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1**Reply to the comment on**"Acid Green 25 removal from wastewater by organo-bentonite from Pacitan"**by R. Koswojo, R. P. Utomo, Y.-H. Ju, A. Ayucitra, F. E. Soetaredjo, J. Sunarso, S. Ismadji [Applied Clay Science 48 (2010) 81–86]**

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6**This letter is a response to the comment** by Professor **Ho on**

our recent article entitled "Acid Green 25 removal from wastewater by organo-bentonite from Pacitan" published in Applied Clay Science 48 (2010) 81–86. Professor Ho raised an issue about citation misleading for the pseudo-first and second order kinetic equations which are widely used to correlate kinetic adsorption data. This letter is intended to clarify the misunderstanding and present the correct citations. © 2010 Elsevier B.V. All rights reserved.

6**This letter is** intended as **a response to the comment** by Professor **Ho** (Ho, 2010) **on**

our recent work (Koswojo et al., 2010) and other previous works (Chandra et al., 2007; Febrianto et al., 2009; Lesmana et al., 2009) about the missing citation of pseudo-first and second order kinetic equations. In his comment, Professor Ho mentioned that the authors presented and used these models without any

citation on the original papers. He also pointed out the importance of citing the original paper for the pseudo-first and second order

> 8**kinetic models to have more accuracy and information about** the **expression.**

Since all of our works have been published and the correction is no longer possible, we are hoping that including the missing citations in this letter will rectify this issue. As a note, similar comments have been addressed by Professor Ho to numerous authors who have also utilized these models without citing his papers properly (Ho, 2005a,b,c, 2006, 2007, 2009a,b,c, 2010). To that end, we would like to thank Professor Ho for his pointing out our hindsight for not including the proper citations. We entirely agree with him that the credit should be given on the original papers which proposed the pseudo-first and second order kinetic models. We forgot to include these citations without any motivation to claim models or DOIs of original articles: 10.1016/j.clay.2009.11.023, 10.1016/j.clay.2010.04.007. ☐ Corresponding author.

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equations invented by the other researchers as ours (Chandra et al., 2007; Febrianto et al., 2009; Koswojo et al., 2010; Lesmana et al., 2009). The pseudo-first and second order kinetic models are well known models to correlate the adsorption dynamic or kinetic data for various systems. In the present time, based on our literature search with different search engines, we found hundreds or even thousands of studies using these models to correlate the adsorption kinetic data. Furthermore, it has come to our attention that da Costa (2004) and Kumar and Rattanaphani (2007) mentioned

> 7**that the wide acceptability of models by the scientific community is the best means of providing credibility to such models.**

Therefore, the original references of pseudo- first and second order kinetic models especially the papers which dealt with mathematical modification and different mathematical expression of the models need not always be cited (da Costa, 2004; Kumar and Rattanaphani, 2007; Ozacar, 2005; Wu, 2009). The

> 3**pseudo-second order** kinetic **is** commonly **associated with the situation when the rate of direct adsorption/desorption process**

controls the overall sorption kinetics (Plazinski et al., 2009) and the first mathematical expression of

> 3**this model was** given **by Blanchard et al.** (1984). **The** linearized form **of**

this model was then proposed by Ho (1995). Indeed, the most commonly used form of this model is the one presented by Ho (1995) and Ho et al. (1996) as mentioned by Plazinski et al. (2009). Properly speaking, the credit should always be given to the first papers proposing the model (Kumar, 2006a,b; Kumar and Favere, 2006; Kumar and Guha, 2006; Kumar and Rattanaphani, 2007; Wu, 2009). Accordingly, to correct the mis-citation in our papers (Chandra et al., 2007; Febrianto et al., 2009; Koswojo et al., 2010; Lesmana et al., 166 R.P. Utomo et al. / Applied Clay Science 50 (2010) 165–166 2009), we would like to cite the original paper by Blanchard et al. (1984) as the reference for pseudo-second order kinetic model. Plazinski et al. (2009) mentioned that the earliest known equation to describe the rate of sorption in the liquid phase system was proposed by Lagergren in 19th century (Lagergren, 1898). This equation is known as Lagergren's first-order rate equation. Ho (2010) mentioned that the paper by Ho and McKay (1998) is the first paper to define this equation as pseudo-first order kinetic. However, the expression for pseudo-first order was employed by Sharma et al. (1990) to correlate the sorption kinetic of Ni(II) in wollastonite. Nevertheless, we agree with Professor Ho's suggestion to cite the original papers for the pseudo-first and second order

> 8**kinetic models to have more accuracy and information about** the
> **expression.**

Therefore, for the first order rate equation which was later known as pseudo-first order model, we would like to cite the work by Lagergren (1898) to rectify missing citation in our previous papers. References Blanchard, G., Maunaye, M., Martin, G., 1984. Removal of heavy metals from waters by means of natural zeolites. Water Research 18 (12), 1501–1507. Chandra, T.C., Mirna, M.M., Sudaryanto, Y., Ismadji, S., 2007. Adsorption of basic dye onto activated carbon prepared from durian shell: studies of adsorption equilibrium and kinetics. Chemical Engineering Journal 127 (1–3), 121–129. da Costa, A.C.A., 2004. Response letter to Dr Yun-Shan Ho. Electronic Journal of Biotechnology 7 (2) 1. ISSN: 0717-3458 [online] Available from: http://www.ejbiotechnology.info/ content/vol7/issue2/letter/1/indexb.htm. Febrianto, J., et al., 2009. Equilibrium and kinetic studies in adsorption of heavy metals using biosorbent: a summary of recent studies. Journal of Hazardous Materials 162 (2–3), 616–645. Ho, Y.S., 1995. Adsorption of heavy metals from waste streams by peat, The University of Birmingham, Birmingham, PhD Thesis. Ho, Y.S., 2005a. Comments on "Chitosan functionalized with 2[-bis-(pyridylmethyl) aminomethyl]4-methyl-6-formyl-phenol: equilibrium and kinetics of copper(II) adsorption". Polymer 46 (5), 1451–1452. Ho, Y.S., 2005b. Comments on "Efficiency of membrane-sorption integrated processes". Journal of Membrane Science 263 (1–2), 160–161. Ho, Y.S., 2005c. Comments on "Study on biosorption of Cr(VI) by Mucor hiemalis". Biochemical Engineering Journal 26 (1), 82–83. Ho, Y.S., 2006. Comment on "Remediation of soil contaminated with the heavy metal (Cd2+)". Journal of Hazardous Materials 134 (1–3), 41–42. Ho, Y.S., 2007. Comments on "An adsorption and kinetic study of lac dyeing on silk". Dyes and Pigments 72 (1), 134–136. Ho, Y.S., 2009a. Comments on "Adsorption of direct dyes from aqueous solutions by carbon nanotubes: determination of equilibrium, kinetics and thermodynamics parameters". Journal of Colloid and Interface Science 333 (1) 412-412. Ho, Y.S., 2009b. Comments on "Defluoridation of water using neodymium-modified chitosan" discussion. Journal of Hazardous Materials 172 (1) 515-515. Ho, Y.S., 2009c. Comments on "Kinetics of naphthalene adsorption on an activated carbon: comparison between aqueous and organic media" by B. Cabal et al. [Chemosphere 76 (4) (2009) 433–438]. Chemosphere 77 (10) 1453-1453. Ho, Y.S., 2010.

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