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

Neil J. Baldwin, Anna N. Nord, Brendan D. O'Donnell and Ram S. Mohan.

Laboratory for Environmentally Friendly Organic Synthesis, Department of Chemistry, Illinois Wesleyan University, Bloomington, IL 61701. USA.

ROH
$$\frac{\text{Fe(OTs)}_3.6\text{H}_2\text{O (2.0 mol\%)}}{(\text{R}^1\text{CO})_2\text{O (1.3 equiv)}} \text{ROCOR}^1$$

$$\text{R}^1 = \text{CH}_3, \, \textit{n-Pr}, \, \text{Ph}$$

Iron(III) *p*-toluenesulfonate (tosylate) is an efficient catalyst for acetylation of alcohols, phenols, and diols. The acetylation of 1° and 2° alcohols, diols, and phenols proceeded smoothly with 2.0 mol % of catalyst. However, the reaction worked only with 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. Iron(III) tosylate is an inexpensive and easy to handle, commercially available catalyst that is relatively non toxic and hence attractive from a green chemistry perspective.