



## Adsorption of Rhodamine B from aqueous solution onto sepiolite modified by cetyltrimethylammonium bromide

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### ABSTRACT

The sepiolite modified with cetyltrimethylammonium bromide (CTAB/sepiolite), was used as an adsorbent for the removal of Rhodamine B (RhB) from aqueous solutions. The sepiolite and modified sepiolite were characterized by Fourier transform infrared spectroscopy, Brunauer-Emmett-Teller and scanning electron microscopy, respectively. The CTAB/sepiolite exhibited much higher adsorption capacity for the removal of RhB than sepiolite. The effects of the amount of CTAB, contact time, initial RhB concentrations, and pH upon the RhB adsorption were evaluated on the CTAB/sepiolite. The kinetic studies indicated that the adsorption process was fitted well with the pseudo-second-order kinetic model ( $R^2 > 0.99$ ). The equilibrium data were well described by the Freundlich equation. The results showed that the CTAB/sepiolite is an efficient adsorbent for the removal of organic pollutants from wastewater.

*Keywords:* Adsorption; Sepiolite; Cetyltrimethylammonium bromide; Rhodamine B

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