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RESEARCH OUTPUT OF PLANT BREEDING SCIENTIST: A SPECIAL REFERENCE WITH GOOGLE SCHOLAR AND SCOPUS DATABASES

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Abstract: ***A good researcher would plan, execute, and complete the project and further the experimental data converted to research documents. Different publishers publish these research documents through online and offline mode in different categories such as research articles, case studies, technical reports, etc. Nowadays, a scientist's research output, research findings, and its impact can be found easily. Today, the publications in the specific databases for an individual scientist can be found available electronically. The funding agencies select the project proposal based on the innovative ideas and research background of the scientist. Therefore, the measurement of the impact of these documents in the scientific community is mandatory. The present study focused on analyzing the impact of research output published by Professor Dr.M.Pandian, Plant breeder, Tamil Nadu Agricultural University, Tamil Nadu, India based on citations, and h index of his published documents. In this study, Google Scholar and Scopus database used to collect the data up to the year 2020. According to the Google Scholar database, it was found that 413 citations of research documents published by researchers from different places of the world cited his research papers, whereas Scopus shows 73 citations of documents. The papers published by this researcher would help in receiving awards from different agencies at national and international levels.***
Keywords: Google Scholar, Scopus, research output, citations, h index.

Introduction:

Research is carried out in all the disciplines of science for finding an innovation/discovery/advancement in the respective research area. Generally, the research output of any project is a significant finding of experimental work. The researcher/scientist may publish these findings in any form of research paper/book chapter/book, presentation, short

communication, research notes, or presenting it in a conference/symposium/workshop. The experimental results of particular research must be converted into research documents and published in various forums. Recently, the library and information center have different forms of digital resources for research documents and provide services through offline and online mode to user groups. Presently, the researcher showed keen interest in disseminating their research findings in different forms, such as popular articles, research articles, review articles, book chapters, and books (printed and eBook format). These research documents are available online for easy access for other researchers in the same research field. The more citation numbers of research documents would indicate the impact of the research findings in that area. Since these documents can be available in the publisher databases, different keywords used to collect the information on a particular research topic/scientist and data further analyzed for different categories by using filters the data. The interested researchers/clients can access these publications for their research work or enhance knowledge in this research area. The present study is focused on analyzing the impact of research output published by a scientist from Tamil Nadu Agricultural University in the field of plant breeding research.

Databases:

Generally, the database is used to store and retrieves information on particular topics. The bibliographical databases are beneficial to collecting research information in their research area. These databases play a vital role in both academic and research developments. Three significant databases in the sciences are Google Scholar, Scopus, and Web of Science. It is advantageous for the researchers to know the latest research related information and technologies.

Google Scholar

Google Scholar is an open access based database, and its account can be created at free of cost. The Google Company, USA, maintain this database. Gmail or institutional email of the researcher used for account creation. Later, the researcher can add his/her publications to the account; the citations for the publications are automatically updated. This can be achieved by the program used in Google Scholar based on keywords of particular scientific research fields

(Moed, H., et al. 2016). This website displays the citations (total and year-wise) and also provides h index of a particular researcher. (Sankar,M. 2019) interpreted the analysis of the various databases Google Scholar, Scopus and Publon related information in their research. It is also very clearly found that agricultural Scientists databases citations.

Scopus

Scopus is a research database owned by Elsevier Publishing Group (Scopus.com, 2018). The number of citations for research documents is based on more authenticate academic resources. As similar to Google Scholar, Scopus also provides citations, h-Index, and SJR.

Objectives of the study

The main objective of the present study is to carry out a comparative analysis of research impact parameters (citations and h index) of the papers published by the researcher based on Google Scholar and Scopus databases. The research documents published by Dr. M.Pandiyan were used for the present study, and data collected on citations and h index of his documents were used for further analysis. The research impact parameters were collected from the Google Scholar and Scopus databases, and the websites were accessed on 29.03.2020 to collect the required data.

Professor Dr.M. Pandiyan profile

Dr.Muthaiah Pandiyan has presently Dean of Agricultural College and Research Institute, (Tamil Nadu Agricultural University) Vazhavachanur, Thiruvannamalai district. He has more than twenty years of experience in the field of research, teaching, and extension activities. The release of many pulse varieties evidences his research output in the area of pulse breeding - Mung bean (3 varieties) and Urd bean (4 varieties) and other pulses crop *viz.*, Pigeon pea (1 variety), other crops Spiny Brinjal (1 variety) and Acid lime (1 variety). He also released MYMV resistant varieties in Urdbean VBG04-008 (VBN(Bg)7 and VBG05-009 (VBN(Bg)8 for the South Zone under MULLaRP program as national varieties. Furthermore, he received various externally funded research projects worth nine crores rupees from different funding agencies like DBT, ICAR, UGC, and NABARD. He has received an international award for the best

presentation in Japan and received many awards at the national level, including best researcher, best extension worker, and best KVK, TNAU, and ICAR awards. He did Post Doctoral Fellow at NIAS, Tsukubha, Japan. He has published more than 200 research articles in national and international journals, ten books and 150 popular articles. He holds membership in five different scientific societies and fellow in NABS society.

Methodology

The secondary sources data from the two online databases (Google Scholar and Scopus) were collected and further used for analysis. The specific author's publications and citations and h index were traced from the above-mentioned databases. The author search string was used to download the records and further analyzed as per the objectives of the present study.

Results and Discussion

The details of the citations available in the Google Scholar database for Professor Dr.M.Pandiyan are furnished in table 1. The topmost citation for the among the research papers published by his team, a paper on "Interspecific hybridization of vigna mbella x 13 wild vigna species for developing MYMV donar" published during 2010 the Journal Electronic Journal of Plant Breeding has 39 citations. The second highest cited research paper is "Broadening the genetic base and introgression of MYMV resistance and yield improvement through unexplored genes from wild relatives in mungbean" has 31 citations.

Table 1. Citations output in the Google Scholar database for the publication of Professor Dr. M.Pandian(Top 10)

S. No.	Title of the publication	Journal name	Publication year	Citations
1.	Interspecific hybridization of vigna	Electronic	2010	39

	mbella x 13 wild vigna species for developing MYMV donar	journal of plant breeding		
2.	Broadening the genetic base and introgression of MYMV resistance and yield improvement through unexplored genes from wild relatives in mungbean	Plant Mutation Report	2008	31
3.	Novel Genetic Resources in the Genus Vigna Unveiled from Gene Bank Accessions	PLOS ONE	2016	30
4.	Mungbean yellow mosaic virus (MYMV): a threat to green gram (*Vigna radiata*) production in Asia	International journal of pest management	2014	25
5.	Effect of bioinoculants on sucking pests and pod borer complex in urdbean	Journal of Biopesticides	2011	23
6.	Inheritance of resistance to mungbean yellow mosaic virus (MYMV) in inter and intraspecific crosses of mungbean (Vigna radiata)	American Journal of Plant Sciences	2013	22
7.	Screening of MYMV Resistant Mungbean (Vigna radiata (L.) Wilczek) Progenies through Agroinoculation.	International Journal of Plant Pathology	2011	20
8.	Vigna genetic resources	Proc. of the 14th NIAS Intl. Workshop on Genetic Resources	2010	19
9.	Screening of mungbean (*Vigna radiata*) germplasm for resistance to *Mungbean yellow mosaic virus* using agroinoculation	Canadian Journal of plant pathology	2013	17
10.	Molecular studies on mungbean (Vigna radiata (L.) Wilczek) and rice bean (Vigna umbellata (Thunb.)) interspecific hybridization for Mungbean yellow mosaic virus resistance	Archives of Phytopathology and Plant Protection	2012	11

Table 2. Citations output in the Scopus database for the publication of Professor Dr. M.Pandian (Top 10)

S. No.	Title of the publication	Journal Name	Publi cation	Citat ion

			Year	
1	Novel genetic resources in the genus vigna unveiled from gene bank accessions	PLoS ONE	2016	18
2	Mungbean yellow mosaic virus (MYMV): a threat to green gram (Vigna radiata) production in Asia	International Journal of Pest Management	2014	10
3	Molecular studies on mungbean (Vigna radiata (L.) Wilczek) and rice bean (Vigna umbellata (Thunb.)) interspecific hybridization for Mungbean yellow mosaic virus resistance and development of species-specific SCAR marker for rice bean	Archives of Phytopathology and Plant Protection	2013	9
4	Screening and identification of random amplified polymorphic DNA (RAPD) markers linked to mungbean yellow mosaic virus (MYMV) resistance in mungbean (Vigna radiata (L.) Wilczek)	Archives of Phytopathology and Plant Protection	2012	9
5	Broadening the genetic base of sesame (Sesamum indicum L.) through germplasm enhancement	Plant Genetic Resources: Characterisation and Utilisation	2004	9
6	Screening of mungbean (Vigna radiata) germplasm for resistance to Mungbean yellow mosaic virus using agroinoculation	Canadian Journal of Plant Pathology	2013	7
7	Search for Vigna species conferring resistance to Mungbean yellow mosaic virus in mungbean	Plant Genetic Resources: Characterisation and Utilisation	2015	6
8	Resistance determination of a South Indian bruchid strain against rice bean landraces of Manipur (India)	Journal of Stored Products Research	2016	1
9	Response of mungbean to different methods and levels of molybdenum application under acid soil conditions	Acta Horticulturae	2014	1
10	Search for Vigna species conferring resistance to Mungbean yellow mosaic virus in mungbean	Plant Genetic Resources: Characterisation and Utilisation	2007	1

The details of Scopus citation for Professor Dr.M.Pandiyan are presented in table 2. The topmost citation is "Novel genetic resources in the genus vigna unveiled from gene bank accessions," published in the Journal PLoS ONE in the year of 2016. This paper has 18 citations. In the 2014 year, the research article titled "Mungbean yellow mosaic virus (MYMV): a threat to green gram (Vigna radiata)

production in Asia" has cited ten times. The number of a citation for the research papers published in 2013, 2012 & 2004 are cited in nine research documents each.

Table 3. Research output from Google Scholar and Scopus databases for Professor Dr. M.Pandian

S.No.	Research output	Google Scholar	Scopus
1.	Total Number of Documents	124	17
2.	Total Citations	413	73
3.	H index	11	6

Figure.1. Citations and h index from Google Scholar databases for Professor Dr. M.Pandian

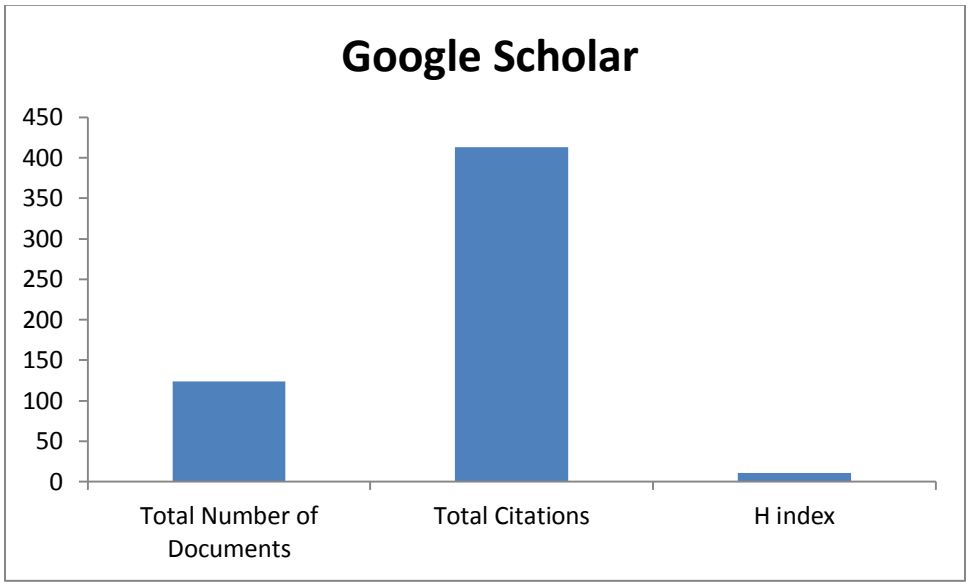

Figure.2. Citations and h index from Scopus databases for Professor Dr. M.Pandian

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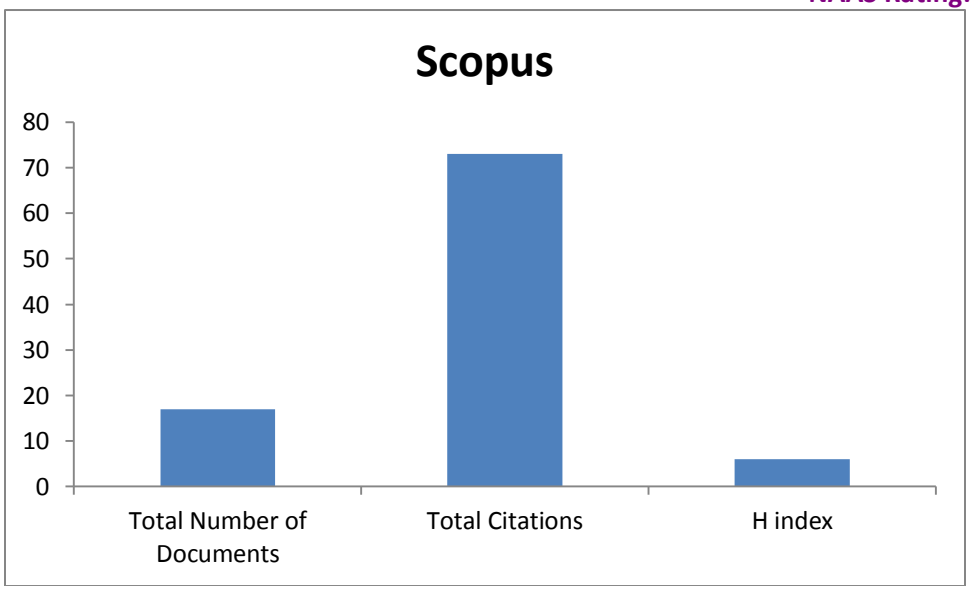

Among the databases used in the present study, the citations for the author Dr.M.Pandiyan was found in Google scholar (413), whereas Scopus was 73, As similar to the citation report of the selected researcher, the h index is also following the similar trend (Fig.1& 2). The variation in h index for this researcher is mainly due to different citations report generated by Google Scholar and Scopus database based on their search keywords/string used.

Conclusion:

The present study carried out to analyze the impact of the research output of Professor Dr.M.Pandiyan, Tamil Nadu Agricultural University, on plant breeding research by considering data available on citations and h index for his research documents up to 2020 in Google Scholar and Scopus databases. From the study, it is concluded that citations for his research documents found as 413 and 73 times in Google Scholar and Scopus databases, respectively. The highest number of the cited research paper by this author was Interspecific hybridization of vigna mbella x 13 wild vigna species for developing MYMV donar", which was published in the Journal Electronic Journal of Plant Breeding. The highest citations and h index of the individual researcher visible in these databases would be more useful for ranking and create a platform for collaborating projects at the national and international levels.

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