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Comments on "Isothermic and kinetic modeling of fluoride removal from water 266
by means of the natural biosorbents sorghum and canola"
Ho

LETTER TO THE EDITOR

COMMENTS ON "ISOTHERMIC AND KINETIC MODELING OF FLUORIDE REMOVAL FROM WATER BY MEANS OF THE NATURAL BIOSORBENTS SORGHUM AND CANOLA"

Dear Editor,

Recently, Zazouli et al.[1] published a paper entitled "Isothermic and kinetic modeling of fluoride removal from water by means of the natural biosorbents sorghum and canola." In the MATERIAL AND METHODS section of their paper, the authors mentioned that the pseudo-second-order rate equation has been given by the following equation:

$$\frac{t}{q} = \frac{1}{k_2 q_e^2} + \frac{1}{q_e t}$$

where k_2 is the second order rate constant (g mg^{-1} min^{-1}), and q and q_e are the amount of F adsorbed on the adsorbent (mg/g) at equilibrium and at time t, and gave a self-citation of secondary material[2] as a reference.

However, the equation in the cited paper is incorrect. In addition, a citation error was present in the reference to Zazouli et al.[2] as the correct page numbers are 195-204 rather than 208-17.

In fact, the pseudo-second-order kinetic expression for the adsorption systems of divalent metal ions using sphagnum moss peat was presented by Ho in 1995.[3] The pseudo-second-order kinetic model has a non-linear form:[4]

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

and the following four linear forms:[4]

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

$$\frac{1}{q_t} = \left(\frac{1}{k q_e^2}\right) \frac{1}{t} + \frac{1}{q_e}$$

$$q_t = q_e - \left(\frac{1}{k q_e}\right) \frac{q_t}{t}$$

$$\frac{q_t}{t} = k q_e^2 - k q_e q_t$$

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The model has also been widely used for describing a number of adsorption systems in subsequent years.[5] Furthermore, an article entitled "Pseudo-second order model for sorption processes" by Ho and McKay[6] has been ranked number one in annual citations in the Web of Science category of "Chemical Engineering" since 2008.[7] A review of second-order models for adsorption systems gave more details.[8]

Furthermore, the mistake in the model made by Zazouli et al. in their 2014 paper in *Journal of Mazandaran University Medical Sciences*[2] was also repeated that year in another paper in *Fluoride*.[9]

It is worth stating again that "Citing the original paper not only respects the work of the authors who presented a novel research idea but also discussed this idea in detail in the body of their paper."[10] In addition, typical isotherms such as BET,[11] Langmuir,[12] and Freundlich[13] have all witnessed increased trends in citations, especially in the last two decades.[14,15] In my view, Zazouli *et al.* should have cited the original paper for the pseudo-second-order kinetic model, which would have provided greater accuracy and additional information about the kinetic expression they used.

Yuh-Shan Ho

Water Research Centre, Asia University, Taichung 41354, Taiwan.

REFERENCES

1 Zazouli MA, Mahvi AH, Mandavi Y, Balarak D. Isothermic and kinetic modeling of fluoride removal from water by means of the natural biosorbents sorghum and canola. Fluoride 2015;48(1):37-44.

2 Zazouli MA, Belarak D, Karimnezhad F, Khosravi, F. Removal of fluoride from aqueous solution by using of adsorption onto modified *Lemna minor*: adsorption isotherm and kinetics study. Journal of Mazandaran University Medical Sciences 2014;23(109):195-204.

3 Ho YS. Adsorption of heavy metals from waste streams by peat [PhD thesis]. Birmingham, UK: University of Birmingham; 1995.

4 Ho YS. Second-order kinetic model for the sorption of cadmium onto tree fern: a comparison of linear and non-linear methods. Water Research 2006;40(1):119-25.

5 Ho YS. 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 Sc 2004;276(1):255-8.

6 Ho YS, McKay G. Pseudo-second order model for sorption processes. Process Biochemistry 1999;34(5):451-65.

7 Ho YS. Top-cited articles in chemical engineering in Science Citation Index Expanded: a bibliometric analysis. Chinese Journal of Chemical Engineering 2012;20(3):478-88.

8 Ho YS. Review of second-order models for adsorption systems. Journal of Hazardous Materials 2006;136(3):681-9.

9 Zazouli MA, Mahvi AH, Dobaradaran S, Barafrashtehpour M, Mahdavi Y, Balarak, D. Adsorption of fluoride from aqueous solution by modified *Azolla filiculoides*. Fluoride 2014;47(4):349-58.

10 Ho YS. Letters to the editor [letter]. Adsorption Science & Technology 2010;28(5):465.

11 Brunauer S, Emmett PH, Teller E. Adsorption of gases in multimolecular layers. Journal of the American Chemical Society 1938;60(2):309-19.

12 Langmuir I. The adsorption of gases on plane surfaces of glass, mica and platinum. Journal of the American Chemical Society 1918;40(9):1361-403.

13 Freundlich HMF. Über die adsorption in lösungen. Zeitschrift für Physikalische Chemie 1906; 57A:385-470.

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14 Fu HZ, Ho YS. Top cited articles in adsorption research using Y-index. Research Evaluation 2014;23(1):12-20.

15 Ho YS, Kahn M. A bibliometric study of highly cited reviews in the Science Citation Index Expanded™. Journal of the Association for Information Science and Technology 2014;65(2):372-85.

CORRECTIONS

Isothermic and kinetic modeling of fluoride removal from water by means of the natural biosorbents sorghum and canola by Mohammad Ali Zazouli, Amir Hossein Mahvi, Yousef Mahdavi, and Davoud Balarak in Fluoride 2015;48(1):37-44. The page numbers for reference 24, by Zazouli MA, Balarak D, Karimnezhad F, and Khosravi F, Removal of fluoride from aqueous solution by using of adsorption onto modified *Lemna minor*: adsorption isotherm and kinetics study, Journal of Mazandaran University Medical Sciences 2014;23(109), should have been 195-204 rather than 208-17. The pseudo-second-order rate equation on page 40 should have been

$$\frac{t}{q} = \frac{1}{k_2 q_e^2} + \frac{t}{q_e}$$

where k_2 is the second order rate constant (g mg^{-1} min^{-1}), and q and q_e are the amount of F adsorbed on the adsorbent (mg/g) at equilibrium and at time t, rather than

$$\frac{t}{q} = \frac{1}{k_2 q_e^2} + \frac{1}{q_e t}$$

Similarly, in Adsorption of fluoride from aqueous solution by modified *Azolla filiculoides* by Mohammad Ali Zazouli, Amir Hossein Mahvi, Sina Dobaradaran, Mansour Barafrashtehpour, Yusef Mahdavi, and Davoud Balarak in Fluoride 2014;47(4):349-58, the page numbers for reference 21, by Zazouli MA, Balarak D, Karimnezhad F, and Khosravi F, Removal of fluoride from aqueous solution by using of adsorption onto modified *Lemna minor*: adsorption isotherm and kinetics study, Journal of Mazandaran University Medical Sciences 2014;23(109), should have been 195-204 rather than 208-17 and the pseudo-second-order rate equation in Table 1 on page 351 should also have the same correction as above.

Dr Balarak indicated that the correct form of the pseudo-second-order rate equation was used in the calculations in his two papers.

I apologize for the errors.

Bruce Spittle, Editor-in-Chief, *Fluoride*.