

Biosorption of Phenol onto Water Hyacinth Activated Carbon: Kinetics and Isotherm Study

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Abstract : Batch adsorption experiments were carried out for the removal of phenol from its aqueous solution using water hyacinth activated carbon (WHAC) as an adsorbent. The sorption kinetics were analysed using pseudo-first order kinetics and pseudo-second order model, and it was observed that the sorption data tend to fit very well in pseudo-second order model for the entire sorption time. The experimental data were analyzed by the Langmuir and Freundlich isotherm models. Equilibrium data fitted well to the Freundlich model with a maximum biosorption capacity of 31.45 mg/g estimated using Langmuir model. The adsorption intensity 3.7975 represents a favorable adsorption condition.

Keywords : adsorption, isotherm, kinetics, phenol

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