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Preparation and characterization of Cu (II) Schiff base complex functionalized boehmite nanoparticles and its application as an effective catalyst for oxidation of sulfides and thiols

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Abstract

The synthesis, characterization, and evaluation of a Schiff base Cu (II) complex functionalized boehmite nanoparticles (Cu-complex-boehmite) as a new catalyst for oxidation of sulfides and thiols in the presence of hydrogen peroxide with complete selectivity and high conversion under solvent-free and mild reaction conditions were reported. Characterization of the catalyst was performed with various physicochemical methods. This effective catalyst was evaluated in terms of activity and reusability. It indicated high catalytic activity, good recoverability and reusability, and supplied the corresponding products in high yields and short reaction times. In addition, it shows notable advantages such as simplicity of operation, heterogeneous nature, easy work up, and it could be used at least eight times with no significant loss of its activity.

Keywords: Boehmite nanoparticles, hydrogen peroxide, oxidation, sulfide, thiol.