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Scientometric Profile of the Imam Abdulrahman Bin Faisal University: A leading University of Eastern Province, Saudi Arabia

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**Scientometric Profile of the Imam Abdulrahman Bin Faisal
University: A leading University of Eastern Province, Saudi Arabia**

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Abstract:

Purpose: The research conducted for a systematic analysis of the development and trends in scientific literature production and collaboration pattern of the faculties of Imam Abdulrahman Bin Faisal University (IAU), between 2010 to 2020 as the research productivity is one of the evaluation parameters of universities performance.

Design/methodology/approach: The study comprises the data collected from the web of science core collection (WoSCC) for the selected period. MS-Excel, MS. Access 2016, open-source software namely, Biblioshiny, ScientoPy and VOSviewer used for data analysis. The work tackled with the annual scientific research paper production, prolific authors, collaborations, most relevant sources, frequently used keywords, topic distribution, research fronts, and research trends. The collaborations amongst the leading research organizations and groups were investigated with co-citation and keywords co-occurrence analysis.

Findings: The study indicated that the scientific literature productivity increased and the authors of IAU have significant national and international collaborations. *Indo American Journal of Pharmaceutical Sciences* found a preferred source for publication, Baykal A noted as a prolific author with 128 papers, and 1,635 citations. National collaboration (2,716 papers); and for international collaboration Egypt is highest (312 papers). Journal article is the most preferred form of paper produced while *Saudi Arabia* and *Synthesis* are frequently used author keywords.

Originality/value: The study could be helpful in visualizing the scientific research productivity of universities and other academic institutions in term of evaluation of academic performances.

Keywords: *Scientometrics; Scientific literature; Collaborations; Source impact; Imam Abdulrahman Bin Faisal University, Saudi Arabia.*

Research Type: Research Paper

Introduction

Imam Abdulrahman Bin Faisal University (IAU), Dammam, Kingdom of Saudi Arabia was; formerly known as the University of Dammam (UoD). It is one of the oldest universities in the eastern province and one of the leading universities in medicine and architecture. It was founded in 1975, separated from King Faisal University in 2009, and became University of Dammam (UoD). The university was renamed in November 2016 during the visit of the Custodian of the Two Holy Mosques King Salman bin Abdulaziz Al Saud. Dr. Abdullah Al-Rubaish is the first rector of Imam Abdulrahman Bin Faisal University (IAU) since 2010. IAU achieved 301-350 rank in Times Higher Education ranking for 2020 in his tenure and thriving to become one of the best

universities in the region. The research productivity of IAU researcher community is considered as one of the main benchmarks for measuring the performance of the scholars of the university, as research is a vital activity to develop new ideas, phenomena and facts in any field to address a gap and bridge it. Research productivity supports to perk up the status and ranking of any institution or organization. Therefore, the purpose of the following study believed to feature the performance and participation of the research community of IAU from 2010 to 2020. Besides, the study intended to draw a more reliable picture of the IAU contribution in research. The aim set to identify the improvement and enrichment of IAU research productivity based on the data collected from the web of science core collection (WoSCC). Bapte and Gedam (2018) mentioned in their study. The scientometric analysis is a widespread technique for investigating research productivity; therefore, this method adopted to identify the research productivity of IAU.

Literature Review

Several research studies have used scientometric method to evaluate the research productivity of any person, organization, or a nation. Scientometric studies have assessed the aspects of productivity and influence of research performed in several countries. Chaurasia and Chavan (2014) discussed in their study Scientometrics/Bibliometrics are very much useful to gauge the progress of the research output of any persons, organizations, and nations.

In a study, Rahaman et al. (2020) have analyzed Scientometrics Profile of the Banasthali Vidyapith for the period of 2000-2020. A total of 2764 data have been downloaded from Scopus by applying affiliation in the search box. The downloaded data have been analyzed and visualize with the help of bibliometrics analysis tools, namely Biblioshiny, VOSviewer, MS-Access and excel. The study considered different meters to analyze the data, namely yearly research growth, most cited documents, the pattern of authorship, authors keywords, most impactful journals and authors and country-wise research collaboration etc.

Bapte and Gedam, (2018) mentioned in the recent study of Sant Gadge Baba Amravati University, (SGBAU) produced 1,130 articles from 2007 to 2017. Mahendra Rai was the highest contributing author with 209 research papers, followed by S.K. Omnwar with 143 and Anand S. Aswar with 94 papers. Maximum research articles were published by the Department of Physics and Astronomy (356), followed by the Engineering (284), and Department of Chemistry (251). “Sant Gadge Baba Amravati University (SGBAU)” had the highest international collaboration with

Brazil, followed by the United States and local collaboration with the state of Maharashtra. The h-index 17 was the highest in the year of 2009. The top three authors scored the highest citations 4,444 for their total research papers (315). Most of the documents were published as research articles (839), followed by conference papers (174), and reviews (50).

Neelam and Jean, (2016) explained in their study of chemical engineering faculty at the University of Florida (UoF) that total of 279 research articles were published in 115 different journals during the study period from 2011 to 2015. The highest number of research articles (69) were published in 2013. The University of Florida (UoF) faculty members preferred to publish their research in the UoF library subscribed journal. Most of the articles (41) were published in the “*Journal of Vacuum Science and Technology B (JVS&TB)*”, followed by “*Applied Physics Letters*” (11) and “*Journal of Physical Chemistry C* (9). The highest impact factor (IF) was noted for the *Advanced Materials*” (17.493), followed by “*ACS Nano*” (12.881) and “*Journal of the American Chemical Society*” (12.113). The leading publisher was the “*American Institute of Physics*” (AIP). Total 69 articles were published by the AIP, followed by the Elsevier (49) and the ACS (39). Total citations counted were 10,495, out of which journals articles received 9,771 citations, book secured 128 citations, and the remaining 596 citations were received from other types of documents

Chaurasia and Chavan, (2014) conducted research about Indian Institute of Technology Delhi (IIT, Delhi) on 6,109 documents published from 2001 to 2010. “Gupta M. N.” was identified as a top contributing author with 140 papers, followed by “Tripathi, V.K” (115 papers) and “Singh, Bhim” (112 papers). The “*Journal of Applied Polymer Science*” was the most preferred source of publication amongst the IIT Delhi faculty members with 164 papers, followed by “*Indian Journal of Fibre Textile Research*” with 121 papers. Most of the papers were published as an article (5,731), followed by the proceedings papers (461), and reviews (192). The highest number of documents were produced (836) in 2010. Engineering was the most favoured research area with 1,890 articles.

Ansari et al. (2019) analyzed the research productivity of Kumaun University, Nainital from 2000 to 2019. The results showed that 1574 research papers relating to the university were indexed in Scopus during the period of study. The study focused on to measure the year-wise research output, to identify the type of documents, subject-wise distribution, prolific authors and most cited authors etc. The most productive year was 2017 with 150 papers. ‘Agricultural and Biological Sciences’ was the most preferred subject discipline. *Current science* became the most preferred source to publish papers.

Xing et al.(2018) analyzed 1,933 documents in ‘Stem cells for osteoarthritis’, from 1994 to 2017. The United States was highly contributing country with (589) papers followed by China (318), and England (168). Highly contributing authors for research on ‘osteoarthritis’ was Sekiya who published 28 articles, followed by Jorgensen (27 papers) and Muneta (26 papers). Journal “*Osteoarthritis and Cartilage*” was the most prolific source of publications for osteoarthritis literature with (194) documents. “Tokyo Medical and Dental University” was leading in publishing osteoarthritis research with (33) documents followed by the University of Pittsburg with (31) documents and Shanghai Jiaotong with (29) documents. The United States secured the highest citations (16,740), followed by Japan (4,262) and England (3,945). The highest h-index was also scored by the United States (65), followed by England (39), and Japan (33).

Mapping knowledge domain is an essential application of visualization technology in Bibliometrics, which has extensively applied in many fields and areas (Zou, Yue and Vu, 2018). The development of a bibliometric analysis is beneficial to classify and provide a representative overview of a set of bibliographic documents (Merigó *et al.*, 2018). Alfonzo et al. (2014) regarded bibliometrics as a statistical method used in citation and content analysis. He opined that it is a quantitative approach for calculating the output and for analyzing value and merit in scientific production. Vošner et al., (2016) defined bibliometric mapping as a means used to visualize research production with a variety of bibliometric maps; which provide a structural overview of the publications. Heersmink et al. (2011) stated that bibliometric mapping aims to produce visual representations of the relations between specific units of interest.

Xing et al., (2018) argued that bibliometric analysis could provide information based on literature databases and literature metrology characteristics, which may be used qualitatively and quantitatively to evaluate trends in research activity over time. Rodrigues et al. (2014) discussed that visualization techniques based on bibliometric data help obtain an overview of the literature on complex research topics. Citation analysis measures how often a publication is cited, acting as a proxy of its quality (Bazm and Seyyed Mehdi Kalantar, 2016). This research work revolves around scholarly communication and collaboration. The overall goals of the present study are to explore scientometric characteristics, to conduct a descriptive scientometric analysis, and discuss the publication and citation trends for the selected period. Therefore, the objectives of this research are summarised as:

Objectives

- To find out annual research productivity of IAU from the year 2010 to 2020
- To locate the author-preferred venue for research publishing
- To know the most prolific authors with more linkages
- To investigate the author and country collaboration
- To identify the strong and weak areas of research at IAU
- To distinguish the type of documents and assess citations
- To learn the most relevant sources and their citations
- To recognize the most frequently used keywords

Research Methodology

The research publications data of Imam Abdulrahman Bin Faisal University (IAU) was downloaded from the web of science core collection (WoSCC) as a CSV file containing complete bibliographic records and citation information. Data was downloaded on 22nd June 2020 using the search option of WoSCC with the query: “ADDRESS: (Imam Abdulrahman Bin Faisal University) OR ADDRESS: (University of Dammam) OR ADDRESS: (Dammam University) Timespan: All years. Indexes: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI, CCR-EXPANDED, IC”. The search was then restricted to IAU documents indexed in web of science core collection (WoSCC) from 2010 to 2020, which resulted in 2,737 articles.

Data analysis and Interpretations

The study worked towards developing a graphical mapping of the bibliometric material by using the visualization of similarities VOSviewer, which is an open-source tool and Java-based program (Pan *et al.*, 2018). The VOSviewer provides a clustering function, which assigns keywords to clusters based on their co-occurrence (Bornmann, Haunschild and Hug, 2018). With this software, the work analyses bibliographic coupling, citation and co-citation analysis, co-authorship, and co-occurrence of keywords. The software provides different views, allowing one to focus either on the map's global structure or on its more specific properties (Heersmink *et al.*, 2011). Rodrigues *et al.* (2014) stated that the functionality of VOSviewer is especially useful for displaying large bibliometric maps in an easy-to-interpret way. VOSviewer mapping software was used to analyze

the CSV file. The co-occurrence of authors and subjects, institutions, and country, were analyzed using the software.

Yearly research productivity of IAU

Inferences of scholarly communication have been presented in table 1, which shows the research productivity of IAU between 2010 and 2020. The rapid growth of publication of articles during the chosen period is visible, especially during recent years.

Table 1: Research productivity of IAU between 2010 and 2020

PY	TP	TC	U1	U2	Z9
2010	20	131	1	106	138
2011	28	231	4	156	243
2012	37	402	6	255	425
2013	43	419	7	478	436
2014	42	292	7	595	306
2015	29	444	11	422	461
2016	36	259	19	382	270
2017	132	508	49	654	521
2018	748	4087	1281	9663	4161
2019	1110	2720	2324	7857	2734
2020	512	186	1695	1874	187
Total	2737	9679	5404	20568	9695

PY=Publication Year, TP = Total Productions, TC = Total Citations, U1= refers to the usage count of the last 180 days, U2 refers to the usage count since 2013, Z9= total citation count

Table 1 and Fig. 1 clearly outline the gradual increase in the research productivity of IAU. The highest number of articles (1,110) was published in 2019, contributing 40.55% of overall output in eleven years, and 748 articles were published in the year 2018 with a share of 27.32%. The least number of papers (20) were produced in the year 2010. The data indicates that the IAU research productivity and scholarly communication pattern have risen considerably in the last eleven years and contributed much to the scientific community. However, less number of papers (512) in the year 2020 is due to the fact that the data collected as on 22nd June 2020. The maximum number of citations (4,087) were recorded for the year 2018, followed by 2,720 citations in 2019.

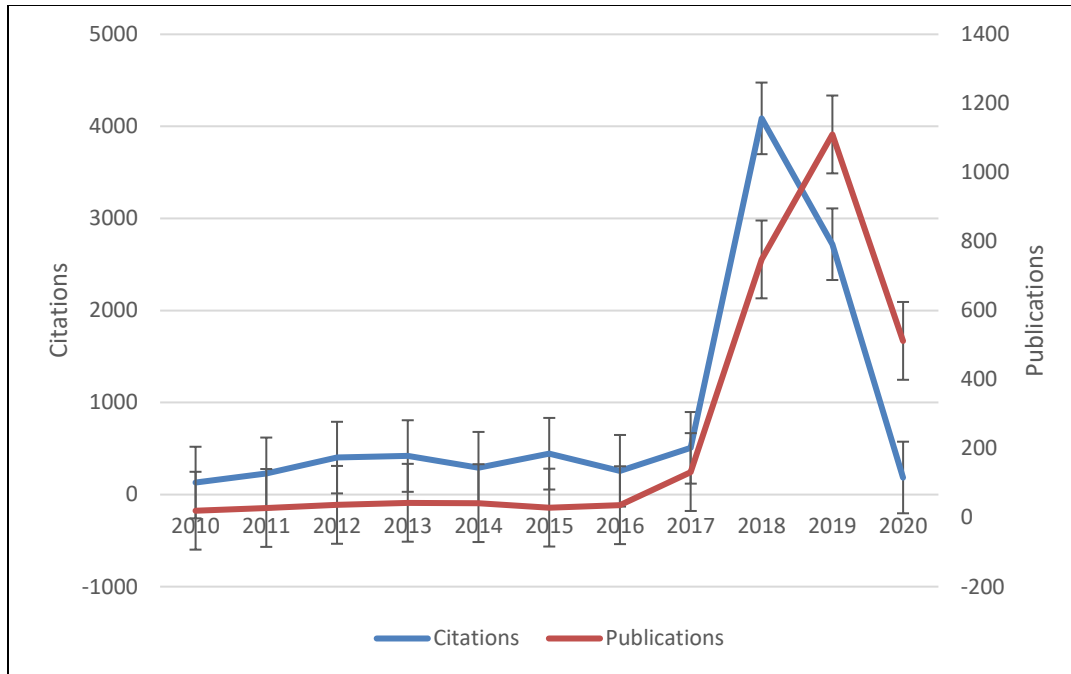


Figure 1: Yearly productivity

Types of research documents

Table 2 describes the type of research documents, namely articles, review, proceeding papers meeting abstract etc. produced by the research scientists of IAU.

Table 2: Types of research documents

Documents Type	TP	TC	U1	U2	Z9
Article	2235	8302	4336	17813	8466
Review	259	1330	1023	4349	1367
Proceedings Paper	91	17	32	129	18
Meeting Abstract	72	3	5	20	3
Editorial Material	35	16	1	55	17
Letter	25	6	3	38	6
Correction	18	3	4	28	3
Retraction	1	2	0	10	2
Biographical-Item	1	0	0	0	0
Total	2737	9679	5404	22442	9882

The data shows that the researcher of IAU mostly preferred to publish their researches in the form of journal articles (2,235 papers), followed by review (259) and proceeding papers (91). The other

forms of document types are meeting abstract (72), editorial material (35) letter (25) correction (18), retraction, biographical-item one each, respectively.

Source impact

Table 3 represents the source impact of the papers appeared in the journals, in terms of total publications (TP), total citations (TC), the impact factor (IF), and journal quartile (Q) etc.

Table 3: Source Impact

#	Source Title	Publisher	Country	TP	TC	IF	Q
1	Indo American Journal of Pharmaceutical Sciences	Sri Sai Jyothi College of Pharmacy	India	90	0	0	N/A
2	Ceramics International	Elsevier Ltd.	England	49	746	3.830	Q1
3	Bioorganic Chemistry	Academic Press, Inc.	USA	45	312	4.831	Q1
4	Saudi Journal of Medicine & Medical Sciences	Wolters Kluwer Medknow Publications	India	42	27	0	Q4
5	International Journal of Surgery Case Reports	Elsevier BV	Netherland	29	12	0	Q3
6	Journal of Family and Community Medicine	Wolters Kluwer Medknow Publications	India	29	44	0	N/A
7	Neurosciences	Saudi Arabian Armed Forces Hospital	Saudi Arabia	24	27	0.592	Q3
8	Saudi Medical Journal	Saudi Arabian Armed Forces Hospital	Saudi Arabia	22	28	1.195	Q3
9	2019 2nd International Conference on Computer Applications & Information Security (Iccais)	IEE, Saudi Arabia	Saudi Arabia	17	0	0	N/A
10	Arabian Journal for Science and Engineering	King Fahd Univ Petroleum Minerals	Saudi Arabia	17	16	1.711	Q2

IF= Impact Factor, Q= quartile

One thousand four hundred twenty-nine (1,429) journals identified out of 2,746 articles published between 2010 and 2020. The ranking shows the top 10 ranked journals as attributed and consisting of 364 papers. The *Indo American Journal of Pharmaceutical Sciences* published by Sri Sai Jyothi

College of Pharmacy, India, is leading (90 papers) contributing source, followed by the journal *Ceramics International* (JIF=3.830, Q1) published by Elsevier Ltd., England, which is second in the lead for contributing 49 papers. The journal *Bioorganic Chemistry* (JIF=4.831, Q1) by Academic Press Inc, USA, is the 3rd leading contributor with 45 papers. Amongst the top ten *Arabian Journal for Science and Engineering* (JIF=1.711, Q2) by King Fahd Univ Petroleum Minerals, KSA, is the lowest contributor with 17 papers. In the case of total citation, *Ceramics International* received maximum citations (746) followed by *Bioorganic Chemistry* (312 citations) and *Journal of Family and Community Medicine* (44 citations).

Author impact

Table 4 and Figure 2 represents the top 20 prolific authors for the years 2010-2020. 'Baykal A' (TC =1635, h-index =24, g-index =33) is the leading producer with 128 papers, followed by Slimani Y (TC = 1,412, h-index =22, g-index = 30) who produced 118 papers, while 'Almessiere MA' (TC = 1,183, h-index = 20, g-index = 29) is the 3rd highest contributor of research papers (114). "Bozkurt A" (TC = 99, h-index =5, g-index = 9) produced 28 paper and placed at the last position in top 20 prolific author. Remarkably, Amine K (TC = 895, h-index = 12, g-index = 29) has produced 29 paper, and secure 18th position in total paper production, but bagged 1st position for average citation per paper (ACPP = 31) which is highest amongst the top 20 authors. Similarly, "Baykal A" is the leading producer of papers (128), but the average citation per paper (ACPP) for his papers counted as 13.

Table 4: Author impact

#	Author	TP	TC	ACPP	PY_start	h_index	g_index
1	Baykal A	128	1635	13	2017	24	33
2	Slimani Y	118	1412	12	2018	22	30
3	Almessiere Ma	114	1183	10	2018	20	29
4	Khan Km	91	345	4	2017	9	15
5	Taha M	65	359	6	2017	11	16
6	Aydi H	61	454	7	2013	12	17
7	Ahmad N	56	341	6	2016	12	16
8	Ercan I	56	503	9	2018	14	20
9	Ahmad R	55	322	6	2016	11	16
10	Akhtar S	48	265	6	2018	9	13
11	Rahim F	41	346	8	2018	11	17
12	Naqvi Aa	39	218	6	2016	7	13
13	Perveen S	39	152	4	2017	8	10
14	Ansari Ma	36	145	4	2018	7	10
15	Nawaz M	35	335	10	2018	11	17
16	Wadood A	33	207	6	2017	8	12
17	Manikandan A	32	701	22	2017	16	26
18	Amine K	29	895	31	2018	12	29
19	Kanwal	29	82	3	2017	6	7
20	Bozkurt A	28	99	4	2018	5	9

ACPP= (average citation per paper)

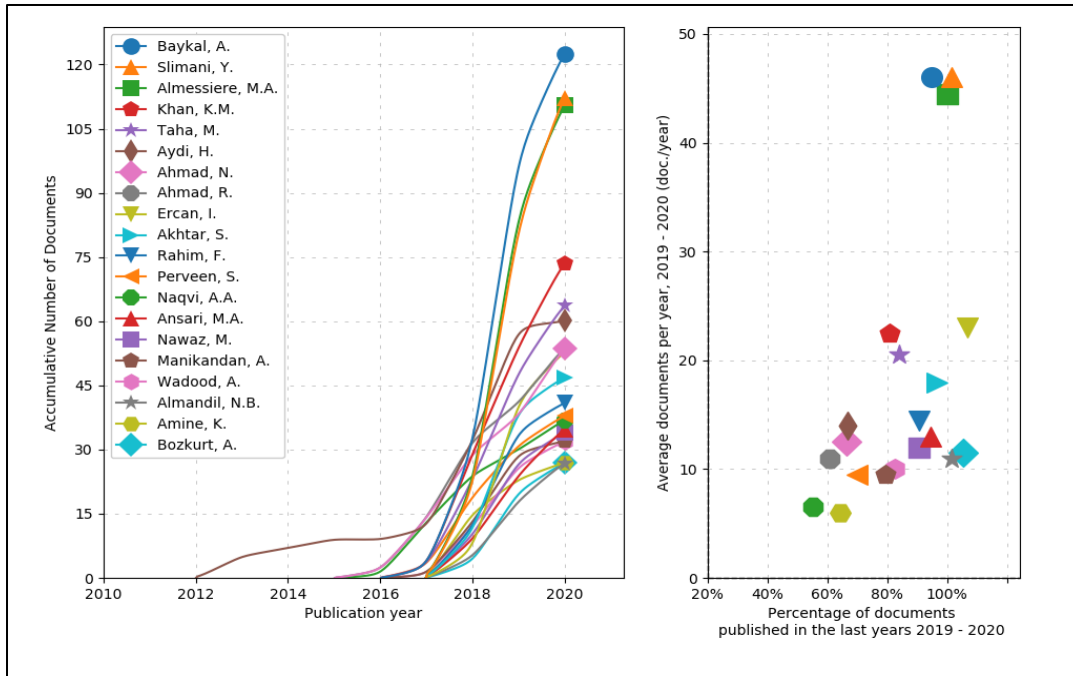


Figure 2: Author impact

Pattern of Authorship

The analysis of authorship pattern demonstrated that four authors published 371 research paper and scored 1,560 citations, followed by five authors with 328 research paper which scored 1,140 citations, three authors 343 research paper which scored 1,197 citations. Seven, eight, nine and ten authors published 229, 144, 99 and 104 research papers, respectively. There were only 274 research papers published by a single author and scored only 543 citations. Therefore, it considered that the IAU authors are more interested in collaborative research. Figure 3 shows the graph of the authorship pattern.

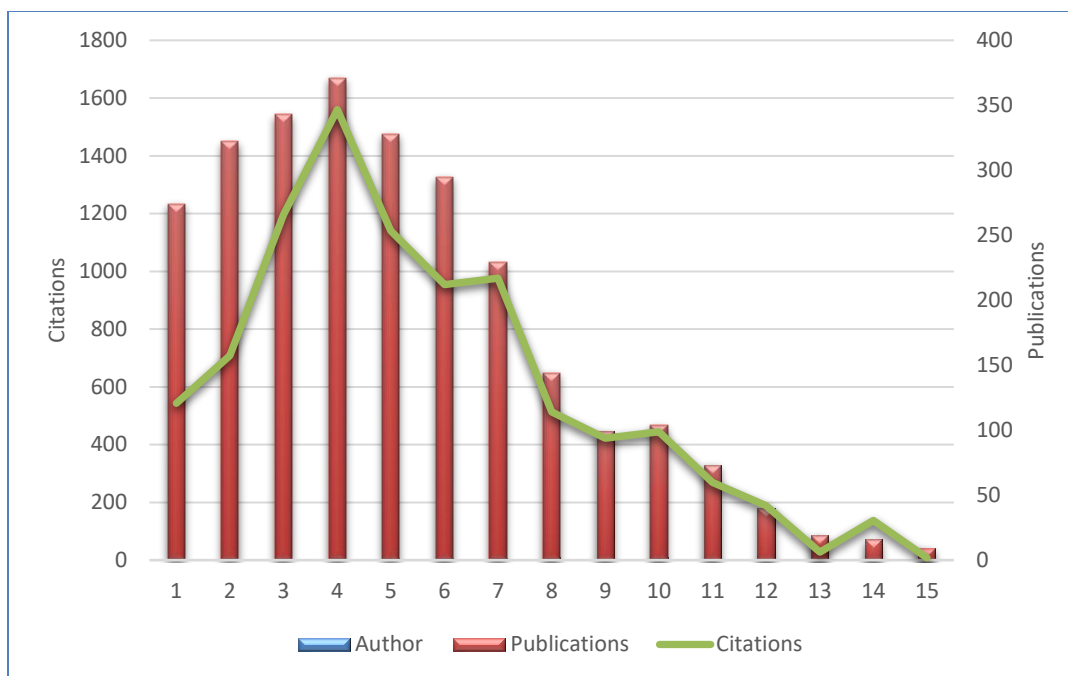


Figure 3: Authorship Pattern

Author keywords

Table 5 shows the topmost preferred author keywords. The author keyword assessment help to explore the significant research area. The word *Saudi Arabia* appeared maximum 98 times, followed by *Synthesis* which appeared 52 times, *Magnetic properties* (45 times), *Molecular docking* (34 times), and *Fixed-point* (29 times). The study also reveals that IAU researcher also used *nanoparticles*, *Optical properties* and *In Vitro* keywords repeatedly.

Table 5: author keywords

#	Keywords	Occurrences	Total strength
1	Saudi Arabia	98	24
2	Synthesis	52	80
3	Magnetic properties	45	57
4	Molecular docking	34	53
5	Fixed points	29	0
6	Sar	28	46
7	Nanoparticles	28	12
8	Structure	26	50
9	Optical properties	25	38
10	In Vitro	20	26

Figure 4 visualizes the author keywords, with the co-occurrence selected from ‘types of analysis,’ and author keywords selected from the ‘unit of analysis’ in VOSviewer, for counting full method criteria were used. Minimum of 10 keywords per author was considered for the analysis. Eight thousand one hundred thirty-seven keywords were found, out of which only 49 meet the thresholds. For each of the 49 keywords, the total strength of the co-occurrence links with other keywords was calculated. The keywords; with the highest overall link strength; were selected. Full items were 40, clusters, 4, links 121, and total link strength was 347.

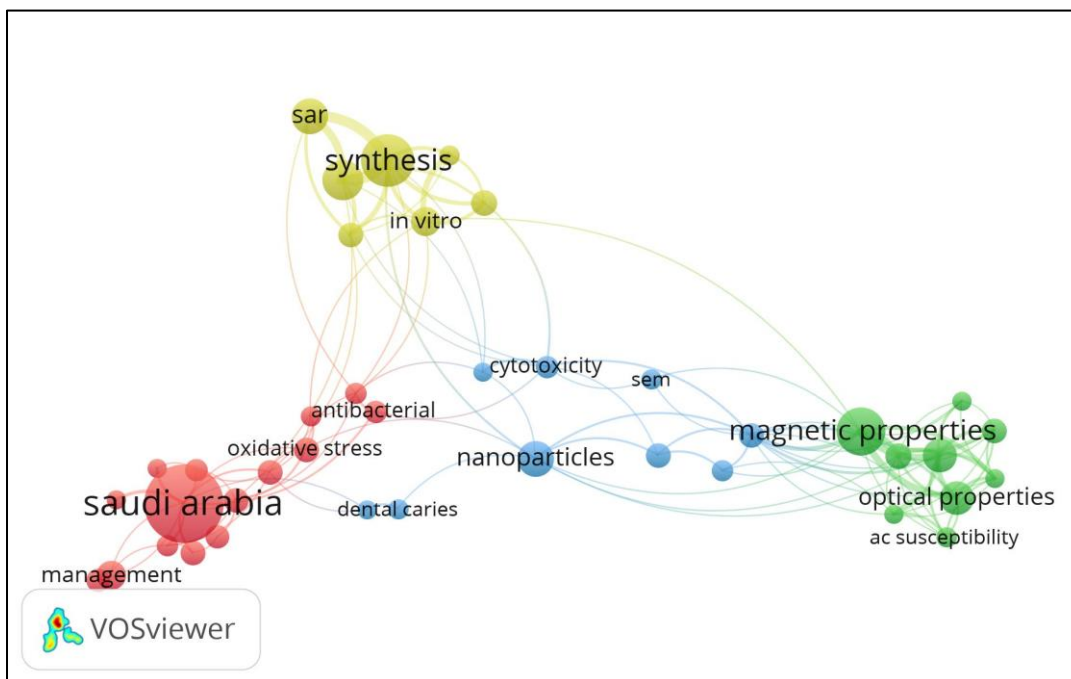


Figure 4: Author Keywords

Visualization of Co-authorship pattern

Table 6 indicates that by co-authorship link strength, “Baykal, A” has the maximum research papers (106 papers with 1,467 citations), followed by “Slimani, Y” (99 papers with 1,263 citations), “Almessiere, M.A” (95 papers with 1063 citations), and “Khan, Khalid Mohammed” (79 papers with 321 citations). Coincidentally “Ahmad, Niyaz” (343 citations) and Ahmad, Rizwan (319 citations) co-authored 54 papers each.

Table 6: Co-authorship pattern

Author	Documents	Citations	Total link strength
Baykal, A	106	1467	457
Slimani, Y	99	1263	437
Almessiere, M. A	95	1063	409
Khan, Khalid Mohammed	79	321	339
Taha, Muhammad	63	360	371
Aydi, Hassen	56	425	34
Ahmad, Niyaz	54	343	154
Ahmad, Rizwan	54	319	141
Aktar, Sultan	39	185	122
Rahim, Fazal	38	261	262

Figure 5 visualizes co-authorship pattern, selected from ‘types of analysis,’ and authors selected from a ‘unit of analysis’. For counting method criteria, the full method was used. To conduct the analysis minimum of 5 documents of an author were considered. There were a total of 8647 authors out of which 356 meet the thresholds. For each of the 356 authors, the total strength of the co-authorship links with other authors was calculated. The authors, with highest overall link strength, were selected. Full items were 252, clusters, 16, links 1,370, and total link strength was 5,137.

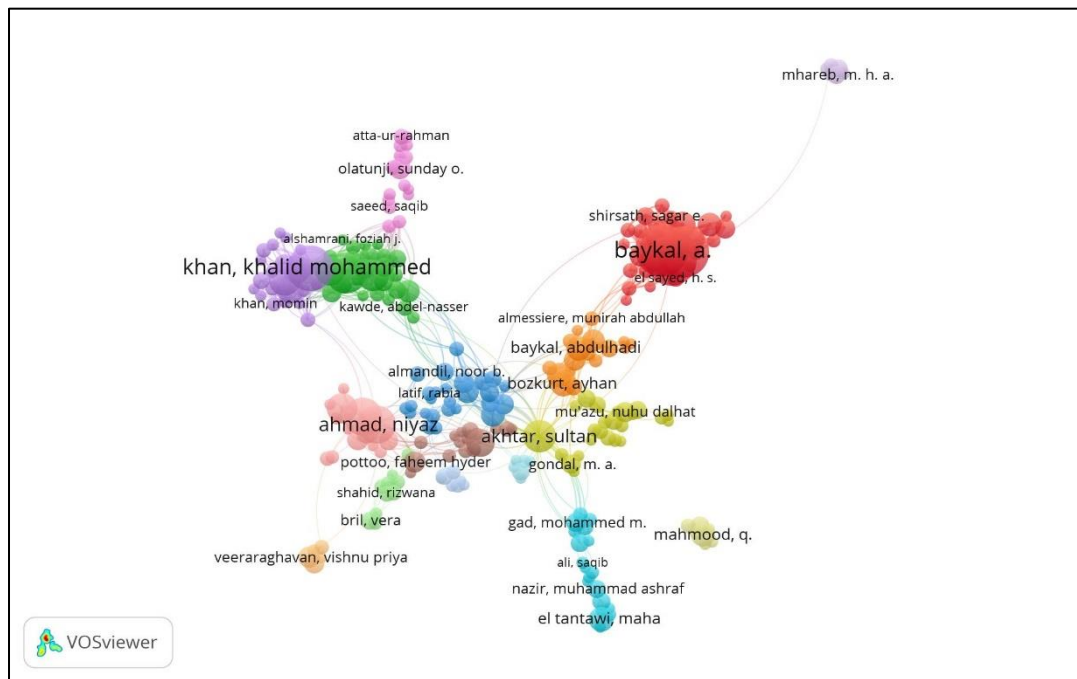


Figure 5: Co-authorship pattern

Country collaboration

Table 7 and figure 6 demonstrate the research collaborations of IAU research scientists. The metrics show that the researcher's preference in collaborative work has extended to the national and international level. National level collaboration (Saudi Arabia) recorded highest for paper production 2,716 papers, followed by Egypt, the second highly collaborated country (312 papers), whereas collaboration with Pakistan (276 papers) is at 3rd place. Among the GCC countries, the United Arab Emirates (57 papers) has mostly collaborated with the researchers of IAU. The national collaboration recorded 9,526 citations, followed by USA (2,056 citations), India (1,447 citations), Canada (1,386 citations), and Egypt (1,260 citations).

Table 7: Country Collaboration

Country	TP	TC	Percentage	Citation Impact
Saudi Arabia	2716	9526	99.5	3.51
Egypt	312	1260	11.4	4.04
Pakistan	276	1008	10.1	3.65
USA	225	2056	8.3	9.14
India	206	1447	7.6	7.02
Turkey	150	1182	5.5	7.88
Malaysia	149	804	5.5	5.40
Canada	135	1386	5	10.27
UK	124	412	4.5	3.32
Australia	108	703	4	6.51
Tunisia	106	484	3.9	4.57
Peoples R China	88	552	3.2	6.27
Germany	79	453	2.9	5.73
Jordan	67	161	2.5	2.40
United Arab Emirates	57	244	2.1	4.28

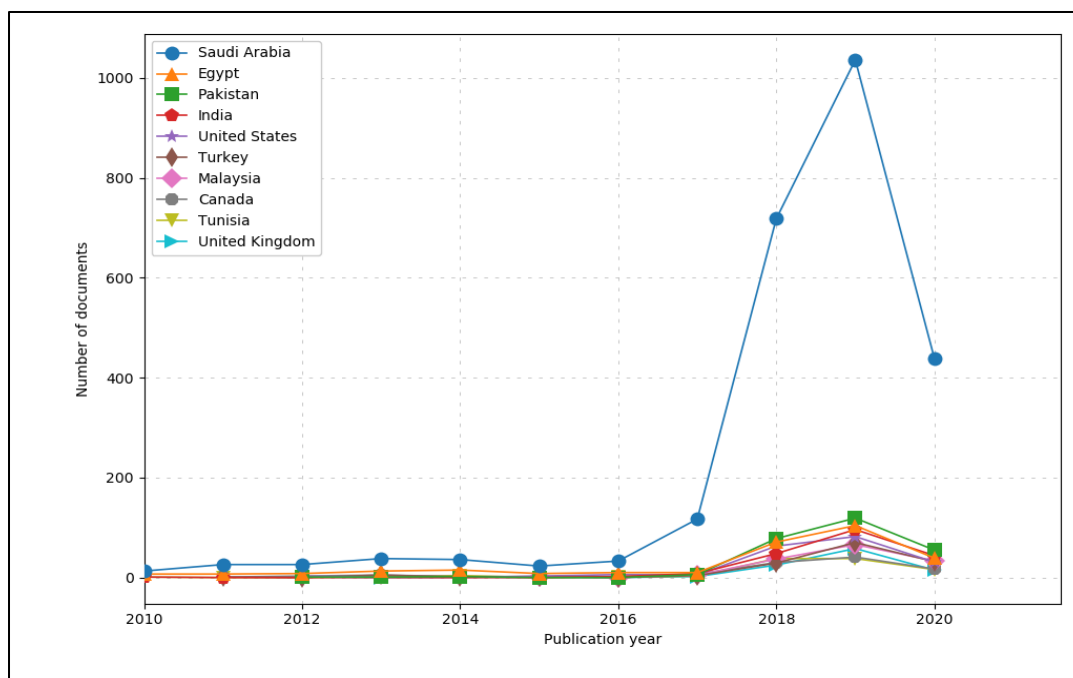


Figure 6: Country collaboration

Top 10 Highly Cited Documents

Table 8 listed the top 10 highly cited papers produced by the researchers of IAU.

Table 8: Highly cited papers

#	Title	Source	First Authors	Year	TC	U1	U2	Z9
1	30 Years of Lithium-Ion Batteries	Advanced Materials	Li, Matthew	2018	482	315	1522	484
2	Endovascular Thrombectomy For Acute Ischemic Stroke A Meta-Analysis	Jama-Journal of The American Medical Association	Badhiwala, Jetan H.	2015	223	3	55	231
3	A Characterization of Synthetic Cannabinoid Exposures Reported to The National Poison Data System In 2010	Annals of Emergency Medicine	Hoyte, Christopher O.	2012	127	0	11	126
4	Retention of The Boston Keratoprosthesis Type	Ophthalmology	Ciolino, Joseph B.	2013	85	0	6	86

	1: Multicenter Study Results							
5	Challenges in Developing Electrodes, Electrolytes, And Diagnostics Tools to Understand and Advance Sodium-Ion Batteries	Advanced Energy Materials	Xu, Gui-Liang	2018	84	76	307	85
6	Magneto-Optical and Microstructural Properties of Spinel Cubic Copper Ferrites with Li-Al Co-Substitution	Ceramics International	Slimani, Y.	2018	63	8	51	70
7	Structural and Magnetic Properties of Ce-Doped Strontium Hexaferrite	Ceramics International	Almessiere, M.	2018	58	0	32	58
8	Facile Combustion Synthesis, Structural, Morphological, Optical and Antibacterial Studies of Bi _{1-x} Al _x FeO ₃ (0.0 ≤ x ≤ 0.15) Nanoparticles	Ceramics International	Ravichandran, A.	2018	56	6	27	56
9	Manganese/Yttrium Codoped Strontium Nano-hexaferrites: Evaluation of Magnetic Susceptibility and Mossbauer Spectra	Nanomaterials	Almessiere, Munirah Abdullah	2019	53	3	7	53
10	Thermal Runaway of Lithium-Ion Batteries Without Internal Short Circuit	Joule	Liu, Xiang	2018	52	21	83	53

The article titled “*30 Years of Lithium-Ion Batteries*” (2018) has received the maximum number of citations (482), whereas “*Endovascular Thrombectomy For Acute Ischemic Stroke A Meta-Analysis*” (2015) has received 2nd highest citations (223). The article “*A Characterization of*

Synthetic Cannabinoid Exposures Reported to The National Poison Data System In 2010” (2012), which appeared in the journal “*Annals of Emergency Medicine*” received 127 citations and secured 3rd position. It was also noticed that most of the top ten cited papers were published in the year 2018. The article “*Manganese/Yttrium Codoped Strontium Nanohexaferrites: Evaluation of Magnetic Susceptibility and Mossbauer Spectra*” (2019) is the latest most cited papers (53 citations).

Findings

The year 2019 had the maximum number of paper production (1,110 papers) with 2,720 citations. However, the maximum number of citations were recorded in 2018 (4,087 citations). Journal articles were the most preferred form of research paper produced (2,164 papers with 8,245 citations). Two thousand seven hundred forty-six articles were published in 1,429 journals. *Indo American Journal of Pharmaceutical Sciences* was noted as the most preferred source for publication (90 papers) by the IAU research scientists. *Ceramics International* bagged the highest number of citations (746 citations for 49 papers). Baykal A was the most prolific author with 128 papers, and 1,635 citations, His average citation per paper were calculated as 13. Amine K produced 29 papers with 895 citations and 31 average citations per paper, which is the highest average citations per paper amongst the top 20 authors. With the help of research collaboration graph, it is clearly understood that IAU researchers are more intended to do collaborative work, and therefore, the maximum number of co-authored papers were produced by IAU. Three hundred and seventy-one papers produced have four co-authors. The most preferred authors keywords were *Saudi Arabia* (98 times) and *Synthesis* (52 times). National collaboration is at a higher level (2,716 papers); and at the international level of collaborations, Egypt (312 papers) ranked highest followed by Pakistan (276 papers).

Conclusion

This research work explored a scientometrics profile for scholarly communication and collaboration patterns of research at Imam Abdulrahman Bin Faisal University between the period 2010 and 2020. The study demonstrated various aspects of research data; The investigation were conducted for the leading cited publications, year-wise distributions, journal and conference citations, authorship patterns, country-wise distribution, top-cited authors and their affiliation and

keyword cluster etc. The study indicated that the trend of scientific literature production steadily increased from 2010 and 2020, showing nearly 50% increase in scientific research productivity in 2018, which clearly show how much IAU improved in scientific literature output, the most productive authors of IAU have significantly collaborated with other economically and scientifically well-developed countries and domains. The collaboration between authors from different countries and institutions is soundly satisfying; Egypt, Pakistan, USA and India are the countries with whom IAU researchers have more linkages. VOSviewer computer program is recommended for creating, visualizing, and exploring bibliometric maps of science.

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