmetric desymmetrization reaction of the substituted 4,4'-azobis(2,4-dihydroxyphenyl)-2,2,2,2-tetraalkylbenzene (4) under mild conditions. In addition, the RAA reaction serves as a convenient method for the synthesis of polyhydroxylated pyridelines. Moreover, C₂-symmetric polyhydroxylated pyridelines are also synthesized in many cases by the use of chiral ligands and catalysts for a variety of chemical transformations. These results are discussed in this article. © 2003 Wiley Periodicals, Inc. *J Polym Sci Part A: Polym Chem* 41: 1279–1283, 2003

Keywords: organocatalysis; asymmetric synthesis; desymmetrization; RAA reaction; polyhydroxylated pyridelines

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Session: Heterocycles and Aromatics, Asymmetric Reactions and Syntheses and Total Synthesis of Complex Molecules

Ln II complexes are good reducing agents, which can be used in a wide variety of synthetically important reactions; when chiral ligands are used, many of these reactions are highly stereoselective. Reduction of the alkyl bromide to a terminal methyl group was observed as the major side reaction.

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