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Biosorption of Acid Orang 7 using dried CyperusRotundus: Isotherm Studies and Error Functions

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Abstract: Industrial wastewater is one of the major environmental pollutants. Discharge of the colorful industrial waste into the receptive waters leads to eutrophication and has mutagenic and carcinogenic properties In order to understand the biosorption of Acid Orang 7 (AO7) textile dye on dried CyperusRotundus (CR), batch experiments were conducted under various conditions. Adsorption isotherms were examined by six different isotherm and four Error Functions that finally showed the langmuir models closely fitted the experimental results. The maximum monolayer adsorption capacities of biomass are 32.21 mg/g at 273 K, 35.69 mg/g at 293 K and 38.45 at 313 K, respectively. Therefore adsorption capacity increases with increasing temperature, that shows the adsorption is an endothermic process. The results showed that the percentage of removal reached 98.9% from wastewater containing 25 mg/L AO7 dye, indicating that the CyperusRotundus biomass could be used as a potential biosorbent for the removal of AO7 dye from aqueous solution.
Keywords: CyperusRotundus, Acid Orang 7, Biosorption, Kinetic Mechanism.

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