

## عنوان مقاله:

Studying Effect of Modifying Nano-Mineral Adsorbents on Efficiency of Dye Removal from Industrial Effluents

## محل انتشار:

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## خلاصه مقاله:

In this research work, the potential capability of nano-clay and tonsil, as low-cost and domestic adsorbents, for the elimination of a cationic dye, (CR18) from contaminated water is investigated. The surface properties of the adsorbents are studied by means of the scanning electron microscopy (SEM) and X-ray diffraction techniques. The effects of the initial dye concentration, pH, stirring speed, contact time, and adsorbent dosage are investigated at 25 . The results obtained show that the dye adsorption data from the nano-clay and tonsil experiments fit well to the Langmuir and Freundlich isotherms, respectively. The results of dye adsorption kinetics demonstrate that the adsorption system follows a pseudo-second-order model with a satisfactory correlation value ( $R=99\%$ ). The adsorption thermodynamics is also studied, concluding that the adsorption process is spontaneous and physically controlled. Under the optimum conditions (pH of 7, stirring speed of 200 rpm, CR18 concentration of 30 ppm and contact time of 30 min), the adsorption capacities of the mixed adsorbents show the maximum adsorption efficiency at the tonsil:nano-clay weight ratio of 1:2.

## کلمات کلیدی:

Adsorption, Tonsil, Nano-clay, dye removal, industrial effluents

## لینک ثابت مقاله در پایگاه سیویلیکا:

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