Category

Metal-Mediated Synthesis

Key words

boron

copper

fluorenone oxime

***N*-vinyl nitrones**

[3+2] cycloaddition

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Preparation and Rearrangement of *N*-Vinyl Nitrones: Synthesis of Spiroisoxazolines and Fluorene-Tethered Isoxazoles

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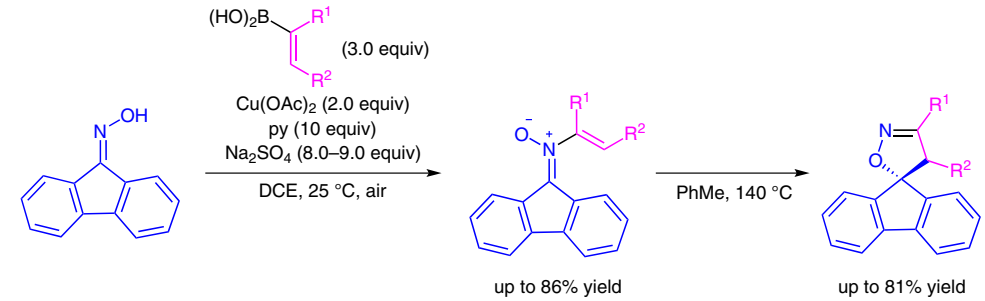
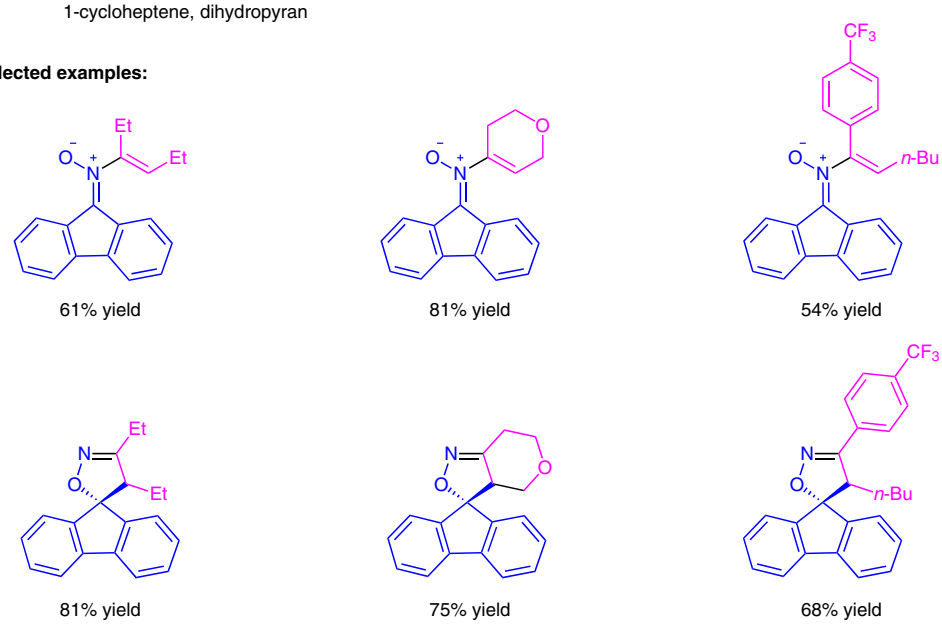
Preparation and Rearrangement of *N*-Vinyl Nitrones



R^1 = Et, Me, H, Ph, 4-$O_2NC_6H_4$, 4-FC_6H_4, 4-$F_3CC_6H_4$
R^2 = Et, Me, *n*-Bu, Ph
$R^1 + R^2$ = 1-cyclohexene derivatives, 1-cyclopentene, 1-cycloheptene, dihydropyran

Selected examples:



Significance: Herein, the authors disclose the single-step, copper-mediated coupling of fluorene oximes and vinyl boronic acids, which undergo thermal rearrangement via [3+2] cycloaddition to form spiroisoxazolines. The corresponding *N*-vinyl nitrones and spiroisoxazolines are obtained in good yield.

Comment: In addition, this methodology may be applied to the synthesis of fluorene-tethered isoxazoles by treatment of *N*-vinyl nitrones with terminal or internal electron-deficient alkynes. The mechanism is supposed to proceed via [3+2] cycloaddition and subsequent elimination.

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