



The Potential of Cost-Effective Ground Nut Shell for the Removal of Toxic Metal Ions for Environmental Protection[#]

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Abstract: The adsorption of U(VI) onto ground nut shell and carbonized ground nut shell has been studied as a function of shaking time, pH values, uranium concentration and thermodynamic. The rate constant has been calculated using Lagergren equation. The pH of the solution markedly affects the extent of adsorption. The experimental isotherms results were analyzed in terms of the well known Langmuir, Freundlich, Temkin & Dubinin-Radushkevich (D-R), isotherms. The thermodynamic quantities for the adsorption process have been estimated at different temperatures. The ΔH° , ΔS° and ΔG° values of U(VI) adsorption on the two samples show endothermic heat of adsorption; higher temperatures favour the process. Effect of temperature on the equilibrium distribution values has been utilized to evaluate the changes in standard thermodynamic quantities.

Key Words: *ground nut shell, carbonized ground nut shell, uranium, adsorption kinetics, thermodynamic, adsorption isotherm.*

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