عنوان مقاله:

Synthesis and application of iron oxide/silica gel composite for removal of sulfur dyes from aqueous solutions

محل انتشار:

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خلاصه مقاله:

In this paper iron oxide magnetic (Fe3O4) nanoparticles was synthesized chemically on the surface of silica gel (termed as Fe3O4/SG) and then applied for removal of sulfur dyes from aqueous solution. The effect of pH, sorbent dosage, initial concentration, contact time and temperature was investigated in a batch system. The equilibrium data were analyzed by Langmuir and Freundlich isotherms. The experimental kinetics data fit well with pseudo-second-order kinetic model and equilibrium isotherm data conformed better to Langmuir adsorption isotherm. The adsorption capacity for Fe3O4/SG was 11.10 mg/g. Evaluation of thermodynamic parameters proved that the adsorption process is spontaneous and exothermic. Fe3O4/SG composite was found to be a cost-effective environmental friendly and efficient adsorbent for removal of sulfur dyes from aqueous solutions

کلمات کلیدی:

Sulfur dye, Removal, Fe3O4, Silica gel, Adsorption, Isotherm