Simultaneous adsorption of aniline and Cu^{2+} from aqueous solution using activated carbon/chitosan composite

Qian Liua, Bingchao Yangb, Lujie Zhanga, Ruihua Huanga,*

aCollege of Science, Northwest A&F University, Yangling, Shaanxi 712100, China, emails: 1185898219@qq.com (Q. Liu), 1065849947@qq.com (L. Zhang), hrh20022002@163.com (R. Huang)
bXi’an Institute of Geology and Mineral Resource, Xi’an, Shaanxi 710054, China, email: 87413199@qq.com

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ABSTRACT

A multifunction adsorbent, activated carbon (AC)/chitosan composite, was synthesized by incorporating AC into chitosan based on the ratio of AC to chitosan being 1/1. The simultaneous adsorption of aniline and Cu^{2+} from aqueous solution onto AC/chitosan composite was investigated by a batch procedure. These results showed that an adsorbent dosage of 0.3 g was appropriate, and a contact time of 210 min was convenient for reaching adsorption equilibriums for aniline and Cu^{2+}. The simultaneous adsorption of aniline and Cu^{2+} was realized in a wide pH range. The adsorption process obeyed the pseudo-second-order kinetic model. The adsorption behaviors of aniline and Cu^{2+} followed Freundlich and Langmuir, respectively. No obvious competitive adsorption existed between Cu^{2+} and aniline.

Keywords: Activated carbon/chitosan composite; Aniline; Cu^{2+}; Simultaneous adsorption

*Corresponding author.