A Fast Deprotection of Imines Using p-Toluenesulfonic Acid in Solvent-Free Conditions

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In recent years, organic reactions conducted in absence of solvents have received attention of chemists from both academia and industry due to its concerns about the environment [1]. On the other hand, protection and deprotection of functional groups is one of the most important processes in multistep organic synthesis [2]. The protected carbonyl compounds by converting them to the corresponding imines are deprotected after completing the essential transformations to the parent carbonyl compounds by using an efficient catalyst in a reaction sequence. Methods so far developed to regenerate carbonyl compounds from imines, mostly, involve reagents that are often hazardous or very toxic, expensive or not readily available [3]. With increasing environmental concerns, it is imperative that new environmentally friendly reagents be developed. There are a few reports in literature for the deprotection of imines to carbonyl compounds by using acidic reagents [4]. Herein, we report a simple, inexpensive, and high speed method for conversion of imines to carbonyl compounds by p-toluenesulfonic acid (PTS) under solvent-free conditions at room temperature which surprisingly no other references available in the literature reported to date (Scheme 1).

![Scheme 1](image)

The experimental procedure is very simple and involves grinding the mixture of equimolar imines and p-toluenesulfonic acid at room temperature. The reaction is fast and the product can be isolated by simple aqueous work up. The obtained carbonyl compounds were sufficiently pure and required no additional purification. This method was tried for conversion of ketals and oximes to corresponding carbonyl compounds, surprisingly, was not successful.

REFERENCES