

عنوان مقاله:

Isotherm and Kinetic Modeling of Adsorption of Acridine Orange Using Eucalyptus-Wood Based Activated Carbon Modified with Maghemite Nanoparticles

محل انتشار:

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خلاصه مقاله:

In this study, activated carbon (AC) was prepared from low cost and locally available source such as eucalyptus wood, the activated carbon modified with γ -Fe₂O₃. The activated carbon was produced by the acid treatment of the carbon obtained from eucalyptus wood. The prepared nanomaterial was characterized by field emission scanning electron microscopy (FE-SEM), X-ray diffraction (XRD) and vibrating sample magnetometer (VSM) to examine their size and magnetic moment. The Fe₂O₃ nanoparticle loaded activated carbon (γ -Fe₂O₃-NPs-AC) was used as a novel adsorbent for the removal of acridine orange. The Freundlich and Langmuir isotherms were studied. The Langmuir was found to be most applicable isotherm which predicted maximum monolayer adsorption capacities of 154.74 mg/g for the adsorption of dye. The pseudo-second order model was found to be applicable for the adsorption kinetics.

کلمات کلیدی:

Maghemite nanoparticles, Acridine Orange, activated carbon

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