CHAPTER – II
REVIEW OF LITERATURE

This chapter examines to bring out the impact of research outcome of the study. This segment of the thesis may help to describe the reviews are arranged in chronological order of the studies relate to Bibliometrics/Scientometrics. The contents of the reviews described the meaning of research potential in particular field and time.

Gupta. D. K, (1989)\(^1\), conducted a study on bibliography of the biochemical literature of Nigeria for the period, 1970–1984. Lotka’s law and Egghe’s theory and formula were used to test 80/20-rule and it was found that the rule did not apply to any of the four data sets.

Gomez. I, Sanz.E and Mendez. A, (1990)\(^2\), conducted a study on A Bibliometric analysis of the Spanish publications devoted to the nervous system, as covered by the database BIOSIS Previews during the years 1983–1986, the study attempt has been made to obtain Bibliometric indicators that enlighten the peculiar features of this research subfield in Spain, and that are able to be used for science policy decisions.

Sylvaine le Minor, Paulette Dostatni (1991)\(^3\), examined the publications of researchers at the French National Institute for Health and Medical Research, was compiled by downloading references from the MEDLINE and the Science Citation Index (SCI) bibliographical databases, and by using micro-computing techniques. MEDLINE and the SCI proved to be complementary data sources well-suited to this work.

Cambrosio. A, et al., (1993)\(^4\), discussed a co-word analysis of over 70 years of biological safety literature. The database used in this project is the Songer Safety Bibliography (SSB) which lists around 17 000 references. The results show biological
safety to be a very fragmented field, characterized by the existence of several relatively independent foci of interest, none of which has been able to structure the field into a tight network.

2.1 BIBLIOMETRIC STUDIES ON RESEARCH PRODUCTIVITY

Haiqi. Z, (1994)\(^5\), analyzed that Bibliometric analysis was examined by the references of the articles in Medicine Chinese Traditional (MCT) searched by the CD-ROM Medline. The 3006 references of the articles on MCT which were published between 1974 and 1992 in 343 periodicals were the samples for the present study. The result shows that to identify reasonably a hierarchical ranking of periodicals and to evaluate objectively a distribution of countries where those articles were published and languages in which those articles were written.

Vickers, A.J., (1998)\(^6\), conducted that Bibliometric analysis of the registry of randomized trials of the Cochrane Collaboration field in Complementary Medicine. The study aim to analyse, the extent to which they are indexed in Medline, the journals in which they are published, dates of publication, the therapies and conditions are most commonly focus in this study.

Paul Bourke. P, and Butler. L, (1999)\(^7\), examined a Bibliometric analysis, they have used the Research, Evaluation and Policy Project database containing all Australian ISI-indexed publications since 1981, and a database of publications constructed from the final reports of the recipients of Australian Research Council large grants in the biological sciences. The results indicate that rather than the mode of funding, the nature of the researcher’s appointment appears to be the most significant determinant of the impact.
2.2 SCIENTOMETRIC INDICATORS APPLIED IN THE MEDICAL LITERATURES

Seglen. P. O and Aksnes. D.W, (2000), analyzed the relationship between research group size and scientific productivity within the highly cooperative research environment characteristic of contemporary biomedical science, an investigation of Norwegian Microbiology was undertaken. The data retrieval from ISI’s database National Science Indicators on Diskette (NSIOD), of journal articles published by Norwegian scientists involved in microbiological research during the period 1992–1996, a total of 976 microbiological and 938 non-microbiological articles, by 3,486 authors, were obtained. No correlation between group size and productivity was found.

Macias-Chapula C.A and Mijangos-Nolasco.A, (2002), conducted a study on Bibliometric analysis of AIDS documents as produced on Sub-Saharan Africa. AIDSLINE 1980-2000 was used to conduct the literature search. The analysis was made only of the publications retrieved under “Central Africa”. Bibexcel (version 2001) and Microsoft Excel (2000) were used as software tools to conduct the analysis of the publications. Results indicated a high pattern of collaboration through multiple authors. Most documents were published in English (84.50) and French (14.73). Over 57 corresponded to journal articles.

Lee.C.K, (2003,) discussed on a Scientometric study of the Institute of Molecular and Cell Biology (IMCB). The purpose of the study was to evaluate the research performance of IMCB in the first ten years since its establishment. The study reveals that in the ten years, IMCB produced 395 research papers, 33 book chapters, 24 conference papers, and 4 monographs, graduated 46 PhDs and 14 MScs, and filed 10 patents.
Webster. B.M, (2005)\textsuperscript{11}, examined to map UK biomedical research by analysing biomedical publications from authors with UK institutional affiliation and indexed in Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). The analyses also include national and international collaboration, leading regions and institutions (by volume of output), types of research carried out and its potential impact factor. The study found that, UK’s position as the second largest producer of biomedical research is under threat from Japan and Germany and other countries with traditionally weaker biomedical research base. Strength in malaria and asthma research and relative weakness in surgery and renal medicine is notable.

Chena, Su-Ru, Chiub, Wen-Ta and Hoc, Y.S., (2005)\textsuperscript{12}, analyzed included language, type of document, page count, publication output, country of publication, authorship, publication pattern, and the most frequently cited paper. The study reveals that not only offers a comprehensive picture of asthma in children by Bibliometric research, but also demonstrates the performance of research workers, institutions, and even countries.

Tianwei He, Jinglin Zhang and Lirong Teng, (2005)\textsuperscript{13}, conducted that basic research in biochemistry and molecular biology in China: A Bibliometric analysis. They examine and try to find scientific productivity, productivity age, collaboration trend, domains of contributions.

Falogasa, M.E, Karavasioua, A. I and Bliziotis, I. A (2006)\textsuperscript{14}, investigated that the data from PubMed and the Institute for Scientific Information (ISI) “Web of Science” databases. The data download and retrieved articles from 12 journals included in the “Tropical Medicine” category of the “Journal Citation Reports” database of ISI for the period 1995–2003.
Nejatisafa, A.A, (2006)\textsuperscript{15}, conducted the characteristics of Iran’s child and adolescent mental health research published from 1973 to 2002. The articles were drawn from IranPsych, which is a national database of published research in mental health and related fields. This database gathers scientific papers on psychiatry, psychology, and neuroscience published in both national and international journals. Bibliometric data, general scientific areas of research, specific subject topics and Research Methodology, were extracted from articles.

Cohen. J. M, Wilson. M. L and Aiello. A.E, (2007)\textsuperscript{16}, examined the research on social determinants of infectious diseases that was systematically quantified by assessing temporal trends in the published literature using MEDLINE, PsycINFO and ISI Web of Science. The results of the literature review suggest a paucity of social research on infectious diseases. There is a need for increased dialogue and collaboration between infectious disease epidemiologists and social epidemiologists.

Ramakrishnan.J and Ramesh Babu. B, (2007)\textsuperscript{17}, attempted that a Bibliometric analysis of the literature output in the field of Hepatitis covered in three bibliographic databases namely MEDLINE, CINAHL and IPA. The literature covered in three databases for the period 1984-2003 was considered. MEDLINE covered the maximum of 75750 publications during the study period 1984 to 2003.

Sanz-Casado E. et al., (2007)\textsuperscript{18}, investigated the study to analyse and map the trends in research on prion diseases by applying Bibliometric tools to the scientific literature published between 1973 and 2002. The data for the study were obtained from the Medline database. The study found that highest output in United States, the United Kingdom, Japan, France and Germany.
Willett, P., (2007)\textsuperscript{19}, examined the volumes 2–24 of the Journal of Molecular Graphics and Modelling (formerly the Journal of Molecular Graphics). This study focused on the changes that have occurred in the subject over the years, and on the most productive and most cited authors and institutions. Further, in this study, the most cited papers are those describing systems or algorithms, but the proportion of these types of article is decreasing as more applications of molecular graphics and molecular modelling are reported.

Garcia-Garcia a P et al., (2008)\textsuperscript{20}, analyzed a that scientific publication related to physiotherapy in the psychiatry area during the period 1986–2006. The data have collected platform Embase.com, including the EMBASE and MEDLINE databases. They have used a Bibliometric indicator of the production, Price’s Law was applied. Another indicator included was the National Participation Index (NPI) for overall scientific production.

Tao Lia, Yuh-Shan Hob and Cheng-Yan, (2008)\textsuperscript{21}, conducted a study on research trends on global Parkinson’s disease, the data collected from (ISI) Web of Science databases during the period of 1991–2006. It could be observed that, International collaborative articles were more prevalent in recent years than earlier years; further China, Italy, Spain, and Austria are benefiting a lot from the international cooperation.

Hao Qiu and Yi-Feng Chen (2009)\textsuperscript{22}, conducted a study on Bibliometric analysis of biological invasions-related publications in the Science Citation Index (SCI) from 1991 to 2007. The study reveals that, as the most productive country of biological invasions research, the US will benefit from more collaboration between institutions, countries, and continents. In addition, analysis of keywords was applied to reveal research trends.
Johnson, C. A and Toms, A.P. (2009)\textsuperscript{23}, collected the data from PubMed database, they have used search string which were all first-author publications from UK departments of “radiology” or “medical imaging” between 1995 and 2007. The more number of original scientific articles published by first-author UK radiologists have increased slightly over the last 12 years, despite a temporary fall associated with the introduction of new research ethics legislation.


Ronald Dubner, D.D.S. (2009)\textsuperscript{25}, attempted that characterize the nature of pain research, every one of the 4525 research papers published in the journal, Pain, from its inception until the end of 2007, the data allow an examination of 32-year trends in pain research.

Sauvageau, Desnoyers and Godin. (2009)\textsuperscript{26}, conducted a study on evolution of forensic science literature in two North American journals from 1980 to 2005 and found that forensic science literature in anthropology and DNA have increased significantly, while the contribution of questioned documents and ballistics have decreased.

Bala A and Gupta B.M. (2010)\textsuperscript{27}, reported that research output in India in neurosciences during the period 1999-2008 and the analyses included research growth, rank, global publications' share, citation impact, share of international collaborative papers and major collaborative partner countries and patterns of research communication in most productive journals.
Har Kaur, and Gupta. B. M. (2010)\textsuperscript{28}, examined the India’s performance based on its publication output in dental sciences during 1999–2008. The study analyzed on several parameters, including the country’s annual average growth rate, global publication share & rank among 25 most productive countries of the world, national publication output and impact in terms of average citations per paper, international collaboration output and share and contribution of major collaborative partners, contribution and impact of select top 25 Indian institutions and select top 15 most productive authors, patterns of communication in national and international journals and characteristics of its 45 high cited papers.

Kang, J.O and Park S.H. (2010)\textsuperscript{29}, observed the research was intended to analyzed the special characteristics and structure of social networks among Korean medical schools for the purpose of providing knowledge regarding medical field structure, dynamics, and potential paradigm development.

Ravichandra Raoa I.K and Divya Srivastavab. (2010)\textsuperscript{30}, investigated that trace the growth of malaria research at Global Level and the distribution of articles in various journals for the period 1955–2005. The data have been extracted from a database, which has been developed in-house from MEDLINE, SCI, TDB, Ovid Heath Information and Indian Science Abstracts. Study indicates that the exponential model fits the data on journals, articles and authors.

Abolghassemi Fakhree. M. A and Jouyban. A. (2011)\textsuperscript{31}, examined to show that, Tehran University of Medical Sciences as the top medical university of Iran was compared with some of top medical universities around the world.

Ball. E, McLoughlin. M and Darvill. A. (2011)\textsuperscript{32}, examined the qualitative stands up to independent rather than comparative scrutiny. The results shows that of the 240
papers analysed, 27 used ad hoc or no references to qualitative; methodological terms such as thematic analysis or constant comparative methods were used inconsistently; qualitative was a catch-all panacea rather than a methodology with well-argued terms or contextual definition.

Fu. J.Y, et al., (2011)\(^{33}\), examined the quantity and citation impact of scientific papers in the field of Complementary and Alternative Medicine (CAM). The data are collected from 19 CAM journals in the Science Citation Index Expanded (SCI-E) database during 1980–2009, and 17,002 papers are identified for analysis. The study analyzes the document types, geographical and institutional distribution of the authorship, including international scientific collaboration.

Gupta. B. M and Adarsh Bala. (2011)\(^{34}\), analyzed the research activities of India in medicine during 1999–2008, the publication data on medicine has been retrieved by using SCOPUS database. The study found that, India holds 12\(^{th}\) rank among the productive countries in medicine research consisting of 65,745 papers with a global publication share of 1.59 s.

Hojbi.S.E and Ghaffari.S. (2011)\(^{35}\), evaluated the references of articles published as a derivative of approved research proposals in Faculty of Dentistry, Tabriz University of Medical Sciences during a five-year period (2005-2010) using Scientometric methods.

Kaihua Chena and Jiancheng Guanb. (2011)\(^{36}\), investigated the datasets from WOS, MEDLINE and BIOSIS Review confirm the exponential growth of publications and citations in nanobiopharm-research. They investigate the cross-country comparisons show that USA is the leading country, and China is an up-and-coming contributor.

international multidisciplinary bibliographical database has been used to identify the Indian contributions on the field of nanoscience and nanotechnology.

Prathap. G and Gupta, B M. (2011)\textsuperscript{38}, analyzed the performance of education and research institutes in India in medical and allied sciences during 1999-2008, based on their research output, using robust quantitative and qualitative indicators which give a more rational procedure for ranking their research performance. The data was collected from the SCOPUS database and a new composite performance indicator, the p-index, is used to measure performance.

Cao. X, Huang. Y., Wang.J and Luan.S. (2012)\textsuperscript{39}, conducted a study on scientific production of the subject category of “limnology” from 2001 to 2010. The data was based on the Science Citation Index compiled by Institute for Scientific Information (ISI). The results showed that the limnology research constantly increased over the past decade. It can be seen that among the research institutes interested in limnologic research, the US Geological Survey was the flagship while the USA attained a dominant position in the global research in the field.

Hari Kumar. K.V.S and K. Aravinda. K (2012)\textsuperscript{40}, conducted Bibliometric analysis of articles related to neurology specialty from JAPI published between 2000 and 2011. Data were derived from the journal’s website and the articles were analyzed for type (original article, case reports, etc.), disease (infection, vascular, etc.), place, and timelines for publication. The analysis showed that neurology as a subspecialty contributed about 14 of articles in JAPI every year. Infections of the CNS and cerebrovascular disorders are the major fields of research productivity. Case reports are the major type of research articles with maximum contributions from metro cities.
Jeyasekar and Saravanan. (2013)\textsuperscript{41}, analysed that the Journal of Forensic Sciences and found that there is an increase in publications on digital and multimedia aspects of forensic science and the literature related to application of DNA technology in forensic science is also increasing. The mean degree of authorship collaboration is 0.91.

2.3 RGR AND DT OF THE PUBLICATION OF THE RESEARCH PRODUCTIVITY

Baskaran, C. (2013)\textsuperscript{42}, has studied the research publication of Alagappa University in the field of science and technology. This study discusses on discipline-wise and institution-wise collaboration and ranking of authors in research contribution of Alagappa University during 1999-2011. Relative Growth Rate (RGR) was found to be fluctuating trend during the study period. The Doubling time (DT) was found to be increased and decreased trend in this study. Degree of collaboration and its’ mean value is found to be 0.963. The top three institutions with Alagappa University are Central Electro Chemical Research Institute, National Cheng King University, and Anna University.

Baskaran, C. (2012)\textsuperscript{43}, has examined that research growth, relative growth rate and doubling time of publications, institution wise and ranking of authors in research productivity of Graph theory during 2004-2011. The average number of papers published per year was 910.75 during the period. The highest numbers of papers were published above thousand during the years 2009 to 2011. It is observed RGR has been increased and decreased from 2005 (0.113) to 2011 (0.057).

Baskaran, C. (2013)\textsuperscript{44}, has observed that the data retrieved from the Web of Science (WoS) through the filter of the category in Cryptography as a subject search. A total number of 6610 publications which were retrieved from the Web of Science were
used to assess the academic productivity and distribution of research diversity of cryptography field from four major countries - China, USA, Taiwan and Japan which contributed more papers in cryptography and allied field of researches. The highest RGR is 0.44 in 2002 and Dt is 21.656 in 2008 measured during the period.

2.4 RESEARCH ANALYSIS ON SCIENTIFIC DATABASES AND PUBLICATIONS

Jeyasekar, J J and Saravanan. P (2014)\textsuperscript{45}, conducted a study on forensic science literature from the year 1975 to 2011 is carried out to find out the growth in forensic science literature, authors’ productivity, the top ranking source journal and the country-wise productivity. The data for the study is obtained from the SCOPUS database. The 13626 number of results retrieved are analyzed using excel worksheets. The Google Scholar database is used as a data source for citation analysis of the authors who are found highly productive in the SCOPUS data. Publish or Perish (PoP) software is used for the citation analysis.

B K Sen.(2015),\textsuperscript{46} studied how periodicals are ranked in Bradford distribution and why. Also it indicates how citations can be divided in three Bradford zones to obtain the value of ‘n’.. The bibliographic data on liquor ice published from 1993 to 2012 and indexed in Scopus have been considered for the data analysis. The data retrieved from Scopus were analyzed for publication type, languages, country, key journals, productive authors, subject categories, and the frequency of keywords used in this area of research. There were 3161 articles indexed in Scopus. Japan has produced most research literature on glycyrrhizin which is being given intravenously in Japan for the treatment of hepatitis C and as an emulsifier and gel-forming agent in foodstuff and cosmetics.
Shri Ram. (2015),\textsuperscript{47} examined Indian university presses were identified from DELNET union catalogue of books. Their publishing patterns are studied based on MIS reports available or generated from their respective websites. The paper also analyzes global visibility and availability of produced knowledge through institutional and external web catalogues, e-commerce sites and utilization of book promotion avenues. It is found that, as of now, Indian University presses don’t publish e-books. Many of these presses don’t even have a dedicated website for disseminating detailed bibliographic information on available titles.

Anup Kumar Das. (2015),\textsuperscript{48} explored 199 Bengali books during 1878 -1941 and 36 titles were published posthumously making it 235 Bengali books to his credit. In his seventies (the last decade of his life), when he ventured into the world of painting, surprisingly his literary productivity increased considerably instead of going down. He published as many as 55 books apart from producing 2000+ paintings. Tagore’s productivity encompassed all branches of literature, i.e. poems, dramas, letters, novels, essays, songs, travelogues, comedies, short stories, addresses, textbooks and autobiography. His productivity coefficient for Bengali books is 0.84 which indicates that he had a steady publication record throughout his literary career.

Partha Pratim Ray and B K Sen. (2015),\textsuperscript{49} examined Collaborative aspects of research publications pertaining to global solar cell research as reflected in Science CitationIndexExpanded (SCI-E) for the years 1991, 1995, 2000, 2005 and 2010 have been studied. Using various Bibliometric indicators, the study examined the pattern of coauthorship and nature of collaboration with respect to different types of institutions, countries and prolific institutions. It also looked into impact of collaboration in terms of citations. The study observed a peculiar behaviour wherein publication from certain
prolific countries and institutions emerging from domestic collaboration resulted in higher impact than those from international collaboration.

Bharvi Dutt and Khaiser Nikam. (2015), studied e-publishing is still a young subject field growing at a slow pace, 3.41% CAGR growth and averaged 1.08 citations per paper. The body of research literature in this field is still in the early stage of its growth. Publication scatter in this field is still very high. The top 15 most productive organizations accounted for as small global publication share as 5.72% and as small global citation share as 12.73% during 2005-14. The average productivity rate per organization in 10 years was as low as 26.7, citation impact per paper was 2.41, h-index was 6.93 and international collaborative share as 23.44% during 2005-14.

S M Dhawan,, B.M.Gupta, and Ritu. (2016), analyzed that global solar cell research effort is concentrated among twelve countries led by USA and followed by China where India is positioned at sixth place. The majority of output emerged from academic institutions and the major emphasis has been on aspects of research pertaining to chemical sciences. Chinese Academy of Sciences output performed all other institutions, however, its impact was relatively lower than other prolific institutions.

Sandhya Dwivedi. (2016), discussed the India contributes eight percent to the global research output occupying the third position in terms of quantity of research output and ranks 12th when considering the quality and quantity together. Apart from collaboration pattern, the paper also identifies the major institutions, prolific authors and preferred journals. Three-dimensional performance indicator combining quantity, quality and consistency have been used to rank the productivity of Indian institutions and authors in the field of mycobacterial tuberculosis and leprosy research. From the study it can be concluded that India needs to concentrate more on Mycobacterium research
because the cases of tuberculosis and leprosy including Multi-Drug Resistant (MDR) and Extensively Drug Resistant (XDR) strains are emerging each year, and there is a necessity to develop effective controlling programmes for eradicating leprosy.

Rahul a and Nishy. (2016), reported A ranked list of journals has been prepared and Leimkuhler test was conducted. The list of core journals is provided. The dataset does not follow Bradford law even with Leimkuhler formulation. The crops covered are rice, wheat, barley, maize, sorghum and millets. Possibly combining of data for six crops together and cumulating of data of every fifth year deviated the dataset from Bradford law of scattering.

Harish Kumar Tripathi, and B K Sen. (2016), studied a significant number of papers were published in journals originating from the advanced countries with low impact factor. The highest number of papers was published in Indian Journal of Agricultural Sciences, followed by Indian Journal of Agronomy. Indian Agricultural Research Institute, New Delhi topped the list among the prolific institutions followed by Punjab agricultural University, Ludhiana. The major research was focused on ‘genetics and plant breeding’ followed by ‘agronomic aspects’.

Tripathi a and Garg. (2016), explored the highest productivity coefficient is 1.0 during 1978-81, 1996, 1999-2003 and 2005-2009. Kalyane had 50 collaborators of which Vijay Kumar, ER Prakasan, B S Kademani, Anil Sagar and Anil Kumar were the most active or core collaborators. He used 65 communication channels to disseminate the results of his research of which Malaysian Journal of Library and Information Sciences (11 papers) tops of the list followed by Annals of Library and Information Studies (7 papers), Scientometrics (6 papers), SRELS Journal of Information
Susanta Koley and B K Sen. (2016),\textsuperscript{56} analysed the mean collaborative Index was 3.5; mean degree of collaboration was 0.89; mean collaborative coefficient was 0.6119 and mean modified collaborative coefficient was 0.6121 during the period of study. Forty one authors have contributed more than one percent of the total publication. Ten journals have contributed more than one percent of the total papers. Among these 'Journal of Forensic&Legal Medicine' ranks first with 16.10% papers. Cluster map of co-words was also created using VOSviewer.

John Jeyasekar and Saravanan. (2015),\textsuperscript{57} examined the published research articles and their citations available in the Indian Citation Index by the authors from University of Madras. It shows, the 538 articles includes 480(89.22%) Research Articles, 19(3.53%) short communication and 10 (1.86%) articles each from Review articles and Case Studies.

Uma and Dhanavandan. (2015),\textsuperscript{58} studied the top 10 most productive countries share of international collaborative papers in nasal polyps varied from 6.25% to 53.70% during 2004-13, with highest share coming from Belgium, followed by UK, China, Germany, Italy, USA, Japan, South Korea, India and Turkey during 2004-13. The average productivity per organization, average citation impact per publication, h-index and share of international collaborative publications of the top 15 most productive global organizations were 46, 8.99, 16.67 and 28.70%, respectively during 2004-13.

Gupta, Kiran Baidwani and Ritu Gupta. (2015),\textsuperscript{59} discussed the different parameters like year-wise distribution of articles for the period of study (1991-2012),
length of articles, authorship pattern of contributions, author productivity, degree of
collaboration among co-authors and gender-wise distribution of papers.

Malathy and Kantha. (2015),\textsuperscript{60} analysed profiles 15 most productive countries in
rare earths, 20 most productive organizations and 20 most productive authors on a series
of indicators including global publications share, global citation share, average
productivity, citations per paper, h-index, and share of international collaborative papers
during 2005-14. The study also identifies top 20 most productive journals reporting
India's research in rare earths during 2005-14.

Dhawan, Gupta and Ritu Gupta. (2016),\textsuperscript{61} studied 236 publications that were
extracted from Web of Science Database as well as Institute Annual reports. The
publication data were analyzed on various parameters like, publication trend, highly
cited papers, most prolific authors, collaborative authorship pattern and trends, the
degree of author's collaboration and preferred journals for scholarly communication and
so on. The study shows that the majority of the scientists preferred to publish research
papers in joint authorship. The most preferred journal for publication by CSIR-NEERI
scientists is Environmental monitoring and assessment.

Rajesh Kumar Lohiya and Jiji Cyriac. (2016),\textsuperscript{62} examined 2376 articles were
published during the period, initially with 100-150 articles per year to 488 and 891
during 2014 and 2015. Also, the number of references cited per article and average pages
per article had increased to 35.01 references and 7.02 pages per article respectively
during 2015. A steady increase in number of citations was observed for the articles
published during the period 2010-2014 with the highest citation counts of 640 during
2015.
Shankar Reddy Kolle and Shankarappa. (2016), have studied The growth of research activity in IIT Bombay in terms of PhD theses is analyzed for the period of 1958-2015 using data from Annual Reports, Library Catalogue, Electronic Theses and Dissertations of IIT Bombay. Data related to 4, 268 PhDs awarded during the period have been analyzed to identify active departments, supervisors, research collaboration, and topics based on high frequency keywords; Keyword visualization map is generated using VOS Viewer software. The study is intended to provide useful information to policy makers and funding agencies.

Manju Naika, Satish Kanamadi, Anil Sutar and Jayadev Kadli. (2016), analysed the most preferred journals were the International Pigeonpea Newsletter with 272 papers (7.69%) followed by Indian Journal of Agronomy with 214 papers (6.05%). The study revealed that Indian Journal of Agricultural Sciences, Indian Journal of Pulses Research, Journal of Maharashtra Agricultural Universities contributed 415 papers (11.72%) of Indian research output on Pigeonpea Pulse Crop.

Rajendran (2016), analysed a high degree of research/authorship collaboration (9472) on Azadirachta indica was found. All except 0.528% articles were works of joint authorship. Author productivity considering first author as well as all authors did not fit Lotka's law with a value of n=2. The distribution of articles in journals was found nearly acceptable to the Bradford's law of scattering making it obvious that there are a few core journals contributing significantly on Azadirachta indica.

Nirmal Singh. (2016), reported the Scientometric analysis of the papers cited at least 2000 times, their citation counts in 2015 and average citations per year and subject category are computed. Major contributing institutions, total papers and citation counts per paper are identified. The major collaborating countries, their total papers and their
citation counts were also investigated. The most productive journals and their citation counts and the most prolific authors with at least 50 papers are identified.

Shankar Reddy Kolle and T. H. Shankarappa.(2016),\textsuperscript{67} examined the coverage of Indian medical literature in MEDLINE was not comprehensive and this affects visibility of Indian medical research output. So Indian Council of Medical Research (ICMR) launched IndMed and MedInd. There are no studies investigating the coverage, the services and the gaps in coverage of IndMed. This study seeks to assess the extent of Indian medical journals covered by the IndMed comparing the list of medical and allied sciences journals covered by Indian Science Abstracts. Suggestions are made as to how the IndMed can improve its coverage.

Subramanyam , Krishnamurthy and Asundi. (2016),\textsuperscript{68} discussed the growth of research work in the field of social sciences and humanities in Odisha during the period 1996 to 2015. The analysis has been done taking into account the publication output of Odisha as reflected in Scopus database. The present study analyzes the year wise growth of publications, most productive authors, major subject areas of research, types of publications preferred by the researchers, preferred journals and the major productive institutions in the field of social science and humanities.

Baskaran, C .(2015),\textsuperscript{69} examined the confront the publications outputtrend among USA scientists, Wang Y has secured top level as measured 0.226%. USA scientistshave contributed totally 15832 (30.815%) items and include 87.947% percent are appeared as journal articles. Harvard University scientists are much attention in produced large number of research papers and they hold top level among research collaboration in enzyme research.
Sivakami, N and Baskaran, C. (2016), examined the Swine Flu is that, unlike seasonal flu, which is typically most dangerous to the very young, elderly and those with a weakened immune system. By keeping this in mind the researcher intends to study the research productivity of Swine Flu. This study attempts to analyze the performance of researcher working in the field of swine flu at global level and country wise distribution during the study period of 23 years from 1991 to 2013. A total of 64030 records were obtained from MEDLINE databases have been taken for this study.

Baskaran, C. (2016), explored the relative growth rate and doubling time of Bioinformatics Publication during 1999-2013. The mean relative growth was measures and doubling time observed from the analysis. Total number 20577 of recordson bioinformatics publication during the study. The Maximum of Publications 2234 in 2012 was published compare to rest of the years. The highest publication published in Bioinformatics journal and Harvard University scientists contributed highest number of publications in the study. RGR and DT is exhibits that fluctuating trend happening whole period of study.

Ramesh Babu, Pand Baskaran, C. (2017), analyzed the highest out of Forensic Medicine research. Forensic Medicine research in 2013 was 447 (11.05%) of the publications, followed by 420 (10.38%) of the publication brought out in 2015. the doubling time of the publications also a fluctuate trend appears whole study period. It could be found that the highest Dt. is 17.32 in 1993. The doubling time for pages of the publications of web of Science record witnessed that an increasing and suddenly. It can be analysed that highest dt is observed 13.86 in 002 and it seems that lowest value of Dt is 0.32 in 2015.
INFERENCES OF THE REVIEW OF LITERATURE

The reviews described that research finding of earlier studies investigated by the scientists and given inferences to the study. Biochemical literature of Nigeria for the period, 1970–1984. A Bibliometric analysis of the Spanish publications devoted to the nervous system, as covered by the database BIOSIS Previews during the years 1983–1986. Bibliometric analysis was examined by the references of the articles in Medicine Chinese Traditional (MCT) searched by the CD-ROM Medline. Research, Evaluation and Policy Project database containing all Australian ISI-indexed publications since 1981. Relationship between research group size and scientific productivity within the highly cooperative research environment characteristic of contemporary biomedical science, an investigation of Norwegian Microbiology was undertaken. The analysis was made only of the publications retrieved under “Central Africa”. Bibexcel (version 2001) and Microsoft Excel (2000) were used as software tools to conduct the analysis of the publications. The study reveals that in the ten years, IMCB produced 395 research papers, 33 book chapters, 24 conference papers, and 4 monographs, graduated 46 PhDs and 14 MScs, and filed 10 patents.

The data from PubMed and the Institute for Scientific Information (ISI) “Web of Science” databases. The data download and retrieved articles from 12 journals included in the “Tropical Medicine” category of the “Journal Citation Reports” database of ISI for the period 1995–2003. The articles were drawn from IranPsych, which is a national database of published research in mental health and related fields. This database gathers scientific papers on psychiatry, psychology, and neuroscience published in both national and international journals. Bibliometric analysis of the literature output in the field of Hepatitis covered in three bibliographic databases namely MEDLINE, CINAHL and
IPA. The data have collected platform Embase.com, including the EMBASE and MEDLINE databases. They have used a Bibliometric indicator of the production, Price’s Law was applied. Bibliometric analysis of biological invasions-related publications in the Science Citation Index (SCI) from 1991 to 2007. Data from PubMed database, they have used search string which were all first-author publications from UK departments of “radiology” or “medical imaging” between 1995 and 2007. A total of 1626 documents involving acetaminophen published in 74 countries during 2003-2005 in the Thompson-scientific Life sciences and Clinical Medicine collections were identified and analyzed. The study analyzed on several parameters, including the country’s annual average growth rate, global publication share & ranks among 25 most productive countries of the world, national publications.

The Doubling time (DT) was found to be increased and decreased trend in this study. Degree of collaboration and its’ mean value is found to be 0.963. The average number of papers published per year was 910.75 during the period. The highest numbers of papers were published above thousand during the years 2009 to 2011. A total number of 6610 publications which were retrieved from the Web of Science were used to assess the academic productivity and distribution of research diversity of cryptography field from four major countries - China, USA, Taiwan and Japan which contributed more papers in cryptography and allied field of researches. The data for the study is obtained from the SCOPUS database. The 13626 number of results retrieved are analyzed using excel worksheets. 199 Bengali books during 1878 -1941 and 36 titles were published posthumously making it 235 Bengali books to his credit. In his seventies (the last decade of his life), when he ventured into the world of painting, surprisingly his literary productivity increased considerably instead of going down.
The body of research literature in this field is still in the early stage of its growth. Publication scatter in this field is still very high. The top 15 most productive organizations accounted for as small global publication share as 5.72% and as small global citation share as 12.73% during 2005-14. The majority of output emerged from academic institutions and the major emphasis has been on aspects of research pertaining to chemical sciences. The crops covered are rice, wheat, barley, maize, sorghum and millets. Possibly combining of data for six crops together and cumulating of data of every fifth year deviated the dataset from Bradford law of scattering. Kalyane had 50 collaborators of which Vijay Kumar, ER Prakasan, B S Kademani, Anil Sagar and Anil Kumar were the most active or core collaborators. Ten journals have contributed more than one percent of the total papers. Among these 'Journal of Forensic & Legal Medicine' ranks first with 16.10% papers. Cluster map of co-words was also created using VOSviewer. The average productivity per organization, average citation impact per publication, h-index and share of international collaborative publications of the top 15 most productive global organizations were 46, 8.99, 16.67 and 28.70%, respectively during 2004-13. The publication data were analyzed on various parameters like, publication trend, highly cited papers, most prolific authors, collaborative authorship pattern and trends, the degree of author's collaboration and preferred journals for scholarly communication and so on. Data related to 4, 268 PhDs awarded during the period have been analyzed to identify active departments, supervisors, research collaboration, and topics based on high frequency keywords; Keyword visualization map is generated using VOS Viewer software.
REFERENCES


