

Preparation and investigation of nanomagnetic activated carbon as a perfect absorbent for removal of crystal violet from water

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Nanomagnetic activated carbon that was synthesized by nanomagnetic iron oxide was used for fast and effective removal of crystal violet from aqueous solutions. The SEM images showed that the average sizes of synthesized nano-adsorbent are less than 100 nm. The various factors affecting removal were examined including pH, temperature, dose of adsorbent and contact time. The thermodynamic parameters of sorption were calculated. Langmuir and Freundlich isotherms were tested to fit the resulting data. The results had best applicability with Langmuir isotherm model. Adsorption kinetics is consistent with a pseudo second order equation. For further study, the nanomagnetic iron oxide was synthesized and used as absorbent. Sorption capacities were 44.65 and 12.7 mg/g for nanomagnetic activated carbon and nanomagnetic iron oxide, respectively and also sorption capacities increased with temperature for both absorbents.

Biography

Marzieh Torabbeigi has completed her Ph.D. at the age of 31 years from Science and Research Branch, Islamic Azad University, Tehran, Iran. She worked in chemical laboratory of Faculty of Health, Safety and Environment of Shahid Beheshti University of Medical Sciences for 7 years. She has published 10 papers in reputed journals.

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