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REMOVAL OF Cu (II) IONS FROM AQUEOUS SOLUTION BY ADSORPTION ONTO ACTIVATED CARBON PRODUCED FROM *Guazuma ulmifolia* SEEDS

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Abstract

Guazuma ulmifolia seeds activated carbon was modified by sulphuric acid to enhance the adsorption capacity for Cu(II) ions. This modified activated carbon produced from *Guazuma ulmifolia* seeds (GUAC) was investigated by observing the changes in its characteristics and the Cu(II) adsorption behavior. The prepared GUAC was characterized by BET, FTIR and SEM analysis. The kinetic data were analyzed using four adsorption kinetic models: the pseudo-first and pseudo-second order equations, intraparticle diffusion equation and Boyd kinetic model. The results of the kinetic studies shows that the kinetics of Cu(II) ions adsorption on GUAC were better described by a pseudo-second order model. The adsorption equilibrium data were analyzed using the Langmuir and Freundlich adsorption isotherms. The data best fit in the Freundlich isotherm which indicates the multilayer adsorption of the Cu(II) ions onto the GUAC. A single-stage batch adsorber was designed by using Freundlich adsorption isotherm. Desorption studies shows that GUAC possesses an excellent reusability.

Key words: adsorption, Cu(II), *Guazuma ulmifolia* seeds, isotherms, kinetics

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