ISSN 0972-8406
The NEHU Journal Vol. XXIII, No. 1, 2025 , pp. 138-148

Research Productivity of North-Eastern Hill University Indexed in Scopus (2011-2020)

Florence Guite[1], Angom Jeevan Singh[2,*]

[1]Dept. of Library and Information Sciences, Central University of Punjab, Bathinda, Punjab-151401, India
[2]Ratan Tata Library, Delhi School of Economics, University of Delhi, Delhi-110007, India
**Corresponding author: ajsingh@duls.du.ac.in*

Abstract

The present study aims at finding out the research publication outputs of faculty members, research scholars and students, and other academic staff of North-Eastern Hill University (NEHU), India, indexed in Scopus during 2011-2020. The findings show that during the study period, there were 1,570 publications with a total of 13,962 citations. The maximum number of publications was recorded in 2020, with 206 publications receiving 671 citations, despite the global pandemic. Out of the 1570 publications, only 40 were single-authored and 1530 were two or more co-authored publications. The study also found that the majority of publications were journal articles, primarily from the discipline of Chemistry. The Journal of Organometallic Chemistry (USA) was found to be the most preferred journal for publication.

Keywords: Bibliometric study; North Eastern Hill University; Research Publications; North East India.

Introduction

The North-Eastern Hill University (NEHU) was established in the year 1973, passed by an Act (24 of 1973) by both Houses of Parliament. It is a central university which has received an 'A' grade accreditation from the National Assessment and Accreditation Council (NAAC).NEHU comprises two Campuses, namely the Shillong and Tura Campuses. It is affiliated with 66 Undergraduate colleges, including 8 professional institutes. NEHU currently has 44 academic departments under 8 different Schools, which offer Under-Graduate, Post-Graduate, Diploma, and Doctoral level programmes across various disciplines (NEHU, 2021).

The North Eastern Hill University (NEHU) is a university in the north eastern part of India, which has dynamic faculty members, hardworking research scholars and ambitious Academic staff and students who have been productive in the fields of research and publications since its inception.

A bibliometric study is the use of statistical methods to analyse books, articles and other publications. It helps in determining the level of use of collections (Nongrang & Tariang,

2013) or any published information sources. In other words, Bibliometric study is a quantitative analysis of publications to identify and ascertain desired objectives (Simte and Phuritsabam, 2021). Bibliometric study covers methods such as the analysis of references cited in articles/research works published by the faculty members, research scholars, other academic staff, and students of North Eastern Hill University in order to obtain an estimate of the use of those published information sources.

Literature Review

In trying to find the research output of faculty members of the Botany Department to manage journal collection in the North Eastern Hill University library, Nongrang and Tariang (2014) found that the highest number of publications was in the years 2009 to 2010, which accounts for 24 (15.58 per cent) out of 154. The study also reveals the three-authored papers numbering 61 (39.61 per cent) top the list in ten years. In terms of authorship productivity, the findings showed that 22 authors received one citation each, and again, 22 authors received two citations.

Nongrang (2015) conducted a study on authorship trends and collaborative research at North Eastern Hill University (NEHU), based on data collected from the Annual Report and the NEHU Institutional Repository published between 2000 - 2010. The study shows that multi-authored articles 64.93% prevail over single-authored articles 35.07%. The degree of collaboration in NEHU is 0.65. The average number of authors per paper varies from 2.29 to 3.44. In 10 years, from 2000 to 2010, the average number of authors per paper is 2.72. The study supports the fact that NEHU faculty members preferred collaborative trends for their research and publication work.

Publications output of Dibrugarh University was found to be increasing through the study period, that is, from 2006 to 2015, although a decreasing trend is seen in the year 2015 in the study titled "Trends in Research Productivity: A Bibliometric Analysis of Dibrugarh University Publications using Scopus" by Gogoi, Mozinder and Kalita (2016).

In a study conducted by Nongrang and Laloo (2016), the authors worked on finding the research output of Biochemistry teachers in North Eastern Hill University (NEHU) using bibliometric methods. The study sample comprises 11 faculty members from the Biochemistry Department and the papers published by them during the period 2000 to 2010. In the period 2005 to 2006, the faculty members of Biochemistry were found to have produced the maximum research papers with 14.47 per cent of the total publications. The most common type of authorship pattern was two in which 34 percent collaboration is seen.

In conducting a study on "Research Productivity and its Impact Analysis of the Central Universities of North East India", Kalita (2017) evaluated about three primary fronts of research, viz., productivity, impact and funding source of the nine central universities situated in North East India in the period from 2006 to 2015. During this period, the total cumulative publications from the nine universities were 4011. The research productivity, as counted via publication output, has seen a Combined Annual Growth Rate (CAGR) of 23% while the same for research impact is 52% in the citation time window from 2007 to 2016. Universities

received funding from 56 Indian and 48 foreign agencies from 17 different countries. Chemistry was found to be the most productive research area with the most number of publications (25% of total publications) followed by Physics.

Das, Yadav, and Verma (2020) conducted a study to analyse the pattern of authorship, geographical distribution, and types of documents in research publications from Mizoram University from 2002 to 2018. The total number of publications during the study period was 586. The study found that 2016 and 2017 were the most productive years for this university, with 108 (18.43%) and 84 (14.33%) publications, respectively. The maximum documents published during the study period were in the form of research articles (545, 93%), followed by review papers (17, 2.9%).

A bibliometric study of research trends in library and information science in north eastern region of India during 1989-2018 was carried out by Simte and Phuritsabam (2021) and found that the most productive year in the region was 2017 with fifteen (15) doctoral theses published, closely followed by 2018 with fourteen (14) doctoral theses produced.

Statement of the Problem

From the review of the literature, it has been found that a number of studies on a similar field have been conducted, but so far, no study has been conducted on the current topic. Despite the large number of publications emanating from North Eastern Hill University (NEHU), no study has been conducted on this aspect of Faculty Members, research scholars, students, and Academic Staff of the university.

Objectives of the Study

1. To find out the publications and citation pattern during 2011-2020
2. To find out the most preferred document types for publication during the period
3. To find out the most preferred Journals for publications during the period

Methodology

The study used the Scopus database to extract relevant data of publications and citations of Faculty members, Research Scholars, Academic Staff, and Students of North Eastern Hill University (NEHU) indexed during 2011-2020. The search strings such as "**Affiliation**", "**North-Eastern Hill University**" were used to download the relevant data for the study. Further, the data was downloaded "subject-wise" as indexed in the Scopus database. The first subject classified by Scopus was chosen to determine the total number of publications in each subject domain. Additionally, the author's department affiliation was used to group the subject in cases where publications were classified (indexed) into multiple subjects by the Scopus database. The downloaded data was refined by removing duplicate data (publications). During the study period, 1,570 publications with 13,962 citations were indexed in Scopus as of December 31, 2020. The downloaded data was transferred into an Excel sheet and fitted into the SPSS (Statistical Package for the Social Sciences) software for the analysis and interpretation of the results.

Data analysis and interpretation

During the study period (2011-2020) there were 1570 publications and 13962 citations indexed in Scopus core collection. The citations may vary from time to time since the Scopus database is updated periodically.

Publications and Citation Pattern during 2011-2020

The study found that there is a gradual increase in publications from the year 2015 to 2020. The publications have slightly decreased in the year 2014 with 133 publications only. The highest publication was in the year 2020 with 206 publications, having 671 (4.81%) citations, followed by the year 2019 with 200 publications having 969 (6.94%) citations. The study also found that the highest citation was received in the year 2013 with 155 publications having 1889 (13.53%) citations, followed by 105 publications having 1692 (12.12%) publications in the year 2011.

Table 1: **Publications and citation pattern during 2011-2020**

Sl.No.	Year	Publications	Citations	Percentage
1.	2011	105	1692	12.12
2.	2012	126	1528	10.94
3.	2013	155	1889	13.53
4.	2014	133	1300	09.31
5.	2015	144	1440	10.31
6.	2016	145	1345	09.63
7.	2017	164	1476	10.57
8.	2018	192	1652	11.83
9.	2019	200	969	06.94
10.	2020	206	671	04.81
Total =		1570	13962	100.00

*source: Scopus

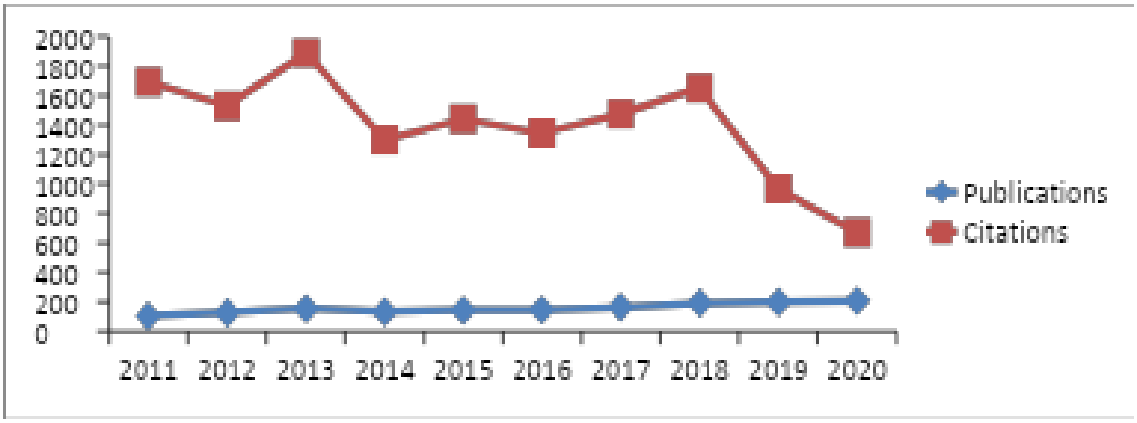

Fig. 1: Publications and citation pattern during 2011-2020

The total no. of publications along with the citations year-wise are shown in Table-1 and Fig. 1 above.The study also found that only 40 publications are single-authored and 1530 are two or more authored publications.

Most Preferred Document Types for Publication

The study found that these 1570 publications were published in 10 (ten) different document types. The most preferred documents type was Journal article with 1459 (92.93%) publications, followed by Review article with 47 (2.99%) publications and Editorial material with 18 (1.15%) publications, Meeting abstract with 17 (1.08%) publications, Proceedings with 9 (0.57%) publications, Correction with 8 (0.51%) publications, Letter with 7 (0.45%) publications, Biographical-Item & Book Review with 2 (0.13%) each publications and News Item with 1 (0.06%) publications.

Table 2: Most preferred document types for publications

Sl. No.	Document Types	Publications	Percentage
1.	Article	1459	92.93
2.	Review	47	02.99
3.	Editorial Material	18	01.15
4.	Meeting Abstract	17	01.08
5.	Proceedings	09	00.57
6.	Correction	08	00.51
7.	Letter	07	00.45
8.	Biographical-Item	02	00.13
9.	Book Review	02	00.13
10.	News Item	01	00.06
	Total =	1570	100.00

*source: Scopus

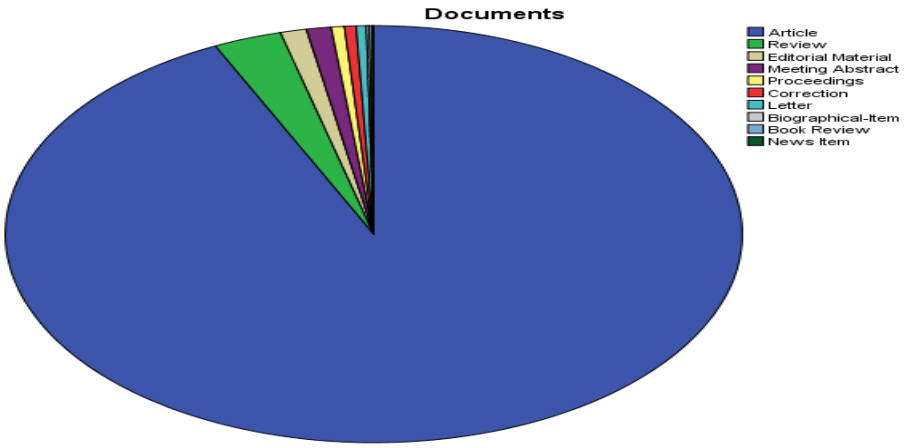

Fig. 2: Most preferred document types for publications

The different document types with highly preferred levels are shown in Table-2 and Fig.-2 above for their research publications during 2011-2020.

Publications of the University in Different Academic Journals

The present study also found that these 1570 publications were published in 616 academic journals across the globe. From the top twenty journals, the highest publication was in the Journal of Organometallic Chemistry (USA) with 33 (2.10%) publications, followed by Journal of Molecular Structure (Netherlands) with 26 (1.66%) publications and RSC Advances (UK) with 23 (1.46%) publications.

Table 3: Top twenty academic journal with highest publications

Sl. No.	Name of Journals	Publications	Percentage	Rank
1.	Journal of Organometallic Chemistry	33	02.10	1
2.	Journal of Molecular Structure	26	01.66	2
3.	RSC Advances	23	01.46	3
4.	Current Science	21	01.34	4
5.	Plos One	21	01.34	4
6.	Journal of Coordination Chemistry	20	01.27	5
7.	Journal of Chemical Sciences	19	01.21	6
8.	Oxidation Communications	18	01.15	7
9.	Inorganica Chimica Acta	17	01.08	8
10.	Journal of Biomolecular Structure & Dynamics	17	01.08	8
11.	International Journal of Biological Macromolecules	16	01.02	9
12.	Physical Review E	16	01.02	9
13.	Applied Organometallic Chemistry	15	00.96	10
14.	ChemistrySelect	15	00.96	10
15.	Gene	15	00.96	10
16.	Spectrochimica Acta Part A-Molecular and Biomolecular Spectroscopy	15	00.96	10
17.	Indian Journal of Traditional Knowledge	14	00.89	11
18.	Journal of Molecular Liquids	14	00.89	11
19.	New Journal of Chemistry	13	00.83	12
20.	Tropical Ecology	13	00.83	12
	Total =	361	22.99	

*source: Scopus

The top twenty journals which were highly preferred are shown in Table- 3 above. There were 361 (22.99%) publications in these top twenty journals during 2011-2020.

Publications in Different Subjects

The study found that 1570 publications were published in 76 different subject areas during the study period. The highest publication was in Chemistry with 511 (32.55%) publications, followed by Biochemistry & Molecular Biology with 147 (9.36%) and Botany with 91 (5.80%) publications.

Table 4:Top twenty publications in different subject areas during 2011 -2020

Sl. No.	Subjects	Publications	Percentage
1.	Chemistry	511	32.55
2.	Biochemistry & Molecular Biology	147	09.36
3.	Botany	91	05.80
4.	Biology	80	05.10
5.	Physics	80	05.10
6.	Multidisciplinary Sciences	69	04.39
7.	Biotechnology & Applied Microbiology	49	03.12
8.	Engineering	49	03.12
9.	Environmental Sciences	41	02.61
10.	Parasitology	34	02.17
11.	Materials Science	28	01.78
12.	Ecology	26	01.66
13.	Computer Science	23	01.46
14.	Genetics & Heredity	20	01.27
15.	Mathematics	18	01.15
16.	Zoology	18	01.15
17.	Anthropology	17	01.08
18.	Microbiology	16	01.02
19.	Spectroscopy	16	01.02
20.	Food Science & Technology	15	00.96
	Total =	1348	85.86

*source: Scopus

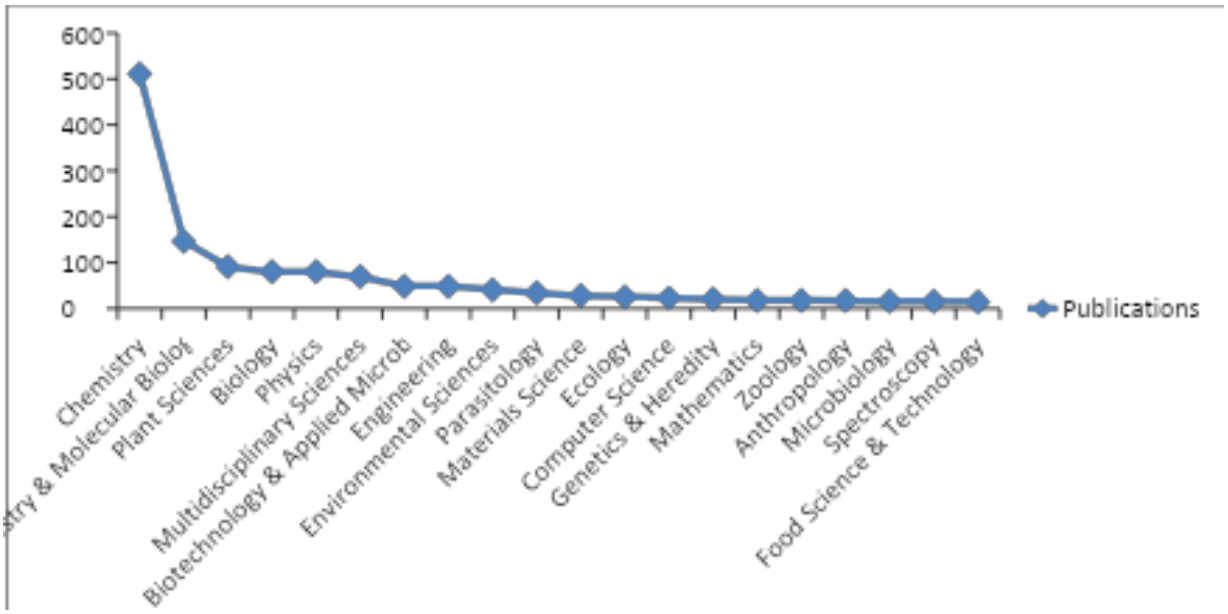

Fig. 3: Top twenty subject areas during 2011-2020

The top twenty subjectareas and research publications are shown in Table- 4 and Fig. -3 and above. There were 1348 (85.86%) publications in these top twenty journals during 2011-2020.

Highly cited article during 2011 -2020

It was also seen that there were 13962 citations received for these 1570 publications during the study period. There were 1856 (13.29%) citations received by these top twenty publications during 2011-2020. The highly cited publications were "L-Proline as an efficient catalyst for the multi-component synthesis of 6-amino-4-alkyl/aryl-3-methyl-2,4-dihydropyrano[2,3-c]pyrazole-5-carbonitriles in water" by Mecadon, H et al. (2011) with 179 citations, followed by "Gamma-Alumina as a recyclable catalyst for the four-component synthesis of 6-amino-4-alkyl/aryl-3-methyl-2,4-dihydropyrano[2,3-c]pyrazole-5-carbonitriles in aqueous medium" by Mecadon, H et al. (2011) with 147 citations and "Cyanobacteria: A Precious Bio-resource in Agriculture, Ecosystem, and Environmental Sustainability" by Singh, JS et al. (2016) with 152 citations.The top twenty highly cited publications are shown in Table- 5 below.

Table 5: **Highly cited publications during 2011 – 2020**

SL. No.	Author (s)	Publication	Citations	Year
1.	Mecadon, H et al.	L-Proline as an efficient catalyst for the multi-component synthesis of 6-amino-4-alkyl/aryl-3-methyl-2,4-dihydr opyrano[2,3-c]pyrazole-5-carbonitriles in water	179	2011
2.	Mecadon, H et al.	Gamma-Alumina as a recyclable catalyst for the four-component synthesis of 6-amino-4-alkyl/aryl-3-methyl-2,4-dihydr opyrano[2,3-c]pyrazole-5-carbonitriles in aqueous medium	147	2011
3.	Singh, JS et al.	Cyanobacteria: A Precious Bio-resource in Agriculture, Ecosystem, and Environmental Sustainability	152	2016
4.	Chongtham, N et al.	Nutritional Properties of Bamboo Shoots: Potential and Prospects for Utilization as a Health Food	108	2011
5.	Adhikari, D et al.	Habitat distribution modelling for reintroduction of Ilex khasiana Purk., a critically endangered tree species of northeastern India	102	2012
6.	Sharan, RN et al.	Association of Betel Nut with Carcinogenesis: Revisit with a Clinical Perspective	96	2012

7.	Ahmed, N et al.	Internet of Things (IoT) for Smart Precision Agriculture and Farming in Rural Areas	96	2018
8.	Ravikumar, S et al.	Mapping the intellectual structure of scientometrics: a co-word analysis of the journal Scientometrics (2005-2010)	92	2015
9.	Liang, P et al.	Genome-wide survey reveals dynamic widespread tissue-specific changes in DNA methylation during development	90	2011
10.	Roy, PS et al.	New vegetation type map of India prepared using satellite remote sensing: Comparison with global vegetation maps and utilities	84	2015
11.	Bihani, M et al.	Amberlyst A21 Catalyzed Chromatography-Free Method for Multicomponent Synthesis of Dihydropyrano[2,3-c]pyrazoles in Ethanol	82	2013
12.	Saha, M & Pal, AK	Palladium(0) nanoparticles: an efficient catalyst for the one-pot synthesis of polyhydroquinolines	76	2011
13.	Lal, P et al.	The dark cloud with a silver lining: Assessing the impact of the SARS COVID-19 pandemic on the global environment	76	2020
14.	Kalita, P et al.	Design of a peptide-based subunit vaccine against novel coronavirus SARS-CoV-2	75	2020
15.	Mittal, AK et al.	Bio-synthesis of silver nanoparticles using Potentilla fulgens Wall. ex Hook. and its therapeutic evaluation as anticancer and antimicrobial agent	70	2015
16.	Kumar, A et al.	Current and novel therapeutic molecules and targets in Alzheimer's disease	70	2016
17.	Bhattacharyya, P et al.	Start Codon Targeted (SCoT) marker reveals genetic diversity of Dendrobium nobile Lindl., an endangered medicinal orchid species	69	2013
18.	Verma, R et al.	A novel thermophotocatalyst of mixed-phase cerium oxide (CeO2/Ce2O3) homocomposite nanostructure: Role of interface and oxygen vacancies	67	2015
19.	Khatua, S & Schmittel, M	A Single Molecular Light-up Sensor for Quantification of Hg2+ and Ag+ in Aqueous Medium: High Selectivity toward Hg2+ over Ag+ in a Mixture	65	2013
20.	Chatterjee, A	Reduced Glutathione: A Radioprotector or a Modulator of DNA-Repair Activity?	60	2013
Total =			1856	

*source: Scopus

Among the top twenty highly cited publications, there were 5 publications from the year 2011, 4 publications each from the year 2013 and 2015, 2 publications each from the year 2012, 2016 and 2020 and 1 publication from the year 2018. There were no publications in the year 2014, 2017 and 2019 in the top twenty highly cited publications during 2011-2020.

Findings of the Study

The study has found that the highest publication was in the year 2020, with 206 publications having 671 (4.81%) citations, despite the global pandemic, and the highest citation was recorded in the year 2013, with 155 publications having 1889 (13.53%) citations. These 1570 publications were published in 10 (ten) different document types. The most preferred document type was found to be Journal articles with 1459 (92.93%) publications and 111 (7.07%) in other document types during 2011-2020.

The study also found that these 1570 publications were published in 616 academic journals across the globe. The highest publication was in the Journal of Organometallic Chemistry (USA) with 33 (2.10%) publications. The 1570 publications were published in 76 different subjects' areas during the study period. The highest publication was in Chemistry, with 511 (32.55%) publications. Only 40 publications were single-authored, and 1530 were two or more co-authored publications. From within the single-authored publications, Das, G and Sharma, BK have the highest publications with 4 (four) each publication, followed by Kma, L with 3 (three) publications, Bhattacharjee, S; Haloi, A; Shankar, U and Shukla, P with 2 (two) publications each during the study period.

It was also found that there were 13962 citations received for these 1570 publications during the study period. The highly cited publication was by Mecadon, H et al. (2011) with 179 citations. Among the top twenty highly cited publications, there were 5 publications from the year 2011, 4 publications each from the year 2013 and 2015, 2 publications each from the year 2012, 2016 and 2020 and 1 publication from the year 2018. There were no publications in the year 2014, 2017 and 2019 in the top twenty highly cited publications during 2011-2020.

Conclusion

Information retrieval and Bibliometrics can be considered as two of the primary concerns of Library and Information professionals. Bibliometric study helps to analyse the pattern of authorship, geographical distribution, types of document, citation rates of publications etc. In an Academic institution like North Eastern Hill University, Faculty, Research Scholars and Students, depend heavily on the journals for their information needs. Since the users in a university are from different fields of study such as Science, Social Science, Law, Management, Engineering, Computer Applications, Arts, etc. the cost of journal subscription for all these subjects can be very high. The bibliometric analysis also provides tools which help in deciding titles of journals to be acquired, to continue or discontinue a particular subscription.

References

Das, S., Yadav, S.K. and Verma, M. K. (2016). Research Productivity of Mizoram University, Aizawl during 2002-2018: A Bibliometric Analysis.Journal of Indian Library Association, 56 (3). Retrieved from https://www.ilaindia.net/jila/index.php/jila/article/view/382

Gogoi, M., Mozinder, R. and Kalita, K. B. (2016). Trends in Research Productivity: A Bibliometric Analysis of Dibrugarh University Publications using Scopus.10th Convention PLANNER-2016, INFLIBNET Centre, Gandhinagar, Gujarat. Retrieved from https://ir.inflibnet.ac.in/bitstream/1944/2039/1/35.pdf.

Kalita, D. (2017). Research Productivity and its Impact Analysis of the Central Universities of North East India. In P. Rath, R N Mishra R.K. Ngurtinkhuma (Ed.), Library and Information Services in Knowledge Society: Innovative, Value Added Services and Best Practices. Pp 411-419, Mizoram: Mizoram University. Retrieved from https://scholar.google.co.in/citations?view_op=view_citation&hl=en&user=l5UkMtgAAAAJ&citation_for_view=l5UkMtgAAAAJ:Se3iqnhoufwC

Nongrang, K. and Laloo, B. (2016).Bibliometric study of biochemistry literature in North Eastern Hill university during 2000 to 2010.COLLNET Journal of Scientometrics and Information Management, 10 (2),197-207. DOI: 10.1080/09737766.2016.1213964

Nongrang, K. (2015). Collaborative Research Trends and Authorship Patterns in North Eastern Hill University from 2000 to 2010. Asian Journal of Information Science and Technology, 5 (2), 32-36. Retrieved from www.researchgate.net › publication › 273403733_

Nongrang, K. and Tariang, B.L. (2014). Bibliometric Study of Research Output of Botany Faculties to Manage Journal Collection in North Eastern Hill University Library.International Journal of Library and Information Studies, 3 (2). ISSN: 2231-4911.

North-Eastern Hill University (2021). Annual report (2019-20) www.nehu.ac.in

Simte, T.P. and Phuritsabam, B. (2021). A Bibliometric Study of Research Trend in Library and Information Science in the North Eastern Region of India,1989-2018. Multidisciplinary International Journal, 47. e-ISSN: 2454-924X; p-ISSN: 2454-8103. Retrieved from https://www.mijournal.in/currentissue.php.