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RESEARCH AND PUBLICATION PRODUCTIVITY OF THE INDIAN INSTITUTE OF TECHNOLOGY JODHPUR: A SCIENTOMETRIC STUDY

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Abstract *Measuring research productivity and identifying its impact at national and international level is a continuous process of research institutes. In view of the hyper competition among higher education institutions, most of them are concerned about their research productivity and quality of education. Productivity and quality of publications of an institution not only depict the ongoing research activities but also play a crucial role in differentiation of the institution from other similar institutions in its standing and ranking. The research productivity of the Indian Institute of Technology (IIT), Jodhpur is portrayed in this paper. The analysis is based on institution's publications output for the period 2010-2018, covered in the Annual Reports, Web of Science (WoS) & Scopus. 528 publications from Web of Science, 957 publication from Scopus and 953 publication from annual reports were selected for analysis. The finding indicate that the publications output of IIT, Jodhpur is continuously increasing since the year 2010. Data analysis reveals a greater level of collaborative work at this institute. The collaborative work is not only confined within IIT, Jodhpur but also with other institutions in the country and abroad. The largest number of papers published comprise of three authors. Majority of the publications are research articles, followed by papers published in conference proceedings and review. The preferred journals and conference proceedings for research publications was also analysed and a list of top preferred journals/ conference proceedings is given.*

Keywords: *Research Productivity, Publication of Productivity, Research Output, Research in IIT Jodhpur, Scientometric Study, CFTI*

INTRODUCTION

Indian Institutes of Technology are the institutions of national importance having great importance. Students studying in these institutions have a great opportunity to have access to quality of education, these institutes provide great facilities for total quality improvement of students i.e. by making accessible quality research labs, central library were equipped with rich collections of resources from reputed national & international level of publishers, hostel faculty, Jim, playground, computer labs. etc and to become a faculty in these institutes i.e. Asstt. Professor, Associate. Professor, Professor, a person need to have essential qualification a Ph.D. so that these institutes having major strength of quality of faculty, faculty having great research interests and perform quality teaching as well as govern their research consultancy preferences for solving immediate problems, self-reliance and for national development. The Ministry of Education, Government of India provides great autonomy for these institutes in terms of giving funds for establishing hub for quality of education and provide a opportunity to contribute for solving regional and national problems and for national development. Agencies of all the world giving great credit for research productivity because of its importance and contribution to their ranking and standing. As per a report published in NIRF, Ministry of Education, Government of India, IITs have been getting top rank in engineering fields in India. In NIRF, Ministry of Education, Government of India, IIT Jodhpur were in 25th rank in 2016, 65th rank in 2017, 54th in 2018, 50th rank in 2019, 53rd rank in 2020, 43rd rank in 2021.

ABOUT IIT JODHPUR

The Indian Institute of Technology, Jodhpur, established in 2008, an autonomous institute under Ministry of Education, Government of India. It is committed to multidisciplinary approach of technology development to foster technology education and research in India for the benefit of the economic development of India. IIT, Jodhpur functions from its residential permanent campus of 852 acres. It is currently offers following educational programmes:

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B.Tech. Programme. B.Tech. in AI and Data Science, Bioengineering, Civil and Infrastructure Engineering, Chemical Engineering, Electrical Engineering, Computer Science & Engineering, Materials Engineering, Mechanical Engineering. Master of Technology Programs: M.Tec in Artificial Intelligence; Bioscience & Bioengineering, Cyber Physical Systems, Chemical Engineering, Computer Science & Engineering, Data and Computational Science, Advanced Manufacturing and Design, Sensors and Internet of Things, Materials Engineering, Thermofluids Engineering, Infrastructure Engineering with specialization in Environmental Engineering, Infrastructure Engineering with specialization in Energy. Master of Science Programs: M.Sc. in Physics, Mathematics, Chemistry, M.Sc. Digital Humanities.

Master of Science - Master of Technology Programs: Mathematics-Data and Computational Sciences, M.Sc. in Physics,M.Tech. Materials Engineering Dual Degree Program Master of Technology - Doctor of Philosophy (M.Tech.-Ph.D.) Dual Degree Programs M.Tech.-Ph.D. Dual Degree in following disciplines subjects: Infrastructure Engineering with specialization in Environmental Engineering; Artificial Intelligence Computer Science & Engineering; Bioscience & Bioengineering; Sensors and Internet of Things; Cyber Physical Systems; Data and Computational Sciences; Advanced Manufacturing; Chemical Engineering; Communication Engineering; Mechanical Design; Thermofluids Engineering; Metallurgical & Materials Engineering; Infrastructure Engineering with specialization in Energy.

Doctor of Philosophy Programs

Core Sciences, Ph.D. in Chemistry; Ph.D. in Mathematics; Ph.D. in Physics.

Engineering Sciences

Ph.D. in Biosciences and Bioengineering; Ph.D. in Civil and Infrastructure Engineering; Ph.D. in Chemical Engineering Ph.D. in Metallurgical & Materials Engineering; Ph.D. in Mechanical Engineering; Ph.D. in Electrical Engineering; Ph.D. in Computer Science & Engineering.

Inter-disciplinary Areas

Ph.D. in Quantum Information and Computation; Ph.D. in Space Science & Technologies Ph.D. in Robotics and Mobility Systems; Ph.D. in Science of Intelligence; Ph.D. in Digital Humanities; Ph.D. in IOT & Applications; Ph.D. in Smart Healthcare.

Humanities & Social Sciences

Ph.D. in Humanities & Social Sciences

Ph.D. in Management and Entrepreneurship

Institutions are concerned with their research output because of its contribution to their ranking and standing and accreditation. They often keep track of their research output, measure and evaluate it because whatever can be measured and correctly assessed, can be improved. Productivity and quality of publications of an institution not only depict the ongoing research activities but also reflect the differentiation of an institution from similar other institutions in terms of performance and stature achieved. "As per report of National Institutional Ranking Framework (NIRF), Ministry of Education, Government of India published in 2016, the IIT, Jodhpur ranked 25th in the engineering institutions of India" but "slipped to the 65th position in the NIRF report of 2017, ranked 54th in 2018" ranked 50th in 2019, ranked 53rd in 2020.

REVIEW OF LITERATURE

There are good number of studies pertaining to the scientometric analysis of research output of research institutions in India and abroad. Henk F. Moed, Valentina Markusova and Mark Akoev (2018) analyze the Trends in Russian research covered in Web of Science and Scopus database study concluded that Russian publication counts strongly depend upon the database used. Daniel Torres-Salinas, Emilio Delgado Lopez-Cózar, Evaristo Jiménez-Contreras (2009), the study analyzed citations of University of Navarra Spain in the area of health sciences, the result of study indicated that 14.7% more citation in Scopus compare to Web of Science.

Sanjay Kumar Maurya, Akhandanand Shukla and R. K. Ngurtinkhuma (2018) analyzed the quantitative research performance of in terms of terms of total documents, citable documents, and non-citable documents of OPEC member countries.

I. V. Zibarevaa, and N. S. Soloshenkoc, the study analyze Russian publications covered in Science Citation Index, Scopus, and Chemical Abstracts Databases from 2005 to 2009. The result shown that while a gradual decrease in the number of peer-reviewed Russian_language journals constitutes a general trend for all three databases, the Chemical Abstracts database leads in terms of the coverage of these journals.

Alireza Noruzi Mohammadhiwa Abdekhoda (2014) The paper analyzed the publications of Iraqi-Kurdistan universities from 1970 to 2012 in terms of Scopus database publication started in 1972, but since 2004 the result shown that publication are steadily increasing in this study. The co-authorship patter shown that 52% of Iraqi-Kurdistan publications were co-authored with foreign countries.

I.V. Malhan and B.M. Gupta (2011) did analysis of publication output of the University of Jammu and analysed the standing of faculty besides assessing research output of the University. Nabi Hasan and Mukhtiar Singh (2015) analyze and evaluated the five top ranking Indian Institutes

of Technology (IITs) research output by using scientometric parameters which are indexed in Web of Science database for the period of 2009-13 (five years). A total of 215,019 records were retrieved for India which are 2.72% of the global records in five year. Subhodip Bid (2016) did analysis of publications of for the period 2000 to 2015 of Indian Institute of Technology, Kharagpur and studied research growth by using scientometric parameters. K. J. Jeevan and B.M. Gupta (2002) analysed the research data of IIT, Kharagpur and compare of research impact of various departments by scientometric measurement. Tasleem Arif (2015) did analyze the publications of IIT Delhi, IIT Kanpur, IIT Kharagpur and IIT Madras. A total of 1082 research publications of 111 faculty members working in Computer Science Engineering departments for the period from 2011 to 2015 analysed the research productivity of four top ranked Indian Institutes of Technology were extracted from their websites and DBLP. This Study revel that there are much differences in research productivity in terms number of publications, per capita productivity, etc. The IIT Madras has outperformed amongst all of them. Vimlesh Patel and N. S. Thakur (2018) analysed covered Web of Science database from 2012-16 of the research productivity of National Environmental Engineering Research Institute, Nagpur analyzed the various parameters. Vimlesh Patel (2017) did analysis of publications of NIT Kurukshetra from 2012 to 2016, data taken from Web of Science database. This study included the year wise growth of publications, presented the analysis of publication types, and mirrored the top institutions collaborating with National Institute of Technology, Kurukshetra for research and publication. Ahmad Darmadji, et al. (2018) did analysis of publications of the Islamic University of Indonesia data obtained from scopus database and analysis using various bibliometric indicators. Meera and Surendra Kumar Sahu (2014) studied of research performance of researchers of the University College of Medical Science, University of Delhi. By using bibliometric analysis such as degree of collaboration, author productivity, authorship pattern, rank distribution etc.

OBJECTIVES OF THE STUDY

- To draw a detailed picture of year wise growth of publications in Web of Science and Scopus with assessment from annual report data of publications as well.
- To ascertain the authorship pattern in publications, Web of Science and Scopus.
- To find out specific titles of journals and conference volumes preferred for publication and other preferred media for publication in Web of Science and Scopus.
- To find out the type of publications preferred by researchers to report their research findings in Web of Science and Scopus.
- Extent of publications in open access in journals indexed in Web of Science and Scopus.
- To ascertain the research publications collaboratively published with authors of other countries in Web of Science and Scopus.
- To find out the top collaborating institutions with IIT Jodhpur in Web of Science and Scopus.

SCOPE AND METHODOLOGY

The data included for this study are derived from Clarivate Analytics Web of Science. © Copyright Clarivate Analytics" (2020), and Scopus Copyright (2020), bibliographic and citation database that covers select scholarly publications. Publications including Conference proceedings/conference presentations of annual report has been considered for present study and shortlisted in year wise from financial year form. There is no publication data found in annual report of IIT Jodhpur in FY: 2009-2010. The data collection pertained to the period 2010-2018. The nine years period is a good representative sample to study research productivity. The data about publications was downloaded using search strategy: Web of Science search Organization-Enhanced: (Indian Institute of Technology (IIT) - Jodhpur) Timespan: 2010-2018. "Indexes: SCI-Expanded, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI, CCR-Expanded, IC, in 06 November 2020. Scopus search AF-ID ("Indian Institute of Technology Jodhpur") And (Limit-To (Pubyear, 2018) or Limit-To (Pubyear, 2017) Or Limit-To (Pubyear, 2016) Or Limit-To (Pubyear, 2015) Or Limit-To (Pubyear, 2014) Or Limit-To (Pubyear, 2013) Or Limit-To (Pubyear, 2012) Or Limit-To (Pubyear, 2011) Or Limit-To (Pubyear, 2010") in 06 November 2020. The full records were downloaded in the excel format and categorised into articles, proceedings papers, editorial material, titles, author records, affiliation of authors etc. For Scientometric study of publications data of IIT Jodhpur, analysis of various parameters like year wise growth rate of papers, , collaboration in publications beyond IIT, Jodhpur, authorship pattern was undertaken. The most collaborating institutions and countries have been recognized using extraction of information from the affiliations text. Extent of publication in open access form has been analyzed.

DATA ANALYSIS AND INTERPRETATION

Publications Growth

The year wise research growth in terms of total publications is given in Fig. 1 and Table 1. It shows that number of publication output in Annual Report, Scopus, Web of Science is continuously increasing since 2010 except decrease in 2013 (87), 2014 (61) in annual report and 2013 (50) in Scopus.

The data reflects that highest number of publications found in Scopus i.e. 957 followed by 953 in Annual Report and 528 in WoS database. A consistent trend of increase in the publications productivity reflects a continuous increase in the research activities at the IIT, Jodhpur.

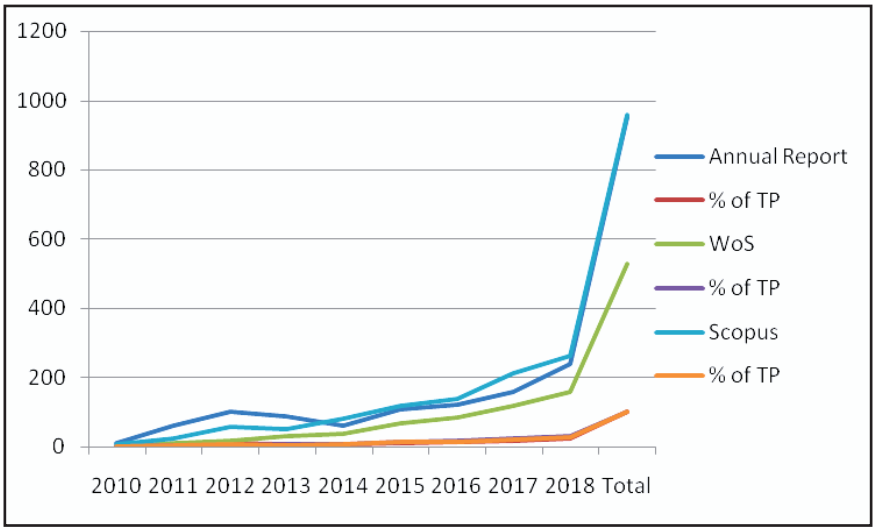

Fig. 1: Year Wise Growth of Publications

Table 1: Year Wise Growth of Publications

Source of Data	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total Publications
Annual Report	11	63	101	87	61	110	121	160	239	953
% of TP	1.15	6.61	10.60	9.13	6.40	11.54	12.70	16.79	25.08	100.00
WoS	1	10	18	31	37	67	86	120	158	528
% of TP	0.19	1.89	3.41	5.87	7.01	12.69	16.29	22.73	29.92	100.00
Scopus	8	26	57	50	83	119	140	212	262	957
% of TP	0.84	2.72	5.96	5.22	8.67	12.43	14.63	22.15	27.38	100.00

Authorship Pattern of Publications

The largest number of publications in Scopus i. e. 281 (29.36%) comprised of three authors, followed by two authors 227 (23.72%), four authors 191 (19.96%), five authors 99 (10.34%), and so on. The largest number of publications in WoS i. e. 136 (25.76%) comprised of three authors, followed by four authors 110 (20.83%), three authors 109 (20.64%), five authors 58 (10.98%), and so on. The authorship pattern of 957 publications in Scopus and 528 publications in WoS is given in Table 2. Just 34 (3.55%) and WoS 14 (2.65%) of total publication were independently written by single authors. Independent publications comprising of single author are lowest in number. Data analysis thus reflects an encouraging trend for collaborative work among the researchers of IIT, Jodhpur. The data shows in Scopus reflect that 55 publications have six authors, 32 include seven authors, 15 have eight authors and nine or more authors jointly published 23 and The data shows in WoS reflect that 41 publications have six authors, 28 include seven authors, 14 have eight authors and nine or more authors jointly published 18. This also indicates teamwork and team research at IIT, Jodhpur.

Table 2: Authorship Pattern of Publications

Sources of data	One Author	Two Authors	Three Authors	Four Authors	Five Authors	Six Authors	Seven Authors	Eight Authors	Nine Authors = >	Total
Scopus	34	227	281	191	99	55	32	15	23	957
%	3.55	23.72	29.36	19.96	10.34	5.75	3.34	1.57	2.40	100.00
WoS	14	109	136	110	58	41	28	14	18	528
%	2.65	20.64	25.76	20.83	10.98	7.77	5.30	2.65	3.41	100.00

Type of Publications

Fig. 2 and Table 3 shows that distribution of publications according to their types. It shows that research articles comprised of the highest number of publications i.e. 482 (91.29%) in WoS and 549 (57.37) in Scopus followed by proceedings papers 361 (37.72%), in Scopus and review papers 28 (5.30%) in WoS, Review Papers 30 (3.13%) and Book chapters 10 (1.04%) in Scopus, Editorial Material 5 (0.95%), Erratum/Correction 02 (0.21%) in Scopus and 1.(0.19%) in WoS (The term "correction/Erratum" is used in web of science and Scopus for the papers, which contain any error, and for that Erratum published by particular journals).

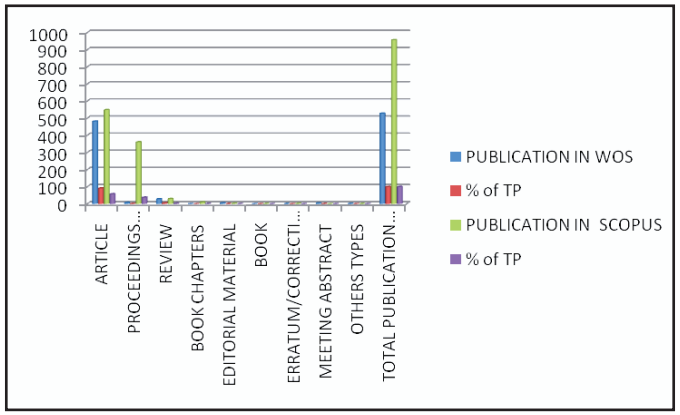

Fig. 2: Distributions of Publications According to Type

Table 3: Distributions of Publications According to Type

Type of Documents	Publication in WoS	% of TP	Publication in Scopus	% of TP
Article	482	91.29	549	57.37
Proceedings Paper/ Conference Paper	7	1.33	361	37.72
Review	28	5.30	30	3.13
Book Chapters	0	0.00	10	1.04
Editorial Material	5	0.95	3	0.31
Book	0	0.00	1	0.10
Erratum/ Correction	1	0.19	2	0.21
Meeting Abstract	4	0.76	0	0.00
Others Types	1	0.19	1	0.10
Total Publication & Percentage	528	100.00	957	100.00

Extent of Publications in Open Access Form in Journals Indexed in WoS and Scopus

Fig. 3 and Table 4 shows that distribution of publications in open access form. Data in table reflect that highest number of open access publication found in Scopus i.e. 119 (12.43%) of total publication followed by in Web of Science open access publications i.e. 88(16.67%) of total publication.

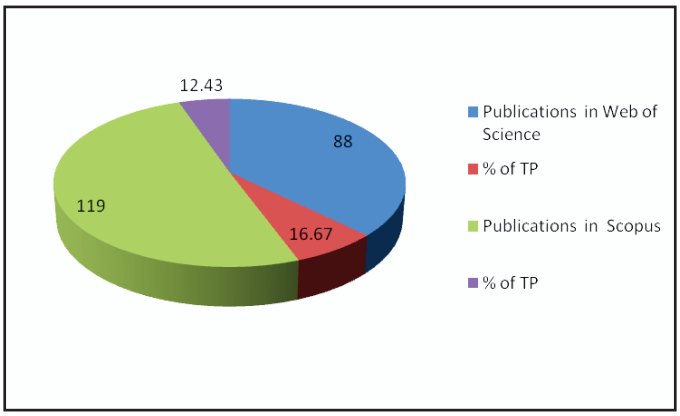

Fig. 3: Extent of Publications in Open Access Form

Table 4: Extent of Publications in Open Access Form

Type of Access	Publications in Web of Science	% of TP	Publications in Scopus	% of TP
Open Access	88	16.67	119	12.43
Others	440	83.33	838	87.57
Total Publication & Percentage	528.00	100.00	957	100.00

Collaboration of Research Publications with Top other Countries

Table 5 shows the collaboration of the IIT, Jodhpur in research and publishing with other countries authors. It reflects that the USA is at the top with 75 publications in Scopus and 58 Publication in Web of Science with cumulative average 66.5% which is placed at 1st Rank. Followed by Germany with 31 publications in Scopus and 15 publications in Web of Science with cumulative average 23% which is placed at 2nd Rank. and Japan with 22 publications in Scopus and 19 Publication in Web of Science at the 3rd rank. Collaboration with authors of other countries fairly reflects the global reach of the IIT, Jodhpur and exposure and visibility of its faculty.

Table 5: Collaboration of Research Publications with Top Other Countries

Sr. No.	Countries/ Regions	Publications in WoS	Publications in Scopus	Average	Rank
1	USA	58	75	66.5	1st
2	Germany	15	31	23	2nd
3	Japan	19	22	20.5	3rd
4	Canada	14	21	17.5	4th
5	Russia	11	11	11	5th
6	Peoples R China	10	11	10.5	6th
7	France	6	9	7.5	7th
8	Slovenia	6	6	6	8th
9	Israel	5	7	6	8th
10	Portugal	5	7	6	8th
11	Spain	5	7	6	8th
12	Rep Congo	5	6	5.5	9th
13	Singapore	5	6	5.5	9th
14	Norway	4	7	5.5	9th
15	Hong Kong	0	10	5	10th

Top Collaborative Institutions/Organizations

Table 6 includes the top institutions/organizations involved in the collaborative work with the IIT, Jodhpur. The analysis of top collaborative institutions/organizations with IIT, Jodhpur indicates that the IIT, Jodhpur researchers largely collaborated with the Indian Institute of Technology Kharagpur, as they jointly published as 44 publications in Scopus and 29 publications in Web of Science with combined average 36.5 which placed with 1st rank followed by Indian Institute of Technology, Bombay, 30 publication in Scopus and 21 publications in Web of Science with combined average 25.5 which placed in 2nd rank and Indian Institute of Technology Kanpur having 32 publications in Scopus and 14 publications in Web of Science with combined average is 23 which is placed with 3rd rank. The top institutions/ organizations which are getting combined average 8 or more publications are included in this table.

Table 6: Top Institutions/Organizations Involved in the Collaborative Work

Sr. No.	Affiliation/Organizations-Enhanced	No. of Publications in Scopus	No. of Publications in WoS	Average	Rank
1	Indian Institute of Technology Kharagpur	44	29	36.5	1
2	Indian Institute of Technology, Bombay	30	21	25.5	2
3	Indian Institute of Technology Kanpur	32	14	23	3
4	The LNM Institute of Information Technology, Jaipur	34	9	21.5	4
5	Indian Institute of Technology Delhi	26	16	21	5
6	Defence Laboratory Jodhpur India	22	15	18.5	6
7	Council of Scientific Industrial Research Csir India	9	27	18	7
8	Poornaprajna Institute of Scientific Research, Sadashivanagar, Bengaluru	15	15	15	8
9	Wayne State University, United States	14	13	13.5	9
10	Indian Institute of Technology Madras	14	12	13	10
11	Defence Research and Development Organisation India	6	20	13	10
12	University of Rajasthan, Jaipur	13	10	11.5	11
13	Indian Institute of Science, Bengaluru	13	8	10.5	12
14	Apex Institute of Engineering and Technology, Jaipur	19	0	9.5	13
15	Indian Institute of Technology Roorkee	13	6	9.5	13
16	Institute of Mathematical Sciences Chennai	12	7	9.5	13
17	Department of Science Technology India	0	19	9.5	13
18	International Institute of Information Technology, Hyderabad	16	1	8.5	14
19	Thapar Institute of Engineering & Technology, Patiala	11	6	8.5	14
20	Centre for Nano and Soft Matter Sciences, Bengaluru	9	8	8.5	14
21	Jawaharlal Nehru Centre for Advanced Scientific Research, Jakkur, Bangalore	9	8	8.5	14
22	Indian Institute of Technology Indore	8	8	8	15

Preferred Publications Sources in Web of Science

Table 7 shows the top Journal Titles and conference proceedings preferred by contributors of IIT Jodhpur for publication (2010-2018). It was found that Quantum Information Processing by Springer, New York, USA published the highest number of 20 publications. Scientific Reports by Nature Publishing Group, London, England published 14 publication. Physical Review A by American Physical Soc. USA published 12 publications. It indicates some research work of IIT Jodhpur.

Table 7: Table Preferred Publications Sources in Web of Science

Sr. No.	Name of J/CP/BC	ISSN/ESSN Number	Name of Publisher	No. of Publication	Percentage % of TP
1	Quantum Information Processing	1570-0755/1573-1332	Springer, New York, Usa	20	3.79
2	Scientific Reports	2045-2322	Nature Publishing Group, London, England	14	2.65
3	Physical Review A	2469-9926/2469-9934	Amer Physical Soc Usa	12	2.27
4	Microwave and Optical Technology Letters	0895-2477/1098-2760	Wiley, Hoboken, Usa	9	1.70
5	Molecular Neurobiology	0893-7648/1559-1182	Springer, New York, USA	9	1.70
6	Solar Energy	0038-092x	Pergamon-Elsevier Science Ltd, Oxford, England	9	1.70
7	ACS Applied Materials & Interfaces	1944-8244	Amer Chemical Soc, Washington, USA	8	1.52
8	Physical Review D	2470-0010/2470-0029	Amer Physical Soc USA	8	1.52
9	Applied Physics A-Materials Science & Processing	0947-8396/1432-0630	Springer Heidelberg, Germany	7	1.33
10	Journal of Applied Physics	0021-8979/1089-7550	Amer Inst Physics, Melville, USA	7	1.33

Preferred Publications Sources in SCOPUS

Table 8 shows the top journal titles and conference proceedings preferred by contributors of IIT Jodhpur for publication (2010-2018). It was found that Quantum Information Processing by Springer New York, USA published the highest number of 20 publications. Lecture Notes in Computer Science Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics by Springer Verlag published 18 publications. Scientific Reports by Nature Publishing Group, London, England published 14 publications. It indicates some research work of IIT Jodhpur.

Table 8: Table Preferred Publications Sources in Web of Science

Sr. No	Name of J/CP/BC	ISSN/ESSN Number/C. Code	Name of Publisher	No. of Publications	Percentage % of TP
1	Quantum Information Processing	1570-0755/1573-1332	Springer, New York, USA	20	2.09
2	Lecture Notes in Computer Science Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics	0302-9743/1611-3349	Springer Verlag	18	1.88
3	Scientific Reports	2045-2322	Nature Publishing Group, London, England	14	1.46
4	2016 IEEE 7th Power India International Conference Piicon 2016	978-1-4673-8963-1	Institute of Electrical and Electronics Engineers Inc.	13	1.36

Sr. No	Name of J/CP/BC	ISSN/ESSN Number/C. Code	Name of Publisher	No. of Publications	Percentage % of TP
5	AIP Conference Proceedings	0094-243X	American Institute of Physics Inc.	9	0.94
6	Microwave and Optical Technology Letters	0895-2477	John Wiley and Sons Inc.	9	0.94
7	Molecular Neurobiology	0893-7648	Humana Press Inc.	9	0.94
8	ACM International Conference Proceeding Series	132085	Association for Computing Machinery	8	0.84
9	ACS Applied Materials and Interfaces	1944-8244	American Chemical Society	8	0.84
10	Lecture Notes in Electrical Engineering	1876-1100	Springer Verlag	8	0.84
11	Physical Review A - Atomic Molecular And Optical Physics	1050-2947	American Physical Society	8	0.84

CONCLUSIONS AND FINDINGS

As per Web of Science database the IIT, Jodhpur has contributed 528 publications, Scopus database the IIT, Jodhpur has contributed 957 publications, Annual Report the IIT, Jodhpur has contributed 953 from 2010 to 2018 and its number of publications is consistently growing as it published 8 publications in Scopus, 01 publication in Web of Science and 11 publications in Annual Report in 2010 and this number increased to 262, 158, 239 in 2018. The data reflects that highest number of publications found in Scopus i.e. 957 followed by 953 in Annual Report and 528 in WoS database.

The authorship pattern indicates that Web of Science & Scopus, in sequence maximum number of 136 (25.75 %) & 281 (29.36) publications had joint publications of three authors followed by joint 227 (23.72%) publications of two authors & 110 (20.83%) four authors which shows that contributors of IIT Jodhpur have tendency to publish their works collaboratively. This multi-author pattern also indicates team work in research.

Most researchers in Scopus, Web of Science in sequence i.e. 549 (57.37%), 482 (91.29) prefers to publish their research as research articles.

Extend of publication in open access form is reflect that highest number of open access publication found in Scopus i.e. 119 (12.43%) of total publication followed by in Web of Science open access publications i.e. 88 (16.67%) of total publication.

As far as collaboration of research with other countries researchers is concerned the IIT Jodhpur, has a global outreach for collaborative work. Analysis of collaboration with researchers of other countries reveals that the USA is at the top with 75 publications in Scopus and 58 Publication in Web of Science with cumulative average 66.5% which is placed at 1st Rank. Followed by Germany with 31 publication in Scopus and 15 publications in Web of Science with cumulative average 23% which is placed at 2nd Rank and Japan with 22 publications in Scopus and 19 Publication in Web of Science at the 3rd rank. Collaboration with authors of other countries fairly reflects the global reach of the IIT, Jodhpur and exposure and visibility of its faculty.

The analysis of top colloborative institutions/organizations collaborating with the IIT, Jodhpur indicated the IIT, Jodhpur researchers largely collaborated with the Indian Institute of Technology Kharagpur, as they jointly published as 44 publications in Scopus and 29 publications in Web of Science with combined average 36.5 which placed with 1st rank followed by Indian Institute of Technology, Bombay, 30 publication in Scopus and 21 publications in Web of Science with combined average 25.5 which placed in 2nd rank and Indian Institute of Technology Kanpur having 32 publications in Scopus and 14 publications in Web of Science with combined average is 23 which is placed with 3rd rank.

Among the sources of publications journals titles and conference proceedings preferred by contributors of IIT Jodhpur for publication (2010-2018) shows that Quantum Information Processing by Springer, New York, USA published the highest number of 20 publications in Web of Science and in Scopus.

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