

عنوان مقاله:

Fe₃O₄@ZrO₂-SO₃H Nanoparticles: A new magnetically retrievable catalyst for esterification of mono- and dicarboxylic acids

محل انتشار:

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خلاصه مقاله:

In this work preparation of sulfonic acid functionalized magnetite encapsulated zirconia (Fe₃O₄@ZrO₂-SO₃H) has been reported. Structural, chemical, and magnetic properties of the magnetically supported catalyst have also been investigated by Fourier transform infrared (FT-IR) spectroscopy, wide angle X-ray diffraction spectroscopy (WXR), thermal gravimetric analysis (TGA), energy dispersive X-ray analysis (EDX), transmission electron microscopy (TEM), vibrating sample magnetometer (VSM), Hammett acidity function and pH analysis as well as Brunauer-Emmett-Teller surface area measurement (SBET). The esterification reaction of various mono- and dicarboxylic acids with different alcohols was chosen to show the nano-catalytic activity. The reaction conditions were optimized and catalyst recovery was also demonstrated. The magnetic catalyst was magnetically separated and reused several times without significant loss of activity.

کلمات کلیدی:

Fe₃O₄@ZrO₂-supported sulfonic acid, Magnetic acid catalyst, heterogeneous catalyst, Esterification

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