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Iron(III) Tosylate Catalyzed Acylation of Alcohols, Phenols, and Aldehydes

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Abstract

Iron (III) p-toluenesulfonate (tosylate) is an efficient catalyst for acetylation of alcohols, phenols, and aldehydes. The acetylation of 1° and 2° alcohols, diols, and phenols proceeded smoothly with 2.0 mol % of catalyst. However, the reaction worked well with only a few 3° alcohols. The methodology was also applicable to the synthesis of a few benzoate esters but required the use of 5.0 mol % catalyst. Aldehydes could also be converted into the corresponding 1,1-diesters (acylals) under the reaction conditions. Iron (III) tosylate is an inexpensive, and easy to handle, commercially available catalyst.

Keywords: Iron and its compounds, Acylation, Alcohols, Diols, Esters, Green chemistry, Phenols