



## Adsorption properties of reactive dyes on the activated carbon from corn straw prepared by microwave pyrolysis

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Received 13 September 2019; Accepted 18 May 2020

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### ABSTRACT

A low cost activated carbon from corn straw was prepared by dry pyrolysis using the microwave, the  $S_{\text{BET}}$  of activated carbon was  $937 \text{ m}^2 \text{ g}^{-1}$ . The adsorption of Reactive Brilliant Yellow K-6G and Reactive Brilliant Red K-2BP on the activated carbon from corn straw were investigated. Four types of kinetic models and three types of isotherms were used to fit the experimental data. The results showed that the adsorption of RBY K-6G and RBR K-2BP on the activated carbon from corn straw both followed the pseudo-second-order kinetic model and Langmuir isotherm. The enthalpy change ( $\Delta H^\circ$ ) and Gibbs free energy ( $\Delta G^\circ$ ) are calculated,  $\Delta H^\circ > 0$  and  $\Delta G^\circ < 0$  suggested that the adsorption process was endothermic and spontaneous in nature.

*Keywords:* Adsorption; Reactive dye; Corn straw; Activated carbon; Microwave

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