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Comments on "Chitosan functionalized with 2[-bis-(pyridylmethyl) aminomethyl]4-methyl-6-formyl-phenol: equilibrium and kinetics of copper (II) adsorption"

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Recently, Justi et al. [1] published the paper entitled as above. In Section 3.3. Adsorption kinetics, the authors mentioned a pseudo-second-order equation in the paper and cited a paper as secondary reference [2]. In the reference [2], the authors cited two papers published by Ho and McKay [3,4] for pseudo-second-order rate equation expression. Indeed, Ho developed a second-order kinetic expression for the sorption systems of divalent metal ions using sphagnum moss peat [5]. To distinguish the kinetic equation based on the adsorption capacity of a solid from the concentration of the solution, the second-order rate expression has been named pseudo-second-order [1–15]. The earlier application of the pseudo-second-order equation to the kinetic studies of competitive heavy-metal adsorption by sphagnum moss peat was undertaken by Ho et al. [6]. A modified pseudo-second-order kinetic expression was reported in 1998 [3,7], and has also been presented in the following years [4,9]. In addition, Azizian presented a theoretical analysis of pseudo-second-order equations [8]. The most frequently cited pseudo-second-order kinetic expression papers were published in *Environmental Technology* [6], *Chemical Engineering Journal* [7], *Process Biochemistry* [9], and *Water Research* [4]. Moreover, similar comments have also been published in *Bioresource Technology* [10], *Environmental Science and Technology* [11], *Journal of Colloid and Interface Science* [12], *Journal of Hazardous Materials* [13], *Water Research* [14], and *Industrial and Engineering Chemistry Research* [15]. 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 [10–14].

Research papers contribute not only by its originality and creativity, but also by its continuity and development toward subsequent research. Readers of published scientific articles may wish to retrieve cited references to further their follow-up researches and knowledge or to confirm claims made by the researchers [16]. However a reference section can play a key role for researchers who are interested in the paper's statement and would like to follow the study or find useful information from the paper [17]. I suggest that Justi et al. cite Ho's original pseudo-second-order kinetic expression paper.

References

[1] Justi KC, Laranjeira MCM, Neves A, Mangrich AS, Fávere VT. Chitosan functionalized with 2[-bis-(pyridylmethyl) aminomethyl]4-methyl-6-formyl-phenol: equilibrium and kinetics of copper(II) adsorption. Polymer 2004;45(18):6285–90.
[2] Wu FC, Tseng RL, Juang RS. Kinetic modeling of liquid-phase adsorption of reactive dyes and metal ions on chitosan. Water Res 2001;35(3):613–8.
[3] Ho YS, McKay G. A comparison of chemisorption kinetic models applied to pollutant removal on various sorbents. Process Safety Environ Protect 1998;76(B4):332–40.
[4] Ho YS, McKay G. The kinetics of sorption of divalent metal ions onto sphagnum moss peat. Water Res 2000;34(3):735–42.

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[5] Ho YS. Adsorption of heavy metals from waste streams by peat. Ph.D. thesis, University of Birmingham, Birmingham, UK; 1995.
[6] Ho YS, Wase DAJ, Forster CF. Kinetic studies of competitive heavy metal adsorption by sphagnum moss peat. Environ Technol 1996; 17(1):71–7.
[7] Ho YS, McKay G. Sorption of dye from aqueous solution by peat. Chem Eng J 1998;70(2):115–24.
[8] Azizian S. Kinetic models of sorption: a theoretical analysis. J Colloid Interface Sci 2004;276(1):47–52.
[9] Ho YS, McKay G. Pseudo-second order model for sorption processes. Process Biochem 1999;34(5):451–65.
[10] Ho YS. "Kinetic modeling and equilibrium studies during cadmium biosorption by dead *Sargassum sp* biomass" by Cruz, C.C.V., da Costa, A.C.A., Henriques, C.A., Luna, A.S. Biores Technol 2004;93(3):321–4.
[11] Ho YS. Comment on Arsenic removal using mesoporous alumina prepared via a templating method. Environ Sci Technol 2004;38(11): 3214–5.
[12] Ho Y.S. Comment on "Removal of copper from aqueous solution by aminated and protonated mesoporous aluminas: kinetics and equilibrium" by S. Rengaraj, Y. Kim, C.K. Joo, and J. Yi. J Colloid Interface Sci 2004;276(1):255–8.
[13] Ho YS. Comment on Sorption of basic dyes from aqueous solution by activated sludge [J Hazard Mater. 108 183–188; 2004]. J Hazar Mater 2004;114(1-3):241–5.
[14] Ho YS. Comment on cadmium removal from aqueous solutions by chitin: kinetic and equilibrium studies. Water Res 2004;38(12): 2962–4.
[15] Ho YS. Comments on collagen-fiber-immobilized tannins and their adsorption of Au(III). Ind Eng Chem Res 2004;43(19):6265.
[16] Siebers R, Holt S. Accuracy of references in five leading medical journals. Lancet 2000;356(9239):1445–5.
[17] Ho YS. Citation review of Lagergren kinetic rate equation on adsorption reactions. Scientometrics 2004;59(1):171–7.