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Comments on: Tang et al. (2020) 'Bibliometric review of research trends on disinfection by-products in drinking water during 1975–2018' *Sep. Purif. Technol.*, 241: 116741

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ABSTRACT

Tang et al. used an inappropriate method to publish a bibliometric paper in Separation and Purification Technology. The results show a huge difference from the results by using the same method. This comment pointed out each of the problems. In addition, some publication and citation indicators were also applied for a new analysis.

1. Introduction

Using the same method in the original paper [1] resulted that 7,662 documents searched out by topic including 3,737 documents searched out by title and abstract (data retrieved on July 03, 2020). The results show big differences, 12% of 4,315 articles. In order to improve the bias of using SCI-EXPANDED for bibliometric studies, the 'front page' (including the document title, the abstract, and the author keywords) has been proposed by Ho's group in 2012 [2]. The document type of article contains an introduction, methods, results, discussions, and conclusions. Thus, the articles are usually considered for bibliometric analysis [3]. According to 3,804 articles, 'front page' was applied as a filter. It results in 2,004 articles (64% of 3,111 articles in the original paper). As a result, 1,800 articles (47% of the 3,804 articles) did not include searching keywords in their 'front page', for example, the highly cited article in Table 5 in the original paper [1] entitled 'Elimination of organic micropollutants in a municipal wastewater treatment plant upgraded with a full-scale post-ozonation followed by sand filtration' [4] and 'Comparison of disinfection byproduct formation from chlorine and alternative disinfectants' [5] had no searching keyword of 'disinfect*' and 'drinking water' in their title, abstract, and author keywords, respectively.

In total, 2,004 articles on disinfection by-products in drinking water in SCI-EXPANDED were published from 1975 to 2018. Due to the biases of using numbers of citations for an article from the SCI-EXPANDED directly, Ho's group proposed the total number of citations from the Web of Science Core Collection from publication to the end of the most recent year (TC_{year}) [6,7] and citations per publication (CPP_{year}), for example, $CPP_{2018} = TC_{2018}/TP$ [8]. The advantage of TC_{year} compared to the usual measure of total citations in the Web of Science Core Collection lies in its invariance, for it is not updated over time [9]. Fig. 1 demonstrated the distribution of the annual number of articles (TP) and their citations per publication (CPP_{2018}) by year. In 1989 with two articles had the highest CPP_{2018} of 340, which can be attributed to the highly cited article entitled 'The occurrence of disinfection by-products in US drinking water' [10] by Krasner from the USA with a TC_{2018} of 642. It has been pointed out that analysis of publications before 1991 in SCI-EXPANDED is not appropriate for investigating publication trends [11]. In SCI-EXPANDED, most abstract information cannot be found in the database before 1991 [12]. In the case of 'disinfection by-products in drinking water during 1975-2018', all documents searched out had no abstract information in SCI-EXPANDED.

Of 2,001 articles with author affiliations in SCI-EXPANDED from 71 countries, 1,590 (79% of 2,001 articles) were single country articles from 54 countries and 411 (21%) were internationally collaborative articles from 65 countries. To compare publication performances of countries and institutes, publication indicators such as rank and percentage of the total number of articles (TP), single country articles (SP), internationally collaborative articles (CP), first author articles (FP), and corresponding author articles (RP) as well as the percentage of

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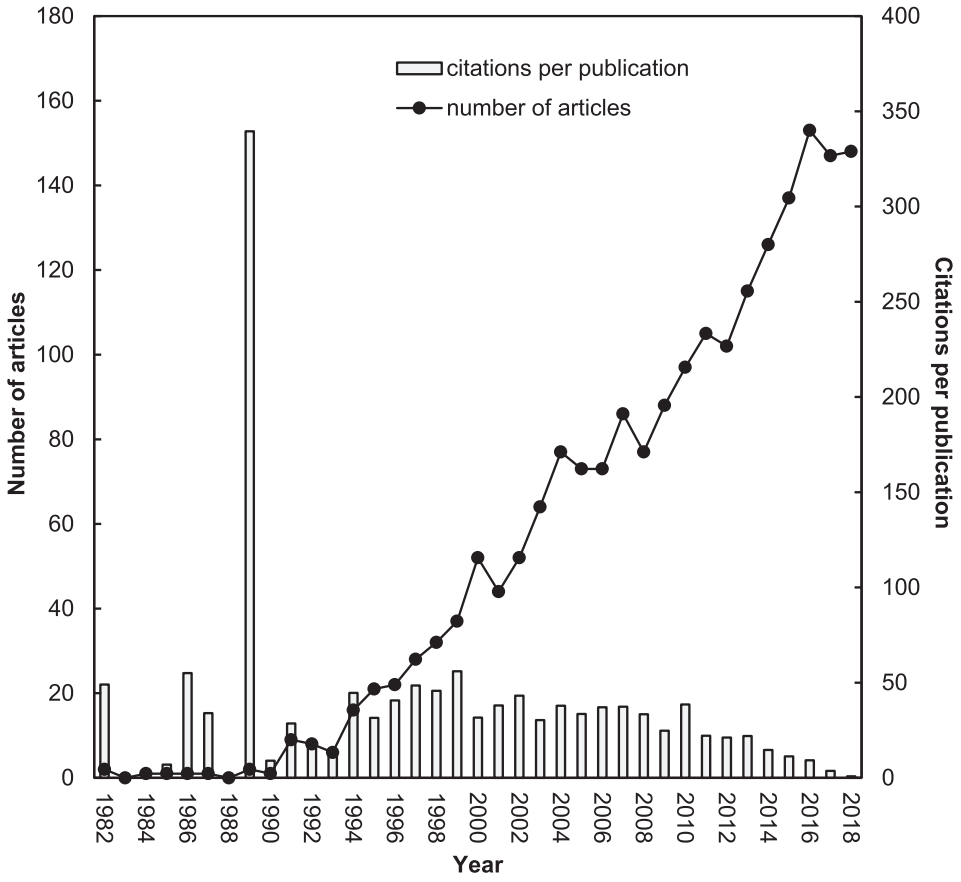

Fig. 1. Number of articles and citations per publication by year.

Table 1
The top 10 most productive countries/regions.

Country/regions	TP	*TPR* (%)	*SPR* (%)	*CPR* (%)	*FPR* (%)	*RPR* (%)	%CP	*h*-index
USA	832	1 (42)	1 (38)	1 (55)	1 (35)	1 (35)	27	74
China	413	2 (21)	2 (17)	2 (34)	2 (19)	2 (19)	33	39
Canada	203	3 (10)	3 (9.4)	4 (13)	3 (8.8)	3 (8.9)	26	42
UK	112	4 (5.6)	7 (2.3)	3 (18)	7 (3.0)	7 (2.9)	67	28
Spain	105	5 (5.2)	4 (3.4)	5 (12)	5 (3.4)	4 (3.5)	49	25
Australia	93	6 (4.6)	6 (2.9)	6 (11)	4 (3.5)	6 (3.3)	51	25
Italy	83	7 (4.1)	5 (3.1)	7 (8.0)	6 (3.4)	5 (3.4)	40	24
Germany	58	8 (2.9)	11 (1.6)	8 (7.8)	9 (1.7)	9 (1.8)	55	25
Taiwan	51	9 (2.5)	8 (2.3)	13 (3.6)	8 (1.8)	8 (2.0)	29	20
France	50	10 (2.5)	12 (1.6)	9 (6.1)	12 (1.5)	12 (1.6)	50	18

TP: total number of articles; *SP*: single country articles; *CP*: internationally collaborative articles; *FP*: articles with first author; *RP*: articles with corresponding author; %: share in articles; *R*: Rank; %*CP*: the percentage of internationally collaborative articles in total articles for each country.

internationally collaborative articles among the total articles for each country/institute and h-index were first proposed by Ho's group [13]. Results show in Tables 1 and 2. h-index in the tables were calculated by using TC_{2018}.

Tang et al. published "Bibliometric review of research trends on disinfection by-products in drinking water during 1975–2018" in Separation and Purification Technology using an inappropriate method [1]. This may result in misleading readers of the journal [14]. Citing the original paper not only respects the work of the authors who presented a novel research idea but would also focus on this idea, in detail, in the body of their paper [15]. It has been pointed out that authors have 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 [16]. Furthermore, Tang et al. should have cited the original papers for their tables and thereby provided greater accuracy and information details about the idea that they employed [12].

Table 2
The top 10 most productive institutes.

Institutes	TP	*TPR* (%)	*SPR* (%)	*CPR* (%)	*FPR* (%)	*RPR* (%)	%CP	*h*-index
United States Environmental Protection Agency, USA	220	1 (11)	1 (7.6)	1 (13)	1 (7.0)	1 (7.1)	72	48
Tongji University, China	86	2 (4.3)	5 (1.6)	2 (6.1)	2 (3.4)	2 (3.0)	85	21
University of North Carolina, USA	71	3 (3.5)	5 (1.6)	3 (4.8)	6 (1.5)	7 (1.4)	82	28
Chinese Academy of Sciences, China	69	4 (3.4)	4 (1.8)	4 (4.6)	3 (2.6)	3 (2.6)	80	20
University of Illinois, USA	53	5 (2.6)	9 (1.5)	5 (3.4)	5 (1.7)	4 (1.8)	77	26
University of Laval, Canada	47	6 (2.3)	2 (2.6)	10 (2.2)	4 (1.8)	4 (1.8)	55	17
Imperial College of Science, Technology and Medicine, UK	45	7 (2.2)	31 (0.63)	6 (3.3)	12 (1.0)	11 (1.1)	89	21
University of Alberta, Canada	42	8 (2.1)	3 (1.9)	8 (2.2)	7 (1.5)	6 (1.5)	64	18
Tsinghua University, China	36	9 (1.8)	16 (0.88)	7 (2.4)	8 (1.4)	8 (1.3)	81	15
University of Colorado, USA	32	10 (1.6)	31 (0.63)	8 (2.2)	17 (0.65)	17 (0.65)	84	18

TP: total number of articles; *SP*: single institute articles; *CP*: inter-institutionally collaborative articles; *FP*: articles with first author; *RP*: articles with corresponding author; %: share in articles; *R*: Rank; %*CP*: the percentage of inter-institutionally collaborative articles in total articles for each institute.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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