

Phosphomolybdic Acid Hydrate Encapsulated in Mil-53 (Fe): A New Heterogeneous Heteropoly Acid Catalyst for Friedel–Crafts acylation

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Phenyl ketones show a significant family of intermediates commonly used in the synthesis of industrial chemicals, medicines, cosmetics and food additives [1]. Acetylation is one of the most applicable, beneficial and essential reaction in organic chemistry setting chemists to introduce reagents for this reaction [2]. In organic synthesis this functionality normally introduced on aromatic rings by acylation with anhydrides or acyl chlorides in the presence of a Lewis or protonic acids and solid acids [3]. Some of the reported methods for the C-acetylation of phenols suffer from one or more drawback such as toxicity, cost, drastic reaction conditions, hygroscopicity, thermal stability, and the explosiveness of reagents. Given those drawbacks, new, efficient, and eco-friendly methods are still in demand. Herein, A simple, efficient method for the one-pot acylation of 4-fluorophenol via acyl chloride in the presence of a catalytic amount of PMA@MIL-53(Fe) MOF is reported (Fig. 1). This heterogeneous catalyst showed the advantages such as very simple and eco-friendly due to high reusability of the catalyst, excellent yield, and mild reaction condition.

Keywords: Friedel–Crafts acylation, 4-fluorophenol, Heterogeneous catalyst, PMA@MIL-53(Fe).

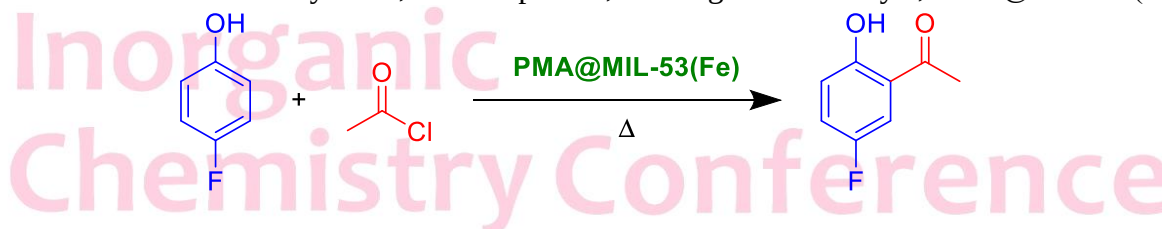


Figure 1. Friedel–Crafts acylation of 4-fluorophenol over the catalysis of PMA@MIL-53(Fe).

References

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