

Letter to the Editor

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Comments on “Study on biosorption of Cr(VI) by *Mucor hiemalis*”

A number of researchers pointed out that the rates of citation and quotation errors are unacceptably high in journals, which significantly diminishes the value of the reference list [1–3]. It has been strongly urged that the peer review of citation and quotation accuracy should be strengthened [4]. One common mistake is to cite papers that are devoid of the original information, but have used the original information of others to develop their own arguments [5]. In a reference and quotation accuracy study, Gosling et al. concluded that “Take no reference for granted. Verify the reference that your best friend gives you. Verify the reference that your revered chief gives you. Verify, most of all, the reference that you yourself found and jotted down. To err is human, to verify is necessary” [6].

Recently, Tewari et al. published the paper with the above title [7]. In Section 1.2—Kinetic model, the authors described the kinetics of the sorption process with a pseudo-first-order and a pseudo-second-order rate equation using Eqs. 3–6. There was a quotation error but no doubt about Tewari et al. paper, which was previously evaluated and accepted for publication. Authors cited the Lagergren’s original paper as a reference [8]. Indeed, it was Lagergren who first presented the first-order rate equation for the adsorption of oxalic acid and malonic acid onto charcoal. Lagergren’s kinetics equation has been most widely used for the adsorption of an adsorbate from an aqueous solution, and citation review of Lagergren’s kinetic rate equation on adsorption reactions has also been reported [9]. In order to distinguish the kinetics equation based on the adsorption capacity of solid from the concentration of solution, Lagergren’s first-order rate equation has been called pseudo-first-order since 1998 [10]. A second-order kinetic expression for the adsorption systems of divalent metal ions using sphagnum peat moss was reported by Ho [11]. The second-order rate expression has been called pseudo-second-order [10–13]. The most-frequently

cited papers were published in *Chemical Engineering Journal* [10], *Process Biochemistry* [12], and *Water Research* [13]. The pseudo-second-order rate expression of Ho has been widely applied to the sorption of metal ions, dyes, herbicides, oil, pesticides, and organic substances from aqueous solutions [14,15]. In addition, the authors mentioned an initial sorption rate, h , in Sections 3.5—Effect of initial concentration of Cr(VI) on kinetic parameters of Cr(VI) sorption, and Section 3.6—Effect of dose of sorbent on kinetic parameters of Cr(VI) sorption. The initial sorption rate was presented with pseudo-second-order constants in 1995 and applied in following years [10–13].

References

- [1] V.J. Roach, T.K. Lau, W.D.N. Kee, The quality of citations in major international obstetrics and gynecology journals, *Am. J. Obstet. Gynecol.* 177 (1997) 973–975.
- [2] R. Siebers, The accuracy of references of three allergy journals, *J. Allergy Clin. Immunol.* 105 (2000) 837–838.
- [3] A. Vargas-Origel, G. Gómez-Martínez, M.A. Vargas-Nieto, The accuracy of references in paediatric journals, *Arch. Dis. Child.* 85 (2001) 497–498.
- [4] S.Y. Lee, J.S. Lee, A survey of reference accuracy in two Asian dermatologic journals (the *Journal of Dermatology and the Korean Journal of Dermatology*), *Int. J. Dermatol.* 38 (1999) 357–360.
- [5] D.McD. Taylor, A.F.T. Brown, Analysis of the study design and manuscript deficiencies in research articles, *Emerg. Med.* 13 (2001) 444–450.
- [6] C.M. Gosling, M. Cameron, P.F. Gibbons, Referencing and quotation accuracy in four manual therapy journals, *Man. Ther.* 9 (2004) 36–40.
- [7] N. Tewari, P. Vasudevan, B.K. Guha, Study on biosorption of Cr(VI) by *Mucor hiemalis*, *Biochem. Eng. J.* 23 (2004) 185–192.
- [8] S. Lagergren, Zur theorie der sogenannten adsorption gelöster stoffe, *K. Sven. Vetenskapsakad. Handl.* 24 (1898) 1–39.
- [9] Y.S. Ho, Citation review of Lagergren kinetic rate equation on adsorption reactions, *Scientometrics* 59 (2004) 171–177.
- [10] Y.S. Ho, G. McKay, Sorption of dye from aqueous solution by peat, *Chem. Eng. J.* 70 (1998) 115–124.
- [11] Y.S. Ho, Absorption of Heavy Metals from Waste Streams by Peat, Ph.D. thesis, University of Birmingham, UK, 1995.

- [12] Y.S. Ho, G. McKay, Pseudo-second order model for sorption processes, *Process Biochem.* 34 (1999) 451–465.
- [13] Y.S. Ho, G. McKay, The kinetics of sorption of divalent metal ions onto sphagnum moss peat, *Water Res.* 34 (2000) 735–742.
- [14] Y.S. Ho, 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.* 276 (2004) 255–258.
- [15] Y.S. Ho, Comment on “Arsenic removal using mesoporous alumina prepared via a templating method”, *Environ. Sci. Technol.* 38 (2004) 3214–3215.

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