

Removal of Phenol from Aqueous Solution Using Watermelon (*Citrullus C. lanatus*) Rind

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Abstract : This study focuses on investigating the effectiveness of watermelon rind in phenol removal from aqueous solution. The effects of various parameters (pH, initial phenol concentration, biosorbent dosage and contact time) on phenol adsorption were investigated. The pH of 2, initial phenol concentration of 40 ppm, the biosorbent dosage of 0.6 g and contact time of 6 h also deduced to be the optimum conditions for the adsorption process. The maximum phenol removal under optimized conditions was 85%. The sorption data fitted to the Freundlich isotherm with a regression coefficient of 0.9824. The kinetics was best described by the intraparticle diffusion model and Elovich Equation with regression coefficients of 1 and 0.8461 respectively showing that the reaction is chemisorption on a heterogeneous surface and the intraparticle diffusion rate only is the rate determining step. The study revealed that watermelon rind has a potential of removing phenol from industrial wastewaters.

Keywords : biosorption, phenol, biosorbent, watermelon rind

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