

## عنوان مقاله:

Immobilization of boric acid on magnetic nanoporous silica as an efficient and recyclable nanocatalyst

## محل انتشار:

دومین کنفرانس کاتالیست انجمن شیمی ایران (سال: ۱۳۹۸)

تعداد صفحات اصل مقاله: ۱

## نویسندگان:

Masoumeh Shaker - Department of Chemistry, Yasouj University, Yasouj, ۷۵۹۱۸-۷۴۸۳۱, Iran

Dawood Elhamifar - Department of Chemistry, Yasouj University, Yasouj, ۷۵۹۱۸-۷۴۸۳۱, Iran

## خلاصه مقاله:

Over the past few decades, the synthesis and application of magnetic nanoparticles have been the subject of extensive research because quantum size effects and large surface area of nanoparticles significantly change their magnetic properties compared to volumetric ones [۱]. Among the magnetic nanoparticles,  $Fe_3O_4$  is of significant importance.  $Fe_3O_4$  is widely used in various fields such as catalyst immobilization, magnetic resonance imaging (MRI), sensors gas, labeling and sorting of cells and drug delivery [۲]. In addition, uncoated metal nanoparticles are chemically active and easily oxidized in the air and therefore the loss their magnetic properties. Accordingly, for many applications, the development of protective strategies to stabilize the chemical of uncoated magnetic nanoparticles against decomposition during or after synthesis is very important. These strategies include grafting or coating with organic samples, including surface stabilizers or polymers, or coating with mineral layers such as silica or carbon [۳]. According to the mentioned concepts, herein a magnetic mesoporous silica supported boric acid [ $Fe_3O_4@mSiO_2-OB(OH)_2$ ] is prepared and characterized by using IR, XRD and SEM techniques. The catalytic application of  $Fe_3O_4@mSiO_2-OB(OH)_2$  is investigated in the synthesis of ۲H-indazolo[۲,۱-b]phthalazine-trione derivatives. Fig. ۱ Synthesis of ۲H-indazolo[۲,۱-b]phthalazine-trione derivatives

## کلمات کلیدی:

Magnetic nanoparticles; Mesoporous MCM-۴۱; Boric acid; ۲H-indazolo[۲,۱-b]phthalazine-trione

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