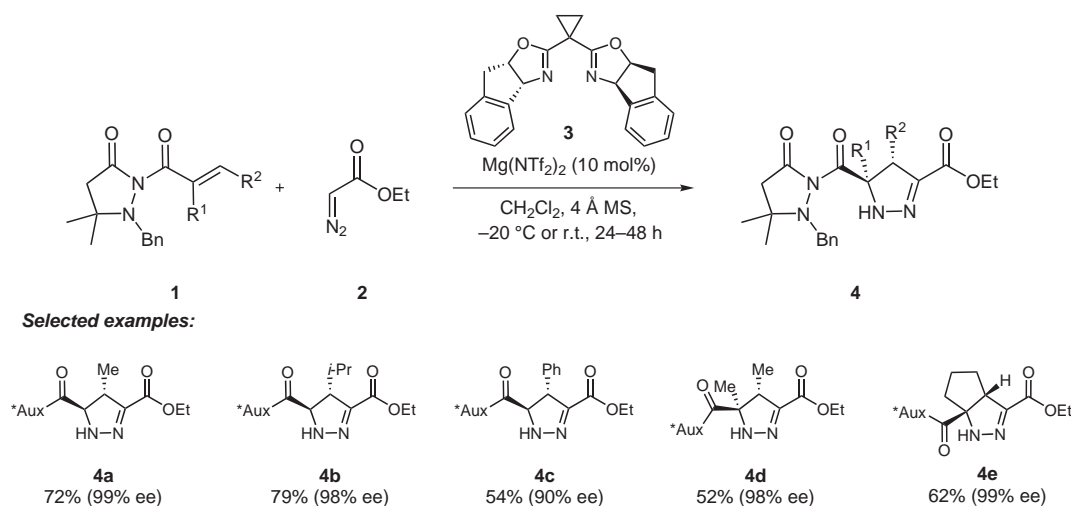


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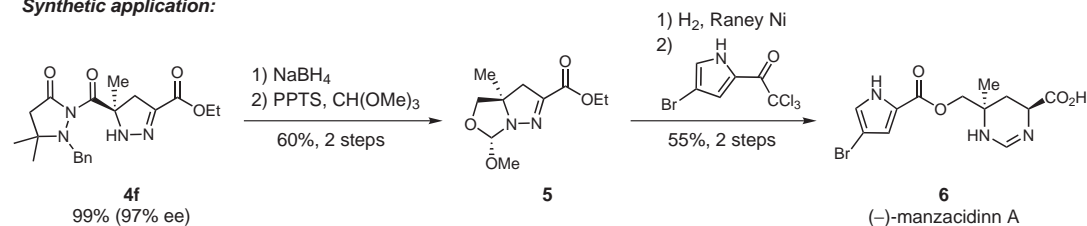
Enantioselective 1,3-Dipolar Cycloadditions of Diazoacetates with Electron-Deficient Olefins

Org. Lett. **2007**, *9*, 1553-1556.

Synthesis of Pyrazolines via Enantioselective 1,3-Dipolar Cycloadditions



Synthetic application:



Significance: Cycloadditions are among the best ways to rapidly create complexity in heterocycle synthesis. Readily available diazoesters **2** can now be used in enantioselective dipolar cycloadditions with activated alkenes **1**. Previous methods were limited either to diazomethane derivatives, or did not tolerate β -substitution on the alkene (R^2 in **1**). The method was applied to a rapid total synthesis of (-)-manzacidin A (**6**), where the stereochemistry of the quaternary *tert*-alkyl amino stereocenter was fully controlled in the key step.

Comment: The method relies on pyramidalization of the cyclic hydrazine to act as chiral relay to obtain the pyrazoline cycloadducts **4** in excellent enantioselectivity. An intriguing observation was made by the authors who point out that, in multiple instances, the reaction gives better enantioselectivity at higher temperatures. Although no explanation is given, it is still fortunate as some substrates needed higher temperatures to achieve reasonable yields.

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Category

Metal-Catalyzed
Asymmetric
Synthesis and
Stereoselective
Reactions

Key words

1,3-dipolar
cycloaddition

chiral relay

magnesium

cp-Indabox ligand

diazoesters

pyrazolines

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of the month

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