$CoFe_2O_4$ spinel used as a catalyst for the degradation of organic dyes

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Abstract

Spinel ferrites have been widely studied owing to their structural, optical, dielectric, and magnetic properties leading to numerous applications. $CoFe_2O_4$ nanoparticles have been synthesized directly *via* the sol-gel method with glycine as a fuel. The Rietveld refinement of the X-ray diffraction patterns revealed the formation of a single cubic structure with a space group, no secondary phase was observed. The lattice parameter and the average crystallite size of powders produced from the standard and alkaline solutions were 8.36/8.38 Å, and 511/1060 Å, respectively. The characteristic vibrations modes of the spinel structure have been revealed by Fourier Transform Infrared spectroscopy. $CoFe_2O_4$ powders were tested for Fenton catalysis, and their performance was investigated for dye degradation.

Keywords

CoFe2O4 ; XRD; FT-IR; Fenton catalysis