

Fabrication of Core–Shell-Structured Organic–Inorganic Hybrid Nanocatalyst for the Synthesis of polyhydroquinolines

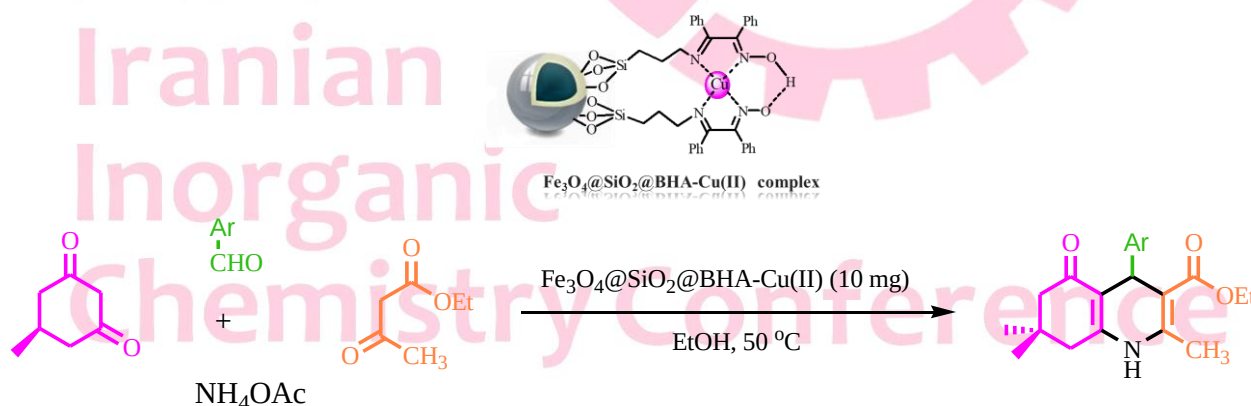
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Modern state of the art of catalysis science and research reveals that the introduction of novel nanotechnologies has enabled the generation of solid-supported heterogeneous nanoscale catalysts, which are effective tools for controlling chemical reactivity as well as conferring the synergistic benefits of facile recovery [1]. By collectively integrating the key advantages of homogeneous as well as heterogeneous catalysts, they offer great prospects of meeting the sustainability criteria consistent with the goals of green chemistry [2-3]. Magnetic nanoparticles play the role of a bridge between heterogeneous and homogeneous catalysts and have emerged as promising catalysts due to their low-cost, efficient and reusable properties [4]. A magnetically recoverable heterogeneous $\text{Fe}_3\text{O}_4@\text{SiO}_2@\text{BHA-Cu(II)}$ nanocomposite was prepared by immobilizing a novel Cu(II) complex on the nanoparticles. The catalyst was characterized by FT-IR, TGA, VSM, FESEM, XRD, ICP and EDX techniques. The catalytic activity of this nanocatalyst in the synthesis of polyhydroquinoline derivatives were investigated.

Keywords: Magnetic Nanoparticles, Polyhydroquinoline, Immobilized Copper Complex, Recoverable Nanocatalyst



Scheme 1. Synthesis of Polyhydroquinoline in the attendance of $\text{Fe}_3\text{O}_4@\text{SiO}_2@\text{BHA-Cu(II)}$

References

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