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Asymmetric Synthesis of Cyclopropanes from Sulfinylpyrazolines Mediated by Acids

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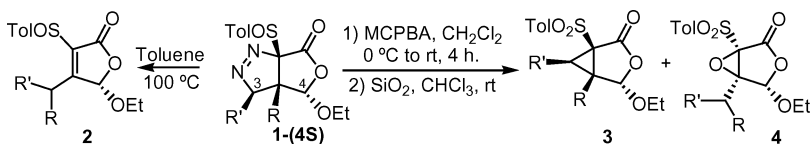
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Asymmetric Synthesis of Cyclopropanes from Sulfinylpyrazolines Mediated by Acids

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When sulfinylpyrazolines **1**¹ are heated at 100°C in toluene, exclusively olefins **2** are obtained. The reactions of **1** with *m*-chloroperbenzoic acid (MCPBA) afford mixtures of cyclopropanes **3** and epoxides **4**. These processes take place at low temperatures and both products (**3** and **4**) are formed in completely stereoselective reactions.



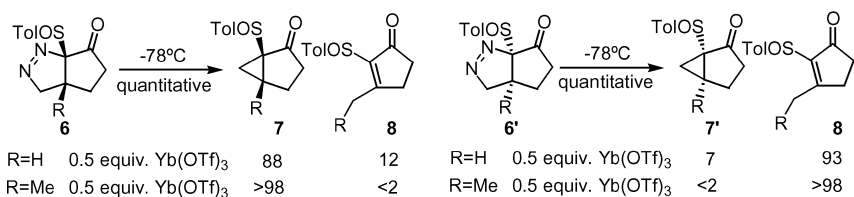
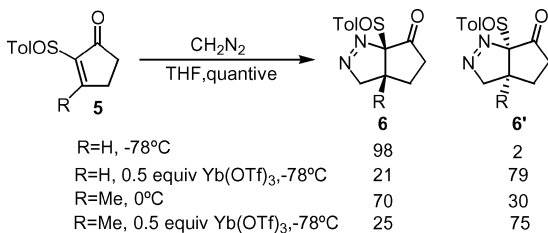
1,3-Dipolar cycloadditions of 2-*p*-tolylsulfinyl cyclopentenones **5** with diazomethane, under different conditions, afford pyrazolines **6** and **6'**. Their catalytic decomposition with Lewis acid yields mixtures of cyclopropanes **7**, **7'** and olefins **8**.²

The evolution into cyclopropanes depends on the type and equivalents of Lewis acid, temperature, solvent, and stereochemistry of pyrazolines.

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