



## Removal of dibutyl phthalate (DBP) from aqueous solution by adsorption using vanillin-modified chitosan beads (CTSV)

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### ABSTRACT

To remove dibutyl phthalate from aqueous solution with vanillin-modified chitosan beads (CTSV), the environmental materials (chitosan and vanillin) were prepared by the green chemistry modification technology of microwave radiation. Compared with unmodified chitosan powders and beads, this new material CTSV was characterized with satisfied adsorption capacity by scanning electron microscope and Fourier translation transform-infrared analyses. Dynamics investigation and isothermal research were conducted to clarify the adsorption process of the CTSV. Results suggested that the adsorption process could be well described by Freundlich model. Meanwhile, dynamics investigation showed that the adsorption equilibrium could be reached after an hour and the correlative coefficient of pseudo-second-order kinetic model was 0.9333.

*Keywords:* Dibutyl phthalate; Vanillin; Chitosan; Microwave radiation; Adsorption kinetics

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