

عنوان مقاله:

Green and one-pot synthesis of 1H-pyrazolo[1,2-b]phthalazine-5,10-dione derivatives by nanostructure cu-doped zno hollow sphere as catalyst

محل انتشار:

سومین کنفرانس ملی مهندسی مواد، مهندسی شیمی و ایمنی صنعتی (سال: 1396)

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خلاصه مقاله:

A green and one-pot synthesis of 1H-pyrazolo(1,2-b)phthalazine-5,10-dione derivatives by facil route at 100 under solvent-free condition by nanostructure cu-doped zno hollow sphere as novel and recyclable catalyst is reported. The main benefits of this method are high product yield, exprimental simplicity and use of the nonpoisonous catalyst

کلمات کلیدی:

1H-pyrazolo[1,2-b]phthalazine-5,10-diones, Multicomponent reaction, Nano hollow spheres

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