



## Kinetic and equilibrium of cefradine adsorption onto peanut husk

Zhi-jun Hu<sup>a</sup>, Nan-xi Wang<sup>a</sup>, Jun Tan<sup>b</sup>, Jian-qiu Chen<sup>a,\*</sup>, Wen-ying Zhong<sup>a,\*</sup>

<sup>a</sup>Department of Analytical Chemistry, China Pharmaceutical University, Nanjing 210009, China

Tel. +86 (25) 13952049055; Fax: +86 (25) 83594987; email: cpucjqer@yeah.net, wenyingshzhongnj@163.com

<sup>b</sup>Laboratory of Neuropharmacology, School of Basic Medical Science, Nanjing Medical University, Nanjing 210029, China

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### ABSTRACT

Adsorption of cefradine onto peanut husk from aqueous solution was investigated in the paper. All the experiments were conducted at the same adsorbent dose (1.0 g/ml) and the same temperature of 293 K to investigate the effects of initial concentration of cefradine, contact time, ionic strength and solution pH. The results showed that it was effective to remove cefradine in the acidic medium and the equilibrium adsorption was practically achieved in 60 min. The presence of NaCl or MgCl<sub>2</sub> inhibited the adsorption of cefradine onto peanut husk, while the presence of CaCl<sub>2</sub> enhanced the adsorption capacity. The pseudo-second order kinetic equations could describe the adsorption kinetics rationally and the rate-limiting step was the intraparticle diffusion process. The Langmuir model provided the best correlation of the experimental data and could interpret the adsorption process and the Langmuir adsorption capacity was found to be 35.73 mg/g. Chemical modification of peanut husk could help to improve adsorption capacity of cefradine in aqueous solution. It was implied that peanut husk may be suitable as adsorbent material for adsorption of cefradine from aqueous solution.

*Keywords:* Peanut husk; Adsorbent; Adsorption; Cefradine; Adsorption kinetics; Adsorption isotherms

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\*Corresponding authors.