## Letter to Editor

Comment on "Biosorptive uptake of Cr(VI) from aqueous solutions by *Parthenium hysterophorus* weed: Equilibrium, kinetics and thermodynamic studies"

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Recently, Venugopal and Mohanty published the paper entitled as above [1]. In the section 3.9. Biosorption kinetics and rate determining step, Venugopal and Mohanty noticed that "the metal adsorption process depends on the number of metal ions present in the solution as well as the free sites on the biosorbent surface. The pseudosecond order equation is:" with Eq. (6).

The pseudo-second-order kinetic expression for the adsorption systems of divalent metal ions using sphagnum moss peat has been presented by Ho in 1995 [2], and this expression was also firstly published in *Environmental Technology* in 1996 [3]. Unfortunately, a correction to the kinetic model was rejected to be published by *Environmental Technology*. In 1997, a corrected pseudo-second order kinetic expression was reported because a mistake was included in the previous publications [4]. The model was also used in numbers of adsorption systems in subsequent years [5]. A review of second-order models for adsorption systems gave more details [6].

However, the same mistake was duplicated by Mohanty [7-9] and was published in Chemical Engineering Journal [8,9]. In addition, a comment has been made to point out this error in the paper [10]. Benguella and Benaissa [11] also responded that "We agree with the comment of Dr. Y.S. Ho on our manuscript published in Water Research 36 (10), 2463-2474 (2002)." In order to stop the proliferation of the mistake a comment has been made [10]. This type of error could be avoided if authors have had paid more attentions to details about the model from the original paper [11]. In my view, Venugopal and Mohanty 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

- [1] Venugopal V, Mohanty K. (2011) Biosorptive uptake of Cr(VI) from aqueous solutions by Parthenium hysterophorus weed: Equilibrium, kinetics and thermodynamic studies, Chem. Eng. J.:174:151-158.
- [2] Ho YS. (1995) Adsorption of heavy metals from waste streams by peat. Ph.D. thesis, University of Birmingham, Birmingham, UK.
- [3] Ho YS, Wase DAJ, Forster CF. (1996) Kinetic studies of competitive heavy metal adsorption by sphagnum moss peat, Environ. Technol.;17:71-77.
- [4] Ho YS, McKay G. (1997) Pseudo kinetic model for sorption processes, in Advances in Separation Science Adsorption Technology, (Edited by Zhong, L. and Zhenhua, Y.), The Proceedings of the Fourth China-Japan-USA Symposium on Advanced Adsorption Separation Science and Technology, May 13~16, 1997, Guangzhou, China, South China University Technology Press, Guangzhou 257-263.
- [5] Ho YS. (2005) 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, J. Colloid Interface Sci.;283:274-277.
- [6] Ho YS. (2006) Review of second-order models for adsorption systems, J. Hazard. Mater.;136:681-689.
- [7] Pilli SR, Goud VV, Mohanty K. (2010) Biosorption of Cr(VI) from aqueous solutions onto *Hydrilla verticillata* weed: Equilibrium, kinetics and thermodynamic studies, Environ. Eng. Manag. J.;9:1715-1726.
- [8] Mohanty K, Jha M, Meikap BC, Biswas MN. (2006) Biosorption of Cr(VI) from aqueous solutions by *Eichhornia crassipes*, Chem. Eng. J.;117:71-77.
- [9] Srividya K and Mohanty K. (2009) Biosorption of hexavalent chromium from aqueous solutions by Catla catla scales:

- Equilibrium and kinetics studies, Chem. Eng. J.;155:666-673.
- [10] Ho YS. (2004) Comment on 'Cadmium removal from aqueous solutions by chitin: Kinetic and equilibrium studies', Water Res.;38:2962-2964.
- [11] Benaissa H. (2004) Author's reply, Water Res. 38:2965.