

ABSTRACT

Periwinkle shell, an abundant and inexpensive natural resource, was used to prepare activated carbon by physicochemical activation with potassium hydroxide (KOH) and carbon dioxide (CO₂) as the activating agents at 850 °C for 2 h. The adsorption equilibrium and kinetics of methylene blue dye on such carbon were then examined at 25 °C. Adsorption isotherm of the methylene blue (MB) on the activated carbon was determined and correlated with common isotherm equations. The equilibrium data for methylene blue adsorption well fitted to the Langmuir equation, with maximum monolayer adsorption capacity of 500.00 mg/g. Two simplified kinetic models including pseudo-first-order and pseudo-second-order equation were selected to follow the adsorption processes. The adsorption of methylene blue on activated carbon derived from periwinkle shell could best be described by the pseudo-second-order equation. The kinetic parameters of this best-fit model were calculated and discussed.

Link:

<https://www.tandfonline.com/doi/full/10.1080/02757540802238341?scroll=top&needAccess=true&role=tab>