Study on Waste Fish Scale to Replace Activated Carbon as a Potential Adsorbent for Removal of Color from Textile Wastewa

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ABSTRACT

Tilapia is one of the commercially important fish species in Taiwan. Approximately 90 thousand of tons Tilapia fish scale were processed annually. This has prompted a growing research interest in the production of fish scales adsorbents from a range of residues mainly industrial or fishery by products. Tilapia fish scale was studied as a potential adsorbent for the adsorption of Reactive Red 198（R-R 198）from aqueous solution. In addition, Tilapia fish scale studies were conducted to explore zeta potential, the different dyes to removal color and adsorbance spectra of dyes solution. The effects of pH , temperature and adsorbent dosage on decolorization by fish scale were studied. Kinetic studies was also carries out to study the effectiveness of dye removal. Greater dye-removal percentage was obtained with a decrease in the initial concentration of dyes and an increase in amount of adsorbent used. Equilibrium isotherms were analysed by Freundlich, Dubnin-Radushkevich, Langmuir, Redlich-peterson and Temkin isotherm equations using correlation coefficients and five different error functions. The experimental data are fitted to the Langmuir isotherm equations.

Keywords : Fish scale、Dyestuffs、Adsorbent、Color removal、Kinetics

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