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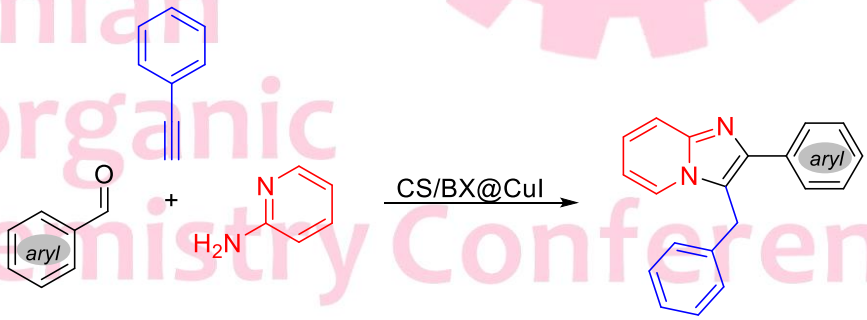
Preparation and Characterization of Chitosan/Borax Nanocomposite Based on Copper Iodide: An Efficient Nanocatalyst for Synthesis of Imidazo [1,2-a] Pyridines

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Organic synthesis is one of the most important areas where catalysts are used, especially on a commercial scale, because they allow for a more cost-effective preparation of various organic compounds than would otherwise be possible. In their natural state, organo-catalysts are homogenous, but when modified as nanocatalysts, they exhibit heterogeneous catalytic behavior. Although popular traditional catalysts such as pyridine and piperidine, as well as triethyl amine, have been utilized in organic synthesis transformations for many years, nanoparticles are currently being used for greener and novel organic reactions [1,2]. Chitosan (CS) and its derivatives can be used as efficient, recyclable, and environmentally friendly catalyst supports in various applications [3]. An efficient route was developed for the synthesis of a new polymer, porous cross-linked borax (BX), as an organic support for the immobilization of CuI nanoparticles (CS/BX@CuI). The resulting catalyst works as a recyclable heterogeneous catalyst for the synthesis of imidazo[1,2-a] pyridines from the reaction of 2-aminopyridine, aldehydes, and phenylacetylene. The method possesses significant advantages, including easy purification, functional group tolerance, recyclability of the catalyst, and synthesis of new derivatives in high to excellent yields and short reaction times.



Keywords: Chitosan, Copper Ioddide, Multicomponent Reaction, and nanocatalyst.

References

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