عنوان مقاله:

Fe3O4@SiO2-SO3H nanoparticles as a magnetically green catalyst for the synthesis of spirooxindoles under microwave irradiation

محل انتشار:

سومین همایش ملی تکنولوژی های نوین در شیمی،پتروشیمی و نانو ایران (سال: 1395)

تعداد صفحات اصل مقاله: 12

نویسندگان:

F Alemi-Tameh - *Department of Chemistry, Science and Research branch, Islamic Azad University, Tehran, Iran*

J Safaei-Ghomi - *Department of Organic Chemistry, Faculty of Chemistry, University of Kashan*

خلاصه مقاله:

Sulfuric acid has been successfully attached to the core–shell structural (Fe3O4@SiO2) nanoparticles, and characterized by Powder X-ray Diffraction, Vibrating Sample Magnetometer, Scanning Electronic Microscope, Transmission Electron Microscope, Energy Dispersive X-ray, Thermal Gravimetric Analyser and Fourier transform infrared spectroscopy. The prepared nanoparticles employed as a heterogeneous catalyst in the synthesis of spirooxindoles derivatives in one-pot four component reactions of isatin, dimedone, hydrazine hydrate and ethyl acetoacetate under microwave irradiation. Fe3O4@SiO2-SO3H nanoparticles showed high catalytic activity in mild reaction conditions and excellent yields of products in short reaction times. Also, this nano-catalyst can be easily recovered by a magnet and reused for subsequent reactions for at least five times without noticeable loss in catalytic activity

کلمات کلیدی:

Fe3O4@SiO2– SO3H NPs, Spirooxindoles, Multicomponent reactions, under microwave irradiation, Core-shell