

Mapping Of Microfilaria Research Output : Scientometric Analysis

Dr.P.Padma

Assistant Professor Department of Library and Information Sciences Madurai Kamaraj
University Madurai

ABSTRACT

This study analyzes the research activities of Microfilaria Research output during 1996–2019, based on the total publication output, its growth rate, quality of papers published and rank of India in the global context. Patterns of international collaborative research output and the major partner countries of India are also discussed. This study also evaluates the research performance of different types of Indian medical colleges, hospitals, research institutes, universities and research foundations and the characteristics of published literature in Indian and foreign journals. It also analyzes the medical research output by disease and organs.

Introduction

Microfilaria also refers to an informal collective group of genus name proposed by Cobbold in 1882. While a convenient category for newly discovered microfilariae which cannot be assigned to a known species because the adults are unknown, it is seldom used today. The presence of microfilariae in the host bloodstream is called "microfilaraemia". The success of filariasis eradication programs is typically gauged by the reduction in numbers of circulating microfilariae in infested individuals within a geographic area. Most recent parasitology consider the microfilariae to be "pre-larvae or advanced embryos" which will develop into the first stage larvae (L1) in the arthropod vector. It develops from the egg. In most tissue-dwelling species the eggs hatch in the uterus of the female and the unsheathed microfilariae are released. Many of the organs of microfilariae are in a very early stage of development. For some species, the developmental fates of individual cells have been followed from the microfilaria stage to the adult worm. In some species of Onchocercidae, the release of microfilariae by the adult female is periodic- occurring daily at a particular time of the day or night. This timing increases the chance that they will be picked up by a blood-feeding arthropod vector, which are often more active at certain times of the day.

Objectives

The following main objectives were framed for the present study is:

- Mapping the Year wise distribution of Microfilaria Publications;

- Identify the Author wise distribution of Microfilaria Publications;
- Ranking the Source wise Distributions of Publications of Microfilaria;
- To find out the various Document Types of Microfilaria Publications;
- Ranking of Institutions wise Collaboration with Microfilaria Publications;
- Tracing the Countries/Territories wise collaboration of Microfilaria research Scientists;
- Listing the major Subject Areas of Microfilaria Research Output.

Methodology

The methodology applicable is scientometric study, which used to analyzed in details the bibliographic attributes of the research productivity in Microfilaria which indexed in Scopus database for the study period of 1996-2015 (20 years) and found the records a total of 1911 using which tabulated and analyzed for the study to ranking the each category of research output of Microfilaria.

DATA ANALYSIS AND INTERPRETATION

1. Year wise Distribution of Microfilaria Research Productivity

The below table -1 shows the year wise distributions of publication of Microfilaria from 1996 - 2015. The study based on total 20 years the total output of 1911 publications was taken for analyses. Among the years, 2014 ranked at top with 138 (7.22%) of records; followed the year 2012 stood second rank has scored with 136 (7.12%) of records; the years 2011 has scored the third rank with 124 (6.49%) of records and followed by the years and ranked their respective place of research output of Microfilaria with records. Hence, it also shows that clearly there is a fluctuation trend of publications, whereas the year 1999 has scored the sixteenth rank with 60 (3.14%) of publications.

Table -1 and Figure -1 show the Yearly Output of Microfilaria Research

Year	Recs	%	Rank
2019	44	2.95	17
2018	33	2.15	20
2017	41	2.80	18
2016	34	2.16	19
2015	94	4.92	9
2014	138	7.22	1
2013	109	5.70	5
2012	136	7.12	2
2011	124	6.49	3
2010	109	5.70	5
2009	83	4.34	12

2008	98	5.13	7
2007	79	4.13	13
2006	79	4.13	13
2005	96	5.02	9
2004	85	4.45	11
2003	107	5.60	6
2002	115	6.02	4
2001	54	2.83	15
2000	66	3.45	14
1999	60	3.14	16
1998	97	5.08	8
1997	94	4.92	9
1996	88	4.60	10

2. Source Wise Distribution of Microfilaria Research Output

The table – 2 presents the top 50 source wise output of 1911 for the study period of 1996 to 2015 and found a total of 152 journals in microfilaria. Among them the “Veterinary Parasitology” has scored 121(6.33%) of documents and topped the rank; followed by the “American Journal of Tropical Medicine and Hygiene” has occupied the second rank with 81(4.24%) of documents; the journal “Transactions of the Royal Society of Tropical Medicine and Hygiene” has scored third rank with 77(4.03%) of documents and followed by other journals in their respective places.

Table – 2 shows the Top 20 Source Output of Microfilaria Research Output

Sources	Recs	%
Veterinary Parasitology	121	6.33
American Journal of Tropical Medicine and Hygiene	81	4.24
Transactions of the Royal Society of Tropical Medicine and Hygiene	77	4.24
Parasitology Research	72	4.03
Parasitology	57	3.77
Acta Tropica	51	2.98
Plos Neglected Tropical Diseases	50	2.67
Tropical Medicine and International Health	46	2.62
Annals of Tropical Medicine and Parasitology	41	2.41
Parasites and Vectors	40	2.15

3. Author Wise Distribution of Microfilaria Research Output

The table – 3 presents the top authors output of the total documents 1911 for the study period of 1996 to 2015 and found a total of 157 authors in Microfilaria, among them resulted that the first rank has scored by “Bain, O.” with 42(2.20%) of documents; followed by the second rank has scored by “Hoerauf, A.” with 39(2.04%) of records; the third rank has shared by two authors “Boussinesq, M.” and “Nutman, T.B.” with 36(1.88%) of documents each and followed by other authors in their respective places.

Table- 3 and Figure-3 shows the Top 25 Authors of Microfilaria Output

Author	Recs	%	Author	Recs	%
Bain, O.	42	2.20	Pani, S.P.	19	0.99
Hoerauf, A.	39	2.04	Wanji, S.	19	0.99
Boussinesq, M.	36	1.88	Bockarie, M.J.	19	0.99
Nutman, T.B.	36	1.88	Dantas-Torres, F.	18	0.94
Simonsen, P.E.	35	1.83	Ramaiah, K.D.	18	0.94
Buttner, D.W.	34	1.78	Misra-Bhattacharya, S.	18	0.94
Weil, G.J.	33	1.73	Michael, E.	18	0.94
Das, P.K.	30	1.57	Specht, S.	17	0.89
Fischer, P.	26	1.36	Mand, S.	17	0.89
Kamgno, J.	24	1.26	Hoti, S.L.	17	0.89
Otranto, D.	23	1.20	Yazdanbakhsh, M.	17	0.89
Basanez, M.G.	22	1.15	Genchi, C.	17	0.89
Vanamail, P.	19	0.99			

4. Affiliation Wise Collaboration Research Output of Microfilaria

The table – 4 presents the affiliations wise collaboration output Microfilaria and found a total of 160 institutions out of the total 1911 publications during 1996 to 2015. Among them the “Liverpool School of Tropical Medicine” has scored with 73(3.82%) of documents and occupied the top rank; followed by “Bernhard NochtInstitut fur Tropenmedizin Hamburg” has scored 66(3.45%) of publications and ranked at second; the third rank has scored by the journal “Vector Control Research Centre India” with 57(2.98%) of documents and followed by other institutions.

Table -4 shows the Top 20 Affiliation wise Collaboration of Microfilaria Output

Affiliation	Recs	%
Liverpool School of Tropical Medicine	73	3.82
Bernhard NochtInstitut fur Tropenmedizin Hamburg	66	3.45
Vector Control Research Centre India	57	2.98
FundacaoOswaldo Cruz	56	2.93

Museum National d'Histoire Naturelle	39	2.04
Central Drug Research Institute India	39	2.04
Washington University in St. Louis, School of Medicine	37	1.94
Imperial College London	35	1.83
National Institute of Allergy and Infectious Diseases	35	1.83
The University of Georgia	30	1.57

5. Country Wise Distribution of Research Output of Microfilaria

The table – 5 presents the top 25 country wise output of Microfilaria of 1911 for the study period of 1996 to 2015 found that the collaborations were resulted 121, among them the “India” has found as 403(21.09%) of documents and topped the rank; followed by “United Nations” has scored 401(20.98%) of documents and ranked at second; the third rank got by “United Kingdom” with 255(13.34%) of records and followed by other countries in their respective places.

Table- 5 Shows the Top 25 Country wise Output of Microfilaria

Country	Recs	%	Country	Recs	%
India	403	21.09	Canada	43	2.25
Unite States	401	20.98	Spain	42	2.20
United Kingdom	255	13.34	Netherlands	38	1.99
Germany	177	9.26	Uganda	35	1.83
France	119	6.23	Thailand	31	1.62
Brazil	106	5.55	China	30	1.57
Italy	92	4.81	Switzerland	29	1.52
Cameroon	75	3.92	Indonesia	26	1.36
Ghana	59	3.09	Malaysia	26	1.36
Nigeria	59	3.09	Tanzania	25	1.31
Japan	57	2.98	Sri Lanka	25	1.31
Denmark	45	2.35	Kenya	22	1.15
Australia	44	2.30			

6. Document Types of Research Output of Microfilaria

The table – 6 presents the document types wise output of Microfilaria, out of 1911 for the study period of 2001 to 2015. Among the various types of documents analysis which resulted 10 which “Article” has scored with 1666 documents ranked at top; the second rank placed by “Review” which scored 97 records; the third rank occupied by “Letter” with 70 documents and followed by other types of documents. The below figure also illustrate by graphically the same with percentage.

7. Subject Area Wise Distribution of Microfilaria Research Output

The table – 7 presents the major subject area wise output of microfilaria, a total of 1911 for the study period of 1996 to 2015 found a total of 20 areas. Among the subject area wise analysis found as “Medicine” has scored 1240 documents among the other areas with top rank; followed by “Immunology and Microbiology” has scored 1087 documents and ranked at second; the third rank placed by “Veterinary” has scored 239 records and followed by other subject areas in their respective places. The below figure also show the diagrammatic explanation of microfilaria output of subject areas.

Table -7 shows Top 15 Subject Areas of Microfilaria Output

Subject Area	Recs
Medicine	1240
Immunology and Microbiology	1087
Veterinary	239
Agricultural and Biological Sciences	228
Biochemistry, Genetics and Molecular Biology	206
Pharmacology, Toxicology and Pharmaceutics	84
Undefined	32
Environmental Science	22
Health Professions	10
Chemistry	9
Multidisciplinary	9
Business, Management and Accounting	6
Physics and Astronomy	6
Neuroscience	5

Conclusion

The study mainly wants to make awareness to the general public to prevent the infectious disease about microfilaria and highlighted how it impact on human society. The study based on total 20 years, a total output of 1911 publications of microfilaria from 1996 – 2015 was analysed and revealed the following results: the year wise analysis has found the 2014 ranked at top with 138 (7.22%); the source wise analysis found as 152 among it the “Veterinary Parasitology” has scored 121 (6.33%) of documents and topped the rank; the author wise analysis resulted 157, among them the first rank has scored by “Bain, O.” with 42 (2.20%) of documents; the affiliation wise collaboration has found as 121 institutions, in which the “Liverpool School of Tropical

Medicine” has scored with 73(3.82%) of documents and occupied the top rank; the country wise collaboration resulted 121 among them the “India” has found as 403(21.09%) of documents and topped the rank; the subject area wise analysis found as 20 areas, among it the “Medicine” has scored 1240 documents among the other areas with top rank;the various types of documents analysis which resulted 10 which “Article” has scored with 1666 documents ranked at top; the language analysis which resulted 16 in which “English” has scored with 7113(85.01%) of documents and ranked at top;the keywords analysis has resulted words items, in which the word “Article” has appeared 1582(82.78%) of times/documents ranked at top.

References

1. R. Duraipandi, M. Surulinathi and K. Ankasetty(2013). Mapping the Indian Research Productivity on Seawater: A Scientometric Study, SALIS Journal of Information Management and Technology, Vol. 4, No. 1, January -June, 2013. pp. 16-21. ISSN: 0975-4105
2. Singh, M.K. (2017). Authorship pattern and collaboration coefficient of India in biotechnology research during 2001-2016: Based on Scopus database. Library Philosophy and Practice (e-journal). 1549 . <http://digitalcommons.unl.edu/libphilprac/1549>
3. Mani, K. T. (2014). Authorship Patterns and Collaborative Research in Malaysian Journal of Library and Information Science, 1996-2012.
4. Heidari, M. &Safavi, Z. (2013). The Survey of the collaborative coefficient of article authors in “Iranian Journal of Pathology” since 2006 to 2012. Iranian Journal of Pathology 8(3), 165-170. http://ijp.iranpath.org/article_8264_4abecf80ca0cc4feb76ed71d5af9c9. Pdf
5. Kanchana, S., & Ernest, S. (2015). A Scientometric Analysis of Nanoparticles Research Publications in India. Global Journal for Research Analysis, 4(10), 28-30.
6. R. Balasubramani "Plasmodium Falciparum Research Publication in India: A Scientometric Analysis", European Journal of Scientific Research, Vol.56 No.3, 2011, pp.294-300.
7. Navalur, S. A., Balasubramani, R., & Kumar, P. A. (2012). Mapping of Global Research Performance in E-learning: A Scintometrics Analysis. Journal of Advances in Library and Information Science, 1(3), 130-137.
8. Pratheepan, T., & Weerasooriya, W. A. (2016). The publication output and impact of various faculties in Sri Lankan Universities: A Scientometric Assessment and Policy Implications. Journal of the University Librarians Association of Sri Lanka, 19(1).