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Covid-19 Drugs and Medicines: A Scientometric Mapping of Research Publications

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Abstract

This paper attempts to highlight the growth and development of Covid-19 drugs and medicine literature and make the quantitative and qualitative assessment by way of analyzing various features of research output and Citations impact based on the Web of Science database. A total of 6425 publications were published on Covid-19 drugs and medicine, which received 313411 Citations during 2020-2021. In all, there were 140 countries involved in research in Covid-19 drugs and medicine. The most productive countries are USA highest share of 1814(28.4%) publications and received 17779 Citations followed by Peoples Republic of China with 18623 Citations for 986(15.5%) publications, Italy with 7418 Citations for 763(12%) publications, India with 3323 Citations for 617(9.7%) publications, UK with 7178 Citations for 577 publications. Most productive Institutions were: Harvard Med School from USA with 102 publications (1175 Citations), followed by Huazhong Univ Science & Technology with 102 publications (2913 Citations), University Milan with 82 publications (1430 citations), It noted that 30 Institutes are registered more than 30 Publications and 25 Institutions are recorded more than 1000 Citations. The highly Cited journals are: NEW ENGLAND JOURNAL OF MEDICINE with 2623 Citations (ACPP is 163.93) for 16 Publications, NATURE with 1546 Citations (ACPP is 96.62) for 16 publications, JOURNAL OF BIOMOLECULAR STRUCTURE & DYNAMICS with 1476 Citations (ACPP is 9.11) for 162 publications, JAMA-JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION with 1365 Citations (ACPP is 39.08) for 35 publications, and SCIENCE with 1197 Citations (ACPP is 74.81) for 16 publications. The study found that 8 source titles registered more than 1000 Citations and most of the publications are published in high impact Journals. The paper also reveals the collaborating institutions, countries and research. Findings also indicate the publication pattern, degree of collaboration as well as the nature of the research activities.

Keywords: Covid-19 Drugs; Covid-19 Medicine; Scientometrics; Citations;

INTRODUCTION

Over 2403641 people have died from COVID-19 in globally and that number continues to growing of confirmed cases with 10,88,22,960 from 223 countries. Our healthcare system is becoming increasingly strained and people are in desperate need of a safe and effective treatment for COVID-19 using Drugs, Medicines and Vaccines. Scientists around the world are racing against time to find a cure. Hospitals and research labs all over the world are testing many

different therapies on coronavirus-positive patients in an effort to find a potential COVID-19 treatment. There are currently many clinical trials in process to study other potential therapies, such as monoclonal antibodies, for COVID-19. Researchers are also testing older medications (that are typically used to treat other conditions) to see if they are also effective for COVID-19. The scientists are actively involved in discovering the hidden facts of the universe and in result produce the research work in the form of research papers. The research papers are the base for further research. It would not be wrong to say that what is produce through research should be evaluated to know the trend as well as value of the research.

Evaluating scientific productivity and influence of different subject areas, Countries, authors, institutions etc. is one of the goals of Scientometric studies. This impact and influence has been assessed through various indicators including number of citations, h-index, and so on. Evaluation and assessment plays an important role in decision and policy making about each area of science and provide useful information about the situation of that area and its strengths and weaknesses. Using quantitative techniques like bibliometrics/Scientometrics, different studies have investigated library and information science productivity and impact from various aspects during different periods of time.

OBJECTIVES OF THE STUDY

In the present study "Covid-19 Drugs and Medicines: A Scientometric Mapping of Research Publications" has following objectives as enumerated bellow:

- Evaluation of the research productivity of Doctors, Scientists/Scholars in the field of Covid-19 Drugs and Medicines.
- Most popular and Highly impact Journals in term of publications and Citations.
- Most productive and Cited Authors.
- Most Cited Countries and Research Collaborations.
- Most Cited Institutions.
- Highly Cited works.

METHODOLOGY

Web of Science database (Maintain by Clarivate Analytics) was used for retrieving data on *Covid-19 drugs and medicine* using the search term '*Covid-19 drugs*' or '*Covid-19 medicine*' in 'topic' field. Records pertaining to *Covid-19 drugs and medicine* were retrieved only 2020-2021. A total of 6425 publications and 313411 Citations of collection were exported to Software (Histcite and VOSviwer) and analyzed the data as per objectives of the study.

DATA ANALYSIS AND INTERPRETATION

Geographical wise distribution of publications and Citations

In all, there were 140 countries involved in research in Covid-19 drugs and medicine. USA had the highest share of 1814(28.4%) publications and received 17779 Citations followed by Peoples Republic of China with 18623 Citations for 986(15.5%) publications, Italy with 7418 Citations for 763(12%) publications, India with 3323 Citations for 617(9.7%) publications, UK with 7178 Citations for 577 publications. The study found that China scored first position according to Citations followed by USA, Italy, UK and India. India has shared nearly 10% Publications at global level and 30% Publications compare with USA. It is also noted that 21 countries are registered more than 100 publications, the range of Citations are 611 to 18623 and 67 Countries registered the minimum of 10 Publications out of 140. 15 countries recorded more than 1000 Citations, 25 with more than 500 Citations and 50 with more than 100 Citations.

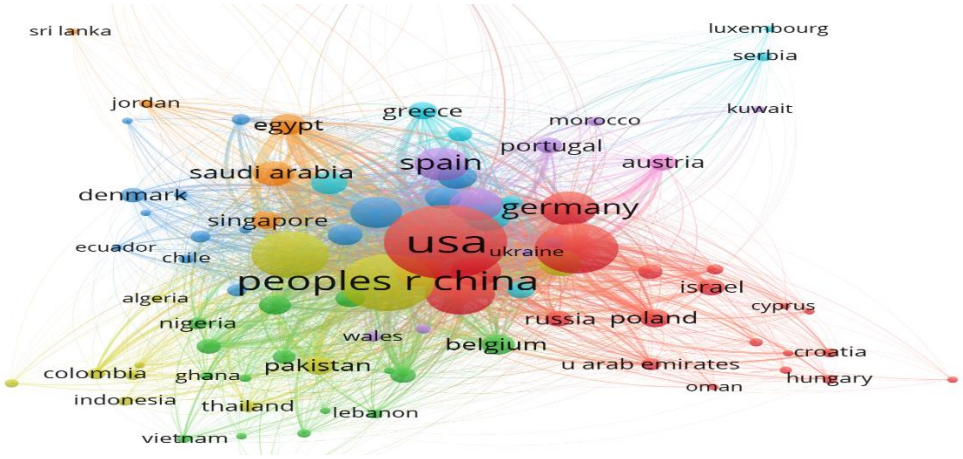
Table 1 Geographical wise distribution of publications and Citations

#	Country	Records	%	Citations	Country	Records	%	Citations
1	USA	1814	28.4	17779	Kenya	8	0.1	21
2	Peoples R China	986	15.5	18623	Kuwait	8	0.1	47
3	Italy	763	12.0	7418	Palestine	8	0.1	24
4	India	617	9.7	3323	Bolivia	7	0.1	27
5	UK	577	9.0	7178	Bulgaria	7	0.1	126
6	Germany	323	5.1	3017	Ecuador	7	0.1	61
7	Spain	307	4.8	2165	Peru	7	0.1	5
8	France	282	4.4	3229	Bosnia & Herceg	6	0.1	2

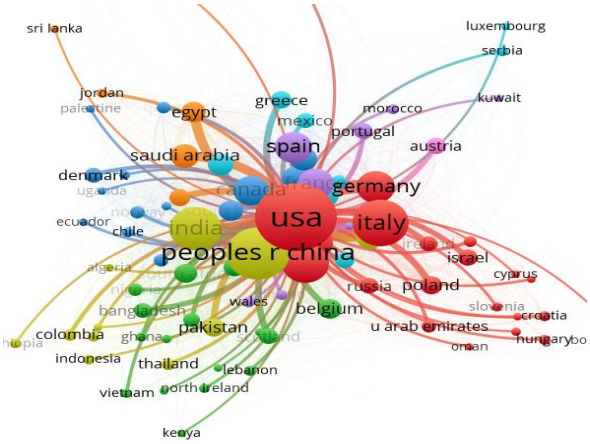
9	Canada	268	4.2	2150	Cameroon	6	0.1	39
10	Australia	253	4.0	2608	DEM REP CONGO	6	0.1	37
11	Iran	217	3.4	798	Kazakhstan	6	0.1	12
12	Brazil	205	3.2	1297	Luxembourg	6	0.1	17
13	Turkey	171	2.7	834	Sri Lanka	6	0.1	14
14	Saudi Arabia	167	2.6	1081	Bahrain	5	0.1	1
15	Switzerland	147	2.3	1911	Venezuela	5	0.1	36
16	Netherlands	123	1.9	885	Libya	4	0.1	2
17	Japan	119	1.9	611	Panama	4	0.1	7
18	South Korea	119	1.9	1051	Trinidad Tobago	4	0.1	12
19	Unknown	116	1.8	302	Uruguay	4	0.1	0
20	Egypt	112	1.8	823	Albania	3	0.0	0
21	Belgium	101	1.6	892	BELARUS	3	0.0	1
22	South Africa	90	1.4	347	Cuba	3	0.0	2
23	Sweden	89	1.4	317	Estonia	3	0.0	12
24	Poland	85	1.3	628	Georgia	3	0.0	12
25	Pakistan	82	1.3	275	Honduras	3	0.0	1
26	Greece	73	1.1	620	Iceland	3	0.0	6
27	Singapore	73	1.1	1306	Kyrgyzstan	3	0.0	1
28	Israel	69	1.1	280	Malta	3	0.0	11
29	Austria	65	1.0	745	Tanzania	3	0.0	3
30	Taiwan	64	1.0	577	Zimbabwe	3	0.0	14
31	Russia	59	0.9	323	Armenia	2	0.0	0
32	Portugal	58	0.9	382	Azerbaijan	2	0.0	8
33	Ireland	54	0.8	362	Barbados	2	0.0	1
34	Denmark	53	0.8	435	Benin	2	0.0	0
35	Bangladesh	52	0.8	284	Botswana	2	0.0	0
36	Mexico	51	0.8	149	Costa Rica	2	0.0	10
37	Malaysia	46	0.7	95	Jamaica	2	0.0	6
38	Romania	40	0.6	225	Latvia	2	0.0	4
39	Argentina	36	0.6	124	Lithuania	2	0.0	3
40	Norway	35	0.5	379	Montenegro	2	0.0	9
41	U Arab Emirates	33	0.5	124	Myanmar	2	0.0	0
42	Nigeria	32	0.5	73	Namibia	2	0.0	0
43	New Zealand	28	0.4	321	Papua N Guinea	2	0.0	4
44	Qatar	28	0.4	111	Rep Congo	2	0.0	1
45	Thailand	28	0.4	302	Rwanda	2	0.0	23

46	Colombia	27	0.4	152	Sudan	2	0.0	9
47	Czech Republic	26	0.4	302	Syria	2	0.0	3
48	Croatia	22	0.3	189	Zambia	2	0.0	0
49	Finland	20	0.3	40	Afghanistan	1	0.0	5
50	Hungary	20	0.3	38	Anguilla	1	0.0	0
51	Indonesia	20	0.3	50	Antigua & Barbu	1	0.0	0
52	Serbia	20	0.3	34	Bhutan	1	0.0	0
53	Chile	19	0.3	190	Brunei	1	0.0	10
54	Lebanon	19	0.3	40	Burkina Faso	1	0.0	1
55	Morocco	18	0.3	14	Comoros	1	0.0	0
56	Nepal	18	0.3	53	Cote Ivoire	1	0.0	23
57	Ghana	16	0.3	66	Eritrea	1	0.0	0
58	Jordan	16	0.3	34	French Guiana	1	0.0	5
59	Slovenia	16	0.3	137	Guinea Bissau	1	0.0	8
60	Philippines	15	0.2	51	Laos	1	0.0	33
61	Vietnam	15	0.2	50	Madagascar	1	0.0	0
62	Ethiopia	14	0.2	12	Malawi	1	0.0	8
63	Tunisia	13	0.2	65	Mali	1	0.0	26
64	Slovakia	12	0.2	22	Mauritius	1	0.0	0
65	Iraq	11	0.2	12	Mozambique	1	0.0	345
66	Algeria	10	0.2	31	North Macedonia	1	0.0	1
67	Cyprus	10	0.2	71	Senegal	1	0.0	23
68	Uganda	10	0.2	50	Somalia	1	0.0	3
69	Oman	9	0.1	42	St Lucia	1	0.0	5
70	Ukraine	9	0.1	104	Yemen	1	0.0	0

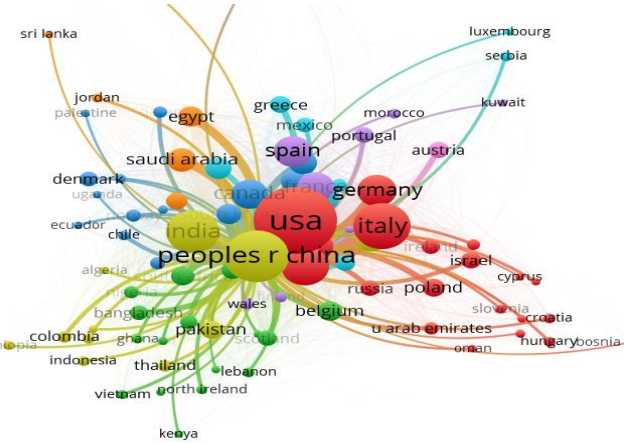
elected	Country	Documents	Citations	Total link strength
☑	usa	1822	17868	12429
☑	peoples r china	987	18615	10829
☑	india	642	3338	6526
☑	england	527	6960	5547
☑	italy	763	7410	5330
☑	germany	322	3009	2859
☑	australia	254	2610	2829
☑	france	281	3221	2709
☑	spain	307	2165	2402
☑	canada	269	2150	2208
☑	brazil	206	1297	2202
☑	saudi arabia	168	1073	1737
☑	iran	217	800	1617
☑	egypt	116	827	1440
☑	switzerland	147	1911	1404
☑	south korea	119	1051	1373
☑	turkey	170	826	1249
☑	south africa	92	347	974
☑	netherlands	123	885	920
☑	singapore	73	1306	900



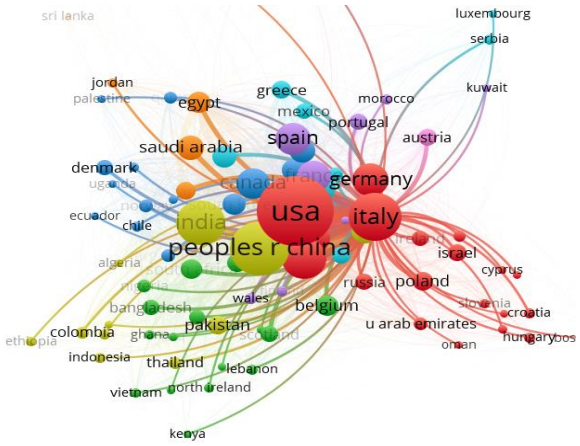
Citation Network of Countries



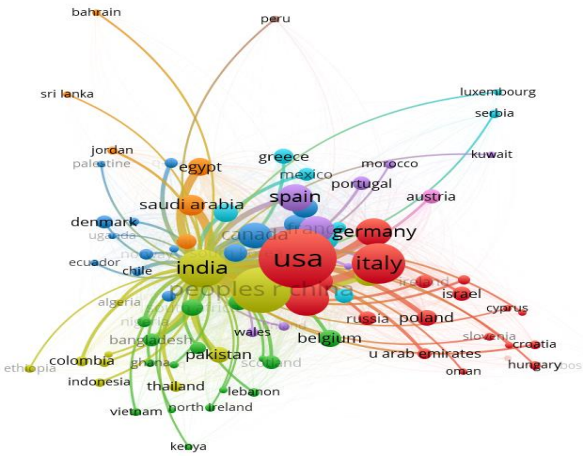
USA-Citation Network



China-Citation Network



Italy-Citation Network



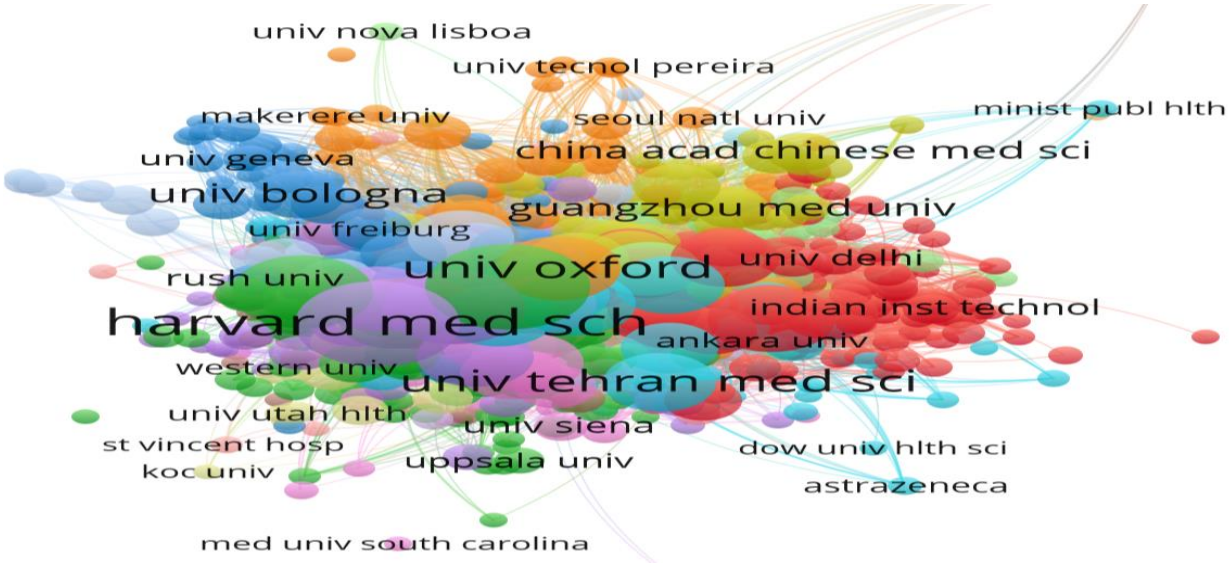
India-Citation Network

Institution wise distribution of Citations

Among all Institutions, the highly productive Institutions were: Harvard Med School from USA with 102 publications (1175 Citations), followed by Huazhong Univ Science & Technology with 102 publications (2913 Citations), University Milan with 82 publications (1430 citations), It noted that 30 Institutes are registered more than 30 Publications and 25 Institutions are recorded more than 1000 Citations.

Table 2: Publications and Citation Impact of Institutions

	Publication Impact				Citation Impact		
#	Institution	Records	Citations		Institution	Records	Citations
1	Harvard Med School	102	1175		Wuhan Univ	60	3813
2	Huazhong Univ Science & Technology	102	2913		Tsinghua Univ	24	3401
3	University Milan	82	1430		Chinese Acad Med Sci	29	3131
4	University Toronto	79	406		Huazhong Univ Sci & Technology	102	2913
5	Chinese Academic Science	64	1438		Univ Oxford	63	2677
6	Univ Oxford	63	2677		Peking Union Med Coll	5	2423
7	Univ Washington	62	379		Beijing Univ Chinese Med	34	2401
8	Wuhan University	60	3813		Peking Univ	26	2365
9	Univ Penn	58	386		Capital Med Univ	33	2292
10	Univ Calif San Francisco	56	1278		Univ Virginia	20	2277
11	Columbia Univ	54	376		China Japan Friendship Hosp	7	2210
12	Univ Michigan	54	997		Univ Lancaster	5	2205
13	Mayo Clin	52	501		Jin Yin Tan Hospital	2	1460
14	Univ Sao Paulo	52	623		Chinese Acad Science	64	1438
15	Univ Tehran Med Science	52	135		Univ Milan	82	1430
16	Zhejiang Univ	50	1281		Sun Yat Sen Univ	35	1376
17	King Saud Univ	49	183		Zhejiang Univ	50	1281
18	Univ British Columbia	48	361		Univ Calif San Francisco	56	1278
19	UCL	47	200		Harvard Med School	102	1175
20	Univ Paris	47	326		Univ Zurich	23	1075
21	Icahn School Med Mt Sinai	46	929		Natl Univ Singapore	25	1049
22	Kings College London	45	278		Univ Calif San Diego	37	1043
23	NYU	45	551		Cent Hosp Wuhan	4	1039
24	Emory Univ	44	562		Univ Queensland	39	1039
25	Fudan Univ	44	713		ShanghaiTech Univ	8	1018
26	Johns Hopkins Univ	44	214		Univ Michigan	54	997
27	Monash Univ	44	684		Nankai Univ	5	940
28	All India Inst Med Sci	43	99		Qingdao Univ	5	938
29	Stanford Univ	43	473		Hebei Med Univ	5	930
30	Brigham & Womens Hosp	42	847		Icahn Sch Med Mt Sinai	46	929



Selected	Organization	Documents	Citations	Total link strength
✓	tsinghua univ	24	3401	2299
✓	chinese acad med sci	28	3123	1997
✓	univ oxford	60	2639	1856
✓	beijing univ chinese med	34	2401	1760
✓	huazhong univ sci & technol	100	2854	1654
✓	wuhan univ	58	3798	1626
✓	peking union med coll	5	2423	1502
✓	capital med univ	31	2283	1495
✓	chinese acad sci	64	1438	1465
✓	univ virginia	19	2270	1431
✓	peking univ	25	2364	1397
✓	univ lancaster	5	2205	1357
✓	china japan friendship hosp	5	2183	1348
✓	univ milan	78	1411	947
✓	harvard med sch	100	1095	899
✓	univ calif san diego	36	1036	854
✓	zhejiang univ	50	1281	832
✓	univ queensland	39	1039	829
✓	shanghaitech univ	8	1018	777
✓	monash univ	40	656	749

Bibliographic Form wise distribution of Publications

Table 3 illustrates the document wise distribution of publication in Covid-19 Drugs and Medicine research during the study period. The maximum 3202 of research papers were found in 'Articles' type documents, followed by 1490 of records were 'Review' type documents, 586 with Editorial Materials, 484 with Article; Early Access, 295 with Letter. It noted that 13 forms are covered in this field.

Table 3: Bibliographic Form wise distribution of Publications and Citations

#	Document Type	Records	Citations
1	Article	3202	29918
2	Review	1490	13997
3	Editorial Material	586	3050
4	Letter	295	2197
5	News Item	49	177
6	Article; Early Access	484	1687
7	Article; Proceedings Paper	3	4
8	Correction	7	20
9	Correction; Early Access	1	0

10	Editorial Material; Early Access	30	7
11	Letter; Early Access	26	201
12	Meeting Abstract	30	0
13	Review; Early Access	175	153

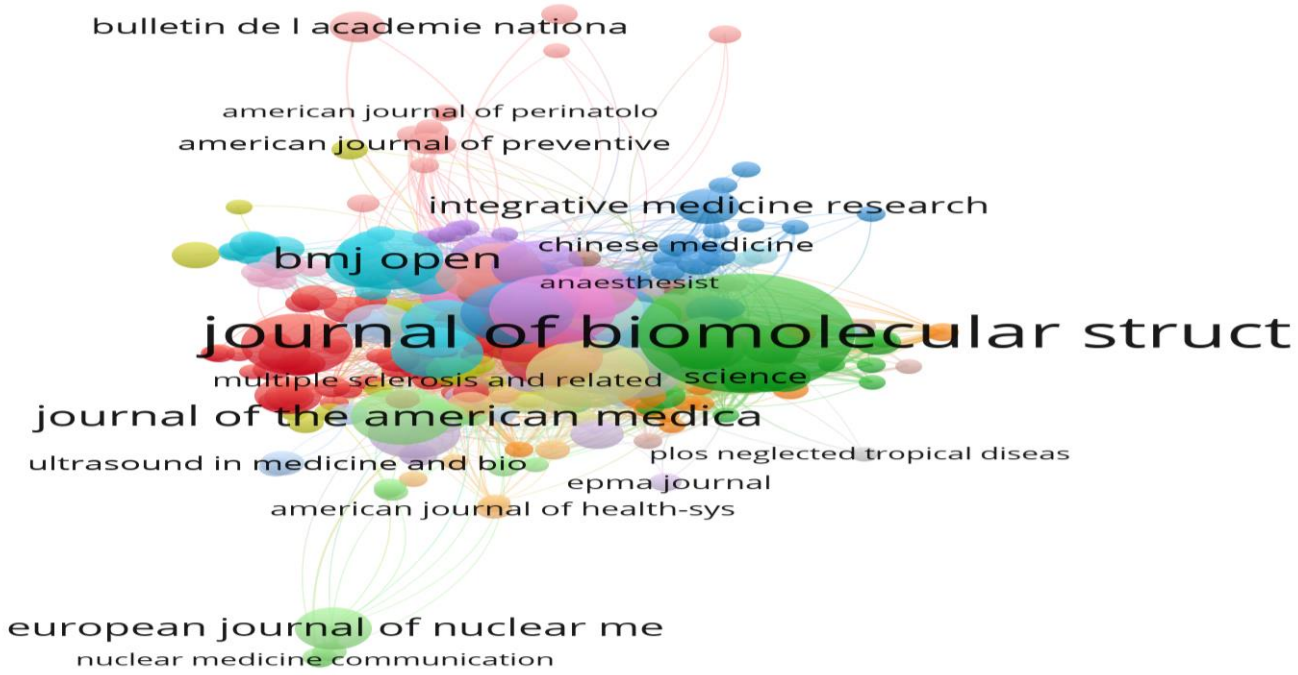
Highly Cited Source titles

Table 4 gives the leading journals each with number of publications and Citations. The highly Cited journals are: NEW ENGLAND JOURNAL OF MEDICINE with 2623 Citations (ACPP is 163.93) for 16 Publications, NATURE with 1546 Citations (ACPP is 96.62) for 16 publications, JOURNAL OF BIOMOLECULAR STRUCTURE & DYNAMICS with 1476 Citations (ACPP is 9.11) for 162 publications, JAMA-JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION with 1365 Citations (ACPP is 39.08) for 35 publications, and SCIENCE with 1197 Citations (ACPP is 74.81) for 16 publications. The study found that 8 source titles are registered more than 1000 Citations and Majorities of the publications are published in high impact Journals.

Table 4: Highly Cited Source titles

#	Journal	Records	Citations	Average Citations Per Paper
1	NEW ENGLAND JOURNAL OF MEDICINE	16	2623	163.9375
2	NATURE	16	1546	96.625
3	JOURNAL OF BIOMOLECULAR STRUCTURE & DYNAMICS	162	1476	9.111111
4	JAMA-JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION	35	1368	39.08571
5	SCIENCE	16	1197	74.8125
6	INTERNATIONAL JOURNAL OF ANTIMICROBIAL AGENTS	34	1046	30.76471
7	ALLERGY	8	1040	130
8	MILITARY MEDICAL RESEARCH	6	1001	166.8333
9	BIOSCIENCE TRENDS	9	976	108.4444
10	JOURNAL OF MEDICAL VIROLOGY	41	891	21.73171
11	LANCET	12	871	72.58333
12	EMERGING MICROBES & INFECTIONS	13	762	58.61538
13	ANTIVIRAL RESEARCH	9	715	79.44444
14	JAMA CARDIOLOGY	4	648	162
15	NATURE COMMUNICATIONS	16	631	39.4375
16	PHARMACOLOGICAL RESEARCH	32	608	19
17	JOURNAL OF INFECTION	8	590	73.75
18	LIFE SCIENCES	24	572	23.83333
19	JOURNAL OF PAIN AND SYMPTOM MANAGEMENT	58	507	8.741379
20	INTERNATIONAL JOURNAL OF MOLECULAR SCIENCES	43	483	11.23256
21	JOURNAL OF ADVANCED RESEARCH	1	443	443
22	JOURNAL OF THROMBOSIS AND HAEMOSTASIS	7	443	63.28571

23	SCIENCE OF THE TOTAL ENVIRONMENT	12	414	34.5
24	CLINICAL CHEMISTRY AND LABORATORY MEDICINE	15	403	26.86667
25	BMJ-BRITISH MEDICAL JOURNAL	38	400	10.52632
26	CLINICAL IMMUNOLOGY	2	386	193
27	JOURNAL OF CLINICAL MEDICINE	42	383	9.119048
28	JAMA NETWORK OPEN	6	356	59.33333
29	CIRCULATION RESEARCH	2	353	176.5
30	KIDNEY INTERNATIONAL	2	347	173.5



Selected	Source	Documents	Citations	Total link strength
☑	journal of biomolecular structure ...	185	1500	791
☑	new england journal of medicine	16	2623	550
☑	nature	16	1546	483
☑	science	16	1197	450
☑	frontiers in pharmacology	73	103	361
☑	life sciences	24	572	332
☑	international journal of antimicrob...	34	1046	325
☑	bioscience trends	9	976	307
☑	pharmacological research	32	608	292
☑	antiviral research	9	715	290
☑	jama-journal of the american medi...	35	1368	279
☑	international journal of molecular ...	43	483	252
☑	european journal of pharmacology	41	82	251
☑	lancet	12	871	230
☑	journal of medical virology	41	891	224
☑	journal of clinical medicine	42	383	212
☑	molecules	32	110	179
☑	military medical research	6	1001	167
☑	nature communications	16	631	152
☑	frontiers in immunology	38	150	145

Most Cited and Productive Authors

Table 5 shows the rank list, the contributors who have registered highest number of Publications and Citations. Most Cited authors are: Zhang Y has contributed 43 articles (2706 Citations) and followed by Wang Y contributed 39

articles (2627 Citations), Wang J contributed 32 articles (2021 Citations). It is noted that 70 authors contributed more than 10 Publications. The most cited authors are: Liu X with 2746 Citations for 12 papers followed by Zhang Y with 2706 Citations for 43 papers and Wang Y with 2627 Citations for 39 papers. It noted that 71 authors received more than 1000 Citations, 309 authors with more than 500 Citations and 1031 authors with minimum of 100 Citations.

Table:5 Most Cited and Productive Authors

	Publication Impact			Citation Impact		
#	Author	Records	Citations	Author	Records	Author
1	Zhang Y	43	2706	Liu X	12	2746
2	Wang Y	39	2627	Zhang Y	43	2706
3	Wang J	32	2021	Wang Y	39	2627
4	Kumar S	31	131	Dong X	5	2371
5	Liu Y	31	2256	Liu Y	31	2256
6	Li Y	27	415	Zhou F	7	2230
7	Li J	24	601	Wang C	14	2206
8	Li L	22	308	Cao B	3	2205
9	Wang L	22	704	Wang K	13	2200
10	Zhang L	22	1527	Horby PW	4	2187
11	Li H	21	1670	Hayden FG	2	2179
12	Chen Y	19	897	Jaki T	2	2179
13	Wang H	18	19	Li HD	2	2179
14	Zhang J	18	61	Wang J	32	2021
15	Kumar A	17	59	Guo L	2	2010
16	Yang J	17	864	Wang JL	5	1858
17	Chen J	16	574	Li H	21	1670
18	Lippi G	16	479	Wu X	5	1646
19	Yang L	16	145	Xie X	3	1621
20	Lee J	15	164	Peng L	4	1541
21	Sharma P	15	27	Zhang L	22	1527
22	Sharma S	15	53	Tu S	2	1514
23	Zhang X	15	800	Huang H	7	1502
24	Kumar V	14	88	Zhou X	7	1497
25	Liu C	14	344	Li K	3	1494
26	Liu J	14	173	Xu J	9	1491
27	Shi Y	14	645	Liu W	6	1490
28	Wang C	14	2206	Wu J	13	1489
29	Zhang M	14	117	Li X	10	1484
30	Wang K	13	2200	Yuan Y	5	1482

Highly Cited Works

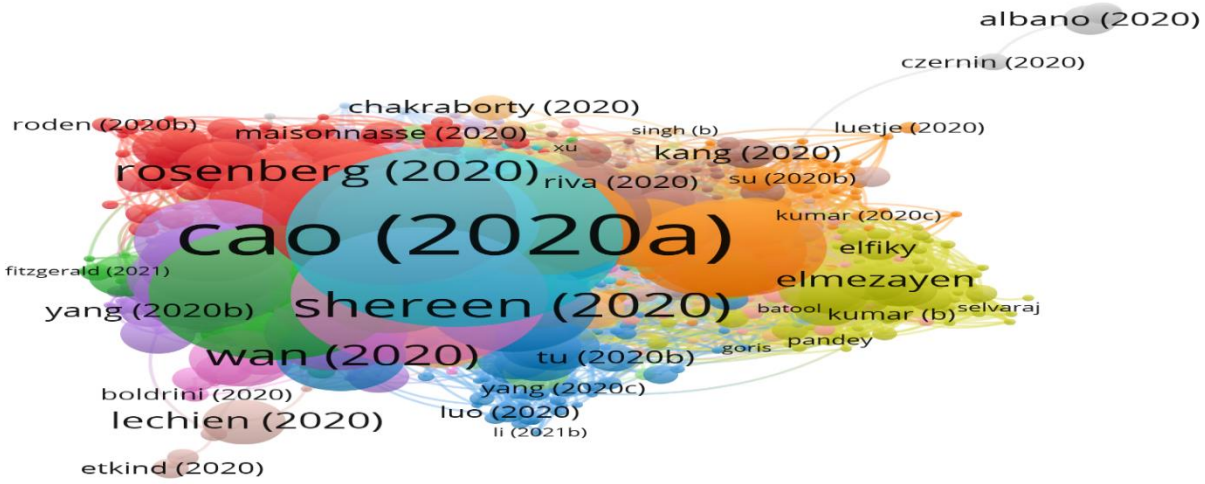
Top 20 highly cited Covid-19 Drugs and Medicine publications during the period of study are listed in Table 6. The most frequently cited one is “Cao B, Wang Y, Wen D, Liu W, Wang JL, et al, A Trial of Lopinavir-Ritonavir in Adults Hospitalized with Severe Covid-19, NEW ENGLAND JOURNAL OF MEDICINE.

2020 MAY 7; 382 (19): 1787-1799" with 1459 citations followed by Guo YR, Cao QD, Hong ZS, Tan YY, Chen SD, et al., The origin, transmission and clinical therapies on coronavirus disease 2019 (COVID-19) outbreak - an update on the status MILITARY MEDICAL RESEARCH. 2020 MAR 13; 7 (1): Art. No. 11 with 915 Citations, Gao JJ, Tian ZX, Yang X, Breakthrough: Chloroquine phosphate has shown apparent efficacy in treatment of COVID-19 associated pneumonia in clinical studies, BIOSCIENCE TRENDS. 2020 FEB; 14 (1): 72-73 with 900 Citations.

Table 6: Highly Cited Works

#	Date / Author / Journal	Countries	Citations	Cited References
1	1416 Cao B, Wang Y, Wen D, Liu W, Wang JL, et al. A Trial of Lopinavir-Ritonavir in Adults Hospitalized with Severe Covid-19, NEW ENGLAND JOURNAL OF MEDICINE. 2020 MAY 7; 382 (19): 1787-1799	China, England and USA	1459	25
2	1096 Guo YR, Cao QD, Hong ZS, Tan YY, Chen SD, et al., The origin, transmission and clinical therapies on coronavirus disease 2019 (COVID-19) outbreak - an update on the status MILITARY MEDICAL RESEARCH. 2020 MAR 13; 7 (1): Art. No. 11	China and Singapore	915	105
3	1065 Gao JJ, Tian ZX, Yang X, Breakthrough: Chloroquine phosphate has shown apparent efficacy in treatment of COVID-19 associated pneumonia in clinical studies, BIOSCIENCE TRENDS. 2020 FEB; 14 (1): 72-73	China	900	4
4	1936 Zhang JJ, Dong X, Cao YY, Yuan YD, Yang YB, et al. Clinical characteristics of 140 patients infected with SARS-CoV-2 in Wuhan, China, ALLERGY. 2020 JUL; 75 (7): 1730-1741	China and Switzerland	890	40
5	1437 Wang YM, Zhang DY, Du GH, Du RH, Zhao JP, et al. Remdesivir in adults with severe COVID-19: a randomised, double-blind, placebo-controlled, multicentre trial LANCET. 2020 MAY 16; 395 (10236): 1569-1578	China, England and USA	720	28
6	1426 Sanders JM, Monogue ML, Jodlowski TZ, Cutrell JB Pharmacologic Treatments for Coronavirus Disease 2019 (COVID-19) A Review, JAMA-JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. 2020 MAY 12; 323 (18): 1824-1836	USA	602	94
7	1107 Ou XY, Liu Y, Lei XB, Li P, Mi D, et al., Characterization of spike glycoprotein of SARS-CoV-2 on virus entry and its immune cross-reactivity with SARS-CoV NATURE COMMUNICATIONS. 2020 MAR 27; 11 (1): Art. No. 1620	China	551	53
8	2416 Gordon DE, Jang GM, Bouhaddou M, Xu JW, Obernier K, et al., A SARS-CoV-2 protein interaction map reveals targets for drug repurposing, NATURE. 2020 JUL 16; 583 (7816): 459-+	USA, England and France	521	85
9	1696 Jin ZM, Du XY, Xu YC, Deng YQ, Liu MQ, et al. Structure of M-pro from SARS-CoV-2 and discovery of its inhibitors, NATURE. 2020 JUN; 582 (7811): 289-+	China, USA and Australia	513	43
10	1288 Zhang C, Wu Z, Li JW, Zhao H, Wang GQ Cytokine release syndrome in severe COVID-19: interleukin-6 receptor antagonist tocilizumab may be the key to reduce mortality, INTERNATIONAL JOURNAL OF ANTIMICROBIAL AGENTS. 2020 MAY; 55 (5): Art. No. 105954	China	487	57
11	1209 Zhang LL, Lin DZ, Sun XYY, Curth U, Drosten C, et al. Crystal structure of SARS-CoV-2 main protease provides a basis for design of improved alpha-ketoamide inhibitors SCIENCE. 2020 APR 24; 368 (6489): 409-+	Germany and China	486	43
12	2113 Shereen MA, Khan S, Kazmi A, Bashir N, Siddique R COVID-19 infection: Origin, transmission, and characteristics of human coronaviruses, JOURNAL OF ADVANCED RESEARCH. 2020 JUL; 24: 91-98	China	443	85
13	1509 Caly L, Druce JD, Catton MG, Jans DA, Wagstaff KM The FDA-approved drug ivermectin inhibits the replication of SARS-CoV-2 in vitro, ANTIVIRAL RESEARCH. 2020 JUN; 178: Art. No. 104787	Australia	404	31
14	1255 Zhang W, Zhao Y, Zhang FC, Wang Q, Li TS, et al.	China	378	38

	The use of anti-inflammatory drugs in the treatment of people with severe coronavirus disease 2019 (COVID-19): The Perspectives of clinical immunologists from China CLINICAL IMMUNOLOGY. 2020 MAY; 214: Art. No. 108393			
15	2107 Inciardi RM, Lupi L, Zaccone G, Italia L, Raffo M, et al. Cardiac Involvement in a Patient With Coronavirus Disease 2019 (COVID-19), JAMA CARDIOLOGY. 2020 JUL; 5 (7): 819-824	Italy	377	15
16	1856 Mehra MR, Desai SS, Kuy S, Henry TD, Patel AN Cardiovascular Disease, Drug Therapy, and Mortality in Covid-19, NEW ENGLAND JOURNAL OF MEDICINE. 2020 JUN 18; 382 (25): Art. No. e102	USA	376	22
17	1207 Borba MGS, Val FFA, Sampaio VS, Alexandre MAA, Melo GC, et al., Effect of High vs Low Doses of Chloroquine Diphosphate as Adjunctive Therapy for Patients Hospitalized With Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Infection A Randomized Clinical Trial JAMA NETWORK OPEN. 2020 APR 24; 3 (4): Art. No. e208857	Brazil and Spain	345	29
18	2212 Su H, Yang M, Wan C, Yi LX, Tang F, et al., Renal histopathological analysis of 26 postmortem fi ndings of patients with COVID-19 in China, KIDNEY INTERNATIONAL. 2020 JUL; 98 (1): 219-227	China and USA	336	14
19	1857 Mancia G, Rea F, Ludergnani M, Apolone G, Corrao G Renin-Angiotensin-Aldosterone System Blockers and the Risk of Covid-19, NEW ENGLAND JOURNAL OF MEDICINE. 2020 JUN 18; 382 (25): 2431-2440	Italy	327	30
20	1797 Zhang P, Zhu LH, Cai JJ, Lei F, Qin JJ, et al. Association of Inpatient Use of Angiotensin-Converting Enzyme Inhibitors and Angiotensin II Receptor Blockers With Mortality Among Patients With Hypertension Hospitalized With COVID-19, CIRCULATION RESEARCH. 2020 JUN 5; 126 (12): 1671-1681	China, England, Scotland and Canda	319	36



Selected	Document	Citations	Links
☑	cao (2020a)	1459	252
☑	gao (2020a)	900	191
☑	jin (2020a)	513	175
☑	zhang (2020c)	486	173
☑	wang (2020a)	720	152
☑	caly (2020)	404	125
☑	sanders (2020)	602	102
☑	ou (2020)	551	83
☑	muralidharan	142	81
☑	gordon (2020a)	521	79
☑	borba (2020)	345	78
☑	liu (2020a)	276	77
☑	elfiky (2020a)	188	74
☑	elfiky (2020b)	183	74
☑	gao (2020b)	216	71
☑	guo (2020)	915	68
☑	boopathi	81	68
☑	joshi	93	64
☑	dai (2020)	158	63
☑	elmezayen	109	61
☑	islam	61	61

FINDINGS AND CONCLUSION

This work explores the "Covid-19 Drugs and Medicines: A Scientometric Mapping of Research Publications", both in terms of the number of articles, the quality of the publication (Citation impact) and trend of research. Scientist are working actively to increase the number of research articles, their publication in high impact factor journals, collaborating with leading institutions, Countries, Hospitals and Research laboratories. USA, China, Italy, and India were the other leading countries contributing in terms of corresponding authors and total citations and Publications. It is note that Harvard Med School from USA with 102 publications (1175 Citations), followed by Huazhong Univ Science & Technology with 102 publications (2913 Citations), University Milan with 82 publications (1430 citations) lead to other Institutions in terms of publications and Citations. It found that researcher has published their paper in high impact journals like NEW ENGLAND JOURNAL OF MEDICINE (Impact Factor: 74.699), NATURE (Impact Factor: 42.778), JOURNAL OF BIOMOLECULAR STRUCTURE & DYNAMICS (Impact Factor: 4.986), JAMA-JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (Impact Factor: 45.540), SCIENCE (Impact Factor: 41.845). It attacks a high number of Citations over a short period of time and web of science indexed huge number of publications over the past year. Governments are committed to research, spending huge amount money for developing drugs, Medicine and Vaccines for Covid-19.

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