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Keywords: Pseudo-first-order; Pseudo-second-order; Adsorption; Citation error; Quotation error

Comment on “Remediation of soil contaminated with the heavy metal (Cd^{2+})”

The purposes of including references are to assist in validating a paper, improve its readability, and direct readers who are interested in relevant topics to other appropriate material [1]. Therefore, references must be supplied with correct information and be specific especially when citing theories and equations. The original sources for the information that is used in the text should be found in the cited references. 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 [1]. 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 [2–4]. It has been strongly urged that the peer review of citation and quotation accuracy should be strengthened [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]. Poor citation and quotation would not only reduce the value of research but also reflect the inefficient works that are done by authors and journals.

Recently, Lin and Lin published the paper with the above title [7]. In Section 3.3, preparation of immobilized beads and their batch adsorption experiments/property tests, the authors presented a first-order and a second-order models to describe the biosorption process for removal of the heavy metal Cd^{2+} from contaminated soil using Eqs. (2) and (3) without any citations. There was no doubt about Lin and Lin’s paper, which was previously evaluated and accepted for publication. It was Lagergren who first presented the first-order rate equation for the adsorption of oxalic acid and malonic acid onto charcoal [8]. Lagergren’s kinetics equation has been most widely used for the adsorption of an adsorbate from an aqueous solution. 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 [9]. In addition, citation review of Lagergren’s kinetic rate equation on adsorption reactions has also been reported [10]. A second-order kinetic expression for the adsorption systems of divalent metal ions using sphagnum peat moss was reported by Ho [11]. In order to distinguish the kinetic equation based on the adsorption capacity of solid from the one that is based on the concentration of solution, Ho’s second-order rate expression has been called pseudo-second-order [11,12]. The most-frequently cited paper was published in *Water Research* [12]. 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 [13].

As the results of the above review, I suggest that Lin and Lin should cite Lagergren’s first-order kinetic model paper and Ho’s original pseudo-second-order kinetic expression paper.

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