

عنوان مقاله:

Fe₃O₄@SiO₂-SO₃H core-shell nanoparticles: a highly active and easily recyclable catalyst for the synthesis of 7-alkyl-6H,7H-naphtho[1',2':5,6]pyrano[3,2 c]chromen-6-ones

محل انتشار:

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خلاصه مقاله:

The functionalization of silica-coated Fe₃O₄ magnetic nanoparticles (Fe₃O₄@SiO₂) using chlorosulfonic acid were afforded sulfonic acid-functionalized magnetic Fe₃O₄ nanoparticles (Fe₃O₄@SiO₂-SO₃H) that can be applied as anorganic-inorganic hybrid heterogeneous catalyst. An efficient and eco-friendly method for the one-pot synthesis of 7-alkyl-6H,7H-naphtho[1',2':5,6]pyrano[3,2 c]chromen-6-ones derivatives has been developed in the presence of Fe₃O₄@SiO₂-SO₃H nanoparticles. The multi-component reactions of 4-hydroxycoumarin, β-naphthol and aromatic aldehydes were efficiently catalyzed using novel nano-scale materials under solvent-free conditions. The present method offers several advantages such as short reaction times, excellent yields, simple purification and facile catalyst separation.

کلمات کلیدی:

multi-component reactions ; nanoparticles ; core-shell ; Fe₃O₄@SiO₂-SO₃H ; chromen

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