

## Comment on “Selective adsorption of tannins onto hide collagen fibres”

Yuh-Shan Ho

School of Public Health, Taipei Medical University, 250 Wu-Hsing Street, Taipei 11014, China (email: ysho@tmu.edu.tw)

DOI: 10.1360/04yb0145

In a recent publication by Liao et al.<sup>[1]</sup>, the section 1.3 Modeling of adsorption kinetics, authors mentioned a pseudo-second-order model from eq. (3) to eq. (5). In fact, the second order kinetic expression for the adsorption systems of divalent metal ions using sphagnum moss peat has been reported by Ho<sup>[2]</sup>. In order to distinguish the kinetics equation based on adsorption capacity of solid from concentration of solution, Ho's second order rate expression has been named pseudo-second order<sup>[2-5]</sup>. The most frequently cited papers were published in Chemical Engineering Journal<sup>[3]</sup>, Process Biochemistry<sup>[4]</sup> and Water Research<sup>[5]</sup>.

The pseudo-second order rate expression of Ho has been widely applied to the sorption of metal ions, dyes, herbicides, oil, and organic substances from aqueous solutions<sup>[6-8]</sup>.

A research paper's contribution exists not only in its originality and creativity but also in its continuity and development for the research that follows. The reference section can play a key role to researchers who are interested in a paper's statement or who would like to follow the study or find useful information from the paper<sup>[9]</sup>. I suggest that Liao et al. cite Ho's original pseudo-second order kinetic expression paper or relevant works.

## Reply for the comment

LIAO Xuepin, LU Zhongbing & SHI Bi

The Key Laboratory of Leather Chemistry and Engineering of Ministry of Education, Sichuan University, Chengdu 610065, China  
Correspondence should be addressed to Shi Bi (email: sibtannin@vip.163.com)

We have read the comment on our paper “Selective adsorption of tannins onto hide collagen fibres, *Science in China*, Series B, 2003, 46(5): 495—504”. In our paper, the pseudo-second order model was used to describe the adsorption kinetics of tannins to collagen fibers. The second order kinetic expression for the adsorption systems of divalent metal ions using sphagnum moss peat has been reported by Ho. In order to distinguish kinetics equation based on adsorption capacity of solid from concentration of solution, Ho's second order rate expression has been named pseudo-second order. It was observed that

## References

1. Liao, X. P., Lu, Z. B., Shi, B., Selective adsorption of tannins onto hide collagen fibres, *Science in China*, Series B, 2003, 46(5): 495—504.
2. Ho, Y. S., Adsorption of heavy metals from waste streams by peat, Ph.D. thesis, University of Birmingham, Birmingham, UK, 1995.
3. Ho, Y. S., McKay, G., Sorption of dye from aqueous solution by peat, *Chemical Engineering Journal*, 1998, 70(2): 115—124.
4. Ho, Y. S., McKay, G., Pseudo-second order model for sorption processes, *Process Biochemistry*, 1999, 34(5): 451—465.
5. Ho, Y. S., McKay, G., The kinetics of sorption of divalent metal ions onto sphagnum moss flat, *Water Research*, 2000, 34(3): 735—742.
6. Ho, Y. S., Comment on “Arsenic removal using mesoporous alumina prepared via a templating method”, *Environmental Science & Technology*, 2004, 38(11): 3214—3215.
7. Ho, Y. S., Comment on “Sorption of basic dyes from aqueous solution by activated sludge” [*J. Hazard. Mater.* 108 (2004) 183—188], *Journal of Hazardous Materials*, 2004, 114(1-3): 241—245.
8. Ho, Y. S., Comment on “Adsorption of naphthalene on zeolite from aqueous solution” by C. F. Chang, C. Y. Chang, K. H. Chen, W. T. Tsai, J. L. Shie, Y. H. Chen, *Journal of Colloid and Interface Science*, 2005, 283(1): 274—277.
9. Ho, Y. S., Citation review of Lagergren kinetic rate equation on adsorption reactions, *Scientometrics*, 2004, 59(1): 171—177.

the adsorption kinetics of tannins onto collagen fiber was fitted well by the pseudo-second order model. However, our work does not concentrate on the adsorption kinetics model. Our experimental data further confirmed the universal of pseudo-second order model, but we forgot to cite the reference of Dr. Ho due to our negligence (Ho, Y. S., McKay, G., Sorption of dye from aqueous solution by peat, *Chemical Engineering Journal*, 1998, 70(2): 115—124.). We will be more careful in our future research work. We thank Dr. Yuh-shan Ho for these comments.