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SUGARCANE BAGASSE BIOMASS APPLIED TO THE ADSORPTION OF REACTIVE BLUE BB DYE

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Abstract

The textile industry has been contributing to the generation of wastewater containing dyes during the dyeing process. In this sector, Reactive Blue BB is a dye used on a large scale. One method widely applied to dyes wastewater treatment is adsorption. This technique is inexpensive since it can apply industrial by-products as adsorbents. In this work, the adsorption of Reactive Blue BB dye by the sugarcane bagasse, a by-product from the sugar and alcohol industry, was evaluated in batch systems. The adsorption kinetics presented an equilibrium time of 480 minutes, obtaining the best fit to the experimental data with the pseudo-second order model ($R^2 = 0.97$). The Langmuir isotherm adequately represented the equilibrium data ($R^2 = 0.97$), obtaining a maximum adsorption capacity of 4.21 mg g^{-1}. This study demonstrated that the sugarcane bagasse presents a capacity of adsorption for the evaluated wastewater, and it can be applied as an alternative adsorbent.

Keywords: adsorption, reactive blue BB, sugarcane bagasse, textile dyes

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