عنوان مقاله:

High efficient dye removal by recyclable magnetite core-shell adsorbent

محل انتشار:

دومین کنگره ملی شیمی و نانو شیمی از پژوهش تا فناوری (سال: 1398)

تعداد صفحات اصل مقاله: 5

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خلاصه مقاله:

An environmental-friendly magnetic adsorbent composed of chitosan, graphene oxide and diethylenetriaminepentaacetic acid (DTPA) was synthesized and used to remove Methyl Violet cationic dye from aqueous solution as a wastewater model. The sorbent was characterized by FTIR, FESEM, XRD, EDS, TGA and VSM. The adsorption conditions were optimized by pre-experiment and the removal percentage of 95.7% was obtained for 10 mg/L of dye at pH = 9.8, temperature of 52.3 °C and adsorbent dosage of 0.01 g. based on the kinetic study, the adsorption process was too fast and the modified pseudo-n-order was the best model to fit the experimental data. Besides, the maximum adsorption capacity of 243.8 mg/g was obtained by equilibrium experiments correlated successfully by the Langmuir-Freundlich isotherm. The reusability of magnetite core-shell sorbent was tested showing no significant decreasing in the dye removing capability of adsorbent

کلمات کلیدی:

Adsorption, Dye removal, Methyl Violet, Fe3O4, Chitosan, Graphene oxide, DTPA