A New Class of Imidazolium Salts by Cross-Metathesis of Phenylpropenoids

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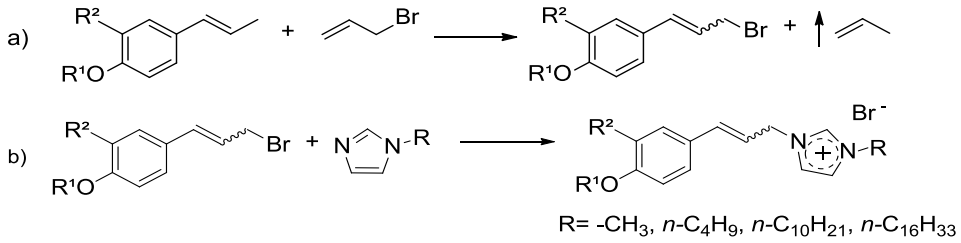
Phenylpropenoids comprise a group of well-known natural compounds that are metabolically synthesized by plants and are part of the composition of several essential oils.[1] These substances are used in the food and cosmetic industry as flavourings and fragrances, and are of interest for the pharmaceutical industry due to antimicrobial properties.[2-4] Phenylpropenoids are also important substrates in the fine chemical industry to prepare value added products.[5,6] The pendant double bond allows a large variety of chemical transformations to be explored in this class of molecules, including the olefin metathesis. The cross-metathesis of phenylpropenoids is a promising strategy and has been explored in the synthesis of products with high associated value.[7,8] Recently, several studies reported about the biological activity of phenylalkylimidazole molecules.[9,10] There are also studies showing high inhibitory activities of imidazolium salts against bacteria and fungi.[11,12] Based on these findings, the present study aims at the synthesis of a new class of imidazolium salts with antifungal properties. The synthesis of these imidazolium salts is planned by the cross-metathesis between a phenylpropenoid (anethole, isoeugenol or isosafrole) and allyl bromide, using the Grubbs and Hoveyda-Grubbs catalysts. The imidazolium salts will be prepared by the alkylation of the cross-metathesis products, and tested in antifungal screenings.

Scheme 1. a) Cross-metathesis between phenylpropenoids and allyl bromide; and b) alkylation of 1-alkylimidazole with the cross-metathesis product.



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