9. "RESEARCH PRODUCTIVITY OF THE SCIENTISTS OF CSIR-NCL: A SCIENTOMETRIC STUDY"

Mr. Dhanajay Trimukhe

Librarian, Sanskar Mandir Sanstha's Arts and Commerce College, Pune

ds.trimukhe@gmail.com /Mobile 9689944613

Abstract

With help of research outputof individual and institute one can measure research productivity. Scientometric method is usefulto find out quantitative and qualitative research productivity of the scientist, institute and group of organisation. Web of Science and Scopus databases are used for this purpose.

Scientometrics

Two Russian scientists Nalimov and Mulechenko coined the Russian term naukometriya the Russians equivalent of Scientometrics (1969). Scientometrics defines its content as "Scientometrics includes all quantitative aspects of the science of science, communication in science, and science policy." (Wilson, 1999).

Need and Significance of the Study

Scientometric studies have been used from last two decades for measurement of growth pattern and research productivity of the individual or institutes within geographical area. Till date no scientometric study of National Chemical Laboratory and its scientists research output was done.

Review of Literature

Satish Kumar. (2018) reveals its astronomical research output by using bibliographic tools and techniques and its finding that TIFR (Tata Institute of Fundamental Research) for the year 2001-2015 are publishing their articles in high impact factor journals and collaborating with leading institutes of the world. Nishavathi, E. and Jeyshankar, R. evince the growth of research output of AIIMS (All India Institute of Medical Sciences) for the period of 2007-2016. They explain growth of research publication output of faculties for ten years is exponential. Mondal, D., &Raychoudhury, N. (2018) highlighted the research productivity of Saha Institute of Nuclear Physics depicts that the scientists produce large number of publications with international collaboration.

CSIR NCL (Council for Scientific and Industrial Research- National Chemical Laboratory), is a constituent laboratory of council of scientific and industrial research established in 1950.It is internationally known for its excellence in scientific research in chemistry and chemical engineering as well as for its outstanding track record of industrial research involving partnerships with industry from concept to commercialization.

Statement of Problem

Scientometric study and citation analysis is fairly good method to quantify an institutions contribution in the national scientific output. It is observed that highly qualified and scholar scientists are appointed for research and development work. They were paid good incentive from general public tax money. Are they contributed enough as per expectations of the government of India? Yet bibliometric study of this research organisationnot carried out in the past so I choose this topic. The findings of the study will help to find out publication growth pattern and authorship pattern and collaboration with other countries and industries.

Objectives of the Study

1. To identify number of patents awarded to the institute
2. To examine authorship patterns.
3. To examine prolific of authorship

Justification of the Objectives

The researcher observes that NCL is highly reputed institutes involved in intense research activities. To find out research productivity of this institute the researcher need to know growth pattern of publication, preferred publication pattern, Institutes infrastructure and status of the scientists and their research output.

Statement of Hypothesis

1. Multiauthorship is predominant on Single authorship

Research Methodology

a) Populationand Sample size

There are 552 staff such as scientist, technical officer, administrative staff working in the NCL and for this study 100% population consider i.e. 124 Scientist.

Institutes Name	Number of Scientist
CSIR NCL	124

b) Justification of sampling method

Universe of population for research is around 124 and 100% sample taken for the study.

c) Sources of Data Collection

The research topic selected for the study is realistic and method adopted is online database search method.

i) Primary Data: Primary Data from Web of Science and Scopus database and Patent Databasewill obtain online from CSIR NCL Library.

ii) SecondaryData: The secondary data will collect through Organisations Annual Reports, Government of India website, Blogs and organisation own websites etc.

Results and Discussion

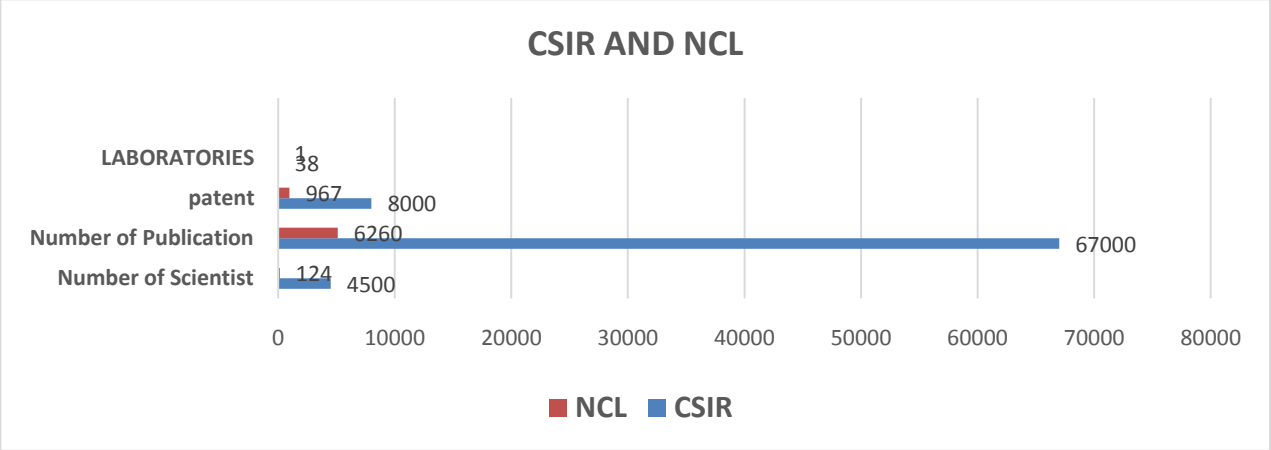


Chart 1.1

In the above chart 1.1 CSIR (Council for Scientific and Industrial Research) is an autonomous body funded by Government of India. It has 38 laboratories all over the India and NCL (National Chemical Laboratory) is one of the premier institutes among them. From above table 8.27% patents awarded to the NCL and 10.70% publications by the NCL as compare to the CSIR. Scientist are more vibrant and doing research activity for getting national and international patents

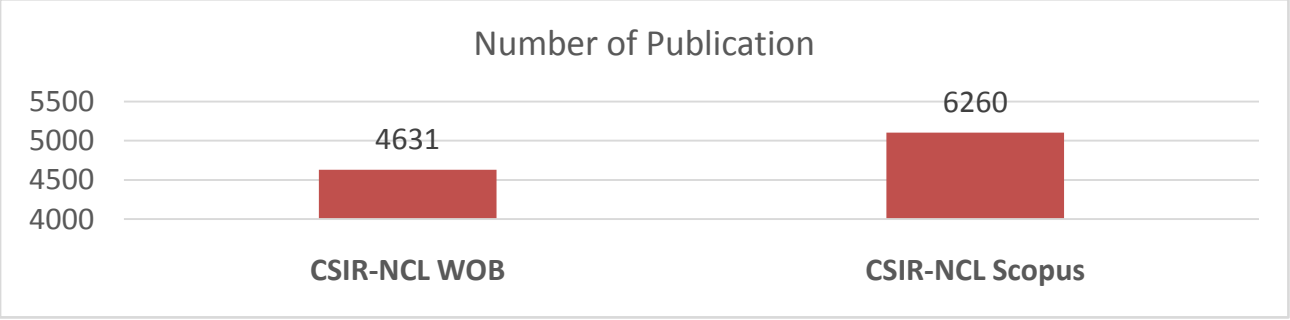
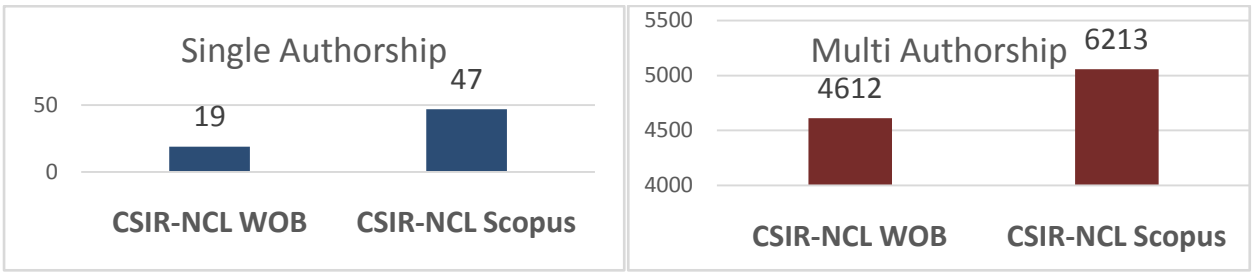


Chart 1.2

This chart 1.2 shows that Scopus database covers more publication than Web of Science database.



Char 1.3

This Chart 1.3 shows that multi authorship is predominant on single authorship because in the scientific research collaborative work needed to complete statistical tabulation, laboratory for reaction, geographic area, instruments etc.

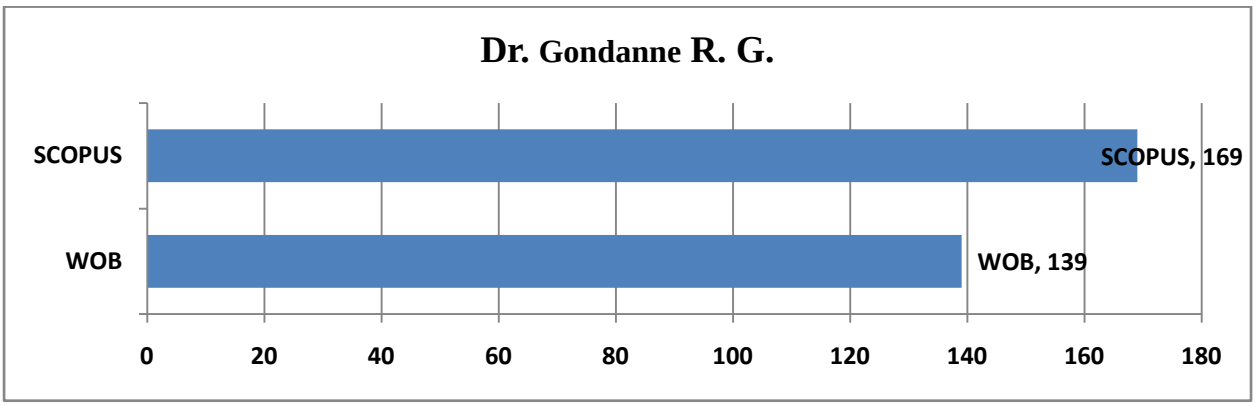


Chart1.4

From above chart 1.4 first prolific scientist Dr. Gonnade R. G. from CSIR-NCL has research publications as shown we can easily find that more literature covered by Scopus database.

Scope of the study

Indian government invest lots of fund in research and development activities. Pune city have highly reputed research organisation such as CSIR NCL.

Limitation of the Study

Following are the limitation of the Study

1. Existing scientist ofCSIR NCL are covered.
2. Web of Science and Scopus database used for this study.

Conclusion

CSIR-NCL is prominent research institute in the India. Highly equipped instruments in laboratories and well design infrastructure motivating scientists for more research output in terms of patents and publications. Web of Science and Scopus databases are indexed different journals as per their policy and it is found that Scopus covers 18% more literature than Web of Science database.Growth of the publication is a linear from last ten years and multi authorship pattern is pre dominant on single authorship is observe in this study.

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