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Iron-Catalysed Oxidative Amidation of Alcohols with Amines

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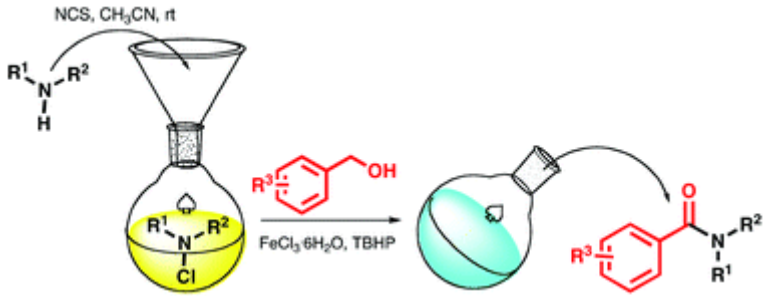
The amides are one of the most important functional groups in organic chemistry and are present in many biologically active compounds with significant pharmacological properties. The classical methods of amide bond formation is the activation of carboxylic acids in "activated esters" with consequent reaction with appropriately substituted amines. The most important limitations of these techniques are the use of coupling reagents in stoichiometric concentrations, often toxic. To overcome these problems many alternative strategies have been studied. An elegant alternative, eco-friendly, it is the oxidative amidation of alcohols or aldehydes with amines (1).
In this work a synthetic protocol for the direct synthesis of amides from benzyl alcohols and N-chloramines, prepared in situ, by the use of tert-butyl hydroperoxide (TBHP) and $FeCl_3$ as catalyst has been developed.



The procedure,presented herein,was used to prepare amides from variously substituted benzyl alcohols and amines, mono and di-substituted. The method is simple, convenient and uses inexpensive and commercially available reagents (2).

(1) Ghosh, S. C.; Ngiam, J. S. Y.; Chai, C. L. L.; Seayad, A. M.; Dang, T. T.; Chen, A. *Adv. Synth. Catal.* **2012**, *354*, 1407, and refereces herein).
(2) Gaspa, S.; Porcheddu, A.; De Luca, L; *Org. Biomol. Chem.*,**2013**, 11, 3803–3807