عنوان مقاله:

Application of a substituted magnetite nanocatalyst in optimized decolorization of dye-containing wastewater by heterogeneous Fenton oxidation process

محل انتشار:

چهارمین کنفرانس بین المللی نوآوری های اخیر در شیمی و مهندسی شیمی (سال: 1396)

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خلاصه مقاله:

In this study, the effects of four parameters including pH, reaction time, H2O2 concentration, and catalystloading on the decolorization of methyl orange by synthesized vanadium ferrite nanocatalyst have been studied. Inorder to optimize the decolorization efficiency, response surface methodology (RSM) based on central compositerotatable design (CCRD) was employed. Optimum condition for the decolorization of methyl orange solution withconcentration of 25 mg/L was obtained at 90 min, H2O2 amount of 0.2 ml, pH 5.5, and catalyst loading of 0.02g. Theresults showed that at the optimum conditions, more than 99.19% dye removal can be obtained. The synthesizedsubstituted magnetite nanoparticles are efficient Fenton catalysts for the treatment of industrial wastewaters containingazo dyes such as methyl orange.

کلمات کلیدی:

Methyl orange, Advanced oxidation, Nanocatalyst, Fenton, Optimization, Decolorization