



## Adsorption of humic acid from aqueous solution onto chitosan-coated attapulgite composites

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### ABSTRACT

Chitosan-coated attapulgite (CCATP) was prepared and applied as sorbent for the sorptive removal of humic acid (HA) from aqueous solution. The effects of various factors such as solution cations, ionic strength and pH on the HA adsorption were investigated, and different models were used to fit the adsorption isotherms and the adsorption kinetics data. The results showed that after modified with chitosan, the HA sorption capacity enhanced greatly onto the attapulgite composites. In the experimental conditions, the sorption capacity of HA onto CCATP decreased with the increasing solution pH and increased with increasing ionic strength. The adsorption isotherms data fitted well with the Freundlich isotherm model ( $R^2=0.982$ ), and the adsorption kinetics results could be better fitted by the pseudo-second-order model ( $R^2=0.911$ ). The HA-loaded CCATP can be regenerated by using diluted NaOH solution. All results indicated that CCATP was a promising sorbent for removing HA from water.

*Keywords:* Attapulgite; Chitosan; Humic acid; Sorption

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