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Synthesis of 2,2'-{[2,6-Dichloro-1-(Substituted phenyl)-1,4-Dihydropyridine-3,5-Diyl] Dimethylylidene} Dipropanedinitrile Using Green Catalyst L-Proline-Fe_3O_4 MNP

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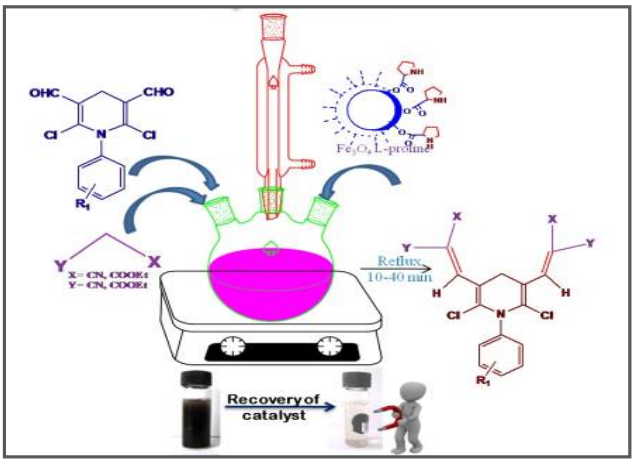
ABSTRACT

The Knoevenagel reaction was mainly used in synthetic practices to achieve sigma bond formation between two carbon atoms. Hence it is need to synthesis a basic organocatalyst supported on ferrite nanoparticles. It is facile and environmentally benign L-proline-Fe_3O_4 MNP was synthesized and was successfully used for the synthesis of 2-benzylidenemalononitrile derivatives, which were obtained in excellent yields via multicomponent reactions. Magnetic organocatalysts can be easily recovered by simple magnetic decantation and their catalytic power remains unaffected after 3 consecutive cycles, making them environmentally friendly, obeys concept of green chemistry and widely applicable in several organic transformations due to their efficiency, easy for handling, and cost effectiveness. Synthesized compounds were characterized by ^{1}H-NMR, FT-IR and Elemental analysis.

Graphical Abstract



Keywords: Vilsmeier-Haack reaction; Knoevenagel condensation; Ferrite, Magnetic Nanoparticles, Green Chemistry.