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M.M., Dr. Bachalapur; Kumara BM, Dr. Prasanna; and Hugar, Dr. Jayaprakash G., "Citation Analysis of BLDEA's Professional Institutes, Vijayapura: A Scientometric Study" (2021). *Library Philosophy and Practice (e-journal)*. 6052.

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Citation Analysis of BLDEA's Professional Institutes, Vijayapura: A Scientometric Study

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Abstract:

This paper aims to evaluate the research productivity and citations received by the BLDEA's professional institutions established in Vijayapura, Karnataka State, India under the banner of BLDE Association's based on their publications and citations as reflected in the Scopus Citation Database for the period of ten years from 2011 to 2020. A total of 910 research publications and citations with all metadata have been downloaded and analyzed as per the objectives of the current study. These three professional institutions received four thousand two hundred forty-seven citations. The paper tries to provide all measurements to view the research output and citations of BLDEA's professional institutes in health sciences, pharmaceutical science and engineering and technology field.

Keywords: Citation Analysis, BLDEA, Bijapur Lingayat District Educational Association, Scopus, Bibliometrics, Scientometrics.

Introduction:

Bijapur Lingayat District Educational Association has a huge name in the education sector, especially in northern Karnataka, established in 1910. Under BLDEA's group of institutes there are three major professional institutes and provides quality education in the health sciences, pharmaceutical science and technical education in the north part of Karnataka, India. These three institutes have vibrant research publications in health science and technical education, as reflected in various publications. Citations and research productivity of these institutions is obvious and recognized in their respective domain.

Scope and Limitation of the Study:

The scope of this study covers the citations analysis and research productivity of BLDEA's professional colleges such as BLDE (Deemed to be University), BLDEA's Shri Sanganabasava Mahaswamiji College of Pharmacy & Research Centre and BLDEA's V P Dr

P.G.Halakatti College of Engineering and Technology, which has been reflected in Scopus Citation Database and we have made a ten years study between the period of 2011 to 2020.

Methodology:

Scopus Citation Database is the source for the data collection. Affiliation ID's of the respective institutions is used for searching information and download the published materials. Search strings include the "BLDE Deemed to be University", "BLDEA'S VP Dr. P G Halakatti College of Engineering and Technology", and "BLDEA's SSM College of Pharmacy", the individual years starting from 2011 to 2020. Each of the records collects data items included author(s), title, citations and type of citations about an individual and biographical item-all indexing term used in the source database for categorizing the published materials.

Objectives of the study

1. To identify citation wise distribution of institutes
2. To know the citations impact of BLDEA's institutions
3. To assess the most cited countries and highly cited papers
4. To find out the most productive Institute in the group
5. To analyze the average citations per year of these institutes

Review of Literature

Banateppanvar et al. (2013) determined the materials cited in the doctoral thesis of botany, submitted to the Kuvempu University during the years 2000-2006. The thesis submitted for the Doctoral degree award from 2000 to 2006 to the Department of Botany, Kuvempu University were examined. Findings revealed that journals are the most preferred sources of information used by the researchers in botany, accounting for 74.77 percent of the total citations. However, citations from books, proceedings, thesis, reports and patents are also found. It is also observed that, researchers are not taking much advantage of internet resources. The journal Plant Cell, Tissue and Organ Culture (USA) was ranked first, with 158 citations, accounting for 7.57 percent of the total journal citations. Further, Bradford's law of scattering was applied.

Gurpreet Singh and Jagtar Singh (2021) assessed the research trends in economics to derive meaningful inferences from supporting information needs of economists, policymakers, librarians, and other stakeholders. The study uses for data the thesis in Economics accepted for the degree of Doctorate of Philosophy (Ph.D.) by three Universities of Punjab and Chandigarh during 2011 to 2015. The data have been evaluated to identify the core journals, subject trends in research, based on keywords, and Bradford's Scattering Law to assess the distribution of publications in the research articles referred to in the thesis. The study reveals that a major part of the research work done at the PhD level in the subject of economics in three universities of Punjab and Chandigarh is oriented towards agricultural economics and allied subjects, such as economic, social, cultural and other related aspects,

which have dependencies on agriculture in northern India. The study attempts to ascertain research in economics and key areas of economics in the northern part of India.

Jayaprakash (2015) evaluated the research productivity of University of Goa, based on the data collected from Web of Science over a period of ten years from 2008 to 2017. Citation analysis of 2431 citations includes finding out of authorship pattern, degree of collaboration, types of publications cited and chronological distribution of citations, guide wise distribution of the thesis, preparing a list of ranked cited journals and authors in the commerce thesis of the Goa University. The study shows that most of the scientists preferred to publish research papers in collaboration with others (joint authorship) that too in journals. Further, the study revealed that the degree of collaboration in this thesis is found to be 0.52, the value of group co-efficient for collaborative authors of citations is also 0.52. The most cited document is articles in journal publications.

Pramod Kumar Singh and Ramkesh Chauhan (2019) explored the Ph. D. Thesis submitted to the Department of Psychology accepted by H.N.B. Garhwal Central University Srinagar located in Uttarakhand state is taken as the source data for this study. A total of 18 thesis studies generated a total of 3442 citations. Analyzed citations by forms of documents, core journals, distribution of journals by frequency of citations, year wise and country-wise distribution of journal articles cited. The results reveal that journals are the most preferred sources of information used by researchers in psychology, accounting for 42.71% of total citations. Most of the citations cited from journals are from USA, accounting for 40.18 percent.

Analysis and Discussion:

Table No. 1: Year-wise Distribution of Publications and Citations

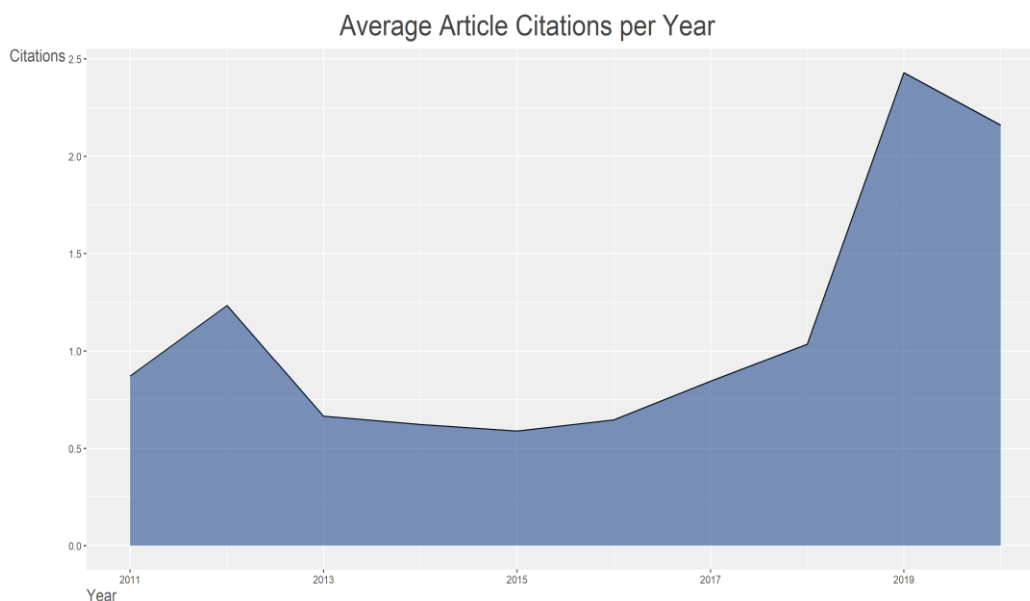
Year of Publications	BLDE (DU)			SSM Pharmacy College			BLDEACET			Citable Years
	NP (626)	No of Citations (% of Citation)	Mean TC per Year	NP (97)	No of Citations (% of Publications)	Mean TC per Year	NP (187)	No. Citations (% of Publications)	Of Mean TC per Year	
2011	35	333 (12.59)	0.951	19	29 (3.09)	1.105	13	41 (6.19)	0.230	10
2012	57	509 (19.23)	0.931	18	133 (14.16)	2.0493	37	199 (30.06)	1.015	9
2013	83	384 (14.51)	0.625	14	3 (0.32)	0.866	11	93 (14.05)	0.477	8
2014	64	270 (10.20)	0.602	5	35 (3.73)	1.057	5	117 (17.67)	0.228	7
2015	78	260 (9.83)	0.555	5	38 (4.05)	0.833	7	46 (6.95)	0.523	6
2016	69	193 (7.30)	0.559	9	25 (2.66)	0.844	13	22 (3.32)	0.707	5
2017	69	163	0.590	7	37	1.25	26	8 (1.21)	1.125	4

		(6.16)			(3.94)				
2018	51	128 (4.84)	0.8364	97	(10.33)	0.25	30	42 (6.35)	1.0333
2019	62	99 (3.74)	0.7987	332	(35.36)	9.5	33	64 (9.67)	3.0302
2020	58	307 (11.60)	5.2939	210	(22.36)	3.222	42	30 (4.53)	0.9761
	626	2646 (100)		97	939 (100)		187	662	

Citations are essential for the publications, which will give weightage to an article as well as authors. Table 1 illustrates the year-wise distribution of publications and citations followed by the average Citation per year of all the institutions under the BLDE Education Society in Bijapur.

BLDE (DU) has 2646 citations from 626 publications from the year 2011-2020. The citations growth is increased from 333 (12.59%) to 509 (19.23%), then declined to 384(14.51%) respectively from the year 2011 to 2013. It reached its peak in the year 2012 with 509 (19.23) citations. In the year 2020, 307 (11.60%) citations are received from 58 documents. On average, 63 citations are obtained per year in the last ten years. The mean total number of citations per year is 0.951 in 2011, and in the year 2020, it reached the highest with 5.293.

BLDEA's SSM has a total of 939 citations from 97 publications during the period of 2011-2020. 29 (3.09%) citations are received in the initial year 2011 and reached the highest citations in 2019 with 35.36% with 332 citations, on an average of ten citations per year received by the 97 publications study period. But, only in the year 2012, 2019 and 2020 received more than 100 citations per year. Very meager citations (03) were received in 2013 (0.32%) from 14 documents. The mean total citations per year are lowest (0.25) in 2018, and the highest is 9.5 in the year 2019.



BLDEACET has received 662 citations from 187 publications from 2011-2020. In 2011, it received 41 (6.19%) citations from 13 publications; the highest citations were

received in 2012, with 199 (30.06%) citations from just seven publications. The year 2012 received 199 (30.06%) citations, and 2014 received 117 (17.67%) have received a good number of citations. Only 8 (1.21%) citations are received from 26 documents in 2017, which are fewer citations during the study period. On an average of four citations per year received by the 187 publications during the study period. The mean total citations per year are the lowest, 0.228 in 2014; the highest 3.030 is found in the year 2019

Table No.2: Research Collaboration with BLDEA's Institutions

Collaborative with Five Top Institutions	Total Publications	Country	Professional Institutes
Visvesvaraya Technological University	29	India	BLDEACET
Shri Sanganabasava Mahaswamiji College of Pharmacy and Research Centre	28	India	BLDE (DU)
BLDE Deemed to be University	28	India	BLDEA's SSM
Basaveshwar Engineering College	25	India	BLDEACET
Krishna Institute of Medical Sciences Deemed University	24	India	BLDE (DU)
J.J.M. Medical College	23	India	BLDE (DU)
Al-Ameen Medical College	17	India	BLDE (DU)
Emory University	15	Georgia	BLDE (DU)
BLDE Deemed to be University	14	India	BLDEACET
Manipal College of Pharmaceutical Sciences	9	India	BLDEA's SSM
The University of Sydney	8	Australia	BLDEA's SSM
JAIN Deemed-to-be University	7	India	BLDEA's SSM
Jadavpur University	7	India	BLDEA's SSM
Kuvempu University	6	India	BLDEACET
Al-Ameen Medical College	6	India	BLDEACET

Table 2 reveals the top five collaborative institutions/organizations with the BLDEA's professional institutions. The majority of the contributions come from BLDE (DU) with 107 publications, followed by BLDEACET and BLDEAs SSM with 80 and 59 publications. BLDE (DU) is having the highest number (28) of collaboration with their professional College, i.e:-Shri Sanganabasava Mahaswamiji College of Pharmacy and Research Centre, Bijapur and yielded the highest number of citations also (919).

In the case of BLDEA's SSM collaborated with their BLDE (DU), followed by Manipal College of Pharmaceutical Sciences and the University of Sydney. This is another professional college that collaborated with the foreign University in the group of BLDEA's.

But, interesting to note that these publications did not get any citations during the period of study.

Whereas, BLDEACET collaboratively published six publications along with Al-Ameen Medical College, Bijapur and received the highest 583 citations for these publications, followed by BLDE (DU) and Basaveshwar Engineering College, Bagalkote.

Overall, BLDE (DU) collaboration with the BLDEA's SSM and BLDEACET is more than any other institution.

Table No. 3: Most Cited Countries

BLDE (DU)			BLDEA's SSM			BLDEACET		
Country	Total Citations	Average Article Citations	Country	Total Citations	Average Article Citations	Country	Total Citations	Average Article Citations
India	2085	4.01	India	876	9.95	India	482	4.68
USA	66	5.50	Korea	34	34.00	United Kingdom	1	1.00
Iran	10	10.00						
Switzerland	6	6.00						
Italy	3	1.50						
United Kingdom	2	2.00						

A country-wise citation received by the publications is revealed in table 3. It shows that it received the highest number of citations from Indian authors in all the educational institutions of the BLDEA. Received the majority of 2085 citations from the Indian authors; received only 87 citations were from the USA, Iran, Switzerland, Italy and UK in BLDE (DU). In Pharmacy College, received 34 citations only from the country from Korea. In BLDEACET, only one Citation is received from the United Kingdom. Both pharmacy and engineering colleges have received citations from a single country.

Average Article Citations is highest in Iran (10) and lowest in Italy with 1.50 in BLDE (DU), in Pharmacy College highest with Korea and lowest with Indian authors. In the BLDEACET, it is highest with India and Lowest is in the United Kingdom.

Table No.4: Highly Cited Articles in BLDEA Institutions

Highly Cited Article	Authors	Year	No of citations received	Affiliations of the Author
Pulmonary drug delivery strategies: A concise, systematic review	Patil J.S., Sarasija S.	2012	105	BLDE (DU) and BLDEA's SSM
PH-responsive interpenetrating network hydrogel beads of	Kulkarni R.V., Boppana R., Krishna	2012	102	BLDE (DU)and

poly(acrylamide)-g-carrageenan and sodium alginate for intestinal targeted drug delivery: Synthesis, in vitro and in vivo evaluation	Mohan G., Mutalik S., Kalyane N.V.			BLDEA's SSM
Global burden of 369 diseases and injuries in 204 countries and territories, 1990 - 2019: a systematic analysis for the Global Burden of Disease Study 2019	1044 Authors	2020	93	BLDE (DU)
Interpenetrating polymer network microcapsules of gellan gum and egg albumin entrapped with diltiazem-resin complex for controlled release application	Kulkarni R.V., Mangond B.S., Mutalik S., Sa B.	2011	80	BLDE (DU) and BLDEA's SSM
Global burden of 87 risk factors in 204 countries and territories, 1990-2019: a systematic analysis for the Global Burden of Disease Study 2019	1044 Authors	2020	78	BLDE (DU)
Electrochemical detection and degradation of textile dye Congo red at graphene oxide modified electrode	Shetti N.P., Malode S.J., Malladi R.S., Nargund S.L., Shukla S.S., Aminabhavi T.M.	2019	62	BLDEACET
Fabrication of ZnO nanoparticles modified sensor for electrochemical oxidation of methdilazine	Shetti N.P., Malode S.J., Nayak D.S., Bagihalli G.B., Kalanur S.S., Malladi R.S., Reddy C.V., Aminabhavi T.M., Reddy K.R.	2019	47	BLDEACET
Primary concept of nickel toxicity - An overview	Das K.K., Reddy R.C., Bagoji I.B., Das S., Bagali S., Mullur L., Khodnapur J.P., Biradar M.S.	2019	41	BLDEACET
Membranes for dehydration of alcohols via pervaporation	Kulkarni R.V., Mangond B.S., Mutalik S., Sa B.	2019	38	BLDEA's SSM
Barium titanate nanostructures for photocatalytic hydrogen generation and photodegradation of chemical pollutants	Kulkarni R.V., Mangond B.S., Mutalik S., Sa B.	2019	34	BLDEA's SSM
Novel ruthenium doped TiO ₂ /reduced graphene oxide hybrid as highly selective sensor for the determination of ambroxol	Bukkitgar S.D., Shetti N.P., Malladi R.S., Reddy K.R., Kalanur S.S., Aminabhavi T.M.	2020	21	BLDEACET
Robust Invisible Digital Image Watermarking Using Hybrid Scheme	Savakar D.G., Ghuli A.	2019	20	BLDEACET

Table 4 shows the list of highly cited papers of BLDEA institutions during the study period. The above articles got the highest citations from the different institutions/organizations in this world. More than 100 citations were received by the article written by Patil J.S and Sarasija.S and followed by Kulkarni RV and other written articles. Wrote the papers in 2012, and the authors are from the same institutions, i.e.: -BLDE (DU) and BLDEA's SSM. The remaining article citations are in the range of 20 to 93. Further, it is revealed that the highest citations are received by the collaborated authors of BLDE (DU) and BLDEA's SSM.

Table No. 5: Most Global Cited Documents

Deemed University			College of Pharmacy			College of Engineering & Technology		
Paper	Total Citations	TC Per Year	Paper	Total Citations	TC Per Year	Paper	Total Citations	TC Per Year
Patil JS, 2012, Lung India	105	10.5	Patil JS, 2012, Lung India	105	10.5	Shetti Np, 2019, Microchem J	62	20.6667
Kulkarni Rv, 2012, Colloid Interface Sci	102	10.2	Kulkarni Rv, 2012, J Colloid Interface Sci	102	10.2	Shetti Np, 2019, Appl Surf Sci	47	15.6667
ABBAFATI C, 2020, Lancet-a	93	46.5	Kulkarni Rv, 2011, Carbohydr Polym	80	7.2727	Das Kk, 2019, J Basic Clin Physiol Pharmacol	41	13.6667
Kulkarni Rv, 2011, Carbohydr Polym	80	7.2727	Jyothi Ms, 2019, Environ Manage	38	12.6667	Bukkitgar Sd, 2020, J Mol Liq	21	10.5
ABBAFATI C, 2020, Lancet-a-b	78	39	Karthik Kv, 2019, J Mater Sci Mater Electron	34	11.3333	Savakar Dg, 2019, Arab J Sci Eng	20	6.6667
Pareek A, 2014, Curr Med Res Opin	47	5.875	Patil Sb, 2019, J Microbiol Methods	27	9	Khadiranaikar Rb, 2012, J Struct Eng	17	1.7
Shivakumars wamy U, 2012, Cytol	47	4.7	Kulkarni Rv, 2012, Pharm Pharmacol	26	2.6	Hosamani Br, 2018, Eng SciTech nolInt J	14	3.5
Widmer M, 2018, New Engl J Med	43	10.75	Mutalik S, 2016, Int J Biol Macromol	24	4	Biradar Hb, 2017, Rteict - Ieee IntConf Recent Trends Electron, Inf Commun Technol	14	2.8

						, Proc		
Biradar Pa, 2013, Indian J Anaesth	42	4.6667	Biradar Sm, 2013, Pak BiolSci	J24	2.6667	Jargar Jg, 2012, J Basic Clin Physiol Pharmacol	14	1.4
Das Kk, 2019, J Basic Clin Physiol Pharmacol	41	13.6667	Suresh Hm, 2011, Pharmacogn Res	23	2.0909	Teradale Ab, 2017, Sens Bio-sens Res	13	2.6

Table 5 represents the top articles cited in Total Citations. Out of these ten articles, three publications were published in 2012, two publications in the year 2020, remaining are published in the year 2011, 2013, 2014, 2018 and 2019, respectively in BLDE (DU).

The journals in which these articles were published Lung India (h-index = 22) with four articles, and Journal of Colloid and Interface Science (h-index = 225) with one article, and two articles in Lancet (h-index = 747) remaining journal articles are having less than 50 citations in BLDE (DU).

In the Pharmacy College, the journals in which these articles were published Lung India (h-index = 22), with four papers. Journal of Colloid and Interface Science (h-index = 225) with one paper and two papers in Carbohydrate Polymers (h-index = 192) remaining journal articles have less than 50 citations during the study period in Pharmacy College.

In BLDEACET, the journals in which these articles were published Microchemical Journal (h-index = 79) with four articles, and Journal of Colloid and Interface Science (h-index = 225) with one article, and two articles in Carbohydrate Polymers (h-index = 192) remaining journal articles are having less than 50 citations during the study period.

Table No. 6: Most Local Cited Publications

Document	Year	Local Citations	Global Citations	LC/GC Ratio (%)	Document	Year	Local Citations	Global Citations	LC/GC Ratio (%)	Document	Year	Local Citations	Global Citations	LC/GC Ratio (%)
Das Kk, 2015, Indian J Pharmacol	2015	5	17	29.41	Boppana R, 2015, Int Biol Macromol	2015	3	20	15.00	Akkasaligar Pt, 2018, Int J Med Eng Inf	2018	3	3	100.00
Gurunathrao Ps, 2015, Indian J Physiol Pharmacol	2015	5	7	71.43	Kulkarni Rv, 2014, Int Biol Macromol	2014	3	19	15.79	Hiremath Ps, 2011, World Acad Sci Eng Technol	2011	3	3	100.00

PatiSg, 2014, ClinDiagn Res	J 2014	4	26	15.38	Kulkarni Rv, 2012, J Colloid Interface Sci	2012	3	102	2.94	Savakar Dg, 2018, Multimed ia Tools Appl	2018	2	2	100.00
ABBAFATI C, 2020, Lancet-a	2020	3	93	3.23	Birajdar R p, 2019, J Macrom ol Sci Part A Pure ApplChem	2019	2	10	20.00	Chadchan Ks, 2016, J Basic Clin Phys iol Pharm acol	2016	2	6	33.33
Das Kk, 2019, Diet Interv I n Liver Dis : Foods, Nutr r, And Diet Suppl	2019	3	4	75.00	Alange V v, 2017, Int Biol Macr omol	2017	2	20	10.00	Anami Bs , 2012, Int J Tomogra phy Stat	2012	2	7	28.57
Shaikh Ni, 2016, Public Health Nutr	2016	3	11	27.27	Alange V v, 2017, J Biomater Sci Polym Ed	2017	2	12	16.67	PatilPb, 2011, IntConf C omput Co mmun Te chnol , Icct	2011	2	2	100.00
Das Kk, 2016, Curr Signal Transductio n Ther	2016	3	5	60.00	Boppana R, 2016, Rsc Adv	2016	2	10	20.00	Jadhav As, 2020, Evo l Intellige nce	2020	1	2	50.00
ABBAFATI C, 2020, Lancet-a-b	2020	2	78	2.56	Reddy Rc, 2020, Biol Trace Elem Res	2020	1	1	100.00	Dixit Ud, 2019, Intl J Image Graphics	2019	1	2	50.00
ABBAFATI C, 2020, Lancet-a-b- c	2020	2	33	6.06	Birajdar R p, 2020, Int J Polym Mater Pol ym Bioma ter	2020	1	2	50.00	Math Rk m, 2019, ProcIntCo nf I- smac (Iot Soc , Mob , Anal Cloud), I- smac	2019	1	11	9.09
Alange Vv, 2017, J Biomater Sci Polym E d	2017	2	12	16.67	PatilSb, 2019, J Microbiol Methods	2019	1	27	3.70	Das Kk, 2019, Diet Inter v In Liver Dis	2019	1	4	25.00

										: Foods, Nutr , An d Diet Suppl				
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Table 6 shows that the top ten most frequently cited articles from 2011 to 2020. It indicates that the Das KK written article published in the Indian Journal of Pharmacology is cited the highest number of times by the global citations (17). This is followed by Bopanna R publication in the International Journal of Biological Macromolecules with 20 Global Citations, and Akkasaligar PT published publication having only 3 Global Citations.

Among the top ten of the most highly cited articles in BLDE (DU) is having a Global Citation average of 28.6 per year whereas, in the Pharmacy College, it is 22.3 per year, and in the BLDEACET, it is just 4.2 per year.

3.2 is the Average Local Citations received by the top ten most frequently cited articles during the study period in the BLDE (DU), followed by 2 is the Average Local Citations received by the Pharmacy College and in the BLDEACET Average Local Citations is 1.8, which is very less average compared to other two institutes.

Further, this table revealed that BLDE (DU) has the highest publications and highest citations in both Local Citations and Global Citations. In contrast, BLDEACET is having a smaller number of citations during the study period. It reveals that BLDEA(DU) is the number one institution among the professional institutions of BLDEA in research output and getting notified by all the professionals, and receiving full citations worldwide.

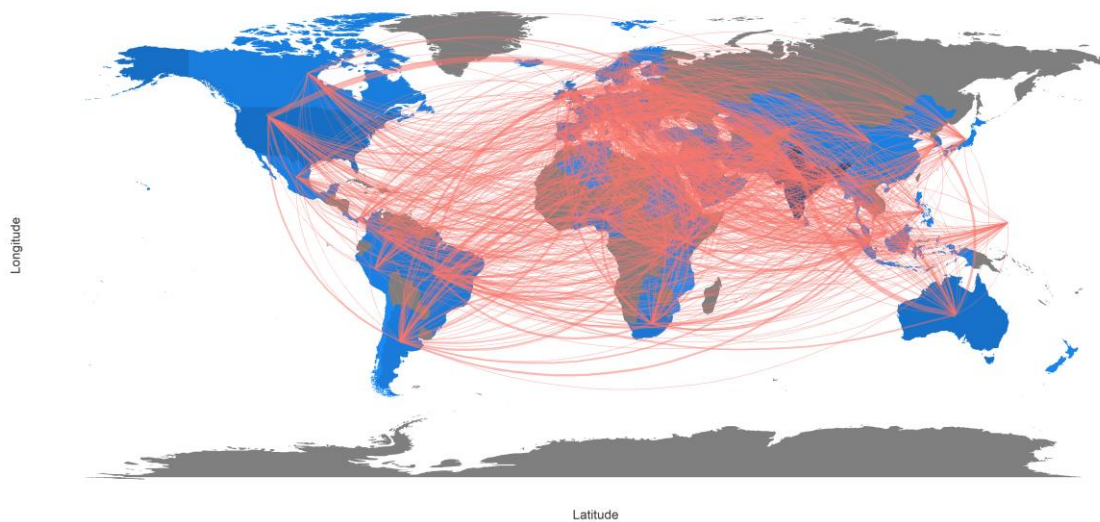
Table No. 7: Collaboration of Countries

BLDE (DU)			BLDEA's SSM			BLDEACET		
From	To	No. of Publications	From	To	No. of Publications	From	To	No. of Publications
India	USA	26	Australia	Korea	2	Australia	Korea	2
India	United Kingdom	16	Australia	Thailand	1	India	Australia	3
India	Australia	11	Australia	USA	1	India	Korea	2
Brazil	Argentina	9	India	Australia	10	India	Myanmar	1
Brazil	Kenya	9	India	Korea	2	India	Poland	1
Brazil	Nigeria	9	India	Thailand	1	India	South Africa	4
Brazil	Switzerland	9	India	USA	1	India	United Kingdom	2
India	Argentina	9	Thailand	USA	1	India	USA	2
India	Brazil	9				United Kingdom	Poland	1
India	Italy	9				Australia	Korea	2

India	Kenya	9				India	Australia	3
India	Nigeria	9				India	Korea	2
India	Saudi Arabia	9				India	Myanmar	1
India	Switzerland	9				India	Poland	1
Kenya	Argentina	9						

The geographical distribution of contributions reveals that authors from 15 countries have contributed to the BLDE (DU) during the study period, presented in table 7. The USA has emerged as a significant contributor with 26 papers and 2530 citations and closely followed by India with the United Kingdom and Australia with the frequency of 16 and 11, respectively.

Country Collaboration Map



In the case of SSM Pharmacy College, Australia to Korea 2, frequency and Australia to Thailand and Australia to the USA is one each frequency during the study period, wherein the BLDEACET it is Indian to South Africa is 4, followed by India to Australia 3 collaborations, India to the USA, India to Australia, India to the United Kingdom, Australia to Korea and India to Korea it is two each respectively. Only one collaboration each is available in India to Myanmar, India to Poland and United Kingdom to Poland.

Table No.8: Top 15 Collaborations of BLDEA's Institutions

Top Collaborating Institutes	Articles	Country	Professional Colleges
Visvesvaraya Technological University	29	India	BLDEACET
BLDE Deemed to be University	28	India	BLDEA's SSM
Shri Sanganabasava Mahaswamiji College of Pharmacy & Research Centre	28	India	BLDE (DU)
Basaveshwar Engineering College	25	India	BLDEACET
Krishna Institute of Medical Sciences Deemed	24	India	BLDE (DU)

University			
J.J.M. Medical College	23	India	BLDE (DU)
Al-Ameen Medical College	17	India	BLDE (DU)
Emory University	15	Georgia	BLDE (DU)
BLDE Deemed to be University	14	India	BLDEACET
Manipal College of Pharmaceutical Sciences	9	India	BLDEA's SSM
The University of Sydney	8	Australia	BLDEA's SSM
JAIN Deemed-to-be University	7	India	BLDEA's SSM
Jadavpur University	7	India	BLDEA's SSM
Kuvempu University	6	India	BLDEACET
Al-Ameen Medical College	6	India	BLDEACET

Top research collaborations of BLDEA's institutions with the other national and international organizations/institutions is shown in table 8. The highest collaboration of BLDEACET institutions is with Visvesvaraya Technological University (VTU) with 29 publications, followed by Basaveshwar Engineering College having the collaboration of 25 articles and BLDE (DU) is 14 articles.

In BLDEA's SSM, the highest collaboration is found with BLDE (DU), having 28 articles and then, Manipal College of Pharmaceutical Sciences with 9 and 8 publications with the University of Sydney from Australia.

BLDE (DU) collaborates with the BLDEA's SSM (28), followed by 24 articles with Krishna Institute of Medical sciences Deemed University and JJM Medical College at Davanagere 23 publications during the study period.

Only BLDE (DU) and BLDEA's SSM is having collaboration with foreign institutions. On average, 16.4 articles are associated with this study, and only seven institutions collaborated with BLDEA's professional institutions.

Findings:

1. The total number of publications of BLDEA's professional institutes during the period 2011-2020 found 910, and the total citations received 4247
2. Highly cited publications of three institutes are Pulmonary drug delivery strategies: A concise, systematic review received 105 citations published in Lung India (2012) authored by Patil J.S., Sarasija S. contributed both the institutes BLDE (DU) and BLDEA's SSM and Electrochemical detection and degradation of textile dye Congo red at graphene oxide modified electrode received 62 citations published in Microchemical Journal (2019) authored by Shetti N.P., Malode S.J., Malladi R.S., Nargund S.L., Shukla S.S., Aminabhavi T.M. of BLDEACET
3. Overall, the Average Article Citations with India is 18.64, followed by 34 with Korea and 10 with Iran nations. The majority of the citations, 3443, were received from the Indian authors only, and 122 citations are from different countries.

4. Highest Global Cited publications are from the Lung India and Microchemical Journal, having 105 and 62 citations during the study period. 20.66 is the Total Citation per Year in Microchemical Journal.

5. 31.8 is the total of both Local Citations and Global Citations together in BLDE (DU) followed by Pharmacy College with 24.38. In BLDEACET, it is just six citations which is very less.

Conclusion:

The present study is the citation analysis of research productivity of BLDEA's professional institutes reveals that received the total citations during the study is 4247 from 910 publications published from 2011-2020. The highly cited publication of BLDE (DU) and BLDEA's SSM is Pulmonary drug delivery strategies: A concise, systematic review received 105 citations published in Lung India (2012), and followed by BLDEACET Electrochemical detection and degradation of textile dye Congo red at graphene oxide modified electrode received 62 citations published in Microchemical Journal (2019). BLDE (DU) and BLDEA's SSM are having collaboration with foreign institutions. On average, 16.4 articles collaborations are found in this study, and only seven institutions collaborated with BLDEA's professional Institutions.

Acknowledgement:

The Authors of this paper is gratefully expressing their acknowledgement to BLDE Association, Vijayapur and BLDEA's group of professional institutes.

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