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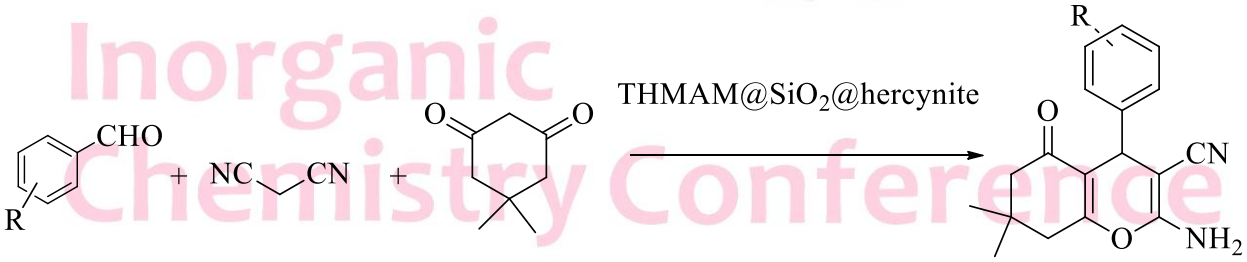
Immobilization of tris hydroxyaminomethyl methane on hercynite MNPs as a magnetically recoverable organocatalyst in the synthesis of tetrahydrobenzo[b]pyran derivatives

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Recently, heterogeneous catalysts have been used in organic reactions and modern organic synthesis [1,2]. In this regard, hercynite magnetic nanoparticles have high density of hydroxyl groups on its surface, which could be available for immobilization of various catalysts [3]. Therefore, hercynite magnetic nanoparticles have attracted great attention, especially in the synthesis of heterogeneous catalysts, due to their feasible recovering and reusing by an external magnet [4]. More addition, hercynite nanoparticles is composed from Al, O and Fe, which have several unique properties such as easy availability, high surface area, non-toxicity, and low cost [3,4]. In this work, hercynite magnetic nanoparticles were synthesized and its surface was coated by a silica layer. Then its surface was modified by 3-choloropropyltrimtoxysilane. Finally, tris(hydroxymethyl)amino methane was immobilized on the surface of modified hercynite nanoparticles (THMAM@SiO_2@hercynite NPs). In the next step, THMAM@SiO_2@hercynite NPs was characterized by by SEM, EDS, WDX, TGA, XRD, VSM, and FT-IR techniques. The catalytic activity of tetrahydrobenzo[b]pyran NPs was studied in the synthesis of tetrahydrobenzo[b]pyran derivatives.

Keywords: Hercynite nanoparticles, magnetic nanoparticles, tris hydroxyaminomethyl methane, tetrahydrobenzo[b]pyran, recoverable organocatalyst



Scheme 1. Synthesis of tetrahydrobenzo[b]pyran in the attendance of THMAM@SiO_2@hercynite

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