

Coronavirus: A Scientometric Study with Special Reference to Web of Science

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Abstract

Scientometrics study is one of the most efficient methods of quantitative evaluation of the scientific publication. Coronaviruses are one of the common viruses affect the human and animals some time. There is 7 type of corona already in existence, but the recent Coronavirus called novel corona (Covid19) which spreads among human rapidly. This study is to know the recent research publication of Coronavirus from the web of science, especially after December 2019, where the real spreads started and impact the world economy due to lock down. The data for this study is retrieved from the web of science for the year of 2018, 2019, and 2020 (till March). This study is an attempt to know the publication pattern, year-wise growth of publications, country-wise research output, and top-cited paper. Also, this paper is focusing on the research output of China and Wuhan University in the publications and the Wuhan University's participation in this research publication during the period.

Keywords: Scientometric study, Web of science, Research output on Coronavirus, Coronavirus, Covid-19 and Bibliometrics study

Introduction

Human Coronavirus types were established in the mid of 1960s, according to the Centre for Disease Control and Prevention (CDC). There are seven types of Coronavirus such as

1. 229E (alpha Coronavirus)
2. NL63 (alpha Coronavirus)
3. OC43 (beta Coronavirus)
4. HKU1 (beta Coronavirus)
5. MERS-CoV (known as the beta Coronavirus that causes Middle East Respiratory Syndrome - MERS)
6. SARS-CoV (known as the beta Coronavirus that causes the severe acute respiratory syndrome, or SARS)
7. COVID-19 is a novel (new) Coronavirus that developed in 2019.

COVID-19 is a respiratory disease that can be transmitted from one person to another within about 6 feet distance. Also, the virus spreads in the droplets produced by the infected person who sneezes or coughs. Symptoms of the virus are thought to appear within two to 14 days after exposure. Here the author wants to know the recent publications on Coronavirus and the research trends.

Review of Literature

Mandhirasalam has analyzed the publication of Thiagarajar College of Engineering (TCE) and said that 1497 papers published in the period of 43 years from 1972 to 2014. Among the total published papers, 231 papers (82.23%) were published during the last seven years, i.e. from 2008 to 2014. The findings show that TCE has increased the contribution of the research in the fields of science, engineering, and technology.

Sivakumar has analyzed the publication of PSG College of Arts & Science (PSGCAS), Coimbatore, and provided that 430 papers were published in the period of 15 years, i.e., from 2001 to 2015. During the study period, the publication is gradually increased every year. It shows that the publication of research is high in the year of 2015. More single-author papers are published by this institute in one of the findings of the author.

Scientometric Analysis of Seaweed Research concerning Web of Science Ramasamy Kumaresan et.al. Analyzed that total of 5814 publications were published in seaweed research globally during the study period 2005 –2014. During 2014 883 (15.19%) was published. The highest Total Local Citation Scores (TLCS) and Total Global Citation Scores (TGCS) were recorded in 2008, 2460 (14.99%), and 9724 (15.50%), respectively.

Research Methods

This applied research was carried out using Scientometrics methods and an analytical approach.

- Date of the data retrieval: 1st April 2020
- Timespan : 2018- 2020 (march)
- Database: Web of Science
- Data count extracted: 663

Research Findings

Table 1: H-index and sum of citation of the results

Results found	663
Sum of the Times Cited	1783
Average Citations per Item	2.69
h-index	16

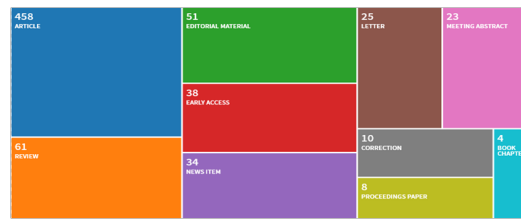
The above table reflects the average citation per paper is 2.69%, and the total citation for the result is 1783.

Table 2: Year-wise breakup of the data retrieved

Year of publications	Count of Research documents
2020 (till march)	155
2019	271
2018	237

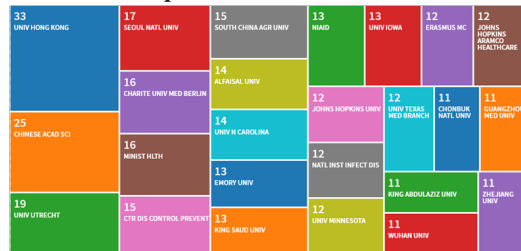
The growth of the research during the last years is increasing as per the above table.

Figure 1: Top 10 types of documents published as per WOS



Fewer than 663 documents retrieved from the above figure shows the count of the papers based on the type of the documents.

Figure 2: Name of the University focuses on the research publication of Coronavirus



The above table shows the University of Hong Kong leads in the publications with 33 documents, and Chinese ACADEMY Science has next published 25 documents. Wuhan University also published 11 documents during this period.

Figure 3: Top 25 Country wise document published on Coronavirus



This above figure reflects that 200 documents were published under 663 documents retrieved from Web of Science from 2018 to March 2020. Also, the above figure reflects that china is in 2nd place, which published 168 documents during the above period.

Figure 4: Top authors produced the publication on Coronavirus



The above figure shows the predominant author is C Drosten, who has published a maximum of 16 documents, and Baric RS has published 15 documents during this period. Christian Heinrich Maria Drosten (born 1972) is a German virologist whose research focus is on novel viruses (emergent viruses).

Ralph Baric is a professor from the department of epidemiology, University of California. During the 2019–2020 Coronavirus pandemic, Drosten came to national prominence as an expert on the implications and actions required to combat the outbreak in Germany.

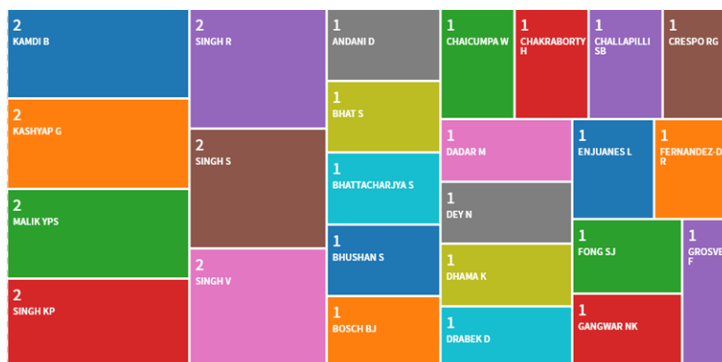
Figure 5: Top 25 Affiliation of Indian authors



This table is to show the real picture of the Indian scenario in the publication of Coronavirus in the Web of Science. Indian council of agriculture research

(ICAR) and its department is lead in publishing the documents in India.

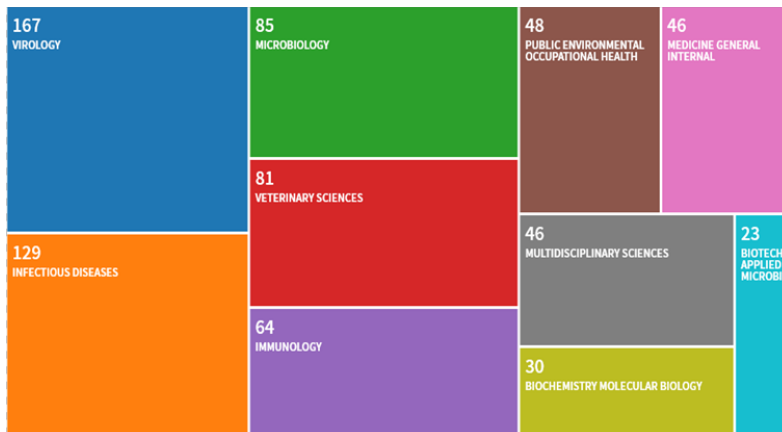
Figure 6: Top Indian authors



In the above figure, Kamdi B, Kasyap G, Malik YPS, Singh KP, Singh R, Singh S, Singh V have published a minimum of 2 papers during this period. Here

this study proves that most of the author is jointly published papers.

Figure 7: Subject wise breakup of the published documents



Most of the above documents are published in the subject area of virology and infectious diseases and Microbiology. It seems the Coronavirus is one of the common virus, so most of them choose the virology.

Limitation and Future Scope of the Study

The limitation of this study is that the Corona virus study provides the number of papers and their citations. It is evident that numbers represent the quantity, but citations do not signify quality. Moreover, the study covered the Web of Science database for this study. However, there are some other sources that include open-access journals and more indexed journals on this subject. Thus, more analysis with other indexing databases could be considered as the future scope of this study.

Conclusion

The results showed that there is a direct relationship between the Coronavirus outbreaks during 2019 and the number of Scientific Publications in this area in the World. Last three months in the year 2020, there are 155 documents published by the researchers. It shows the researchers are working hard to find the solutions and medicine for the new covid19 or Novel Coronavirus. Also, the USA and Chinese are the top countries in the publishing of research documents in the area of Coronavirus. Also, the “Fatal swine acute diarrhea syndrome caused by HKU2-related Coronavirus of bat origin” authored by Zhou, peng et..al. It is leading with 76 citations, which were published in Nature in April 2018. The most commonly used journal for the

above publications by the authors is Viruses-Basel, Virology, Journal of Virology, BMJ-British Medical Journal, etc.. This article gives hope that vaccine and medicine may get soon for the novel Coronavirus.

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