Adsorption of Carbon Fushin by Activated Carbon : Equilbrium, Kinetic and Thermodynamic

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In this study, the adsorption equilibrium, dynamics and thermodynamic properties of Carbol fuchsin using activated carbon were studied. The effects of various parameters such as contact time, initial concentration and temperature were investigated. Comparing the correlation coefficient between Langmuir and Freundlich isotherm, it was found that Langmuir isotherm (r=0.9857 ~ 0.9925) was more suitable than Freundich isotherm (r=0.9726 ~ 0.9914). A pseudo first order kinetics model and a pseudo second order kinetics model were used for dynamic analysis. Carbol fuchsin solutions of 10, 20, and 30 ppm were adsorbed at 298K and the data were applied to two expressions, the error rate is 34.9~84.5% do first order kinetics model and 1.64~4.62% in the pseudo second order kinetics model, so the pseudo second order kinetics model was relatively more consistent. Likewise as a result of the adsorption experiment of an Carbol fuchsin solution of 10ppm at 298,308,318 K, the error rate is 76.5~77.5% in the pseudo first order kinetics model and 3.76~4.72% in the pseudo second order kinetics model, and it is confirmed that they match by the pseudo second order kinetics model.