عنوان مقاله:

Removal of toxic textile dyes from aqueous solution through adsorption onto coconut husk waste : Thermodynamic and isotherm studies

محل انتشار:

مجله علوم زیستی خاورمیانه, دوره 19, شماره 3 (سال: 1400)

تعداد صفحات اصل مقاله: 10

نویسندگان:

Amer M. J. Alshamri - College of science -Chemistry Department/University of Kufa-Iraq

Aseel M. Aljeboree - Department of Chemistry, College of Sciences for Girls, University of Babylon, Hilla, Iraq

Mohammed B. Alqaragully - Al-Hilla college university/Iraq

Ayad F. Alkaim - Department of Chemistry, College of Sciences for Girls, University of Babylon, Hilla, Iraq

خلاصه مقاله:

In this research, activated carbon (coconut husk waste) is prepared using sulfuric acid activation from coconut husk waste which is a cheap material that shows agreed scavenging actions by adsorption for eliminating the toxic textile dyes (methylene blue MB, crystal violet CV, as well as Brilliant Blue BB) from the aqueous solutions. In a shaker water bath, different physio-chemical factors like contact time, adsorbent dose, pH, temperature of the dye solution and initial concentration of the dye have been measured and the adsorption time is ۱۲۰ minutes. The results show that adsorption of MB, CV is favorable at a high pH value, but at acidic pH, the brilliant blue BB dye is favorable. The activated carbon thermodynamic analysis is conducted using three dyes : The Gibbs free energy, entropy and also enthalpy. According to the results, the adsorption is a Physical (endothermic). It is also found that the activated carbon is regulated by the equations of Freundlich and Temkin. Finally, field emission scanning electron microscopy (FE-SEM) and Fourier-transform infrared spectroscopy (FT-IR) have been used to show adsorption.

کلمات کلیدی:

Adsorption, Coconut husk, activated carbon, Textile dyes, Isotherm, Thermodynamic parameters

لینک ثابت مقاله در پایگاه سیویلیکا: