

Nano-Zinc Oxide: A Powerful and Recyclable Catalyst for Chemospecific Synthesis of Dicoumarols Based on Aryl Glyoxals

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Abstract : An efficient, simple, and environmentally benign procedure for the one-pot synthesis of dicoumarols was reported. The reaction entails the condensation of aryl glyoxals and 4-hydroxyxoumarin in the presence of catalytic amount of zinc oxide nanoparticles (ZnO NPs) as recyclable catalyst in aqueous media. High product yields and use of clean conditions are important factors of green chemistry. Part of our continued interest to achieve high atom economic reactions by the use safe catalysts. The reaction mixture was refluxed with catalytic amount (3 mol%) of zinc oxide nanoparticles. Reducing the amount of toxic waste and byproducts arising from chemical reactions is an important issue in the context of green chemistry. In comparison with commonly organic solvents, the aqueous media is cheaper and more environmentally friendly. Avoiding the use of organic solvents is an important way to prevent waste in chemical processes. In the context of green and sustainable chemistry, one of the most promising approaches is the use of water as the reaction media. In recent years, there has been increasing recognition that water is an attractive media for many organic reactions. Using water continues to attract wide attention among synthetic chemists in the design of new synthetic methods.

Keywords : zinc oxide, dicoumarol, aryl glyoxal, green chemistry, catalyst

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