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SORPTIVE REMOVAL OF DIBUTYL PHTHALATE FROM AQUEOUS SOLUTIONS BY BAMBOO-DERIVED BIOCHAR

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Abstract

Adsorptive removal of dibutyl phthalate (DBP) by bamboo biochar (BC) was investigated under various experimental conditions. BC demonstrated excellent sorptive ability to remove DBP from the aqueous solutions. The removal of DBP by BC increased as the contacting time increased and reached an equilibrium value after 240 min. The presence of natural organic matter decreased the removal efficiency while increased the time to reach sorption equilibrium. The adsorption of DBP on BC could be well described by a pseudo-second-order equation. Results suggest that the sorptive removal of DBP by BC was a two-stage process and mainly occurred in an intraparticle diffusion mode. The sorption isotherms of DBP by BC followed Freundlich model. This work suggests that bamboo BC can be efficiently used as an excellent sorbent for the sorptive removal of DBP.

Key words: adsorption, bamboo biochar, dibutyl phthalate, isothermal models, kinetic model

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