



Adsorption of crystal violet dye by *Fugas Sawdust* from aqueous solution

Aseel M. Aljeboree

Department of Chemistry, College of Sciences for Girls, Babylon University, Hilla, Iraq

Abstract: The adsorption of textile dyes (Basic crystal violet dye as a model (CV)) from aqueous solution by Fugas Sawdust Carton (*FSC*) was studied. The adsorbent before and after adsorption was characterized by FTIR, and SEM, respectively. The effect of different experimental parameters such as initial concentration of CV dye ($5-100 \text{ mg L}^{-1}$), particle size ($50-100 \mu\text{m}$), initial pH 2-10 of aqueous solution, adsorbent dose ($0.005-0.1 \text{ g}$) and solution temperature ($283\text{K} - 313\text{K}$) on the adsorption of CV were investigated.

Third adsorption isotherms were used to model the equilibrium adsorption of crystal violet dye on *FSC* adsorbent (Langmuir, Freundlich, and Temkin). By considering the experimental results and adsorption models applied in this study, it can be concluded that equilibrium data were represented well by all isotherm equations under study. The applicability of the isotherm's model for the present data follows the order: Freundlich > Temkin > Langmuir. Based on the calculated thermodynamic parameters such as enthalpy (ΔH°), entropy (ΔS°), and Gibbs free energy changes (ΔG°), it is noticeable that the sorption of CV dye onto *FSC* was a spontaneous and endothermic process.

Key words: Fugas Sawdust *FSC*, crystal violet dye, Adsorption isotherm, thermodynamic parameters.

Aseel M. Aljeboree /International Journal of ChemTech Research, 2016,9(3),pp 412-423.
