

عنوان مقاله:

Removal of Reactive Dye from Aqueous Solution Using Physico- Chemically Treated Rice Husk

محل انتشار:

فصلنامه روشهای تصفیه محیط، دوره 2، شماره 3 (سال: 1393)

تعداد صفحات اصل مقاله: 8

نویسندگان:

Anteneh Worku - Department of Chemical Engineering, KIOT, Wollo University, Ethiopia

Omprakash Sahu - Department of Chemical Engineering, KIOT, Wollo University, Ethiopia

خلاصه مقاله:

Dye removal onto low cost material is a suitable method for textile wastewater treatment. Rice husk was investigated for its ability to remove reactive dye from aqueous solution. Two modes of operation were performed one with physical treatment and another with physicochemical treatment. All experiments were conducted at batch system and effects of effective parameters include pH, adsorbent dose, initial dye concentration and contact time was investigated. Maximum and minimum value of 94 % and 26.41% for physicochemically and 78% and 12.35 % for physically treated rice husk was obtained. Low pH, high adsorbent dosage and high contact time favors the adsorption whereas the percent dye removal decrease dramatically with the increase of initial dye concentration. Based on the result, Freundlich isotherm ($R^2 = 0.986$) and second order kinetic ($R^2 = 0.985$) are best modules for explanation of adsorption onto Physico-Chemically treated rice husk. The efficient parameters were applied on actual textile dye machine effluent. It was observed that the direct waste increase in dye concentration and efficient removal (91.24%) was observed for adjusted waste. In regard to cost of other methods in dye removal, Physico-Chemically treated rice husk could be suggested as relatively efficient and low cost adsorbent for dye removal from textile wastewater.

کلمات کلیدی:

Adsorption; reactive black 5; rice husk; batch operation

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/281502>

