Highly Efficient Catalysis of Retro-Claisen Reactions: From a Quinone Derivative to Functionalized Imidazolium Salts

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Abstract

A new and efficient method for the preparation of several imidazolium salts containing an ester group in the C4 position of the aromatic ring through a retro-Claisen reaction pathway between a quinone derivative and several alcohols is described. This new organic transformation proceeds in the absence of a catalyst, but it is greatly catalyzed by different Lewis acids, especially with AgOAc at a very low catalyst loading and in very short reaction times. The process takes place by the nucleophilic attack of the carbonyl groups by the alcohol functionality, thus promoting a double C-C bond cleavage and C-H and C-O bond formation. This reaction represents the first example of this type between a quinone derivative and alcohols. A new and efficient method for the preparation of several imidazolium salts containing an ester group in the C4 position of the aromatic ring through a retro-Claisen reaction pathway is described. This new organic transformation takes place by the nucleophilic attack of an alcohol functionality over the carbonyl groups, thus promoting a double C-C bond activation (see scheme; Mes=mesityl).

Keywords

C-C activation, nitrogen heterocycles, retro-Claisen reaction, silver, synthetic methods