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Supported 4-carboxybenzyl sulfamic acid on magnetic nanoparticles as a recoverable and recyclable catalyst for synthesis of 3,4,5-trisubstituted furan-2(5H)-one derivatives

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Abstract

4-Carboxybenzyl sulfamic acid functionalized Fe₃O₄ nanoparticles as a novel catalyst was manufactured. This catalyst was characterized and evaluated in the one-pot synthesis of furan-2(5H)-one derivatives from dimethyl acetylenedicarboxylate, aryl aldehydes, and various anilines in terms of activity and reusability. The catalyst showed high catalytic activity, good recoverability and reusability, thermal stability and provides clean production of fine furan-2(5H)-one derivatives in short reaction times. The heterogeneous catalyst could be used at least five times without significant loss of its activity.

Keywords: Magnetic nanocatalyst, Aryl aldehydes, Anilines, Dimethyl acetylenedicarboxylate, 4-Carboxybenzyl sulfamic acid on magnetic, nanoparticles.