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Asymmetric H₂O-Nucleophilic Ring Opening of D–A Cyclopropanes: Catalyst Serves as a Source of Water
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Copper-Catalyzed Asymmetric Ring Opening of D–A Cyclopropanes

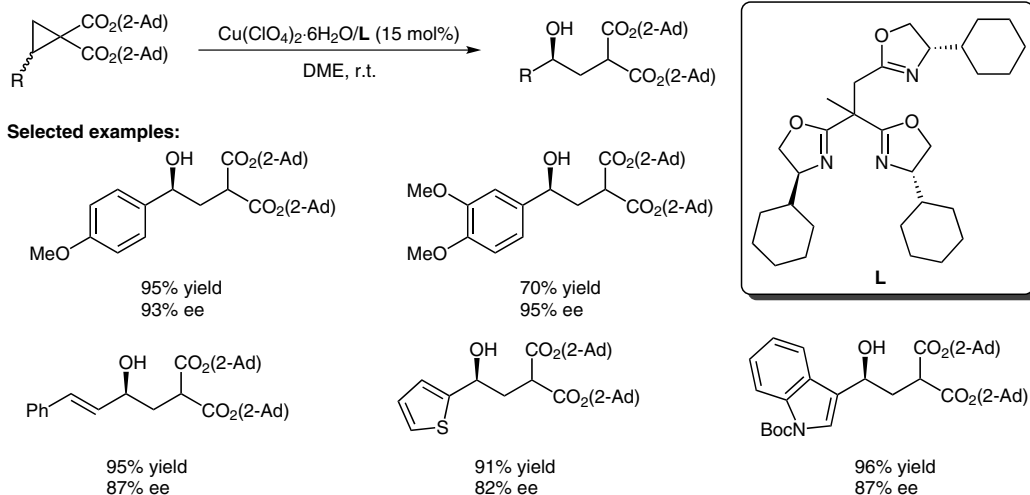
Category

Metal-Catalyzed
Asymmetric
Synthesis and
Stereoselective
Reactions

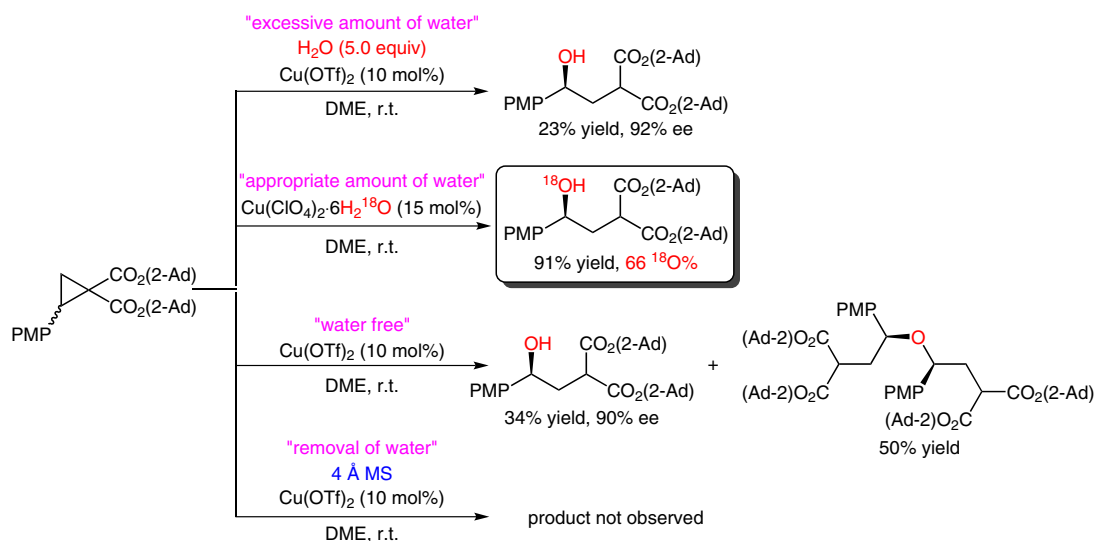
Key words

ring opening
cyclopropanes
copper
asymmetric
catalysis

Synfact
of the month



Effect of the water loading:



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 ($\leq 96\%$) and enantioselectivities ($\leq 95\%$ ee).

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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.