Letter to the Editor

Comment on "Microwave synthesized xanthan gum-g-poly(ethylacrylate): An efficient Pb^{2+} ion binder" by Sadanand Pandey and Shivani B. Mishra

Recently, Pandey and Mishra (2012) published a paper entitled "Microwave synthesized xanthan gum-g-poly(ethylacrylate): An efficient Pb^{2+} ion binder". In Section 3.4, "Sorption kinetics", authors mentioned that "Kinetics of the adsorption was modeled by the first order Lagergren equation, the pseudo-second-order equation and the second-order rate equation shown below as Eqs. (8)–(10), respectively" and cited Sankararamakrishnan et al. (2006) as secondary reference.

$$\log(q_1 - q_t) = \log(q_1) - \frac{k_1}{2.303}t \tag{8}$$

$$\frac{1}{q_t} = \frac{1}{K'q_e^2} + \frac{t}{q_e} \tag{9}$$

$$\frac{1}{q_e - q_t} = \frac{1}{q_e} + K_2 t \tag{10}$$

Lagergren's kinetics equation has been 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 (Ho, 2004). The correct reference citing the original Lagergren paper was first presented by Ho and McKay in 1998: "S. Lagergren, zur theorie der sogenannten adsorption gelöster stoffe, Kungliga Svenska Vetenskapsakademiens, Handlingar, Band 24, No. 4, (1898), 1–39". Its English translation was made by Ho and McKay (1998) as "S. Lagergren, about the theory of so-called adsorption of soluble substances, Kungliga Svenska Vetenskapsakademiens, Handlingar, Band 24, No. 4, (1898), 1–39", and the abbreviation style is "S. Lagergren, zur theorie der sogenannten adsorption gelöster stoffe, K. Sven, Vetenskapsakad. Handl., Band 24, No. 4, (1898), 1–39". 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 (Ho & McKay, 1998).

For "pseudo-second-order equation" authors cited Sankararamakrishnan et al. (2006). This is a citation error. Eq. (9) could not be found from the reference and the equation is not correct. The correct expression for the linear pseudo-second-order kinetic model was reported by Ho and McKay (1998) and may be written as:

$$\frac{t}{q_t} = \frac{1}{kq_e^2} + \frac{1}{q_e}t$$

The same mistake was pointed in *Adsorption Science & Technology* (Ho, 2011). A review of second-order models for adsorption systems has also been presented in details (Ho, 2006). Furthermore, "second-order rate equation", Eq. (10) has been presented as "pseudo-second order model" (Ho and McKay, 1998; Ho, 2006).

Accuracy of quotations and citations are very important for the transmission of scientific knowledge. Authors should make serious efforts to check the accuracy of the references cited in their manuscripts. They should also read the original article before quoting it, rather than citing from abstracts or cross-references (Gupta, Yadav, Mohta, & Choudhury, 2005). It was recommended that to cite the original paper is needed (Ho, 2004). To cite the original paper is not only respecting authors who presented a novel idea in research but also to read the original idea in detail of the work (Ho, 2010). In my view, Pandey and Mishra should have cited the original paper for the kinetic models and thereby provided greater accuracy and information details about the kinetic expression they employed.

References

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