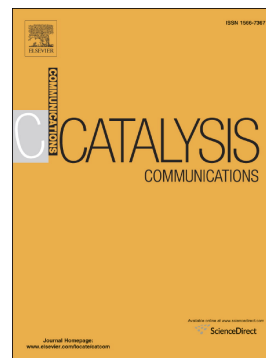


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Ruchi Gupta, Pramod K. Sahu, S.K. Srivastava, D.D. Agarwal



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Environmental benign synthesis of novel double layered nano catalyst and their catalytic activity in synthesis of 2-substituted benzoxazoles

Ruchi Gupta^a, Pramod K. Sahu^{*a,b}, S. K. Srivastava^a, D. D. Agarwal^{a,b}

^aSchool of Studies in Chemistry Jiwaji University, Gwalior, Madhya Pradesh, India

^bDepartment of Industrial Chemistry, Jiwaji University, Gwalior-474011, Madhya Pradesh, India

*To whom correspondence should be addressed: Email: sahu.chemistry@gmail.com (Pramod K. Sahu)

Abstract

Synthesis of Cu-Al hydrotalcite by co precipitation method is being described. Synthesized nano catalyst has been characterized by powder X-ray diffraction, scanning electron microscopy, FT-IR and thermogravimetric analyses which confirm hydrotalcite-like structure. Effect of molar concentration, catalyst loading, reaction time and catalytic activity have been investigated in the synthesis of benzoxazoles under solvent free conditions using 2-amino phenol and benzoyl chloride. The influence of the hydrotalcite and their different amounts on reactivity was studied. Catalyst can be recycle and used for further reaction without losing its activity.

Keywords: Double Layered Nano Catalyst, Reusability, Benzoxazole, Green Synthesis, Heterogeneous catalyst.

1. Introduction

Layered double hydroxides are the anionic clay in which divalent cations within brucite-like layers are replaced by trivalent cations. The resulting positive charge is compensated by hydrated anions located in the interlayer space between two brucite sheets. The general formula for these materials is $[M(II)_{1-x}N(III)_x(OH)_2]^{x+} [A^{n-}]_{x/n} mH_2O$, here M(II) and N(III) are di- and trivalent metal cations respectively, which occupy octahedral positions in hydroxide layers. A^{n-} is an exchangeable anion, such as CO_3^{2-} , NO_3^- and Cl^- , etc. [1-4] Copper-containing hydrotalcites represent a rather peculiar system in this family of compounds, probably due to the well-known

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