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Chemo- and diasteroselective cross-metathesis in the synthesis of conjugated dienoates at low catalyst loadings

Leonildo A. Ferreira[1], Josiane T. Silva[2], Raissa G. Alves[2], Kelley C.B. Oliveira[2], Eduardo N. dos Santos[2]

[1] Grupo de Catálise e Inovação - GCati, Instituto de Química, Universidade Federal de Goiás - UFG, Goiânia, Brasil.
[2] Department of Chemistry, Federal University of Minas Gerais, Belo Horizonte, Brazil
E-mail: leonildoferreira@gmail.com

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The power of olefin metathesis as synthetic strategy for the preparation of a wide variety of compounds, ranging from fine chemicals to advanced polymers, has been vastly explored in the last decades. One of the striking benefits of olefin metathesis methodologies is the ability to access functionalized, elaborated molecules, from simpler ones, with high atom economy and using mild reaction conditions. For instance, cross metathesis with acrylate or maleate esters allows valorization of bioderived olefins such as fatty esters [1] or phenylpropenoids [2], resulting in the formation of molecules for uses in niche applications. Nevertheless, there has been a lack of methodologies that explore the olefin metathesis reaction for the synthesis of conjugated dienoates (and other conjugated carbonyl dienes), which is a motif frequently encountered in natural compounds. Therefore, we investigated the cross metathesis of 2-propenylbenzenes with methyl sorbate (methyl *E*,*E*-2,4-hexadienoate) (Figure 1) catalyzed by 8 different second generation Grubbs/Hoveyda-Grubbs metathesis catalysts. Several reaction parameters such as solvent, temperature, reaction time, and catalyst loading were investigated. Low catalyst loadings (50 ppm) afforded the *E*,*E*-dienoates with high diasteroselectivity (>90%). [3]

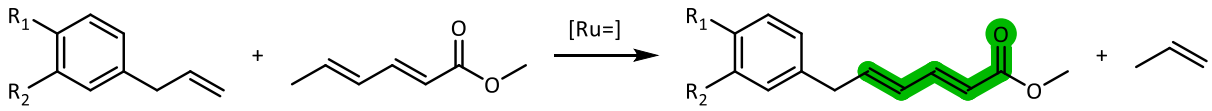

Figure 1. Cross metathesis of propenylbenzenes with methyl sorbate.

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