

Comment

Comments on: Li et al. (2019) “Bioelectrochemical Systems for Groundwater Remediation: The Development Trend and Research Front Revealed by Bibliometric Analysis” *Water*, 11, 1532

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Abstract: Li et al. (2019) used inappropriate searching words and method to publish a bibliometric paper in *Water*. The results show a huge difference from the results by using an appropriate method. This comment points out each of problems.

Keywords: bibliometric; searching words; SCI-EXPANDED; SSCI; front page; bioelectrochemical systems; groundwater remediation

Li et al. recently published a paper in *Water* entitled “Bioelectrochemical systems for groundwater remediation: The development trend and research front revealed by bibliometric analysis” [1]. Li et al. mentioned searching strategy in Section 2.1. Data Description as follows:

Indexes: SCI-EXPANDED and SSCI

Topic: (groundwater OR aquifer) AND (bioelectrochem* OR bio-electrochem* OR BES OR bioelectro* OR microbial electro* OR biolo* electro* OR bioelect* OR microbial fuel cell OR biogeobattery)

Timespan: 1999–2018

Language: English

Searching words are inappropriate, for example 511 documents can be found by (groundwater OR aquifer) and (biolo* electro*). Only two documents included “biological electron” in their author keywords. In fact, authors used not “biolo* electro*” but biolo* and electro* to search documents from the database [2,3]. Similarly, (microbial electro*) and (microbial fuel cell) mean (microbial and electro*) and (microbial and fuel and cell) but not “microbial electro*” and “microbial fuel cell”. In addition, a total of 195 documents searched by (groundwater OR aquifer) AND (BES) without “BES” in the documents but, for example aerobes, anaerobes, besides, best, cubes, describes, microbes, Microtubes, nanotubes, probes, and tubes. Using (groundwater OR aquifer) AND (BES) are not the same as (groundwater OR aquifer) AND (“BES”).

The Science Citation Index Expanded (SCI-EXPANDED) and Social Science Citation Index (SSCI) were originally designed not for bibliometric studies, but for researchers to find published literature [3,4]. It has been pointed out that it is necessary to have pre-treating data but not use the original data directly from SCI-EXPANDED and SSCI [5–7]. In order to improve the bias of using the SCI-EXPANDED and SSCI, the ‘front page’ (including the document title, the abstract, and the author keywords) as a filter has been proposed by Ho’s group in 2012 [8].

Using the same method in the original paper [1] resulted in 1695 documents, including 1600 articles. A total of 1609 documents (95% of the 1695 documents) without searching words in their ‘front page’, are not related to ‘bioelectrochemical systems for groundwater remediation’, for example the highly cited articles entitled “Electrode-reducing microorganisms that harvest

energy from marine sediments” [9], “Microbial communities associated with electrodes harvesting electricity from a variety of aquatic sediments” [10], and “Anaerobic benzene oxidation coupled to nitrate reduction in pure culture by two strains of *Dechloromonas*” [11], as well as the highly cited reviews entitled “Dissimilatory Fe(III) and Mn(IV) reduction” [12] and “Microbial reduction of metals and radionuclides” [13]. Furthermore, the top articles in ‘Table 3. Summary of the top 10 cited publications of BESs for groundwater remediation during 1999–2018.’ in the original paper [1] were not related to ‘Bioelectrochemical systems for groundwater remediation’. Any of searching words such as “bioelectrochem*”, “bio-electrochem*”, “BES”, “bioelectro*”, “microbial electro”, “biolo* electro*”, “bioelect*”, “microbial fuel cell”, and “biogeobattery” cannot be found in the ‘front page’ of the top ten most frequently cited articles, including ‘Stimulating the in situ activity of *Geobacter* species to remove uranium from the groundwater of a uranium-contaminated aquifer’ [14], ‘Enrichment of members of the family *Geobacteraceae* associated with stimulation of dissimilatory metal reduction in uranium-contaminated aquifer sediments’ [15], ‘In situ bioreduction of technetium and uranium in a nitrate-contaminated aquifer’ [16], ‘Microbial communities associated with anaerobic benzene degradation in a petroleum-contaminated aquifer’ [17], ‘Pilot-scale in situ bioremediation of uranium in a highly contaminated aquifer. 2. Reduction of U(VI) and geochemical control of U(VI) bioavailability’ [18], ‘Change in bacterial community structure during in situ biostimulation of subsurface sediment cocontaminated with uranium and nitrate’ [19], ‘Microbiological and geochemical heterogeneity in an in situ uranium bioremediation field site ness’ [20], ‘Dissimilatory Fe(III) and Mn(IV) reduction’ [12], ‘QIIME allows analysis of high-throughput community sequencing data’ [21], and ‘Extracellular electron transfer via microbial nanowires’ [22]. In addition, articles by Holmes et al. [15], Wu et al. [18], Vrionis et al. [20], Caporaso et al. (This is a letter.) [21], and Reguera et al. [22] cannot be found by the searching strategy in the original paper [1].

Li et al. published ‘Bioelectrochemical systems for groundwater remediation: The development trend and research front revealed by bibliometric analysis’ in *Water* using an inappropriate method [1]. This may result in misleading readers of the journal [4,23]. It has been pointed out that authors have the duty to use accurate methods in their publications, reviewers have the responsibility to point out the mistakes, and finally, journal editors have to pay more attention to such problems in articles that are being accepted for publication [24].

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