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Adsorption of Thionine Dye from its Aqueous Solution over Peanut Hull as a Low Cost Biosorbent

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Abstract : Investigations were carried out to determine whether low cost peanut hull as adsorbent hold promise in removal of thionine dyes in the biomedical industries. Pollution of water due to presence of colorants is a severe socio-environmental problem caused by the discharge of industrial wastewater. In view of their toxicity, non-biodegradability and persistent nature, their removal becomes an absolute necessity. For the removal of Thionine Dye using Peanut Hull, the 10mg/L concentration of dyes, 0.5g/l of adsorbent and 200 rpm agitation speed are found to be optimum for the adsorption studies. The Spectrophotometric technique was adopted for the measurement of concentration of dyes before and after adsorption at ƛmax 598nm. The adsorption data has been fitted well to Langmuir isotherm than to Freundlich adsorption isotherm. The adsorbent was characterized by Scanning Electron Microscopy (SEM).

Keywords : adsorption, langmuir isotherm, peanut hull, thionine
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