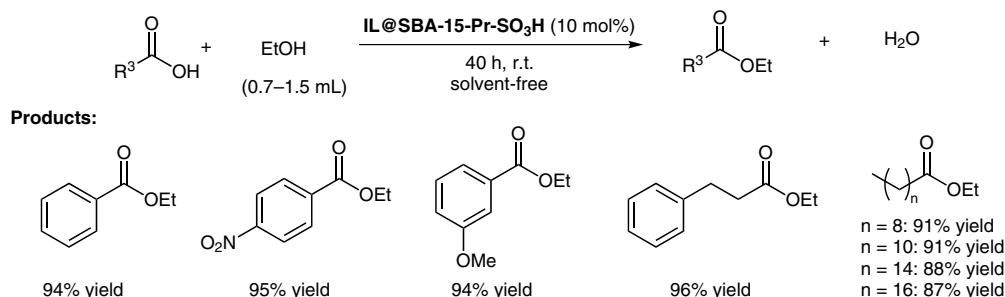
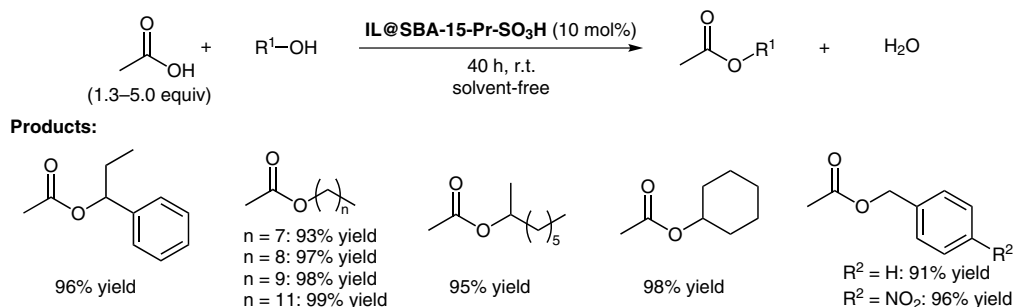
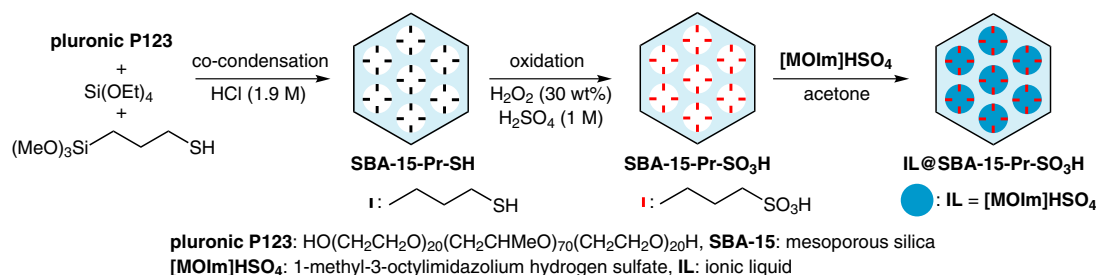


B. KARIMI,* M. VAFAEZADEH (INSTITUTE FOR ADVANCED STUDIES IN BASIC SCIENCES, ZANJAN, IRAN)

SBA-15-Functionalized Sulfonic Acid Confined Acidic Ionic Liquid: A Powerful and Water-Tolerant Catalyst for Solvent-Free Esterifications

Chem. Commun. 2012, 48, 3327–3329.

SBA-15-SO₃H-Confined Acidic Ionic Liquid



Significance: Esterification of carboxylic acids with alcohols using an acidic ionic liquid confined to SBA-15-SO₃H (IL@SBA-15-Pr-SO₃H) as a catalyst was described. IL@SBA-15-Pr-SO₃H consists of ordered mesoporous silica SBA-15-SO₃H where an ionic liquid [MOIm]HSO₄ (1-methyl-3-octylimidazolium hydrogen sulfate) was charged. The catalyst promoted the esterification of various carboxylic acids and alcohols at room temperature under solvent-free conditions to give the corresponding esters in 87–99% yield.

Comment: IL@SBA-15-Pr-SO₃H was recovered and reused three times in the direct esterification of acetic acid with 1-octanol (GC yield: 1st use: 100%, 2nd use: 94%, 3rd use: 90%, 4th use: 89%). Both N₂ adsorption–desorption and elemental microanalysis demonstrated that catalyst loss of ≈7% occurred after the 4th run. SBA-15-Pr-SO₃H, [MOIm]HSO₄ (IL), IL@SBA-15, H₂SO₄, and SBA-15 showed lower catalytic activity in the esterification of acetic acid with 1-octanol under similar conditions.

SYNFACTS Contributors: Yasuhiro Uozumi, Yoichi M. A. Yamada, Maki Minakawa

Synfacts 2012, 8(6), 0681 Published online: 16.05.2012

DOI: 10.1055/s-0031-1291024; Reg-No.: Y04712SF