

EVALUATION ON RESEARCH EFFECTIVENESS IN A SUBJECT AREA AMONG TOP CLASS UNIVERSITIES: A CASE OF INDONESIA'S ACADEMIC PUBLICATION DATASET ON CHEMICAL AND MATERIAL SCIENCES

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Abstract

Some countries experience growing interest in scientific publication which is indicated by the boosting number of their academic publication. Most of the available studies focus on the number documents (i.e., conference proceedings and journal articles), citation, international collaboration, etc. A few studies highlight the subject area of the published documents. In fact, studies on subject area are useful for research and higher education policies. It may be caused by limited available data regarding the subject area, in which the scientific publications are categorized. This article presents a dataset of bibliometric from all Indonesian institutions (as of January 2020) indexed by Scopus database. For each institution, we collected the number of "documents per year" and "documents type per year" manually. We selected the top 27 institutions for further analysis in the subject area (i.e., biochemistry, chemical engineering, chemistry, environmental science, material science, and pharmaceuticals). Different from other datasets, this article presents longitudinal data of each subject area from 2014-2019. During this period dramatic changes of number of documents occurs, in which the number of publication boosted exponentially. We also analyzed whether each subject area is published in different types of documents (i.e., number of journal article and conference paper) in which the types are the driving force of Indonesia's growing scientific publication number. This dataset is potential for reuse by stakeholders and policy makers in the evaluation of research funds, projects, research infrastructure, and rejuvenation of research equipment as well as in the development of basic industries.

Keywords: Bibliometrics, Chemistry, Data analysis, Education, Indonesia.

1. Introduction

Number of academic publications is now becoming hot issues among countries. This is shown by the fact that some countries experience growing interest in boosting number of their academic publication [1]. One of the best strategies for understanding where research is going in the country is bibliometric [2]. This strategy is crucial for controlling the scientists and engineers for focusing and solving specific problems in industry. This is the main reason why many reports showing and analyzing the number of publications. However, most of the available studies focus on the number documents (i.e., conference proceedings and journal articles), citation, international collaboration, etc. A few studies highlight the subject area of the published documents. In fact, studies on subject area are useful for research and higher education policies. It may be caused by limited available data regarding the subject area, in which the scientific publications are categorized.

Our previous study [1] reported the dataset presented bibliometric analysis for all Indonesian institutions. However, we did not collect by the subject area. In fact, subject area is important for stakeholders and policy makers in the evaluation of research funds, projects, research infrastructure, and rejuvenation of research equipment as well as in the development of basic industries.

The objective of this study was to present bibliometric analysis of Indonesian institutions for number of publications as of January 30, 2020. We extracted data of scientific publications, including journal article, conference paper, review, editorial, book, book chapter, letter, note, abstract report, data paper, report, erratum, short survey, etc.), which are indexed in Scopus. Scopus was selected since it is an Elsevier's citation database and the largest citation database indexing, reaching around 18,500 peer-reviewed journals [3]. This makes most of the institutions providing higher education services, researches, community services in Indonesia. Scopus was also used by the Government of Indonesia to make rank of universities in Indonesia [4, 5]. Scopus also used to evaluate tenure track of professorship [6], as well as to evaluate rank of researchers and scientists. Database from Scopus along with Google Scholar are integrated into SINTA (Indonesian scientific indexing). Indeed, this makes Scopus as one of the criteria for applying Indonesian government's research grant and as one of the evaluation criteria in the QS Star World Class University rank [1].

Scopus classifies the subject area into 28 types: (1) Agricultural and biological sciences; (2) Arts and humanities; (3) Biochemistry, genetics and molecular biology; (4) Business, management and accounting; (5) Chemical engineering; (6) Chemistry; (7) Computer science; (8) Decision sciences; (9) Dentistry; (10) Earth and planetary sciences; (11) Economics, econometrics and finance; (12) Energy; (13) Engineering; (14) Environmental science; (15) Health professions; (16) Immunology and microbiology; (17) Materials science; (18) Mathematics; (19) Medicine; (20) Multidisciplinary; (21) Neuroscience; (22) Nursing; (23) Pharmacology, toxicology and pharmaceuticals; (24) Physics and astronomy; (25) Psychology; (26) Social sciences; (27) Veterinary; and (28) Undefined. Among these classifications, the greatest number of publications relate to chemistry and material sciences. This makes this study focusing on these relating subjects. Regarding the subjects that have correlations to chemistry and material sciences, we collect data based on subject area of biochemistry, chemical engineering, chemistry, environmental science, material science, and pharmaceuticals, respectively.

In addition, in the evaluation, each institution was compared in term of number of “documents per year” as well as “documents type per year” manually. We selected the top 27 institutions for further analysis in the subject area relating to chemistry and material sciences. Different from other datasets, this article presents longitudinal data of each subject area from 2014-2019. During this period dramatic changes of number of documents occurs, in which the number of publications boosted exponentially. We also analysed whether each subject area is published in different types of documents (i.e., number of journal article and conference paper). Although Scopus lists several types of publications (such as article journal, conference paper, review, book chapter, editorial, letter, note, erratum, book, short survey, abstract report, data paper, report, etc.), we focused only on the evaluation of article journal and conference paper since these types of publications are the most driving force of Indonesia’s growing scientific publication number. There are several values gained from this dataset:

- Providing a simple tool to evaluate research funds, projects, research infrastructure, and rejuvenation of research equipment as well as in the development of basic industries by the number of scientific publications in a specific subject area (chemistry and material science);
- Giving benefits for policy makers and stakeholders who are responsible for research funds, projects, research infrastructure, and rejuvenation of research equipment as well as for planning development of basic industries;
- Applicable (especially longitudinal data) as a guideline for further insight and research evaluation in the area of chemistry and material sciences as a crucial subject related to development of basic industries;
- Providing detail information on scientific publication related to chemistry and material sciences of top 27 Indonesian institutions at different points of time while these types of data are not available yet;
- Showing the influence of conference papers and journal articles as the main driving force in boosting scientific publication number.

2.Methods

For evaluation, we obtained and collected data from Scopus database (www.scopus.com). Then, from the Scopus database, we selected institutional search, customing “Indonesia” as the keyword and retrieving all Indonesian institutions (420 institutions). For each institution, we tested and collected manually the number of “documents per year” as well as “documents type per year”. Based on the results, we selected the top 27 institutions for further analysis in the subject area. All data were collected and evaluated in a Microsoft Excel file. The analysis is a continuation of the previous dataset [1], which has been used for more detailed research in Indonesian context.

3. Results and Discussion

For evaluation, we obtained and collected data from Scopus database (www.scopus.com). Then, from the Scopus database, we selected institutional search, customing “Indonesia” as the keyword and retrieving all Indonesian institutions (420 institutions). For each institution, we tested and collected manually the number of “documents per year” as well as “documents type per

year". Based on the results, we selected the top 27 institutions for further analysis in the subject area.

Table 1 shows the documents based on Scopus published by all Indonesian institutions as of January 30, 2020. It also shows the number of document in Scopus (doc. number) as well as the percentage of contribution (% contribut.) and cumulative contribution (% accumul.) of each institution to country's total scientific publication number.

Table 1. Number of scientific publications on Scopus (Jan 30, 2020).

Rank No.	Institution	Doc. number	% contribut.	% accumul.
1	Universitas Indonesia	16026	9.7409	9.7409
2	Institut Teknologi Bandung	13568	8.2469	17.9878
3	Universitas Gadjah Mada	10288	6.2532	24.2410
4	IPB University	6373	3.8736	28.1146
5	Institut Teknologi Sepuluh Nopember	6113	3.7156	31.8302
6	Universitas Diponegoro	5892	3.5813	35.4115
7	Lembaga Ilmu Pengetahuan Indonesia	5415	3.2913	38.7028
8	Brawijaya University	4985	3.0300	41.7328
9	Universitas Airlangga	4342	2.6391	44.3719
10	Universitas Sebelas Maret	4168	2.5334	46.9053
11	Universitas Padjadjaran	4095	2.4890	49.3943
12	Universitas Sumatera Utara	4058	2.4665	51.8608
13	Hasanuddin University	3964	2.4094	54.2702
14	Bina Nusantara University	3298	2.0046	56.2748
15	Universitas Pendidikan Indonesia	2668	1.6217	57.8965
16	Universitas Syiah Kuala	2576	1.5657	59.4622
17	Universitas Andalas	2386	1.4503	60.9125
18	Telkom University	2185	1.3281	62.2405
19	Universitas Sriwijaya	1803	1.0959	63.3364
20	University of Indonesia, RSUPN Dr. Cipto Mangunkusumo	1788	1.0868	64.4232
21	Universitas Udayana	1694	1.0296	65.4529
22	Center for International Forestry Research, West Java	1661	1.0096	66.4624
23	Universitas Negeri Malang	1646	1.0005	67.4629
24	Universitas Islam Indonesia	1417	0.8613	68.3242
25	Universitas Negeri Yogyakarta	1187	0.7215	69.0457
26	Universitas Lampung	1146	0.6966	69.7422
27	Universitas Jember	1122	0.6820	70.4242
28	Universitas Negeri Semarang	1066	0.6479	71.0721
29	Badan Tenaga Nuklir Nasional Indonesia	1016	0.6175	71.6897
30	Universitas Negeri Jakarta	1002	0.6090	72.2987

Table 1. (cont.). Number of scientific publications on Scopus (Jan 30, 2020).

Rank	Institution	Doc. number	% contribut.	% accumul.
31	Universitas Riau	988	0.6005	72.8992
32	Universitas Jenderal Soedirman	969	0.5890	73.4882
33	Universitas Ahmad Dahlan	900	0.5470	74.0352
34	Universitas Negeri Surabaya	883	0.5367	74.5719
35	Universitas Negeri Padang	773	0.4698	75.0418
36	Universitas Negeri Makassar	761	0.4625	75.5043
37	Badan Pengkajian dan Penerapan Teknologi	742	0.4510	75.9553
38	Politeknik Elektronika Negeri Surabaya	730	0.4437	76.3990
39	Sam Ratulangi University	691	0.4200	76.8190
40	Universitas Mulawarman	689	0.4188	77.2378
41	Ministry of Health, Republic of Indonesia	674	0.4097	77.6475
42	Universitas Halu Oleo	655	0.3981	78.0456
43	Universitas Islam Negeri Syarif Hidayatullah Jakarta	647	0.3933	78.4389
44	Universitas Surabaya	635	0.3860	78.8248
45	UIN Sunan Gunung Djati	611	0.3714	79.1962
46	Universitas Kristen Petra	606	0.3683	79.5646
47	Universitas Tadulako	546	0.3319	79.8964
48	U.S. Naval Medical Research Unit No. 2, Jakarta	523	0.3179	80.2143
49	Universitas Komputer Indonesia	518	0.3148	80.5292
50	Universitas Muhammadiyah Surakarta	509	0.3094	80.8385
51	Bengkulu University	501	0.3045	81.1431
52	Universitas Mercu Buana	501	0.3045	81.4476
53	Universitas Katolik Parahyangan	500	0.3039	81.7515
54	Universitas Muhammadiyah Yogyakarta	474	0.2881	82.0396
55	Lambung Mangkurat University	465	0.2826	82.3222
56	Universitas Widyatama	461	0.2802	82.6024
57	Satya Wacana Christian	443	0.2693	82.8717
58	Universitas Sultan Ageng Tirtayasa	438	0.2662	83.1379
59	Eijkman Institute for Molecular Biology	428	0.2601	83.3981
60	Universitas Pelita Harapan	428	0.2601	83.6582
61	Badan Penelitian dan Pengembangan Kesehatan, Kementerian Kesehatan Republik Indonesia	416	0.2529	83.9111
62	Universitas Katolik Indonesia Atma Jaya	410	0.2492	84.1603
63	University of Mataram	407	0.2474	84.4077
64	Dr. Soetomo Hospital	404	0.2456	84.6532

Table 1. (cont.). Number of scientific publications on Scopus (Jan 30, 2020).

Rank No.	Institution	Doc. number	% contribut.	% accumul.
65	Universitas Trisakti	403	0.2450	84.8982
66	Universitas Dian Nuswantoro	390	0.2370	85.1352
67	Universitas Sanata Dharma	372	0.2261	85.3613
68	Hasan Sadikin Hospital	365	0.2219	85.5832
69	Universitas Negeri Medan	362	0.2200	85.8032
70	Gunadarma University	347	0.2109	86.0141
71	Universitas Malikussaleh	343	0.2085	86.2226
72	Universitas Atma Jaya Yogyakarta	323	0.1963	86.4189
73	Widya Mandala Surabaya Catholic University	319	0.1939	86.6128
74	Tarumanagara University	319	0.1939	86.8067
75	Universitas Muhammadiyah Malang	317	0.1927	86.9994
76	Universitas Pattimura	305	0.1854	87.1848
77	Universitas Kristen Maranatha	297	0.1805	87.3653
78	Universitas Musamus Merauke	286	0.1738	87.5391
79	Tanjungpura University	280	0.1702	87.7093
80	Universitas Pendidikan Ganesha	277	0.1684	87.8777
81	Universitas Bung Hatta	270	0.1641	88.0418
82	Pertamina, Jakarta	266	0.1617	88.2035
83	Politeknik Negeri Bandung	258	0.1568	88.3603
84	State Polytechnic of Malang	253	0.1538	88.5141
85	PT Perusahaan Listrik Negara Persero	250	0.1520	88.6660
86	Museum Zoologicum Bogoriense	231	0.1404	88.8064
87	Universitas Budi Luhur	214	0.1301	88.9365
88	State Islamic University of Malang	208	0.1264	89.0629
89	State University of Gorontalo	207	0.1258	89.1887
90	Universitas Muslim Indonesia	205	0.1246	89.3133
91	Universitas Palangka Raya	205	0.1246	89.4380
92	Indonesian Agency for Agricultural Research and Development	203	0.1234	89.5613
93	Herbarium Bogoriense	201	0.1222	89.6835
94	National Institute of Technology ITN Malang	199	0.1210	89.8045
95	Ministry of Agriculture, Indonesia	196	0.1191	89.9236
96	Universitas Islam Riau	194	0.1179	90.0415
97	Universitas Pembangunan Nasional Veteran Jawa Timur	194	0.1179	90.1594
98	Politeknik Negeri Lhokseumawe	189	0.1149	90.2743
99	Universitas Pancasila	183	0.1112	90.3855
100	Politeknik Negeri Ujung Pandang	179	0.1088	90.4943
101	Politeknik Negeri Bali	178	0.1082	90.6025

Table 1. (cont.). Number of scientific publications on Scopus (Jan 30, 2020).

Rank No.	Institution	Doc. number	% contribut.	% accumul.
102	Universitas Pembangunan Nasional Veteran Yogyakarta	178	0.1082	90.7107
103	Universitas Islam Negeri Sunan Kalijaga, Yogyakarta	174	0.1058	90.8165
104	Universitas Trunojoyo Madura	170	0.1033	90.9198
105	Pakuan University	167	0.1015	91.0213
106	Universitas Multimedia Nusantara	165	0.1003	91.1216
107	Universitas Terbuka	163	0.0991	91.2207
108	Universitas Kristen Indonesia	162	0.0985	91.3191
109	Universitas Muhammadiyah Sidoarjo	162	0.0985	91.4176
110	Politeknik Negeri Sriwijaya	159	0.0966	91.5143
111	Universitas Nasional	157	0.0954	91.6097
112	Institut Teknologi Sumatera ITERA	154	0.0936	91.7033
113	Soegijapranata Catholic University	150	0.0912	91.7945
114	ICRAF World Agroforestry Centre, Bogor	148	0.0900	91.8844
115	Universitas Islam Sultan Agung Semarang	147	0.0893	91.9738
116	Wildlife Conservation Society, Bogor	144	0.0875	92.0613
117	UIN Sunan Ampel Surabaya	143	0.0869	92.1482
118	Shipbuilding Institute of Polytechnic Surabaya	142	0.0863	92.2345
119	Universitas Warmadewa	142	0.0863	92.3208
120	President University	140	0.0851	92.4059
121	Universitas Muhammadiyah Purwokerto	139	0.0845	92.4904
122	Universitas Bakrie	138	0.0839	92.5743
123	Politeknik Negeri Medan	137	0.0833	92.6576
124	Universitas Jenderal Achmad Yani	134	0.0814	92.7390
125	Indonesian Center for Agricultural Biotechnology and Genetic Resources Research and Development	134	0.0814	92.8205
126	Pusat Jantung Nasional Harapan Kita	132	0.0802	92.9007
127	Universitas Jambi	132	0.0802	92.9809
128	Universitas Khairun	132	0.0802	93.0612
129	Narotama University	131	0.0796	93.1408
130	Departemen Energi dan Sumber Daya Mineral Republic of Indonesia	128	0.0778	93.2186
131	Politeknik Negeri Jember	127	0.0772	93.2958
132	Universitas Al Azhar Indonesia	124	0.0754	93.3711

Table 1. (cont.). Number of scientific publications on Scopus (Jan 30, 2020).

Rank No.	Institution	Doc. number	% contribut.	% accumul.
133	Institut Teknologi Nasional Bandung	123	0.0748	93.4459
134	Universitas Islam Bandung	123	0.0748	93.5207
135	Universitas PGRI Semarang	123	0.0748	93.5954
136	YARSI University	121	0.0735	93.6690
137	Universitas Bangka Belitung	115	0.0699	93.7389
138	University of Nusa Cendana	115	0.0699	93.8088
139	Universitas Wijaya Kusuma Surabaya	115	0.0699	93.8787
140	Politeknik Negeri Batam	113	0.0687	93.9474
141	Politeknik Negeri Jakarta	112	0.0681	94.0154
142	Universitas Kristen Krida Wacana	110	0.0669	94.0823
143	Ministry of Public Works, Jakarta	110	0.0669	94.1491
144	University of Muhammadiyah Jakarta	109	0.0663	94.2154
145	Universitas Muhammadiyah Prof. Dr. HAMKA	107	0.0650	94.2804
146	The World Bank, Indonesia	106	0.0644	94.3449
147	Universitas Kanjuruhan Malang	103	0.0626	94.4075
148	Universitas Putra Indonesia	103	0.0626	94.4701
149	Health Polytechnic of the Health Ministry of Surabaya	101	0.0614	94.5315
150	Institut Teknologi Adhi Tama Surabaya	100	0.0608	94.5922
151	Politeknik Negeri Padang	99	0.0602	94.6524
152	BIOTROP	98	0.0596	94.7120
153	Universitas Islam Negeri Ar-Raniry	95	0.0577	94.7697
154	Universitas Hang Tuah Surabaya	94	0.0571	94.8269
155	Universitas Sarjanawiyata Tamansiswa	94	0.0571	94.8840
156	Universitas Muhammadiyah Surabaya	91	0.0553	94.9393
157	Universitas Pembangunan Panca Budi	91	0.0553	94.9946
158	Universitas Islam Malang	90	0.0547	95.0493
159	Universitas Teknologi Yogyakarta	89	0.0541	95.1034
160	Universitas Muhammadiyah Tasikmalaya	88	0.0535	95.1569
161	Universitas PGRI Madiun	88	0.0535	95.2104
162	Public Health and Malaria Control Department, Papua	87	0.0529	95.2633
163	Universitas Indraprasta PGRI	86	0.0523	95.3155
164	University of Merdeka Malang	85	0.0517	95.3672
165	Universitas Muhammadiyah Semarang	85	0.0517	95.4189
166	Institute of Technology Padang	84	0.0511	95.4699
167	STMIK Nusamandiri	83	0.0504	95.5204

Table 1. (cont.). Number of scientific publications on Scopus (Jan 30, 2020).

Rank No.	Institution	Doc. number	% contribut.	% accumul.
168	STIKOM Bali	82	0.0498	95.5702
169	Marine Geological Institute	78	0.0474	95.6176
170	Politeknik Negeri Samarinda	78	0.0474	95.6650
171	Research Institute for Veterinary Science, Bogor	78	0.0474	95.7125
172	Institut Teknologi Indonesia	77	0.0468	95.7593
173	Forestry Research and Development Agency	76	0.0462	95.8054
174	Universitas Langlangbuana	75	0.0456	95.8510
175	Universitas Ma Chung	75	0.0456	95.8966
176	Universitas Dr. Soetomo	74	0.0450	95.9416
177	WWF-Indonesia	73	0.0444	95.9860
178	Politeknik Caltex Riau	72	0.0438	96.0297
179	Muhammadiyah University of Magelang	70	0.0425	96.0723
180	Sekolah Tinggi Teknologi Garut	70	0.0425	96.1148
181	Universitas Islam Negeri Walisongo Semarang	70	0.0425	96.1574
182	Universitas Muhammadiyah Sumatera Utara	69	0.0419	96.1993
183	Universitas AMIKOM Purwokerto	68	0.0413	96.2406
184	Institut Teknologi Medan	68	0.0413	96.2820
185	Universitas Islam Negeri Raden Intan Lampung	68	0.0413	96.3233
186	Geological Research and Development Centre, Bandung	67	0.0407	96.3640
187	Universitas Muhammadiyah Palembang	67	0.0407	96.4048
188	PT Freeport Indonesia	67	0.0407	96.4455
189	Research Center of Maju Makmur Mandiri Foundation	67	0.0407	96.4862
190	Bank Indonesia	65	0.0395	96.5257
191	Universitas Ciputra	65	0.0395	96.5652
192	People & Nature Consulting International	65	0.0395	96.6047
193	AMCS Research Center	64	0.0389	96.6436
194	Universitas Muhammadiyah Makassar	64	0.0389	96.6825
195	Universitas Pasundan	63	0.0383	96.7208
196	Universitas Persada Indonesia YAI Jakarta, Indonesia	63	0.0383	96.7591
197	Universitas Semarang	63	0.0383	96.7974
198	UNTAG University	63	0.0383	96.8357
199	Pusat Vulkanologi dan Mitigasi Bencana Geologi	63	0.0383	96.8740
200	Kementerian Perindustrian, Indonesia	62	0.0377	96.9117

Table 1. (cont.). Number of scientific publications on Scopus (Jan 30, 2020).

Rank No.	Institution	Doc. number	% contribut.	% accumul.
201	Sekolah Tinggi Ilmu Manajemen Sukma	62	0.0377	96.9494
202	Politeknik Negeri Semarang	61	0.0371	96.9864
203	Universitas Prasetiya Mulya	61	0.0371	97.0235
204	Institut Teknologi Kalimantan	60	0.0365	97.0600
205	Universitas Djuanda	59	0.0359	97.0958
206	Janabadra University	59	0.0359	97.1317
207	Universitas Muria Kudus	59	0.0359	97.1676
208	Universitas Garut	58	0.0353	97.2028
209	Universitas Maritim Raja Ali Haji	56	0.0340	97.2369
210	Sekolah Tinggi Agama Islam Negeri, Sorong	56	0.0340	97.2709
211	SKK Migas	56	0.0340	97.3049
212	Universitas Teuku Umar	56	0.0340	97.3390
213	Universitas Widyagama Malang	55	0.0334	97.3724
214	SMERU Research Institute	54	0.0328	97.4052
215	Universitas Sulawesi Barat	53	0.0322	97.4374
216	Manado State University	52	0.0316	97.4690
217	STKIP PGRI Sumbar	52	0.0316	97.5007
218	World Health Organization, Indonesia	52	0.0316	97.5323
219	Universitas Bina Darma	51	0.0310	97.5633
220	Faculty of Medicine, YARSI University	51	0.0310	97.5943
221	Forest and Nature Conservation Research and Development Centre, Bogor	51	0.0310	97.6253
222	Universitas Islam Negeri Sultan Syarif Kasim Riau	51	0.0310	97.6563
223	Universitas Pancasila Tegal	51	0.0310	97.6873
224	Universitas Borneo Tarakan	50	0.0304	97.7176
225	Universitas Kristen Indonesia Paulus	50	0.0304	97.7480
226	Politeknik Negeri Kupang	49	0.0298	97.7778
227	Sekolah Tinggi Ilmu Statistik	48	0.0292	97.8070
228	Universitas Wahid Hasyim	46	0.0280	97.8350
229	Universitas Bhayangkara Surabaya	45	0.0274	97.8623
230	Indonesian Oil and Palm Research Institute	45	0.0274	97.8897
231	Universitas Islam Negeri Raden Fatah Palembang	45	0.0274	97.9170
232	Universitas PGRI Yogyakarta	45	0.0274	97.9444
233	Sekolah Tinggi Teknik - PLN	45	0.0274	97.9717
234	Caltex Pacific Indonesia	44	0.0267	97.9985
235	Badan Meteorologi dan Geofisika	44	0.0267	98.0252
236	Islamic University of Kalimantan	43	0.0261	98.0513

Table 1. (cont.). Number of scientific publications on Scopus (Jan 30, 2020).

Rank No.	Institution	Doc. number	% contribut.	% accumul.
237	Sekolah Tinggi Teknik Surabaya	43	0.0261	98.0775
238	Poltekkes Kemenkes Semarang	42	0.0255	98.1030
239	Kalbis Institute	41	0.0249	98.1279
240	Setia Budi University	41	0.0249	98.1528
241	Institut Agama Islam Negeri, Surakarta	40	0.0243	98.1772
242	Universitas Paramadina	40	0.0243	98.2015
243	Universitas Mercu Buana Yogyakarta	39	0.0237	98.2252
244	Nusa Putra University	39	0.0237	98.2489
245	Universitas Nusantara PGRI Kediri	39	0.0237	98.2726
246	Central Research Institute for Food Crops, Bogor	38	0.0231	98.2957
247	Institut Teknologi Telkom Purwokerto	38	0.0231	98.3188
248	Universitas Pembangunan Nasional Veteran Jakarta	38	0.0231	98.3419
249	Politeknik Negeri Pontianak	38	0.0231	98.3650
250	Sekolah Tinggi Teknologi Nasional, Yogyakarta	38	0.0231	98.3881
251	Universitas Ubudiyah Indonesia	38	0.0231	98.4112
252	IRD ex ORSTOM, Jakarta	37	0.0225	98.4337
253	Institut Keguruan dan Ilmu Pendidikan Siliwangi	36	0.0219	98.4555
254	Universitas Nahdlatul Ulama Surabaya	36	0.0219	98.4774
255	Universitas Prof. Dr. Moestopo, Beragama	36	0.0219	98.4993
256	Universitas Pembangunan Jaya	35	0.0213	98.5206
257	STMIK AKBA	35	0.0213	98.5418
258	AMIKOM Yogyakarta University	34	0.0207	98.5625
259	Food and Agriculture Organization of the United Nations, Indonesia	32	0.0195	98.5820
260	STIKOM Dinamika Bangsa	32	0.0195	98.6014
261	STMIK IBBI	32	0.0195	98.6209
262	Airlangga University School of Medicine	31	0.0188	98.6397
263	Bernofarm Pharmaceutical Company	31	0.0188	98.6585
264	Sekolah Tinggi Teknologi Adisutjipto	31	0.0188	98.6774
265	STIE YKPN School of Business	31	0.0188	98.6962
266	Borneo Nature Foundation	30	0.0182	98.7145
267	Universitas Cokroaminoto Palopo	30	0.0182	98.7327
268	Politeknik Pos Indonesia	30	0.0182	98.7509
269	PT. Bio Farma	30	0.0182	98.7692
270	Universitas Respati Yogyakarta	30	0.0182	98.7874
271	Indonesia Defense University	29	0.0176	98.8050
272	Universitas Islam Sumatera Utara	29	0.0176	98.8227

Table 1. (cont.). Number of scientific publications on Scopus (Jan 30, 2020).

Rank No.	Institution	Doc. number	% contribut.	% accumul.
273	Universitas Muhammadiyah Gorontalo	29	0.0176	98.8403
274	Poltekkes Kemenkes Makassar	29	0.0176	98.8579
275	STMIK Raharja	29	0.0176	98.8755
276	Universitas Islam Nusantara	28	0.0170	98.8926
277	National Development Planning Agency, Jakarta	28	0.0170	98.9096
278	UIN Sumatera Utara	28	0.0170	98.9266
279	USAID, Indonesia	28	0.0170	98.9436
280	Prasetiya Mulya Business School	27	0.0164	98.9600
281	Center for Soil and Agroclimate Research, Bogor	26	0.0158	98.9758
282	Institut Sains dan Teknologi Nasional	26	0.0158	98.9916
283	Universitas Malahayati	26	0.0158	99.0074
284	Universitas Muhammadiyah Metro	26	0.0158	99.0232
285	Muhammadiyah University of Palangkaraya	26	0.0158	99.0390
286	Politeknik Negeri Lampung	26	0.0158	99.0548
287	Institut Agama Islam Negeri Syekh Nurjati Cirebon	25	0.0152	99.0700
288	UIN Antasari Banjarmasin	25	0.0152	99.0852
289	Universitas Suryakencana	25	0.0152	99.1004
290	Fajar University	24	0.0146	99.1150
291	Pusat Penelitian Perkebunan Gula Indonesia	24	0.0146	99.1296
292	Universitas Islam 45	24	0.0146	99.1442
293	Universitas Mahasaraswati Denpasar	24	0.0146	99.1588
294	Politeknik Pertanian Negeri Payakumbuh	23	0.0140	99.1728
295	Universitas Borobudur	23	0.0140	99.1867
296	Universitas Ibn Khaldun Bogor	23	0.0140	99.2007
297	Institut Teknologi dan Sains Bandung	23	0.0140	99.2147
298	Universitas Islam Negeri Alauddin Makassar	23	0.0140	99.2287
299	Kementerian Riset Teknologi dan Pendidikan Tinggi Republik Indonesia	23	0.0140	99.2427
300	Politeknik Negeri Ambon	23	0.0140	99.2566
301	PT Badak NGL	23	0.0140	99.2706
302	Universitas Sari Mutiara Indonesia	23	0.0140	99.2846
303	STIE Perbanas Surabaya	23	0.0140	99.2986
304	International Potato Center, Bogor	22	0.0134	99.3120
305	University Muhammadiyah Aceh	22	0.0134	99.3253
306	Universitas Nusa Bangsa	22	0.0134	99.3387
307	Politeknik ATI Padang	21	0.0128	99.3515
308	Politeknik Manufaktur Negeri Bandung	21	0.0128	99.3642

Table 1. (cont.). Number of scientific publications on Scopus (Jan 30, 2020).

Rank No.	Institution	Doc. number	% contribut.	% accumul.
309	Politeknik Manufaktur Negeri Bangka Belitung	21	0.0128	99.3770
310	STKIP Singkawang	21	0.0128	99.3898
311	Yogyakarta Animal Disease Investigation Centre	21	0.0128	99.4025
312	Atlantic Richfield Indonesia Inc	20	0.0122	99.4147
313	Institut Agama Islam Negeri Bengkulu	19	0.0115	99.4262
314	PT Kalbe Farma Tbk.	19	0.0115	99.4378
315	STMIK Dharma Wacana Metro	19	0.0115	99.4493
316	Politeknik Negeri Indramayu	18	0.0109	99.4603
317	State Islamic Institute IAIN Kudus	17	0.0103	99.4706
318	IAIN Manado	17	0.0103	99.4809
319	Politeknik Pertanian Negeri Kupang	17	0.0103	99.4913
320	Laboratorium Klinik Prodia, Jakarta	17	0.0103	99.5016
321	Universitas Muhammadiyah Jember	17	0.0103	99.5119
322	Universitas Riau Kepulauan	17	0.0103	99.5223
323	Institut Agama Islam Negeri Palopo	16	0.0097	99.5320
324	Universitas PGRI Ronggolawe Tuban	16	0.0097	99.5417
325	Politeknik Negeri Banyuwangi	16	0.0097	99.5514
326	Rockefeller Foundation in Indonesia	16	0.0097	99.5612
327	Sekolah Tinggi Ilmu Ekonomi Ekuitas	16	0.0097	99.5709
328	Institut Agama Islam Negeri Palu	16	0.0097	99.5806
329	Universitas 'Aisyiyah Yogyakarta	15	0.0091	99.5897
330	Universitas Batam	15	0.0091	99.5988
331	Universitas Batanghari	15	0.0091	99.6080
332	ENI Indonesia Ltd	15	0.0091	99.6171
333	PT Dirgantara Indonesia	15	0.0091	99.6262
334	Wetlands International, Indonesia	15	0.0091	99.6353
335	Universitas Abdurrab	14	0.0085	99.6438
336	Mitra Masyarakat Hospital	14	0.0085	99.6523
337	Universitas 17 Agustus 1945 Banyuwangi	13	0.0079	99.6602
338	Universitas Buddhi Dharma	13	0.0079	99.6681
339	Institut Agama Islam Negeri Tulungagung	13	0.0079	99.6760
340	STMIK Amik Riau	13	0.0079	99.6839
341	Universitas Katolik De La Salle	12	0.0073	99.6912
342	Nutrition Research and Development Centre, Bogor	12	0.0073	99.6985
343	Universitas Pelita Harapan Surabaya	12	0.0073	99.7058
344	Universitas Prof. Dr. Hazairin SH. Bengkulu	12	0.0073	99.7131
345	University of Darussalam Gontor	11	0.0067	99.7198
346	Gondol Research Station for Coastal Fisheries, Bali	11	0.0067	99.7265

Table 1. (cont.). Number of scientific publications on Scopus (Jan 30, 2020).

Rank No.	Institution	Doc. number	% contribut.	% accumul.
347	Institut Keguruan dan Ilmu Pendidikan PGRI Bali	11	0.0067	99.7332
348	University of North Sumatra Medical School	11	0.0067	99.7399
349	STKIP Muhammadiyah Kuningan	11	0.0067	99.7465
350	Universitas Buana Perjuangan Karawang	10	0.0061	99.7526
351	Sekolah Tinggi Manajemen Ipmi	10	0.0061	99.7587
352	Universitas Islam Batik Surakarta	10	0.0061	99.7648
353	Universitas Kuningan	10	0.0061	99.7709
354	Universitas Pesantren Tinggi Darul Ulum	10	0.0061	99.7769
355	Polytechnic STMI Jakarta	10	0.0061	99.7830
356	Sekolah Tinggi Ilmu Farmasi Makassar	10	0.0061	99.7891
357	Sekolah Tinggi Teknologi Pekanbaru	10	0.0061	99.7952
358	STIKes Muhammadiyah Ciamis	10	0.0061	99.8012
359	STMIK AMIK Bandung	10	0.0061	99.8073
360	STMIK Dipanegara Makassar	10	0.0061	99.8134
361	STMIK JAKARTA STI & K	10	0.0061	99.8195
362	Center for Pulp and Paper, Indonesia	9	0.0055	99.8249
363	IKIP PGRI Bojonegoro	9	0.0055	99.8304
364	Japan International Cooperation Agency, Indonesia	9	0.0055	99.8359
365	Rumah Sakit Pantai Indah Kapuk	9	0.0055	99.8414
366	Universitas Peradaban	9	0.0055	99.8468
367	STIKES Mandala Waluya Kendari	9	0.0055	99.8523
368	Universitas Veteran Bangun Nusantara Sukoharjo	9	0.0055	99.8578
369	Balai Penyelidikan dan Pemakaian Karet, Bogor	8	0.0049	99.8626
370	Institut Teknologi Telkom Surabaya	8	0.0049	99.8675
371	Sekolah Tinggi Ilmu Ekonomi Adi Unggul Bhirawa	8	0.0049	99.8724
372	Seroja Rheumatic Center	8	0.0049	99.8772
373	Departemen Kehutanan Republik Indonesia	8	0.0049	99.8821
374	University of Ekasakti	7	0.0043	99.8863
375	Fish Health Research Laboratory, Jakarta	7	0.0043	99.8906
376	UNISNU Jepara	7	0.0043	99.8948
377	Universitas Katolik Musi Charitas	7	0.0043	99.8991
378	Politeknik APP Jakarta	7	0.0043	99.9034
379	Universitas Boyolali	6	0.0036	99.9070
380	Universitas Islam Indragiri	6	0.0036	99.9107
381	Badan Pengawas Obat dan Makanan	6	0.0036	99.9143

Table 1. (cont.). Number of scientific publications on Scopus (Jan 30, 2020).

Rank No.	Institution	Doc. number	% contribut.	% accumul.
382	Regional Science Bureau for Asia and the Pacific, Indonesia	6	0.0036	99.9179
383	Research Institute for Freshwater Fisheries, Bogor	6	0.0036	99.9216
384	East Java Leprosy Control Project	5	0.0030	99.9246
385	IAIN Bukittinggi	5	0.0030	99.9277
386	Institut Agama Islam Negeri Mataram	5	0.0030	99.9307
387	Institut Agama Islam Negeri Samarinda	5	0.0030	99.9337
388	Repsol, Indonesia	5	0.0030	99.9368
389	Sekolah Tinggi Manajemen Informatika dan Komputer Banjarbaru	5	0.0030	99.9398
390	STIE Muhammadiyah Jakarta	5	0.0030	99.9429
391	STMik Atma Luhur, Pangkalpinang	5	0.0030	99.9459
392	Centre for Alleviation of Poverty Through Secondary Crops Development in Asia and the Pacific, Indonesia	4	0.0024	99.9483
393	Ciputra Group	4	0.0024	99.9508
394	Yayasan Bumi Sehat	4	0.0024	99.9532
395	Institut Parahikma Indonesia	4	0.0024	99.9556
396	Universitas Islam Jakarta	4	0.0024	99.9581
397	LASMO Runtu Ltd.	4	0.0024	99.9605
398	PPM Institute of Management	4	0.0024	99.9629
399	Rumah Sakit Puri Cinere	4	0.0024	99.9654
400	STIE Multi Data Palembang	4	0.0024	99.9678
401	Yayasan Pijar Cendekiawan	4	0.0024	99.9702
402	Universitas Airlangga Fakultas Farmasi	3	0.0018	99.9720
403	Taman Nasional Baluran Republik Indonesia	3	0.0018	99.9739
404	Universitas Islam Darul Ulum Lamongan	3	0.0018	99.9757
405	Universitas Kutai Kartanegara	3	0.0018	99.9775
406	Poltekkes Kemenkes Jakarta II	3	0.0018	99.9793
407	PT Haskoning Indonesia	3	0.0018	99.9812
408	Sekolah Tinggi Ilmu Ekonomi Ahmad Dahlan Jakarta	3	0.0018	99.9830
409	Sekolah Tinggi Ilmu Komputer PGRI Banyuwangi	3	0.0018	99.9848
410	Sekolah Tinggi Maritim dan Transpor AMNI	3	0.0018	99.9866
411	Sekolah Tinggi Pariwisata Ambarrukmo	3	0.0018	99.9885
412	World Food Program, Indonesia	3	0.0018	99.9903
413	BHP Billiton Limited, Indonesia	2	0.0012	99.9915

Table 1. (cont.). Number of scientific publications on Scopus (Jan 30, 2020).

Rank No.	Institution	Doc. number	% contribut.	% accumul.
414	Himpunan Masyarakat Nuklir Indonesia	2	0.0012	99.9927
415	Indonesian Railway Company, Ltd.	2	0.0012	99.9939
416	Kementerian Negara Lingkungan Hidup, Republik Indonesia	2	0.0012	99.9951
417	National Veterinary Drug Assay Laboratory, Indonesia	2	0.0012	99.9964
418	Sekolah Tinggi Ilmu Ekonomi Indonesia	2	0.0012	99.9976
419	Sekolah Tinggi Teknologi Industri dan Farmasi Bogor	2	0.0012	99.9988
420	Sekolah Tinggi Ilmu Kesehatan 'Aisyiyah Bandung	2	0.0012	100.0000

Table 2 presents document type of scientific publication by top 27 Indonesian institutions. Based on Table 1, top 27 Indonesian institution have accumulated more than 70% of total publication number of Indonesia. We categorized the document types by three classifications: (i) conference proceeding (conf. proc.), (ii) journal article (J. artic.), (iii) and other types (Abstract Report, Book Chapter, Book, Conference Review, Letter, Note, Report, Data Paper, Erratum, Editorial, Retracted, Review, and Short Survey).

Table 2. Type of publication of top 27 Indonesian institutions (Jan 30, 2020).

Rank No.	Institution	Publication types					
		Conf. Proc.	% Conf. proc.	J. Artic.	% J. Artic.	Other	% Other
1	Universitas Indonesia	6829	42.61%	8240	51.42%	957	5.97%
2	Institut Teknologi Bandung	7910	58.30%	5281	38.92%	377	2.78%
3	Universitas Gadjah Mada	3544	34.45%	6210	60.36%	534	5.19%
4	IPB University	1648	25.86%	4480	70.30%	245	3.84%
5	Institut Teknologi Sepuluh Nopember	3712	60.72%	2312	37.82%	89	1.46%
6	Universitas Diponegoro	2968	50.37%	2779	47.17%	145	2.46%
7	Lembaga Ilmu Pengetahuan Indonesia	2247	41.50%	2931	54.13%	237	4.38%
8	Brawijaya University	1562	31.33%	3291	66.02%	132	2.65%
9	Universitas Airlangga	619	14.26%	3504	80.70%	219	5.04%
10	Universitas Sebelas Maret	2717	65.19%	1377	33.04%	74	1.78%
11	Universitas Padjadjaran	1226	29.94%	2630	64.22%	239	5.84%
12	Universitas Sumatera Utara	2363	58.23%	1623	40.00%	72	1.77%
13	Hasanuddin University	1569	39.58%	2286	57.67%	109	2.75%
14	Bina Nusantara University	1677	50.85%	1512	45.85%	109	3.31%
15	Universitas Pendidikan Indonesia	1879	70.43%	750	28.11%	39	1.46%
16	Universitas Syiah Kuala	1130	43.87%	1328	51.55%	118	4.58%
17	Universitas Andalas	587	24.60%	1716	71.92%	83	3.48%

Table 2. (cont.). Type of publication of top 27 Indonesian institutions (Jan 30, 2020).

Rank No.	Institution	Publication types					
		Conf. Proc.	% Conf. proc.	J. Artic.	% J. Artic.	Other	% Other
18	Telkom University	1536	70.30%	611	27.96%	38	1.74%
19	Universitas Sriwijaya	902	50.03%	868	48.14%	33	1.83%
20	University of Indonesia, Dr. Cipto Mangunkusumo	106	5.93%	1454	81.32%	228	12.75%
21	Universitas Udayana	460	27.15%	1150	67.89%	84	4.96%
22	Center for International Forestry Research, West Java	96	5.78%	1207	72.67%	358	21.55%
23	Universitas Negeri Malang	884	53.71%	747	45.38%	15	0.91%
24	Universitas Islam Indonesia	822	58.01%	570	40.23%	25	1.76%
25	Universitas Negeri Yogyakarta	656	55.27%	514	43.30%	17	1.43%
26	Universitas Lampung	395	34.47%	715	62.39%	36	3.14%
27	Universitas Jember	455	40.55%	630	56.15%	37	3.30%

We presented data in Tables 3, 4, 5, 6, 7, and 8 for conference proceeding in subject area of biochemistry, chemical engineering, chemistry, environmental science, material science, and pharmaceuticals, respectively. The data were presented at different points of time between 2014 and 2019.

We presented data in Tables 9, 10, 11, 12, 13, and 14 for journal article in subject area of biochemistry, chemical engineering, chemistry, environmental science, material science, and pharmaceuticals, respectively. The data were presented at different points of time between 2014 and 2019.

Table 3. Conference proceeding on Biochemistry, genetics and molecular biology.

Rank No.	Institution	Total	Year of publication					
			2014	2015	2016	2017	2018	2019
1	Universitas Indonesia	29	0	0	6	2	3	93
2	Institut Teknologi Bandung	7	0	0	0	1	1	1
3	Universitas Gadjah Mada	33	0	0	0	0	3	23
4	Institut Pertanian Bogor	9	0	0	0	2	1	3
5	Institut Teknologi Sepuluh Nopember	3	0	0	0	0	0	3
6	Universitas Diponegoro	7	0	0	0	1	2	0
7	Lembaga Ilmu Pengetahuan Indonesia	3	0	0	0	0	1	0
8	Brawijaya University	0	0	0	0	0	0	0
9	Universitas Airlangga	4	0	0	0	0	0	0
10	Universitas Sebelas Maret	1	0	0	0	0	0	0
11	Universitas Padjadjaran	46	0	0	0	23	16	0
12	Universitas Sumatera Utara	0	0	0	0	0	0	0
13	Hasanuddin University	5	0	0	1	1	0	0

Table 3. (cont.). Conference proceeding on Biochemistry, genetics and molecular biology.

Rank No.	Institution	Total	Year of publication					
			2014	2015	2016	2017	2018	2019
14	Bina Nusantara University	1	0	0	1	0	0	0
15	Universitas Pendidikan Indonesia	2	0	0	0	2	0	0
16	Universitas Syiah Kuala	1	0	0	0	1	0	0
17	Universitas Andalas	3	0	0	0	1	1	0
18	Telkom University	0	0	0	0	0	0	0
19	Universitas Sriwijaya	0	0	0	0	0	0	0
20	University of Indonesia, RSUPN Dr. Cipto Mangunkusumo	4	0	0	0	0	0	0
21	Universitas Udayana	1	0	0	0	0	0	0
22	Center for International Forestry Research, West Java	0	0	0	0	0	0	0
23	Universitas Negeri Malang	0	0	0	0	0	0	0
24	Universitas Islam Indonesia	2	0	0	0	0	0	2
25	Universitas Negeri Yogyakarta	0	0	0	0	0	0	0
26	Universitas Lampung	0	0	0	0	0	0	0
27	Universitas Jember	3	0	0	0	0	0	1

Table 4. Conference proceedings on Chemical Engineering.

Rank No.	Institution	Total	Year of publication					
			2014	2015	2016	2017	2018	2019
1	Universitas Indonesia	53	85	4	24	1	0	6
2	Institut Teknologi Bandung	111	1	6	30	10	1	34
3	Universitas Gadjah Mada	33	1	1	9	4	0	4
4	Institut Pertanian Bogor	2	0	0	0	0	0	0
5	Institut Teknologi Sepuluh Nopember	18	2	0	1	3	0	1
6	Universitas Diponegoro	23	0	0	13	7	0	0
7	Lembaga Ilmu Pengetahuan Indonesia	37	0	0	3	1	0	29
8	Brawijaya University	7	0	0	3	0	0	1
9	Universitas Airlangga	0	0	0	0	0	0	0
10	Universitas Sebelas Maret	64	0	1	32	24	2	3
11	Universitas Padjadjaran	18	0	0	0	0	16	0
12	Universitas Sumatera Utara	1	0	0	0	0	0	0
13	Hasanuddin University	2	0	0	0	0	0	1
14	Bina Nusantara University	0	0	0	0	0	0	0
15	Universitas Pendidikan Indonesia	0	0	0	0		0	0
16	Universitas Syiah Kuala	7	0	0	0	0	0	0
17	Universitas Andalas	3	0	0	0	1	0	0

Table 4. (cont.). Conference proceedings on Chemical Engineering.

Rank No.	Institution	Total	Year of publication					
			2014	2015	2016	2017	2018	2019
18	Telkom University	11	2	0	2	2	0	5
19	Universitas Sriwijaya	1	0	0	0	0	0	0
20	University of Indonesia, RSUPN Dr. Cipto Mangunkusumo	1	0	0	0	0	0	0
21	Universitas Udayana	6	0	0	3	0	0	0
22	Center for International Forestry Research, West Java	0	0	0	0	0	0	0
23	Universitas Negeri Malang	2	0	0	0	0	0	1
24	Universitas Islam Indonesia	5	0	0	1	2	0	0
25	Universitas Negeri Yogyakarta	0	0	0	0	0	0	0
26	Universitas Lampung	5	0	0	0	1	0	0
27	Universitas Jember	0	0	0	0	0	0	0

Table 5. Conference proceedings on Chemistry.

Rank No.	Institution	Total	Year of publication					
			2014	2015	2016	2017	2018	2019
1	Universitas Indonesia	138	0	11	6	25	89	0
2	Institut Teknologi Bandung	182	0	9	6	19	128	5
3	Universitas Gadjah Mada	71	0	0	3	2	59	0
4	Institut Pertanian Bogor	7	0	1	0	1	4	0
5	Institut Teknologi Sepuluh Nopember	124	0	1	7	27	86	0
6	Universitas Diponegoro	204	0	0	12	16	173	0
7	Lembaga Ilmu Pengetahuan Indonesia	38	0	5	5	7	19	0
8	Brawijaya University	66	0	1	4	16	40	3
9	Universitas Airlangga	4	0	0	1	0	1	0
10	Universitas Sebelas Maret	65	0	0	0	16	48	0
11	Universitas Padjadjaran	27	0	0	0	1	24	0
12	Universitas Sumatera Utara	44	0	0	1	8	35	0
13	Hasanuddin University	30	0	0	1	5	21	0
14	Bina Nusantara University	13	0	0	2	3	8	0
15	Universitas Pendidikan Indonesia	20	0	0	1		19	0
16	Universitas Syiah Kuala	29	0	1	1	1	23	0
17	Universitas Andalas	42	0	0	0	4	37	0
18	Telkom University	30	0	0	0	7	23	0
19	Universitas Sriwijaya	44	0	1	2	34	6	0
20	University of Indonesia, RSUPN Dr. Cipto Mangunkusumo	0	0	0	0	0	0	0
21	Universitas Udayana	10	0	0	1	0	9	0

Table 5. (cont.). Conference proceedings on Chemistry.

Rank No.	Institution	Total	Year of publication					
			2014	2015	2016	2017	2018	2019
22	Center for International Forestry Research, West Java	0	0	0	0	0	0	0
23	Universitas Negeri Malang	55	0	0	0	10	45	0
24	Universitas Islam Indonesia	83	0	0	0	1	80	0
25	Universitas Negeri Yogyakarta	3	0	0	0	0	0	0
26	Universitas Lampung	5	0	0	0	1	4	0
27	Universitas Jember	15	0	0	0	3	9	0

Table 6. Conference proceedings on Environmental Science.

Rank No.	Institution	Total	Year of publication					
			2014	2015	2016	2017	2018	2019
1	Universitas Indonesia	1267	2	0	12	47	869	327
2	Institut Teknologi Bandung	738	18	11	42	108	262	210
3	Universitas Gadjah Mada	733	2	2	28	43	258	390
4	Institut Pertanian Bogor	975	2	0	40	179	376	366
5	Institut Teknologi Sepuluh Nopember	314	4	2	2	37	126	131
6	Universitas Diponegoro	1209	1	2	2	80	726	392
7	Lembaga Ilmu Pengetahuan Indonesia	505	0	1	3	55	203	233
8	Brawijaya University	483	0	0	0	42	189	251
9	Universitas Airlangga	264	0	0	0	4	73	187
10	Universitas Sebelas Maret	419	0	2	0	21	239	155
11	Universitas Padjadjaran	351	2	0	14	15	157	161
12	Universitas Sumatera Utara	816	0	0	6	4	502	302
13	Hasanuddin University	699	2	1	2	11	125	546
14	Bina Nusantara University	155	2	1	1	3	142	6
15	Universitas Pendidikan Indonesia	120	2	1	2	4	64	46
16	Universitas Syiah Kuala	347	2	0	0	21	92	230
17	Universitas Andalas	127	2	0	0	4	25	95
18	Telkom University	6	0	0	0	0	3	2
19	Universitas Sriwijaya	119	1	0	1	3	74	39
20	University of Indonesia, RSUPN Dr. Cipto Mangunkusumo	13	0	0	0	1	4	8
21	Universitas Udayana	115	0	0	3	12	35	65
22	Center for International Forestry Research, West Java	53	0	0	0	3	11	23
23	Universitas Negeri Malang	123	0	0	1	0	23	98
24	Universitas Islam Indonesia	72	1	0	0	0	60	9

Table 6. (cont.). Conference proceedings on Environmental Science.

Rank No.	Institution	Total	Year of publication					
			2014	2015	2016	2017	2018	2019
25	Universitas Negeri Yogyakarta	55	0	0	0	0	12	43
26	Universitas Lampung	88	0	0	1	8	32	44
27	Universitas Jember	133	0	0	0	1	16	116

Table 7. Conference proceedings on material science.

Rank No.	Institution	Total	Year of publication					
			2014	2015	2016	2017	2018	2019
1	Universitas Indonesia	1012	8	33	48	177	283	399
2	Institut Teknologi Bandung	891	12	28	80	114	290	214
3	Universitas Gadjah Mada	450	3	10	30	84	164	134
4	Institut Pertanian Bogor	121	2	6	5	17	28	60
5	Institut Teknologi Sepuluh Nopember	683	3	22	56	106	193	281
6	Universitas Diponegoro	465	1	5	18	73	224	129
7	Lembaga Ilmu Pengetahuan Indonesia	387	4	19	21	68	95	155
8	Brawijaya University	337	3	4	11	26	94	191
9	Universitas Airlangga	52	0	1	2	3	10	34
10	Universitas Sebelas Maret	620	2	6	47	132	228	199
11	Universitas Padjadjaran	187	1	12	3	52	55	57
12	Universitas Sumatera Utara	688	0	1	2	135	374	173
13	Hasanuddin University	133	1	1	4	17	26	73
14	Bina Nusantara University	74	0	0	6	18	30	19
15	Universitas Pendidikan Indonesia	380	0	3	32	125	213	6
16	Universitas Syiah Kuala	411	0	2	6	20	150	215
17	Universitas Andalas	189	1	2	4	13	61	100
18	Telkom University	114	0	0	6	27	44	36
19	Universitas Sriwijaya	131	0	1	3	47	20	54
20	University of Indonesia, RSUPN Dr. Cipto Mangunkusumo	4	0	0	0	0	0	3
21	Universitas Udayana	92	1	1	9	9	17	45
22	Center for International Forestry Research, West Java	0	0	0	0	0	0	0
23	Universitas Negeri Malang	259	2	3	3	36	73	139
24	Universitas Islam Indonesia	288	0	12	39	38	124	74
25	Universitas Negeri Yogyakarta	42	0	1	5	4	8	24
26	Universitas Lampung	47	1	5	0	5	20	13
27	Universitas Jember	37	1	0	1	6	13	11

Table 8. Conference proceedings on pharmacology, toxicology, and pharmaceutics.

Rank No.	Institution	Total	Year of publication					
			2014	2015	2016	2017	2018	2019
1	Universitas Indonesia	5	0	0	0	0	0	0
2	Institut Teknologi Bandung	0	0	0	0	0	0	0
3	Universitas Gadjah Mada	2	0	0	0	0	0	0
4	Institut Pertanian Bogor	1	0	0	0	0	0	0
5	Institut Teknologi Sepuluh Nopember	0	0	0	0	0	0	0
6	Universitas Diponegoro	1	0	0	0	0	0	0
7	Lembaga Ilmu Pengetahuan Indonesia	0	0	0	0	0	0	0
8	Brawijaya University	0	0	0	0	0	0	0
9	Universitas Airlangga	1	0	0	0	0	0	0
10	Universitas Sebelas Maret	0	0	0	0	0	0	0
11	Universitas Padjadjaran	2	0	0	0	2	0	0
12	Universitas Sumatera Utara	1	0	1	0	0	0	0
13	Hasanuddin University	0	0	0	0	0	0	0
14	Bina Nusantara University	0	0	0	0	0	0	0
15	Universitas Pendidikan Indonesia	0	0	0	0	0	0	0
16	Universitas Syiah Kuala	0	0	0	0	0	0	0
17	Universitas Andalas	2	0	0	0	1	0	0
18	Telkom University	0	0	0	0	0	0	0
19	Universitas Sriwijaya	0	0	0	0	0	0	0
20	University of Indonesia, RSUPN Dr. Cipto Mangunkusumo	1	0	0	0	0	0	0
21	Universitas Udayana	1	0	0	0	0	1	0
22	Center for International Forestry Research, West Java	0	0	0	0	0	0	0
23	Universitas Negeri Malang	0	0	0	0	0	0	0
24	Universitas Islam Indonesia	0	0	0	0	0	0	0
25	Universitas Negeri Yogyakarta	0	0	0	0	0	0	0
26	Universitas Lampung	2	0	0	0	0	0	0
27	Universitas Jember	0	0	0	0	0	0	0

Table 9. Journal articles on biochemistry, genetics, and molecular biology.

Rank No.	Institution	Total	Year of publication					
			2014	2015	2016	2017	2018	2019
1	Universitas Indonesia	717	34	40	54	73	114	116
2	Institut Teknologi Bandung	504	45	40	30	41	75	63
3	Universitas Gadjah Mada	852	48	34	96	85	139	176
4	Institut Pertanian Bogor	1082	55	80	105	110	134	157

Table 9. (cont.). Journal articles on biochemistry, genetics, and molecular biology.

Rank No.	Institution	Total	Year of publication					
			2014	2015	2016	2017	2018	2019
5	Institut Teknologi Sepuluh Nopember	98	6	4	5	12	17	32
6	Universitas Diponegoro	285	12	21	24	35	45	55
7	Lembaga Ilmu Pengetahuan Indonesia	603	32	27	51	65	78	100
8	Brawijaya University	351	23	41	47	43	68	70
9	Universitas Airlangga	442	16	20	21	53	81	106
10	Universitas Sebelas Maret	114	7	8	10	18	26	33
11	Universitas Padjadjaran	430	18	28	36	60	111	74
12	Universitas Sumatera Utara	193	5	4	10	29	62	55
13	Hasanuddin University	216	15	10	29	24	27	40
14	Bina Nusantara University	31	2	4	1	2	14	6
15	Universitas Pendidikan Indonesia	22	3	1	5	1	3	3
16	Universitas Syiah Kuala	156	6	9	14	19	34	35
17	Universitas Andalas	259	21	27	59	27	51	32
18	Telkom University	9	0	0	0	1	5	3
19	Universitas Sriwijaya	83	4	6	11	9	14	22
20	University of Indonesia, RSUPN Dr. Cipto Mangunkusumo	144	9	8	11	14	24	35
21	Universitas Udayana	138	3	12	15	14	26	26
22	Center for International Forestry Research, West Java	95	5	6	15	12	18	17
23	Universitas Negeri Malang	32	2	1	2	4	8	12
24	Universitas Islam Indonesia	28	0	1	2	6	7	8
25	Universitas Negeri Yogyakarta	40	2	0	0	5	25	4
26	Universitas Lampung	106	4	4	9	19	19	11
27	Universitas Jember	73	3	6	4	5	14	14

Table 10. Journal articles on chemical engineering.

Rank No.	Institution	Total	Year of publication					
			2014	2015	2016	2017	2018	2019
1	Universitas Indonesia	205	4	6	16	28	45	56
2	Institut Teknologi Bandung	381	20	28	40	33	69	67
3	Universitas Gadjah Mada	274	22	15	35	24	40	58
4	Institut Pertanian Bogor	140	10	12	14	13	16	26
5	Institut Teknologi Sepuluh Nopember	295	18	29	29	50	42	54
6	Universitas Diponegoro	188	6	7	15	28	37	38
7	Lembaga Ilmu Pengetahuan Indonesia	125	2	5	8	12	22	35
8	Brawijaya University	171	15	38	49	7	17	22

Table 10. (cont.). Journal articles on chemical engineering.

Rank No.	Institution	Total	Year of publication					
			2014	2015	2016	2017	2018	2019
9	Universitas Airlangga	118	2	1	15	41	23	26
10	Universitas Sebelas Maret	97	4	2	8	9	28	34
11	Universitas Padjadjaran	106	5	7	9	4	50	16
12	Universitas Sumatera Utara	100	6	8	13	5	20	36
13	Hasanuddin University	22	0	1	5	2	2	7
14	Bina Nusantara University	29	2	1	0	2	16	7
15	Universitas Pendidikan Indonesia	60	5	0	4	19	18	10
16	Universitas Syiah Kuala	115	6	4	13	9	20	27
17	Universitas Andalas	60	4	3	8	7	10	19
18	Telkom University	18	2	1	4	2	4	5
19	Universitas Sriwijaya	34	2	3	1	4	6	7
20	University of Indonesia, RSUPN Dr. Cipto Mangunkusumo	1	0	0	0	0	0	0
21	Universitas Udayana	16	3	0	2	2	4	2
22	Center for International Forestry Research, West Java	6	2	1	0	0	0	1
23	Universitas Negeri Malang	30	1	1	6	3	6	10
24	Universitas Islam Indonesia	41	2	4	3	4	16	9
25	Universitas Negeri Yogyakarta	22	1	0	0	2	14	3
26	Universitas Lampung	63	3	3	5	12	13	8
27	Universitas Jember	38	1	4	2	3	8	7

Table 11. Journal articles on chemistry.

Rank No.	Institution	Total	Year of publication					
			2014	2015	2016	2017	2018	2019
1	Universitas Indonesia	288	14	19	18	27	37	43
2	Institut Teknologi Bandung	566	41	44	54	40	68	82
3	Universitas Gadjah Mada	585	36	37	58	68	72	98
4	Institut Pertanian Bogor	236	24	22	32	22	27	31
5	Institut Teknologi Sepuluh Nopember	255	19	28	38	26	32	46
6	Universitas Diponegoro	156	7	10	11	19	25	29
7	Lembaga Ilmu Pengetahuan Indonesia	340	20	14	22	28	33	49
8	Brawijaya University	221	22	40	60	19	30	19
9	Universitas Airlangga	229	7	9	17	22	32	50
10	Universitas Sebelas Maret	118	11	5	14	16	20	22
11	Universitas Padjadjaran	184	10	10	13	14	58	27
12	Universitas Sumatera Utara	142	8	9	22	13	36	39
13	Hasanuddin University	84	3	8	19	7	5	11

Table 11. (cont.). Journal articles on chemistry.

Rank No.	Institution	Total	Year of publication					
			2014	2015	2016	2017	2018	2019
14	Bina Nusantara University	22	4	2	0	2	3	8
15	Universitas Pendidikan Indonesia	40	5	3	6	4	7	3
16	Universitas Syiah Kuala	136	3	9	8	13	24	29
17	Universitas Andalas	192	10	11	50	20	22	23
18	Telkom University	15	1	1	4	2	5	2
19	Universitas Sriwijaya	80	8	7	11	6	9	15
20	University of Indonesia, RSUPN Dr. Cipto Mangunkusumo	3	0	0	0	0	1	1
21	Universitas Udayana	31	0	3	0	4	7	7
22	Center for International Forestry Research, West Java	8	1	1	0	2	0	0
23	Universitas Negeri Malang	99	0	0	7	8	9	14
24	Universitas Islam Indonesia	64	3	4	8	9	11	16
25	Universitas Negeri Yogyakarta	48	2	3	2	9	16	9
26	Universitas Lampung	116	6	7	11	22	15	10
27	Universitas Jember	47	5	6	2	3	5	7

Table 12. Journal articles on environmental science.

Rank No.	Institution	Total	Year of publication					
			2014	2015	2016	2017	2018	2019
1	Universitas Indonesia	448	22	16	32	164	59	79
2	Institut Teknologi Bandung	568	40	46	42	91	76	89
3	Universitas Gadjah Mada	557	34	29	53	85	111	94
4	Institut Pertanian Bogor	759	53	67	91	114	96	130
5	Institut Teknologi Sepuluh Nopember	263	19	13	18	28	46	76
6	Universitas Diponegoro	633	5	17	35	360	88	67
7	Lembaga Ilmu Pengetahuan Indonesia	413	32	34	31	38	59	68
8	Brawijaya University	395	21	22	35	63	97	119
9	Universitas Airlangga	260	3	6	9	28	43	159
10	Universitas Sebelas Maret	131	2	9	35	32	22	22
11	Universitas Padjadjaran	185	5	8	11	23	65	38
12	Universitas Sumatera Utara	92	2	4	4	22	35	16
13	Hasanuddin University	212	11	12	25	35	54	37
14	Bina Nusantara University	268	7	116	33	62	19	30
15	Universitas Pendidikan Indonesia	55	4	1	3	28	13	4
16	Universitas Syiah Kuala	202	17	32	19	20	37	31
17	Universitas Andalas	172	8	8	25	34	37	30
18	Telkom University	74	5	5	18	33	8	5

Table 12. (cont.). Journal articles on environmental science.

Rank No.	Institution	Total	Year of publication					
			2014	2015	2016	2017	2018	2019
19	Universitas Sriwijaya	103	8	7	9	22	13	24
20	University of Indonesia, RSUPN Dr. Cipto Mangunkusumo	43	0	0	1	40	1	0
21	Universitas Udayana	57	5	7	3	6	11	16
22	Center for International Forestry Research, West Java	776	57	56	57	82	71	74
23	Universitas Negeri Malang	40	1	0	6	10	10	11
24	Universitas Islam Indonesia	68	5	10	7	12	12	20
25	Universitas Negeri Yogyakarta	33	1	0	1	4	21	3
26	Universitas Lampung	128	2	8	8	27	15	26
27	Universitas Jember	52	2	5	2	13	10	10

Table 13. Journal articles on material science.

Rank No.	Institution	Total	Year of publication					
			2014	2015	2016	2017	2018	2019
1	Universitas Indonesia	259	5	13	17	27	35	58
2	Institut Teknologi Bandung	599	21	35	40	71	88	94
3	Universitas Gadjah Mada	294	16	16	23	24	48	61
4	Institut Pertanian Bogor	221	16	13	22	19	29	48
5	Institut Teknologi Sepuluh Nopember	207	10	11	21	17	24	55
6	Universitas Diponegoro	75	2	4	7	8	14	11
7	Lembaga Ilmu Pengetahuan Indonesia	189	6	12	13	25	27	40
8	Brawijaya University	88	5	7	10	9	19	19
9	Universitas Airlangga	198	3	3	10	18	47	78
10	Universitas Sebelas Maret	122	13	6	13	12	28	32
11	Universitas Padjadjaran	81	1	7	4	6	17	7
12	Universitas Sumatera Utara	69	2	3	14	5	8	14
13	Hasanuddin University	59	2	7	5	5	9	15
14	Bina Nusantara University	16	2	0	0	0	3	8
15	Universitas Pendidikan Indonesia	38	5	5	1	0	4	14
16	Universitas Syiah Kuala	96	6	4	4	9	20	25
17	Universitas Andalas	56	2	1	6	7	9	13
18	Telkom University	52	1	2	4	5	34	5
19	Universitas Sriwijaya	43	4	3	5	5	4	10
20	University of Indonesia, RSUPN Dr. Cipto Mangunkusumo	2	0	0	0	0	0	0
21	Universitas Udayana	17	4	1	2	0	0	4

Table 13. (cont.). Journal articles on material science.

Rank No.	Institution	Total	Year of publication					
			2014	2015	2016	2017	2018	2019
22	Center for International Forestry Research, West Java	11	2	0	0	2	1	2
23	Universitas Negeri Malang	81	1	4	2	3	19	10
24	Universitas Islam Indonesia	21	2	0	1	1	3	13
25	Universitas Negeri Yogyakarta	28	0	0	2	4	8	6
26	Universitas Lampung	64	2	1	7	7	10	13
27	Universitas Jember	12	2	0	0	3	0	3

Table 14. Journal articles on pharmacology, toxicology, and pharmaceuticals.

Rank No.	Institution	Total	Year of publication					
			2014	2015	2016	2017	2018	2019
1	Universitas Indonesia	860	29	25	46	237	246	178
2	Institut Teknologi Bandung	448	45	51	90	45	48	34
3	Universitas Gadjah Mada	553	27	38	94	66	101	104
4	Institut Pertanian Bogor	148	10	17	25	19	23	22
5	Institut Teknologi Sepuluh Nopember	40	4	5	2	7	10	5
6	Universitas Diponegoro	91	1	8	12	14	11	24
7	Lembaga Ilmu Pengetahuan Indonesia	240	8	9	13	20	26	29
8	Brawijaya University	276	19	44	50	28	53	67
9	Universitas Airlangga	461	44	30	34	48	67	121
10	Universitas Sebelas Maret	45	4	3	4	4	14	15
11	Universitas Padjadjaran	360	19	19	31	78	77	82
12	Universitas Sumatera Utara	344	25	37	47	32	152	39
13	Hasanuddin University	126	5	8	17	8	24	39
14	Bina Nusantara University	6	0	0	0	2	2	2
15	Universitas Pendidikan Indonesia	4	2	0	1	0	0	0
16	Universitas Syiah Kuala	92	5	9	12	15	29	18
17	Universitas Andalas	334	22	70	96	33	37	46
18	Telkom University	2	0	0	0	0	0	2
19	Universitas Sriwijaya	38	0	6	9	5	11	7
20	University of Indonesia, RSUPN Dr. Cipto Mangunkusumo	59	4	7	8	5	9	21
21	Universitas Udayana	161	1	3	11	37	53	51
22	Center for International Forestry Research, West Java	6	0	0	3	0	0	0
23	Universitas Negeri Malang	19	0	3	1	1	6	8
24	Universitas Islam Indonesia	54	1	0	5	14	17	13

Table 14. (cont.). Journal articles on pharmacology, toxicology, and pharmaceutics.

Rank No.	Institution	Total	Year of publication					
			2014	2015	2016	2017	2018	2019
25	Universitas Negeri Yogyakarta	23	0	2	3	8	9	0
26	Universitas Lampung	84	4	4	7	21	13	8
27	Universitas Jember	40	2	7	2	7	9	11

Based on data, the chemistry and material science-related publications have shown great impacts to boosting publications in Indonesian institutions. They played important roles, shown by the increases in the publication numbers of these subjects every year. This data also shows the important information for stakeholders and policy makers for giving evaluation of research funds, projects, research infrastructure, and rejuvenation of research equipment as well as in the development of basic industries.

4. Conclusions

We have evaluated and presented a dataset of bibliometric from all Indonesian institutions (as of January 2020) indexed by Scopus database. Data was collected for obtaining the number of “documents per year” and “documents type per year”. Based on this data, we selected the top 27 institutions for further analysis in the subject area (i.e., biochemistry, chemical engineering, chemistry, environmental science, material science, and pharmaceutics). We also analysed whether each subject area is published in different types of documents (i.e., number of journal article and conference paper) in which the types are the driving force of Indonesia’s growing scientific publication number. This dataset is potential for reuse by stakeholders and policy makers in the evaluation of research funds, projects, research infrastructure, and rejuvenation of research equipment as well as in the development of basic industries.

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