

**Synthesis of synthesis 1*H*-indazolo[1,2-*b*]phthalazine-trione derivatives catalyzed by Ni complex supported on MCM-41 as an efficient and reusable nano catalyst**

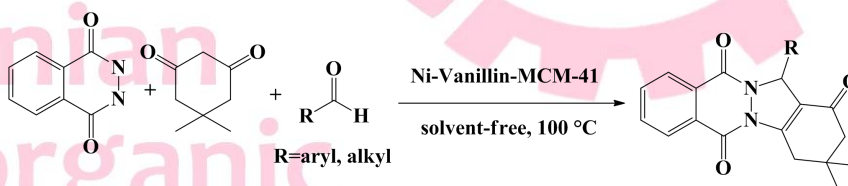
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Development of efficient and selective synthetic transformations using inexpensive, available, and environmentally-benign catalysts and reagents is of great interest in modern organic synthesis [1]. Based on green chemistry desires, the development of new strategies for very low cost, relatively non-toxic and recycling of this catalyst, which minimizes the energy and time required in achieving separations, can result in significant economic and environmental benefits. [3-4]. An efficient heterogeneous catalyst has been synthesized by immobilization of nickel-vanillin complex on MCM-41 nanostructure and characterized by XRD, TGA, BET, EDS, SEM, ICP-OES and FT-IR spectroscopy. In this work, we report an efficient procedure for the preparation of 1*H*-indazolo[1,2-*b*]phthalazine-triones derivatives in solvent free conditions in good to excellent yields through a one-step reaction using various aromatic and aliphatic aldehyde in the presence of Ni-Vanillin-MCM-41 as an efficient, green, reusable and inexpensive catalyst. Also, The catalyst showed excellent stability and recyclability. The desirable product were synthesised in good to excellent yields.

**Keywords:** 1*H*-indazolo[1,2-*b*]phthalazine-trione, MCM-41, Ni complex, Recoverable Catalyst



**Scheme 1.** Synthesis of 1*H*-indazolo[1,2-*b*]phthalazine-trione in the attendance of Ni-vanillin-MCM-41

**References**

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