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# Scientometric Analysis and Literature Research Growth of Lupus During 2010-2017

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## Abstract:

The paper analyses the growth pattern of Lupus disease literature during 2010-2017. The data downloaded from web of science database, further interpreted and analyzed for the study purpose. Total number of publications has been identified as 38750 records. The distribution of publications based on the year of production, country wise productivity, document type of the publications, Major subject categories, Authors whose contribution is in the maximum level were studied. The study reveals a progressive increase on LUPUS research during 2010-2017. The year 2016 contributed highest number of publications. United States is the top contributor during 2010-2017. PETRI M is the leading author having 394 articles which is 1.017% of the total publications.

Keywords: Bibliometric; Lupus; Literature growth; Scientometric

## Introduction

Lupus is a systemic autoimmune disease that occurs when your body's immune system attacks your own tissues and organs. Inflammation caused by lupus can affect many different body systems including your joints, skin, kidneys, blood cells, brain, heart and lungs. Lupus can be difficult to diagnose because its signs and symptoms often mimic those of other ailments. The most distinctive sign of lupus a facial rash that resembles the wings of a butterfly unfolding across both cheeks occurs in many but not all cases of lupus.

Different kinds of lupus have been identified, but the type that we refer to simply as lupus is known as systemic lupus erythematosus or SLE. Other types include discoid (cutaneous), drug-induced, and neonatal.

Scientometrics is branch of "Science of Science". It is one of the most significant measures for assessment of scientific productivity. It is also interrelated to and has overlapping benefits with bibliometrics and informetrics. In 1969, Nalimov and Mulchenko coined the Russian equivalent of the term "Scientometrics". The term "Scientometric" is a field which consists of the quantitative methods applied to the study of the science as an information process. This technique contains statistical and thesaurus methods, and indicators as to the number of citations, terms so on and it is a scientific discipline, which performs

reproducible measurements of scientific activity, and exposes its objective quantitative regularities.

These techniques used to analyze various quantitative or qualitative aspects of a publication. It is a scientific field that studies the evolution of science through some quantitative measures of the scientific information, as the number of scientific articles published in a given period of time, their citation impact, etc. It is useful for medical researchers and medicine professional to get exact statistics about the Lupus

## Objectives

The main objective of this study is to analyze the Lupus research output in worldwide during 2010-17. The study has the following objectives:

- To examine the overall year wise production of articles worldwide research during the period 2010-2017
- To examine country wise growth of literature in the period 2010-2017
- To analyze the document type of the publication
- To identify source titles of the literature
- To identify document type of the publication by Research Areas

- To Identify top 20 authors whose contribution is in the maximum level
- To Identify top 20 Institute name which has a maximum output

### Scope and Methodology

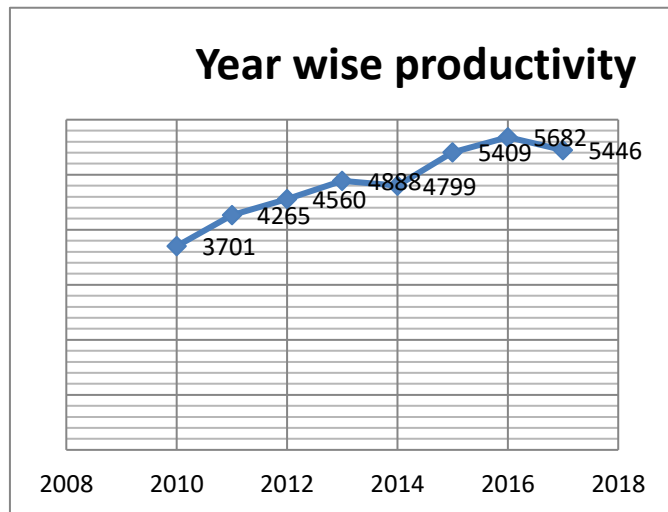
This study used Web of science Database to extract relevant data on Lupus research of 20 most productive countries for the 8 years (2010-17). An advanced search strategy involving “Lupus” as the

keyword was used to search and download data using Title, Abstract and Keywords field, resulting in downloading of 38750 records related to Lupus research. Separate strategies were developed in terms of keywords for identifying different types of Lupus diseases. The downloaded data was analyzed for source items to find the research trend. The articles were categorized chronologically and transported to spread sheet application (MS Excel) and evaluated the data as per objectives of the study.

### Data analysis and results

**Table 1: Year wise productivity**

Publication Years	No of Records	% of 38750
2010	3701	9.55
2011	4265	11.01
2012	4560	11.77
2013	4888	12.61
2014	4799	12.39
2015	5409	13.96
2016	5682	14.66
2017	5446	14.05
	38750	100



It is seen from table no 1 that a total no 38750 documents has been published in Web of science database during the year 2010-2017 in the subject of Lupus. Average 4843.75 number of published per year. Out of 38750 articles highest no research articles were published in the year 2016 (5682, 14.66%) and

5446 (14.05%) articles published in the year 2017. After seen year wise productivity it is concluded that growth of research articles publication increasing gradually from the year 2010 to 2017

**Table.2 country wise growth of literature (Top 20 countries)**

SL.NO	COUNTRIES/REGIONS	NO OF RECORDS	% OF 38750	RANK
1.	USA	12521	24.40	1
2.	PEOPLES R CHINA	3995	7.79	2
3.	ENGLAND	2919	5.69	3
4.	ITALY	2608	5.08	4

5.	GERMANY	2329	4.54	5
6.	JAPAN	2072	4.04	6
7.	CANADA	1911	3.72	7
8.	FRANCE	1866	3.64	8
9.	SPAIN	1789	3.49	9
10.	BRAZIL	1426	2.78	10
11.	SWEDEN	1167	2.27	11
12.	AUSTRALIA	1021	1.99	12
13.	NETHERLANDS	1007	1.96	13
14.	SOUTH KOREA	974	1.90	14
15.	<b>INDIA</b>	<b>905</b>	1.76	<b>15</b>
16.	TURKEY	815	1.59	16
17.	TAIWAN	670	1.31	17
18.	MEXICO	669	1.30	18
19.	ISRAEL	606	1.18	19
20.	POLAND	564	1.10	20
		41834 (OUT OF 51311)	81.53%	

Table no. 2 shows top 20 most prolific countries which are published major no of research articles in the fields of Lupus during the year 2010-2017. This table also reveals that out of 51311 contribution, top 20 countries published 41834 (81.53% out of total contribution). The United State is ranked 1<sup>st</sup> by published 12521(24.40%) articles out of total contribution during the period of study. China hold 2nd rank for publishing 3995 (7.79%) no of articles followed by U.K. 2919 (5.69%), Italy 2608 (5.08 %) and so on. India ranked 15 among top 20 countries.

**Table.3 Document Type of the Publication**

SL.NO	DOCUMENT TYPES	RECORDS	% OF 38750
1.	ARTICLE	22256	57.43
2.	MEETING ABSTRACT	7414	19.13
3.	REVIEW	6017	15.53
4.	LETTER	1287	3.32
5.	EDITORIAL MATERIAL	1154	2.98
6.	PROCEEDINGS PAPER	265	0.68
7.	BOOK CHAPTER	181	0.47
8.	CORRECTION	119	0.31
9.	NEWS ITEM	28	0.07
10.	RETRACTED PUBLICATION	7	0.02
11.	BOOK REVIEW	6	0.02
12.	BIOGRAPHICAL ITEM	5	0.01
13.	REPRINT	4	0.01
14.	EARLY ACCESS	2	0.01
15.	POETRY	2	0.01

16.	RETRACTION	2	0.01
17.	THEATER REVIEW	1	0.00
		38750	

There are various types of documents have been published on this title in web of science database such as articles, Meeting abstracts, reviews, Letters etc. Research productive documents have been categorized in 17 bibliographic formats. Most of the documents were published in research article form i.e 57.43 % and 19.13% of documents were published as Meeting Abstracts.

**Table 4.** Document type of the publication by Research Areas

SL.NO	RESEARCH AREAS	RECORDS	PERCENT
1	MEDICINE	45699	94.93
2	BIOLOGY	554	1.15
3	ZOOLOGY	493	1.02
4	CHEMISTRY	264	0.55
5	VETERINARY SCIENCES	247	0.51
6	ASTRONOMY ASTROPHYSICS	119	0.25
7	ENGINEERING	114	0.24
8	ECONOMICS	82	0.17
9	AGRICULTURE	63	0.13
10	GEOLOGY	50	0.10
11	GEOGRAPHY	45	0.09
12	COMPUTER SCIENCE	36	0.07
13	PHYSICAL EDUCATION	34	0.07
14	HISTORY	33	0.07
15	SOCIOLOGY	30	0.06
16	FOOF SCIENCE	26	0.05
17	ARCHAEOLOGY	24	0.05
18	ACOUSTICS	22	0.05
19	FISHERIES	22	0.05
20	PHYSICS	20	0.04
21	PLANT SCIENCES	20	0.04
22	MECHANICAL ENGINEERING	19	0.04
23	MYCOLOGY	19	0.04
24	ELECTRONIC ENGINEERING	18	0.04
25	FORESTRY	18	0.04
26	MATHEMATICS	17	0.04
27	EDUCATIONAL RESEARCH	14	0.03
28	LIBRARY SCIENCE	7	0.01
29	PUBLIC ADMINISTRATION	6	0.01

30	LANGUAGE	5	0.01
31	OCEAN SCIENCE	5	0.01
32	LITERATURE	4	0.01
33	CRIMINOLOGY	2	0.00
34	LAW	2	0.00
35	PHILOSOPHY	2	0.00
36	ELECTRIC ENGINEERING	1	0.00
37	ENERGY	1	0.00
38	FORIEN STUDIES	1	0.00
			100.00

This table describes that research document have been published in 38 research areas. Among 38 research area more than 94.93% occupied medicine research area. So maximum no of research work is published in medicine discipline.

**Table.5 Top 20 Authors from Literature output**

Sl.No	Authors	Records	% of 38750
1.	PETRI M	394	1.017
2.	SHOENFELD Y	239	0.617
3.	MERRILL JT	226	0.583
4.	GLADMAN DD	203	0.524
5.	RAMSEY-GOLDMAN R	202	0.521
6.	BAE SC	201	0.519
7.	YE DQ	191	0.493
8.	ISENBERG DA	190	0.49
9.	UROWITZ MB	187	0.483
10.	GORDON C	184	0.475
11.	JAMES JA	184	0.475
12.	ALARCON GS	173	0.446
13.	BONFA E	173	0.446
14.	PAN HF	172	0.444
15.	WALLACE DJ	170	0.439
16.	HARLEY JB	167	0.431
17.	TSOKOS GC	164	0.423
18.	LI J	157	0.405
19.	NIEWOLD TB	154	0.397
20.	BERNATSKY S	153	0.395

The top 20 prolific Authors are calculated based on their frequency of publication that has been listed above Author PETRI M is the leading author contributing 397 (1.017) articles followed by SHOENFELD Y, S. 239 (0.617)

articles securing the second position. MERRILL JT and GLADMAN DD contributed 226 and 203 articles and ranked 3rd and 4th.

**Table.6 Top 20 Affiliated Institutes**

	ORGANIZATIONS-ENHANCED	RECORDS	% OF 38750
1.	UNIVERSITY OF CALIFORNIA SYSTEM	1340	3.458
2.	UNIVERSITY OF LONDON	1092	2.818
3.	HARVARD UNIVERSITY	1030	2.658
4.	UNIVERSITY OF TORONTO	854	2.204
5.	ASSISTANCE PUBLIQUE HOPITAUX PARIS APHP	847	2.186
6.	JOHNS HOPKINS UNIVERSITY	698	1.801
7.	INSTITUT NATIONAL DE LA SANTE ET DE LA RECHERCHE MEDICALE INSERM	673	1.737
8.	UNIVERSITY OF TEXAS SYSTEM	670	1.729
9.	KAROLINSKA INSTITUTET	627	1.618
10.	UNIVERSITY COLLEGE LONDON	621	1.603
11.	OKLAHOMA MEDICAL RESEARCH FOUNDATION	567	1.463
12.	NATIONAL INSTITUTES OF HEALTH NIH USA	557	1.437
13.	UNIVERSIDADE DE SAO PAULO	552	1.425
14.	UNIVERSITY OF CALIFORNIA SAN FRANCISCO	519	1.339
15.	VA BOSTON HEALTHCARE SYSTEM	517	1.334
16.	UNIVERSITY OF CALIFORNIA LOS ANGELES	498	1.285
17.	KINGS COLLEGE LONDON	471	1.215
18.	UNIVERSITE SORBONNE PARIS CITE USPC COMUE	454	1.172
19.	NORTHWELL HEALTH	445	1.148
20.	UNIVERSITY OF PENNSYLVANIA	440	1.135

Table no. 6 shows that top 20 Institutions based on journals productivity. This table also reveals the ranking of the journal based on research output of the literature during the year 2010-17. UNIVERSITY OF CALIFORNIA SYSTEM holds 1st rank by published 1340 (3.458%) no of research document followed by UNIVERSITY OF LONDON and HARVARD UNIVERSITY hold 2nd rank and 3rd rank respectively.

#### Conclusion

Considering the above facts it is concluded that the research output in the field of LUPUS was higher i.e. 5682 in the year 2016. In this study USA obtains 1st rank in world research output, only 24.40% of the articles were contributed by authors in India ranking 15th among top 20 countries. PETRI M has contributed maximum number of publications

i.e. 394. In India the research in this field is infantile stage. This may be due to non-availability of funds and supportive training programs. Strengthening of training programs at institutional level, national and international level becomes mandatory. The lacking on the contribution may be due to non-availability of international collaboration.

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