

Adsorption Behavior of Acid Fuchsin by coconut shell-based granular activated carbon

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coconut shell-based granular activated carbon was used as an adsorbent to investigate adsorption behavior in isothermal lines and kinetic parameters of Acid fuchsin (AF) dye. As the adsorption variables, dose of adsorbent, initial concentration, contact time, and temperature are used. As a result of matching the isothermal adsorption experiment data conducted at the temperature of 298, 308, 318 K with the formula such as Freundlich and Langmuir, AF is suitable for the Freundlich, and therefore, it is confirmed that it is multilayer adsorption. Furthermore, adsorption treatment is facilitated ($1/n=0.8313-0.9711$), indicating that this adsorption process is an appropriate treatment process. A pseudo first order kinetics model and a pseudo second order kinetics model were used for dynamic analysis. The results of the experiment of adsorption of AF solutions of 10, 20, 30 ppm at 298 K and the experiment of adsorption of AF solutions of 20 ppm at 298, 308 and 318 K were applied to the two expressions. As a result, it was more suitable for second order. The thermodynamic analysis also showed that the adsorption behavior of AF is spontaneous as the temperature increases.