

SEPTEMBER
23-27TH
2024

19TH BMO S

BRAZILIAN MEETING
ON ORGANIC SYNTHESIS
BENTO GONÇALVES, RS - BRAZIL

Scope of the Diels-Alder reactions of potassium furanyl trifluoroborates

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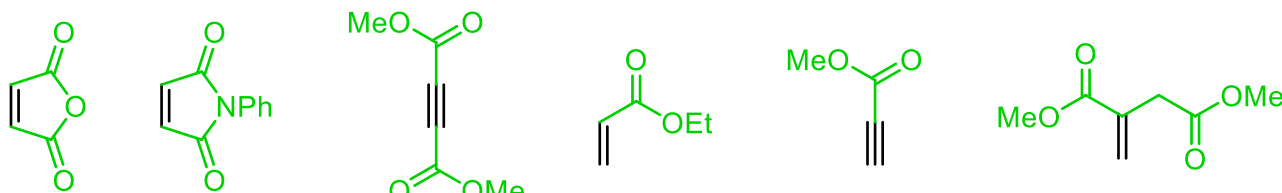
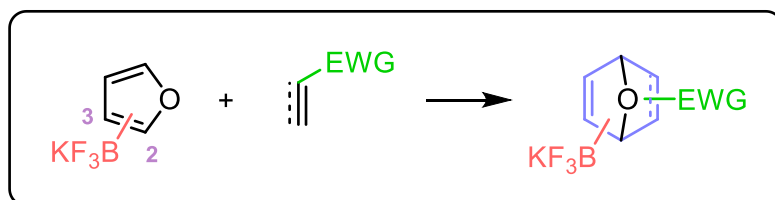
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Keywords: furanyl trifluoroborates, cycloadduct, reactivity.

ABSTRACT

Diels-Alder reactions involving organoboron compounds as dienes allow the generation of six-membered rings with interesting substitution patterns that can be exploited in further reactions, generating highly complex structures in a few synthetic steps.¹ In our research group we described for the first time the use of boron-substituted heteroaromatic compounds as dienes in Diels-Alder reactions.² In particular, potassium 3-furanyl trifluoroborate showed exceptional reactivity towards maleic anhydride, giving the *exo* cycloadduct quantitatively after 15 min at room temperature. The present work describes the Diels-Alder reactions of 2- and 3-furanyl trifluoroborates with several activated dienophiles. In general, potassium 3-furanyl trifluoroborate generated the cycloadducts more efficiently than its C-2 counterpart. The use of computational tools allowed a more detailed understanding of the factors governing these reactions. In addition, some derivatization reactions of the cycloadducts are described.



ACKNOWLEDGEMENTS

We thank CONICET, Universidad Nacional de Rosario, ANPCyT and ASACTEI.

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