

Mapping of Research in Agricultural Scientist's Citation Analysis in Google Scholar, Scopus and Publons

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(Received 3 March 2019; Revised 21 March 2019; Accepted 1 April 2019; Available online 11 April 2019)

Abstract - An innovative idea developed by the researchers should reach the end user groups. The output of any researcher can be judged in terms of patents or his publications in the respective fields. Quality and impact of research work can be based on the citation and h index. Nowadays, there are several parameters considered for evaluating the performance of the research. Citation and h index are the quality parameters used for rating the originality and use of research. They are more useful for accessing the potentials of research as well as for providing a platform for collaborative projects at national / International levels. This paper presents the comparative analysis of citation and h index for identified researcher through three popular databases viz., Google Scholar, Scopus, and Publons. Among the three databases, Google Scholar showed a higher number of citations of the selected author due to data collected from unauthenticated documents as well as well established research databases.

Keywords: Google scholar, Scopus and Publons

I. INTRODUCTION

The citation of research articles plays a significant role in academic and research circles as it is a parameter to know the importance of literature taken from reference and to know how the sources has been effectively utilised. Every researcher ought to know the output of publications and related citations for their impact. It should be noted that national and International agencies attach much importance to the value of citations and research related information for sponsoring projects. This paper studies the specific point of view of the author established from various databases output collected from Google Scholar, Scopus and Publons. The study analyses the differences and results are presented. It will be an added advantage to any researcher to go for a self study of the research analysis and the use of metric related information from the results.

A. Google Scholar

Google Scholar is an open-access database, which is a part of the Google Company, USA. Any scientist can create a Google Scholar account at free of cost. Google scholar can verify and accept the account based on their institutional or Gmail account. After the creation of an account in the Google Scholar, the citations for the research articles listed can automatically update using search keywords of particular scientific research fields (Moed, H., *et al.*, 2016).

The scholar will provide the details of citations and h index of a particular scientist. The overall rating of the researcher in a particular field can be generated in terms of h index and citations, which is based on keyword or affiliation of the researcher. Sometimes, it can provide the research papers via Google search engine using keywords or open access resources available. Citation data is available for the individual article as well as year wise publications. The number of citations for research is found to be higher as compared to other databases, because it includes more documents available in the public domain such as freely available documents (open access journal, books, documents, technical reports, etc.) as well as well established research databases (Science direct, Web of Science, etc.).

B. Scopus

Scopus is an Elsevier's product established in 2004. Scopus database is one of the abstracting and citations informationsite, which is maintained by Elsevier Publishing Group (Scopus.com, 2018). Generally, the number of citations for research is found to be less as compared with Google scholar. Nevertheless, Scopus collects and provides information based on more authenticated documents published by the researcher. In other words, Scopus uses peer-reviewed, high quality/impact factor journals, books, conferences proceedings, etc. Scopus provides information about h-Index, CiteScore and SJR of the researcher.

C. Publons

Publons is a database founded by Andrew Preston and Daniel Johnston, which was later acquired by Clarivate Analytics. Publons helps the researchers for enhancing the output of publication information. Publons is a citation network and researcher tool, including products like Web of Science, EndNote, and ScholarOne (publons.com, 2018). The number of citations for research is found to be low as compared with Google Scholar and Scopus. Publons uses Web of Science (WoS) database for collecting the author information. This may be a reason for less number of citations by researchers. Similar to the Elsevier publishing group, WoS uses peer-reviewed, high quality/impact factor journals, books, conferences proceedings, etc.

II. OBJECTIVES OF THE STUDY

The primary objective of the present study into focus on the comparative analysis of citations and h index for the papers published by the researcher using different online citation databases. For this study, the citation and h index generated for the period 2009-2018 belonging to Dr. Desikan Ramesh publications were selected and used for analysis. From all the three databases, data were collected. The sites were accessed on 14.02.2019 to collect the required data.

III. SCIENTIST PROFILE

Dr. Desikan Ramesh is an Associate Professor (Bioenergy) in Tamil Nadu Agricultural University, Tamil Nadu, India. His area of interests are biofuels and biorefinery. He has guided two students in the research area of biomass pre-treatment and biobutanol production from lignocellulosic biomass feed stock. He did postdoctoral research at Durban University of Technology, South Africa in 2010. He has

published many research articles in international/national journals, written book chapters for reputed international publishers.

He handled two international collaborative research projects a completed them as one of the co-principal investigators. These projects focused at development of low-cost technology for biomass pre-treatment and conversion of lignocellulosic biomass into biofuels and multiple bioproducts.

IV. METHODOLOGY

In this study, the secondary sources are taken for analysis from the three online databases Google Scholar, Scopus and Publons. The specific author's publications and citations were traced from these databases. The author search string was used to download the records based on the string, and the Journals were downloaded and analyzed as per the objectives of the study.

V. RESULTS AND DISCUSSION

TABLE I CITATIONS OUTPUT IN THE SCOPUS DATABASE FOR THE PUBLICATION OF DR. D.RAMESH

S. No.	Title of the Publication	Published Year	<2015	2015	2016	2017	2018	2019	Total
1	Delignification of corncob via combined hydrodynamic cavitation and enzymatic pretreatment: process optimization by response surface methodology	2018	-	-	-	-	-	-	0
2	Thermal behaviour and pyrolytic characteristics of freshwater <i>Scenedesmus</i> sp. Biomass	2015	-	-	2	1	1	-	4
3	The characterization of palm and rice bran oil biodiesel to assess the feasibility for power generation	2014	1	-	-	1	1	-	3
4	Sustainable biodiesel production using wastewater streams and microalgae in South Africa.	2013	-	-	-	-	-	-	0
5	Lipid identification and extraction techniques	2013	-	2	1	1	2	-	6
6	Development and evaluation of worker-friendly arecanut stripper	2012	-	-	-	-	-	-	0
7	Effects of parameters affecting biomass yield and thermal behaviour of <i>Chlorella vulgaris</i>	2011	24	11	4	6	14	4	63
8	Bioprospecting for hyper-lipid producing microalgal strains for sustainable biofuel production	2011	99	28	35	36	17	5	220
9	Vibration characteristics of self-propelled power weeders	2010	-	-	-	-	-	-	0
10	Ergonomic intervention in sugarcane detaching	2010	-	-	-	-	-	-	0
11	Ergonomics of Self Propelled Power Weeders as Influenced by Forward Speed and Terrain Condition	2009	-	-	-	1	-	-	1

The details of the publications made by Dr.D.Ramesh are presented in Table I. The year wise citation is "Bioprospecting for hyper-lipid producing microalgal strains for sustainable biofuel production" published in the year 2011. It has claimed 220 citations. The same year he published the article "Effects of parameters affecting biomass yield and thermal behaviour of *Chlorella vulgaris*" citations are 63. In the year of 2013, the number of citations are 6, 2015 has 4 citations, 2014 has 3 citations and 2009 citation has 1.

For Dr.D. Ramesh among various database wise citations the Google scholar has shown the highest citations (624). The Scopus citation is 297 and Publons citation is 236 (Fig. 1). The Google scholar has more citations compared to other databases citations. The number of citation for research is found to be higher as compared to other databases. This is because citations shown by Google Scholar are based on unauthenticated documents as well as well established research databases.

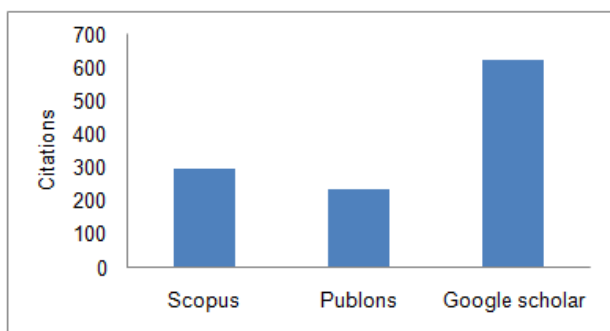


Fig.1 Showing Comparative analysis citations of Dr. D. Ramesh in Online databases

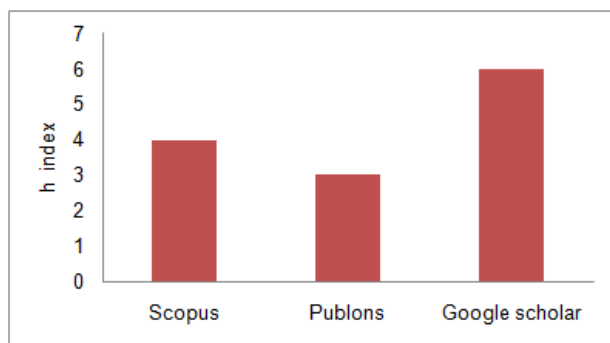


Fig.2 Showing Comparative analysis h index of Dr. D. Ramesh in Online databases

Among the databases used in this study, the highest h index for the author Dr. D. Ramesh was reported by Google scholar (6). The Scopus h index is 4, and Publons

h index is 3. Similar to the citation report of the selected researcher, the h index is also found in a similar order (Fig. 2). The h index and citations are interlinked. The variation in h index for this researcher is mainly due to citations reported by Google Scholar, Scopus, and Publons.

VI. CONCLUSION

Citation and h index are becoming a tool to measure the impact of a published paper by a researcher in a particular area of research. Some of the funding agencies use these parameters for rating the researcher. Among the three databases, Google Scholar shows a higher number of citations of the selected author, because citations showed by Google Scholar is based on unauthenticated documents as well as well established research databases.

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