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LETTERS TO THE EDITOR

Rebuttal to:

MAPPING OF HEXAVALENT CHROMIUM REMOVAL RESEARCH: A BIBLIOMETRIC ANALYSIS OF RESEARCH OUTPUTS FROM 1975 TO 2012

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Recently, Zhang et al. [1] published the paper entitled "Mapping of hexavalent chromium removal research: A bibliometric analysis of research outputs from 1975 to 2012". In 2. DATA SOURCES AND METHODOLOGY, authors mentioned that "Documents used in this study were based on the online database of the Science Citation Index (SCI), retrieved from the ISI Web of Science, Philadelphia, USA." which is the same from an earlier article entitled "Assessment of world aerosol research trends by bibliometric analysis" [2]. There is no more ISI Web of Science but Thomson Reuters Web of Science only. Authors also noticed that "According to Journal Citation Reports (JCR), it indexed 8411 major journals with citation references across 186 scientific disciplines in 2013." In fact, there were 8539 journals in Science Citation Index Expanded across 176 Web of Science categories in 2013. In addition, the most parts of "2. DATA SOURCES AND METHODOLOGY" copied from "A review of published wetland research, 1991-2008: Ecological engineering and ecosystem restoration" [3] and "Trends in research on global climate change: A Science Citation Index Expanded-based analysis" [4].

Again, in 2. DATA SOURCES AND METHODOLOGY, authors noticed that "To study the recent tendency intensively, all keywords, both those reported by authors and those assigned by ISI, as well as words in the title in the just past 22 years were identified and separated into 5 spans (1991-1995, 1996-2000, 2001-2005, 2006-2010, and 2011- 2012, respectively), then their ranks and frequencies were calculated, and different words with identical meaning and misspelled keywords were grouped and considered as a single keyword." In last decade, my co-workers and I have reported on examining the distribution of words in article titles, abstracts, keywords, and *KeyWords Plus* at different time periods, for example 2-year [5], 4-year [6], 5-year [7], and 6-year [8] interval, in order to evaluate trends in research topics [6,9-11]. Furthermore, similar rebuttals have also been published in *Environmental Earth Sciences* [12] and *Scientometrics* [13].

In 3.1. Characteristics of publication outputs, authors mentioned "From this research, 13 document types were found among the total 12324 publications during the 38-year study period, and the most frequent document type was articles (11083), which were responsible for 89.9% of the total publications." In fact, 182208 publications were found in 19 document types and the most frequent document type was articles (167655) using the same method as mentioned in the original paper [1]. It is clear that all results in this study are incorrect and discussions are not appropriate.

In 3.1. Characteristics of publication outputs, authors presented Fig. 1 that shows "World SCI-EXPANDED journal publications with chromium or (Cr) or (chrome) in titles during 1975-2012." This overlooks the fact since 1991, abstract information has been included in it the SCI-EXPANDED database [8]. In 1990, only 20% articles had abstract information in SCI-EXPANDED. However, since 1991 more than 90% of articles include abstract information [14]. Analysis of publications before 1991 is not appropriate for investigating publication trends [14]. It is thus clear that analysis of publications before 1991 is not appropriate for investigating publication trends [13]. Therefore, results and discussions about Fig. 1 in the original paper [1] is not appropriate. The same rebuttals were also reported for "A bibliometric study of earthquake research: 1900-2010" [15] and "Progress in global parallel computing research: a bibliometric approach" [16] in *Scientometrics* [13,14]. This type of results by database bias can be also found in earlier publication [14]. There is no more such bias in Ho's publications after that. This type of error could be avoided if authors have had paid more attentions to details about the method from the original paper [14].

It is accepted that citing 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 [17]. An evidence was reported that the original papers even published about 100 years ago, still have extremely high citations in the recent years [18,19]. When a scientific publication duplicate previously published idea, text, equations, or figures without any citations, it frequently is regarded as a sign of possible plagiarism [20,21]. In my view, Zhang et al. [1] should have cited the original paper for what they mentioned in their paper and thereby provided greater accuracy and information details about the idea and the methods that they employed.

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