

Mapping of Scientific Articles on Brain Tumors: A Scientometric Study

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Abstract - The study analyses the Brain Tumors research Publications in during 2009 to 2018 based on the Web of Science database. The objectives of the study were to perform a scientometric analysis of all brain tumors research publications by scientist. The criterion studies include an increase of publication, document wise distribution of records country-wise distribution of publications, recognition of the most prolific authors, praise highly journals and extremely motivated institutions and language wise distribution of publications. The results showed that 44604 of records were published in of records were published in the world. All most productive countries and their publications top 30 countries was top most contributed 10 places of India on Brian tumors research with 1613 (2.54%) records. Most of the articles were published in the form of articles, review, meeting abstracts, and editorial material. USA was the most productive country on Brain tumors. The study also found that only 21 authors were contributed above 100 numbers of articles and the author Wang Y with 246 publications has occupied the first position. The University Texas MD Anderson Cancer Centre was topmost top most contributed institution on Brain Tumors research with 782 records.

Keywords: Scientometrics, Web of Science, Brian, Tumors, Glioma, Cancer, Cells

INTRODUCTION

Scientometric is a branch of the science “Science of Science”. Scientometric may be a science, which performs reproducible measurements of scientific activity. Now days, scientometric is one of the truly interdisciplinary research fields extended to almost all scientific fields (SimranGupta, 2018). In this mapping study, the authors have discussed, analysed and calculated different scientometric aspect by using scientometric tools such as the degree of collaboration, collaborative index and average author per paper. Over the past year there is a large number of research articles were published based on scientometrics studies. The scientometrics study will facilitate to library acquisition. There are a number of publications are published in the form of book, research articles in journals, book chapters, review conference papers etc. Based on scientometric studies the librarian will buy the best book at the least price. In recent years due to environmental causes the people around the world are facing several health problems. Among them, the brain tumors are the most dangerous and deadly disease, many different types of brain tumors exist. Some

brain tumors are noncancerous (Benign), and some brain tumors are cancerous (malignant). According to World Health Organization brain tumors day is observed on 8th of June every year since 2000. This is a non-profit organisation which raises public awareness and educates people about tumour. The incidence of central nervous system (CNS) tumors in India ranges from 5 to 10 per 100,000 populations with an increasing trend Metastatic brain tumors occur when cancer located in another organ of the body spreads to the brain. 40% of all cancers spread to the brain.

Brain and central nervous system tumors are all also the second most common cancers in children, accounts for about 26% childhood cancers etc. Hence we conducted the scientometric study on brain tumor research to analyse the unnecessary growth of cells aspects like; Year-wise publication, document – wise distribution of records, country-wise publications, most productive authors, highly preferred journals most contributed institution on the brain tumor research during the period 2009 to 2018.

II. ABOUT BRAIN TUMORS

Unnecessary growth of cells when the body doesn't require them is known as tumors. A brain tumor occurs when abnormal cells are produced within any part of the brain. There are two main types of tumors namely, malignant and benign (non-malignant) tumors. Benign brain tumor is non-cancerous, while malignant primary brain tumors are cancerous. Most of brain tumors are non-cancerous and less than one-third of brain tumors are cancerous. Brain tumor can occur at any age. Many cancers from solid tumors, Cancerous tumors are malignant, which means they can spread into, or invade, nearby tissues. In addition, as these tumors grow, some cancer cells can break off travel to distant places in the body through the blood or lymph system and form new tumors far from the original tumor. Unlike malignant tumors sometimes do not spread into, or invade, nearby tissues. Benign tumors can sometimes be quite large, however When removed, they usually don't grow back, whereas malignant tumors sometimes do. Unlike most benign tumors elsewhere in the body, brain tumors can be life threatening (Cancer Institute 2019). Brain tumors are abnormal growths that disrupt the normal functioning of

your child's brain and nervous system. These tumors are especially challenging in children because their brains are still developing, putting them at risk for lifelong complications. (Brain Tumors Institute Neuro-oncology 2020).

III. LITERATURE REVIEW

Brain Tumors are considered as an important issue most people with brain tumors, the cause of the tumors is not clear. But doctors have identified some factors that may increase your risk of brain tumor. However, only few numbers of studies have been found on the topic of brain tumors for Library and Information Science. More specifically, in the context of India, two members study has been on brain tumors for Bibliometric and Scientometric study has been carried out on the topic because there are only two scholars, metric study of brain tumors. In order to get the better understanding of the subject, it is essential and helpful to survey the literature and study the relevant and related topics. The review of such related literature provides the rationale for the hypothesis and findings. Sumbul Shahid (2012) used PubMed database to study the literature on Brain Tumor A Bibliometric at Department of Library and Information Science Aligarh Muslim University, Aligarh (India). Dissertation. This study is conducted on the data collected from PubMed Central during the period of 2007-2011.

They analysed of the main objective of the present study is to know the leading countries, contributors, from of the document, language and core journals on the subject of "Brain tumor" P Ramesh, S Gopalakrishnan, C. Balasubramani "Growth of Indian Research Output on Brain Tumor: A Bibliometric Study Using Scopus Database" European Academic Research Vol. II, Issue 2014. There are 147641 publications available in Scopus database worldwide in Brain tumour where in India bags 2880 (1.95%) publications and placed in the 10th position.

IV. OBJECTIVES OF THE STUDY

1. To the Brain tumor research output in years wise distribution.

2. To study the document-wise publications productivity.
3. To analyses the country-wise publications.
4. To identify the most prolific authors in the brain tumor
5. To determine the core journals which published the articles related to brain tumor.
6. To find out the most common key word used while publication.
7. To study the institution-wise distribution of publications.
8. To study the institution with subdivision of publications.
9. To study the language wise distribution of publications.

V. METHODOLOGY

The required data for this study is retrieved and downloaded from Web of Science core collection database maintained by Thomson Reuters. The period of study is 10 years (2009 to 2018). To collect the necessary data using basic search strategy. i.e. key word "Brain Tumor" as a topic; time span from 2009 to 2018. A record of 44604 covering various document types was shown then refined the records using country territory.

The selected country as 'India' resulting in search result of 1613 (2.54%) records, related to Brain Tumor. All the bibliographic details were retrieved in text file format for further analysis. Plain Text, Histcite software package were used to analyses the collected data.

VI. DATA ANALYSIS AND INTERPRETATION

Brain tumors research output during the period 2009 to 2018 is compared to the research output in the Table I highest number of records 6650 (14.90%) published also in the 2016. After publication of 5339 (11.96%) records in 2014, following ten years (2009-2018). The third one of the 5146 (11.53%) records in 2011. Followed by 4592 (10.29%) 2011 records. and brain tumors 4369 (9.79%) 2010 records. Remaining table 1 growth very slow during (2009 to 2018) 2725 (4.98%) 2015 record researcher's interest becoming added for publications on Brain Tumors

TABLE I YEAR WISE DISTRIBUTION BRAIN TUMORS RESEARCH 2009 TO 2018

Sl. No	Publication Year	Records	Percentage	TLCS	TGCS
1	2009	4158	9.32%	26210	166613
2	2010	4369	9.79%	22992	160425
3	2011	4592	10.29%	19082	145464
4	2012	4372	9.80%	16132	135507
5	2013	3910	8.76%	9724	96020
6	2014	5339	11.96%	9301	111861
7	2015	2725	4.98%	3518	49209
8	2016	6650	14.90%	1076	87493
9	2017	3343	7.49%	2140	29807
10	2018	5146	11.53%	1051	26226
Total	44604	100%	87626	2008625	

TLCS= Total Local Citation Score, TGCS= Total Global Citation Score

TABLE II DOCUMENT WISE DISTRIBUTION OF RECORDS

Sl. No	Document Type	Records	Percentage	TLCS	TGCS
1	Article	34,437	75.54	90289	783718
2	Review	5667	12.21	17517	199324
3	Meeting Abstract	3219	7.06	29	416
4	Editorial Material	773	1.7	565	4188
5	Article; Proceedings Paper	647	1.0	1997	12747
6	Letter	284	0.6	202	1113
7	Article; Book Chapter	188	0.1	162	1677
8	Article; Early Access	98	0.3	0	5
9	News Item	96	0.2	61	313
10	Review; Book Chapter	80	0.2	219	4273
11	Correction	<u>56</u>	0.1	67	232
12	Review; Early Access	16	0.1	101	720
13	Article; Retracted Publication	<u>7</u>	0.1	101	720
14	Biographical-Item	<u>2</u>	0.0	0	0
15	Book Review	3	0.0	1	1
16	Review; Retracted Publication	<u>2</u>	0.0	3	17
17	Editorial Material; Early Access	4	0.0	1	4
18	Hardware Review	<u>1</u>	0.0	21	45
19	Letter; Early Access	<u>1</u>	0.0	0	0
20	Reprint	<u>1</u>	0.0	0	40
21	Retraction	<u>1</u>	0.0	0	0

Table II shows the document-wise distribution of publications. It shows that most of scholarly communications of research output in the form of articles a total 34,437 (75.54%) followed by review 5667 (12.21%), meeting abstract 3219 (7.06%), Editorial Material 773 (1.7%), Article, Proceedings Paper 647 (1.0%), letter 284 (0.6%), articles book chapter 188 (0.1%), Article; Early Access 98 (0.3%) , News Item 96 (0.2%), review book chapter 80 (0.2%), correction 56 (0.1%), Article; Retracted Publication 27 (0.1%), Review; Early Access 16 (0.0%), biographical-item, book review, review retracted publication 2 (0.0%), editorial material-early access, hardware review, letter-early access, reprint and retraction 1, (0.0%) out of total publications in 10 years period of this study.

TABLE III MOST PRODUCTIVE COUNTRIES AND THEIR PUBLICATIONS (TOP 30)

Sl. No	Country	Records	Percentage	TLCS	TGCS
1	USA	18747	29.44	58441	461542
2	Peoples R China	7241	11.37	8477	94994
3	Germany	4801	7.54	16355	115211
4	Japan	<u>3263</u>	4.58	6382	51591
5	Italy	2917	4.58	7213	62184
6	UK	2896	4.26	7693	74782
7	Canada	2717	4.26	10643	74451
8	France	2530	3.97	7301	58847
9	South Korea	1921	3.01	3407	29606
10	India	1613	2.53	1550	14603
11	Spain	1443	2.26	2750	32434
12	Netherlands	1408	2.21	6026	48918
13	Australia	1213	1.90	3861	35226
14	Switzerland	1184	1.85	4374	31236
15	Taiwan	976	1.51	1512	14617
16	Brazil	935	1.46	1427	15043
17	Sweden	838	1.31	3475	25974
18	Turkey	861	1.35	995	7539
19	Unknown	741	1.11	218	2427
20	Austria	704	1.10	2392	16725
21	Poland	704	1.10	1350	11578
22	Belgium	588	0.98	1522	15982
23	Denmark	579	0.90	1786	14289
24	Israel	488	0.76	1678	14103
25	Norway	484	0.76	2095	11913
26	Iran	473	0.74	246	4067
27	Russia	401	0.62	1009	7534
28	Greece	378	0.59	768	5212
29	Egypt	346	0.54	150	4050
30	Czech Republic	256	0.40	693	5534

It is seen from the Table III that the country with the greatest output in term of research on Brain Tumors is The USA with 18747 (29.44) records, followed by Peoples R China and Germany with a total of 7241 (11.34%) and 4801 (7.54%) publications respectively. Subsequent positions are occupied by Japan 3263 (4.58%), Italy 2917 (4.58%), UK and Canada 2896 and 2717 (4.26%), France 2530 (3.97%) the remaining countries publications are less than 3% of total research output in this study period. India is in 10th position with a total number of 1613 (2.53%) publications.

Table IV enumerates the top 30 prolific authors in research on Brain Tumor based on their highest publications over the period of 10 years. It is also analysis the total local citations scores, total global citation score. Only 21 authors have contributed below, 200 above 100 of the articles. Wang Y with 246 publications has occupied the 1st place, followed by Zhang Y 217 publications, Liu

Y 186 publications, Wang J 179 publications, Li J 166 publications Zhang L 158 publications and Duffa H Wick W have occupy the 22 and 28 place with 120 publications, von Deimling A, Zhang W have occupy 29 to 30 place with below 100 publications, Preusser M have occupy the 30th place with 97 publication among top 30 authors.

TABLE IV MOST PRODUCTIVE AUTHORS (TOP 30)

Sl. No	Author	Records	TLCS	TGCS
1	Wang Y	246	412	4682
2	Zhang Y	217	615	5077
3	Liu Y	186	343	4363
4	Wang J	179	294	3669
5	Li J	166	214	2872
6	Zhang L	158	280	3336
7	Bouffet E	135	1040	5517
8	Wang L	151	269	3475
9	Zhang X	147	362	3758
10	Li Y	145	237	2428
11	Kim SH	139	334	3229
12	Kim JH	138	369	2653
13	Weller M	135	1338	7924
14	Zhang J	132	151	1856
15	Taylor MD	125	1717	9341
16	Liu YH	125	448	2669
17	Chen J	122	862	5200
18	Liu J	130	188	1749
19	Pfister SM	126	1708	9938
20	Wen PY	124	1376	7054
21	Zhang H	122	1799	2681
22	Duffau H	120	1187	4293
23	Wick W	119	1718	8624
24	Wang X	110	345	2912
25	von Deimling A	108	1990	10566
26	Zhang W	107	2571	3497
27	Gajjar A	102	1355	5014
28	Wang P	100	345	3704
29	Lee J	98	447	2579
30	Preusser M	97	589	2530

TLCS= Total Local Citation Score, TGCS= Total Global Citation Score

Table V depicts that the lists of most preferred journals publish their research papers. It is identified that the Neuro-Oncology is the preferred journal with 1792 (4.6%) records of the total periodical literature output available during the period. Second is the Journal of Neuro-Oncology 1212 (3.1%).

Third is PLOs One 854 (2.2%) Fourth Pediatric Blood & Cancer 514 (1.3%), and Journal of Neurosurgery is in fifth

most preferred with 493 (1.3%), followed by sixth World Neurosurgery 458 (1.2%) and the seventh one is Cancer Research 415 (1.1%). Remaining Institutions are having less than 1% of total periodical literature.

TABLE V 30 MOST PRODUCTIVE JOURNALS

Sl. No	Journal	Records	Percentage	TLCS	TLCR
1	Neuro-Oncology	1792	4.6	5652	3851
2	Journal of Neuro-Oncology	1212	3.1	6457	4414
3	Plos One	854	2.2	0	2767
4	Pediatric Blood & Cancer	514	1.3	930	708
5	Journal of Neurosurgery	493	1.3	3134	1420
6	World Neurosurgery	458	1.2	376	1833
7	Cancer Research	415	1.1	2494	938
8	International Journal of Radiation Oncology Biology Physics	357	0.9	2099	730
9	Neurosurgery	327	0.8	2040	881
10	Childs Nervous System	321	0.8	745	862
11	Journal Of Clinical Neuroscience	316	0.8	854	698
12	Oncotarget	314	0.8	609	1503
13	Journal of Clinical Oncology	266	0.7	3316	341
14	Acta Neurochirurgica	256	0.7	892	786
15	American Journal of Neuroradiology	226	0.6	1548	982
16	Journal of Nuclear Medicine	219	0.6	775	413
17	Clinical Cancer Research	218	0.6	1874	882
18	Scientific Reports	217	0.6	0	786
19	Oncology Letters	205	0.5	83	575
20	Clinical Neurology and Neurosurgery	191	0.5	557	682
21	Journal of Neuroinflammation	180	0.5	0	322
22	Bmc Cancer	179	0.5	0	537
23	Anticancer Research	172	0.4	381	469
24	Magnetic Resonance In Medicine	169	0.4	639	524
25	International Journal of Cancer	168	0.4	889	426
26	Journal of Neurosurgery-Pediatrics	168	0.4	467	377
27	Medical Physics	168	0.4	131	225
28	International Journal of Molecular Sciences	152	0.4	166	931
29	Neurologia Medico-Chirurgica	139	0.4	257	280
30	NMR in Biomedicine	139	0.4		527
Total	10,484	27.9%			

TCLS= Total Citation Local Score TLCR= Total Local Cited References

Table VI presents the top 30 keywords use by the researchers in the publications. It is clearly seen from the table that the word Brain has been used 11311 (29.0%) times by the researchers with a Local Citation Score of 33222 and Global Citation Score of 201052.

Followed by Tumor with 5461(14.0%) records (TLCS 15902 and TGCS 102401), Tumors with 4196 (10.8%) records (TLCS 12046 and TGCS 59513), Glioma and Patients with 3543and 3540 (9.1%) records (TLCS 18303 and TGCS 96341), and

Cancer, Cells and Glioblastoma 3387, 3326 and 3173 (8.7%, 8.5% and 8.1%) records (TLCS 8531, 10872,8342 and TGCS 103817, 95542 and 84342). Remaining key word is having less than 7% of total key word wise distribution of publications.

TABLE VI KEY WORD-WISE DISTRIBUTION OF PUBLICATIONS

Sl. No	Word	Records	Percentage	TLCS	TGCS
1	Brain	11311	29.0	33222	201052
2	Tumor	5461	14.0	15902	102401
3	Tumors	4196	10.8	12046	59513
4	Glioma	3543	9.1	18303	96341
5	Patients	3540	9.1	11395	69117
6	Cancer	3387	8.7	8531	103817
7	Cells	3326	8.5	10872	95542
8	Cell	3267	8.4	8342	84342
9	Glioblastoma	3173	8.1	16109	95562
10	Imaging	2429	6.2	8778	57002
11	Human	2144	5.5	5542	57691
12	Treatment	2133	5.5	6911	43027
13	Expression	1897	4.9	3655	38062
14	Therapy	1874	4.8	5676	42840
15	Gliomas	1589	4.1	10691	46649
16	Induced	1584	4.1	2893	35195
17	Analysis	1550	4.0	5741	38123
18	Using	1523	3.9	4746	31568
19	Pediatric	1509	3.9	3862	17555
20	Stem	1509	3.9	7213	52668
21	Clinical	1456	3.7	5850	37379
22	Case	1403	3.6	1540	9269
23	Metastases	1382	3.5	6579	32142
24	Primary	1327	3.4	3870	21465
25	Model	1309	3.4	3151	26633
26	High	1249	3.2	5008	26685
27	Report	1228	3.2	2243	14759
28	Malignant	1222	3.1	5549	27550
29	System	1208	3.1	3628	26964
30	Review	1207	3.1	3167	24374

TLCS= Total Local Citation Score, TGCS= Total Global Citation Score

Table VII shows the institutions-wise distribution of publications; for which only top thirty institutions that contributors on Brain Tumor have been shown. University Texas MD Anderson Cancer Centre is top most contributor on brain tumor with 782 (2.0%) records, 5608 TLCS and 35696 TGCS, then followed by Harvard University with 734 (1.09%) records 6436 TLCS and 49004 TGCS, then next comes the University Calif San Francisco 692 (1.8%) records TLCS 7705 and TGCS 37754, these are the top three institutions as per the records.

Table VIII shows the institutions with subdivision distribution of publications; for which only top thirty institutions that contributors on Brain Tumor have been shown. Harvard University, Sch Med is top most

contributor on brain tumor with 515 (1.3%) records, 4254 TLCS and 33586 TGCS, then followed by Unknown with 458 (1.2%) records 58 TLCS and 605 TGCS, then next comes the Duke University Med Ctr 332 (0.9%) records TLCS 3695 and TGCS 18265, these are the top three institutions as per the records.

TABLE VII INSTITUTION-WISE CONTRIBUTION (TOP30)

Sl. No	Institution	Records	Percentage	TLCS	TGCS
1	Univ Texas MD Anderson Canc Ctr	782	2.0	5608	35697
2	Harvard University	734	1.9	6436	49004
3	Univ Calif San Francisco	692	1.8	7705	37754
4	Univ Toronto	579	1.5	3565	23454
5	Johns Hopkins University	504	1.3	3535	23166
6	Mem Sloan Kettering Cancer Ctr	495	1.3	5534	33229
7	Unknown	485	1.2	58	605
8	Duke Univ	443	1.1	4479	23511
9	Massachusetts Gen Hosp	440	1.1	3228	20806
10	Mayo Clin	436	1.1	3189	17255
11	German Canc Res Ctr	427	1.1	4019	23429
12	Fudan Univ	418	1.1	1645	12442
13	Univ Calif Los Angeles	406	1.0	3034	18667
14	Stanford Univ	384	1.0	2210	17339
15	NCI	371	1.0	2381	17550
16	Ohio State Univ	369	0.9	2118	13769
17	Univ Pittsburgh	359	0.9	2379	14272
18	Emory Univ	347	0.9	2124	16498
19	St Jude Childrens Res Hosp	343	0.9	2305	11219
20	Hosp Sick Children	328	0.8	2447	13000
21	Univ Penn	327	0.8	1537	15700
22	Washington Univ	316	0.8	2380	14997
23	Baylor Coll Med	308	0.8	1449	8972
24	Harvard Med Sch	302	0.8	243	3102
25	Dana Farber Canc Inst	296	0.8	3304	18413
26	Univ Michigan	294	0.8	1985	13877
27	Northwestern Univ	292	0.7	1163	8092
28	Cleveland Clin	291	0.7	3088	16152
29	Capital Med Univ	284	0.7	416	3737
30	Univ Calif San Diego	284	0.7	1487	10432

TABLE VIII TOP 30 INSTITUTION WITH SUBDIVISION

Sl. No.	Institution	Records	Percentage	TLCS	TGCS
1	Harvard Univ, Sch Med	515	1.3	4245	33586
2	Unknown	485	1.2	58	605
3	Duke Univ, Med Ctr	332	0.9	3695	18265
4	Johns Hopkins Univ, Sch Med	301	0.8	2152	13663
5	Univ Calif San Francisco, Dept Neurol Surg	283	0.7	4426	17840
6	Washington Univ, Sch Med	222	0.6	2022	11624
7	Univ Calif Los Angeles, David Geffen Sch Med	204	0.5	1773	9579
8	Emory Univ, Sch Med	199	0.5	1534	11323

9	Seoul Natl Univ, Coll Med	151	0.4	504	2452
10	Univ Texas MD Anderson Canc Ctr	151	0.4	515	4081
11	Univ Texas MD Anderson Canc Ctr, Dept Neurosurg	149	0.4	1299	5699
12	Northwestern Univ, Feinberg Sch Med	143	0.4	297	2442
13	Fudan Univ, Huashan Hosp	140	0.4	284	2382
14	Yale Univ, Sch Med	139	0.4	914	6527
15	Capital Med Univ, Beijing Tiantan Hosp	135	0.3	213	1340
16	Univ Texas MD Anderson Canc Ctr, Dept Neurooncol	133	0.3	2005	10148
17	Stanford Univ, Sch Med	131	0.3	1070	6893
18	Shanghai Jiao Tong Univ, Sch Med	128	0.3	250	2629
19	Univ Amsterdam, Acad Med Ctr	127	0.3	1092	7709
20	Sungkyunkwan Univ, Sch Med	116	0.3	547	2971
21	Univ Texas MD Anderson Canc Ctr, Dept Pathol	116	0.3	960	7228
22	Dana Farber Canc Inst	109	0.3	849	5589
23	Med Univ Vienna, Inst Neurol	106	0.3	696	2925
24	German Canc Res Ctr	105	0.3	612	5174
25	Univ So Calif, Keck Sch Med	105	0.3	461	3042
26	Univ Toronto, Hosp Sick Children	104	0.3	1215	6613
27	Univ Pittsburgh, Sch Med	102	0.3	638	4283
28	Mayo Clin, Dept Radiat Oncol	101	0.3	1367	5696
29	Vrije Univ Amsterdam, Med Ctr	99	0.3	409	3275
30	Yonsei Univ, Coll Med	99	0.3	254	1736

TABLE IX LANGUAGE WISE DISTRIBUTION OF PUBLICATIONS (TOP 24)

Sl. No.	Language	Records	Percentage	TLCS	TGCS
1	English	44730	98.0	110895	1006768
2	French	253	0.6	189	859
3	German	215	0.5	77	396
4	Spanish	151	0.3	29	395
5	Czech	35	0.1	8	40
6	Polish	34	0.1	4	84
7	Turkish	31	0.1	3	26
8	Portuguese	29	0.1	6	82
9	Japanese	26	0.1	5	35
10	Hungarian	19	0.0	5	42
11	Chinese	19	0.0	4	26
12	Russian	18	0.0	1	16
13	Korean	14	0.0	4	4
14	Italian	9	0.0	2	19
15	Croatian	7	0.0	0	0
16	Serbian	5	0.0	1	7
17	Welsh	2	0.0	0	8
18	Icelandic	2	0.0	0	6
19	Unspecified	2	0.0	2	3
20	Slovak	2	0.0	0	3
21	Dutch	1	0.0	0	1
22	Lithuanian	1	0.0	0	3
23	Slovene	1	0.0	0	0
24	Slovenian	1	0.0	0	0

TLCS= Total Local Citation Score, TGCS= Total Global Citation Score

Table IX depicts that the list of most preferred language to publish their research papers. It is identified that the English is the preferred language with 44730 (98.0%) records of the total language wise distribution of publication output available during the period. Second is French 253 (0.6%). German 215 (0.5%) Fourth Spanish 151 (0.3%), and Czech, Polish and Turkish are in fifth most preferred with 35, 34 and 31 (0.1%) records. Remaining language is having less than 0.0% of total language wise distribution of publications.

VII. FINDINGS AND CONCLUSION

The study deals with the scientometric analysis of Brain Tumor research as reported in Web of Science. Except 2015 and 2017 there is an increasing trend in brain tumors. The findings of the study reveal that most of the researchers were interested to publish their publication in the form of articles. In this study USA attains 1st position in world research output, India ranking 10th among the top 30 countries. Most productive author's top 30 Wang Y placed in first position. Neuro-Oncology is becoming core journal by producing the maximum number of articles related to brain tumors. It is observed that the word brain, tumors are most common key used by the researchers for searching of information. It is also identified that the language wise distribution of publication top 24 language English is the first position. In top 30 institutions list all over the world University Texas MD Anderson Cancer Centre placed in first position by producing the highest number of articles.

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