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Asymmetric H_2O-Nucleophilic Ring Opening of D–A Cyclopropanes: Catalyst Serves as a Source of Water
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Category

Metal-Catalyzed Asymmetric Synthesis and Stereoselective Reactions

Key words

ring opening

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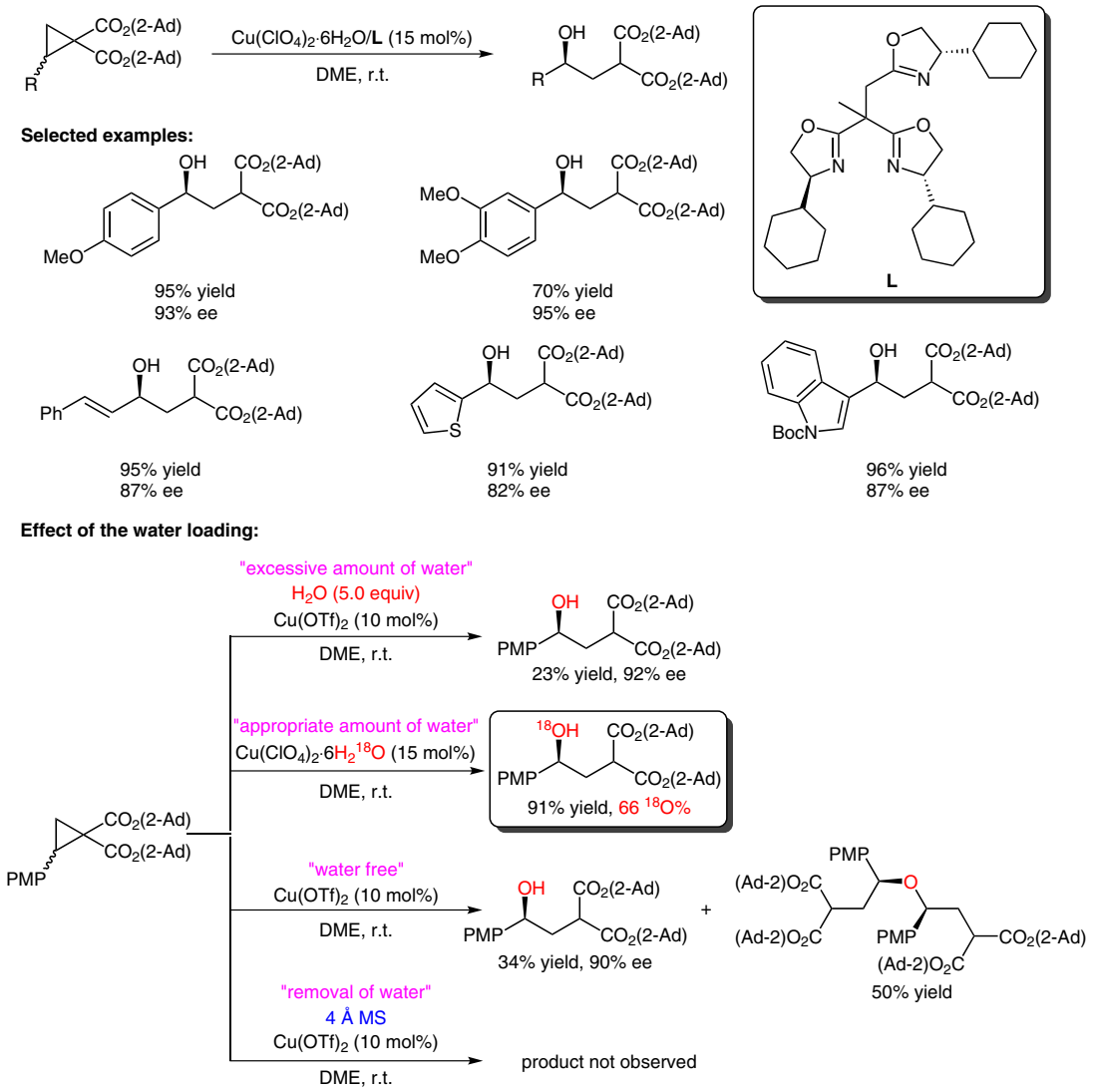
asymmetric catalysis

Copper-Catalyzed Asymmetric Ring Opening of D–A Cyclopropanes



Significance: The authors report a copper-catalyzed enantioselective ring-opening reaction of donor–acceptor cyclopropanes with water. A variety of ring-opening products were obtained in high yields (≤96%) and enantioselectivities (≤95% ee).

Comment: In this reaction, the copper hydrate serves as both a Lewis acid and a source of water; this affords a system for the controlled release of the appropriate amount of water as a nucleophile in the asymmetric catalysis. The method provides a new and efficient approach for direct access to γ-substituted γ-hydroxybutyric acid derivatives.

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