

# COMPARATIVE ANALYSIS OF CITATION BASED SCIENTOMETRIC INDICATORS OF JOURNAL OF ASTROPHYSICS AND ASTRONOMY (JAA) AND JOURNAL OF THE KOREAN ASTRONOMICAL SOCIETY (JKAS) USING SCIMAGO JOURNAL RANK FOR THE PERIOD 2011-2020

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## Abstract

In academic circles, journal rankings are widely used to assess the impact and quality of academic journals. SCImago Journal Rank - A measure of scholarly journal scientific impact that considers the number of citations received by a journal and the importance or reputation of the journals from which such citations come. This paper compared the JAA and JKAS journals published from 2011 onwards, particularly in Physics and Astronomy, using citation-based analysis using the SCImago journal rank. This article discusses the year-by-year SJR, citation per document (four years, three years, and two years), self-citations and total citations, external citations and citations per document, percentage of international collaboration, citable and non-citable documents, cited and uncited documents. The SJR value for the last ten years shows that the highest SJR for JAA and JKAS journals is 0.631 in 2020 and 0.988 in 2018. 2020 is the best year for four-year, three-year, and two-year citation per document, with 2.198, 2.464, and 1.855 for the JAA journal. 2018 is the best four-year and three-year citation per document year, with 2.546, 3.439 and 2.954 for JKAS, respectively. JAA received 82 self-citations and 1830 total citations, while JKAS received 132 self-citations and 1216 total citations, according to the SCImago ranking. The JAA journal received 10.328 external citations per document and 2.464 citations per document over the last ten years, while the JKAS journal received 14.143 external citations per document and 15.942 citations per document. For the last ten years, the JAA and JKAS have had a total percentage of internal collaboration of 180.86 and 297.4, respectively. According to SCImago records, the JAA published the most cited documents (97) in 2020 and the most uncited (144) in 2017. On the other hand, in the JKAS journal, there were 57 cited documents in 2017 and 43 uncited documents in 2016.

**Keywords:** *Journal of Astrophysics and Astronomy, Citation Analysis, Journal of the Korean Astronomical Society, Scientometric Indicators, SCImago Journal Rank (SJR)*

## 1.0 Introduction

Journal Ranking is widely used in academic circles to assess the impact and quality of academic journals. In several countries, journal rankings have been adopted as official research evaluation tools. Historically, journal ranking "measures" or evaluations were only available through institutional lists created by academic leaders or through committee votes. These genuine reputations and quality attitudes have been portrayed as politically incorrect. They frequently reflect the prejudices and personal career goals of those included in magazine rankings, owing to highly uneven evaluation in institutions. As a result, many institutions rely on third-party sources for journal quality assessment. To determine the level and influence of scholarly journals, a variety of metrics are used. The majority of these metrics are derived from an examination of journal article citation data. Using ranked journal lists based on citation-based metrics reduces uncertainty in selecting publication targets and assessing research output. Journal quality indicators entice researchers, academicians, and information scientists to use them to evaluate journals in their field of interest. The SCImago Journal and Country Rank (<https://www.scimagojr.com>) website rank journals based on various metrics, including quartiles (Q) by area of knowledge, the H-index, the SJR, details of international collaboration, and various citation indicators based on Scopus, the world's largest indexing database. This paper used citation-based analysis and the SCImago journal rank to compare the JAA and JKAS journals published between 2011 and 2020, focusing on Physics Astronomy.

## 2.0 SCImago Journal Rank

SCImago Journal Rank (SJR) is a portal that includes the journals and country scientific indicators developed from the information contained in the Scopus database (Elsevier). It is also a prestige metric based on the idea that "all citations are not created equal." With SJR, the subject field, quality and reputation of the journal has a direct effect on the value of a citation. Using the Google Page Rank algorithm, it was developed by a research group from the Consejo Superior de Investigaciones Científicas (CSIC), University of Granada, Extremadura, Carlos III (Madrid) and Alcalá de Henares. SJR was developed using Elsevier Scopus citation data. It is weighted by the prestige of the journal, thereby 'leveling the playing field' among journals. It eliminates manipulation raise the SJR ranking by being published in more reputable journals. 'Shares' a journal's prestige equally over the total number of citations in that journal, it also normalizes for differences in citation behavior between subject fields.

SJR attributes different weight to citations based on the prestige of the citing journal, excessive self-citations are not included in calculation of SJR, because the number of references that a journal may direct to itself is limited to a maximum 33 % of its total references, which prevents the inflation of the SJR value by excess self-citations leaving the normal process of self-citation untouched. SJR normalizes for differences in citation behavior between subject fields. SJR is based on three-year's citation data. The denominator (number of articles published) of SJR includes all types of articles, not citable articles only

## 3.0 Review of Literature

**SudhiVijayan and Renjith (2021)**, in their study, explained that in the academic world, journal rankings had been broadly used to evaluate the impact and quality of scholarly journals. The study's key objective is to comparatively analyze the citation-based scientometric indicators of *DESIDOC Journal of Library & Information Technology (DJLIT)* and *Annals of Library and Information Studies (ALIS)* journals using SCImago Journal Rank from 2016 to 2020. The data was collected from SCImago Journal Rank website. This article discusses the year wise SJR with quartile, citation per document 4years/3years/2years wise, self cites and total cites, external cites and cites per document, percentage of international collaboration, citable and non-citable documents, cited and uncited documents. The SJR value for the last five years results illustrates that the highest SJR for *ALIS* and *DJLIT* journals is 2.98 and 0.514, respectively, in the year 2020. The highest 23 self-citations and 250 total citations were received for *ALIS*; however, the *DJLIT* journal is 106 and 637 for the last five years. The total international collaborations for the *ALIS* and *DJLIT* journals are 16.65 and 19.4, respectively.

**Stephen (2020)** examined citation-based analysis using the SCImago Journal Rank to compare two LIS journals *Library Quarterly* and *Library Hi-Tech*, published from 1999 onwards. The study found that in 2018, SJR ranking, H indexes and best quartile for the journals. For *Library Hi-Tech* Journal, SJR 0.75, h index is 33, Q1 is the best quartile, and in 2018 about *Library Quarterly* Journal SJR 0.73, h index 34, and Q1 best quartile. And also found a number of citable documents and non-citable documents, a number of self-citations and total citation of both journals from 1999 to 2018.

**SudhiVijayan and Renjith (2017)** investigated the journal rankings in the field of LIS based on SCImago Journal and Country Ranking for the year 2015. The paper clarified the significant relationship between different factors of LIS journals and compared the h index of open access and subscription-based access journals. A regression approach for predicting the h index based on relevant predictor variables are also discussed in the study.

An article titled "Annual Journal Citation Indices: A Comparative Study" by **Abdul Khaleque, Arnab Chatterjee and ParongamaSen (2016)** studied the statistics of citations made to the indexed Science journals in the Journal Citation Reports during the period 2004-2013 using different measures. They considered different measures which quantify the impact of the journals. They found that the apparently uncorrelated measures, even when defined in an arbitrary manner, show strong correlations. This is checked over all the years considered. The impact factor is one of these measures; the present work raises the question of whether it is actually a nearly perfect index as claimed often.

An article titled "Web of Science, Scopus and Google Scholar Citation Rates: A Case Study Of Medical Physics and Biomedical Engineering: What gets cited and What doesn't?" by **Trapp, J (2016)** examined that there are often differences in a publication's citation count, depending on the database accessed and aspects of citation counts for medical physics and biomedical engineering papers are studied using papers published in the *journal Australasian*

*physical and engineering sciences* in medicine. It is shown that review papers as a group tend to receive more citations on average; however, the highest cited individual papers are more likely to be research papers.

**Dhawan, S M and Gupta, B M (2005)** in their article "Evaluation of Indian Physics Research on Journal Impact Factor and Citation Count: A Comparative Study" evaluated citations performance of 1101 Indian physics research papers published in 29 high impact physics journals in 1997. The evaluation is based on citations won by these papers within six years of publication. The purpose is to verify to what extent research evaluation based on journal impact factors can be considered objective and fair. The study finds that the journal impact factor is not a surrogate to citations. Nearly 12% of papers in high impact journals did win even a single citation within six years of their publication. Secondly, papers winning high range of citations per paper were published in a wide range of impact factor journals. The conclusion is that although the impact factor is not a guarantee to citations but publication in high impact journals does improve the probability of winning citations. The higher the impact factor the greater their citations probability. The nationally and internationally collaborated papers have greater chances of winning high citations than the non-collaborative ones.

**Midorikawa, N (1983)** held a citation analysis study in physics journals in his article titled, "Citation Analysis of Physics Journals, Comparison of Subfields of Physics". In this study, half-life, citation degree, form dispersion and title dispersion of physics journals were investigated, and they were compared in each subfield with those in other subfields. The results from this study were that, on the whole, in physics, the most preferred medium for physicists is the "journal"; however, in the subfields in which large experimental or observational devices are used, the use of "reports" and "letter journals" is going to increase.

#### **4.0 Methodology**

SCImago Journal and Country Rank database was used as the source to collect data for evaluating the various scientometric aspects of the journals *JAA* and *JKAS* for the period 2011 to 2020. The data for the study was collected from the <https://www.scimagojr.com/journalrank.php> on 21<sup>st</sup> August 2021 by searching the records related to the metrics of journal ranking by setting the time period 2011-2020. The scientometric indicators collected for the journals are SCImago Journal Rank (SJR), quartile values, citation per document, self-cites and total cites, external cites and cites per document, percentage of international collaboration, citable and non-citable documents, cited and uncited documents. The search records were saved and imported to MS Excel 2007.

#### **5.0 Objectives**

The study is based on the SCImago Journal and Country Rank, the scientometric indicators of the *JAA* and *JKAS*. The specific objectives of the present study are the following;

1. To find the SJR (SCImago Journal Rank) Ranking with h-Index for the *JAA* and *JKAS* journals.
2. To know the percentage level of Citation per document wise *JAA* and *JKAS* journals in the field of Physics and Astronomy.
3. To extract the number of Cited and uncited documents in both journals from the publication period of the journals.
4. To get the percentage level of Self cites and total sites of the journals.
5. To analyze the number of suitable and non-suitable documents from 2011 to 2020.

#### **6.0 Data Analysis and Interpretation**

##### **6.1 Initial Information of the Journals scrutinized**

##### **6.2 Journal of Astrophysics and Astronomy(JAA)**

The Journal of Astrophysics and Astronomy is a peer-reviewed scientific journal of astrophysics and astronomy established in 1980. It is co-published bimonthly by Springer India, the Indian Academy of Sciences, and the Astronomical Society of India. The journal is edited by Annapurni Subramaniam. The journal publishes original research papers on all aspects of astrophysics and astronomy, including instrumentation, laboratory astrophysics, and cosmology. Critical reviews of topical fields are also published. Articles submitted as letters will be considered.

**6.2.1 Journal of the Korean Astronomical Society (JKAS)**

The Journal of the Korean Astronomical Society (JKAS) is the Korean Astronomical Society's bimonthly publication. JKAS is an open-access journal dedicated to promoting original research in all fields of astronomy and astrophysics. It publishes original research as well as review articles in all fields of astronomy and astrophysics. The journal was founded in 1968, and the current editor-in-chief is Sascha Trippe. JKAS publishes articles in three categories: research, opinion, and commentary. Articles containing new original research, rapid communications containing brief descriptions of new research findings, and reviews summarizing and presenting the state of the art in a specific field of research. The background details of these two prominent Physics and Astronomy journals as appeared in SCImago Journal Ranking are given in Table 1.

**Table 1 General Information of the Journals Based on SCImago Ranking**

SL.NO	Categories	Journal of Astrophysics and Astronomy (JAA)	Journal of the Korean Astronomical Society (JKAS)
1	Country	India	South Korea
2	Subject Area and Coverage	Earth and Planetary Sciences, Space and Planetary Sciences, Physics and Astronomy, Astronomy and Astrophysics	Earth and Planetary Sciences, Space and Planetary Sciences, Physics and Astronomy, Astronomy and Astrophysics
3	Publisher	Springer India	Korean Astronomical Society
4	Publication Type	Journal	Journal
5	ISSN	02506335	12254614, 2288890X
6	Coverage	1980-2020	1993, 2008-2020
7	H-Index	35	22
8	SJR-2020	0.631	0.568
9	Best Quartile	Q2	Q3

**6.3 Year wise SJR (SCImago Journal Rank)**

SJR is a size-independent reputation metric that ranks magazines based on their 'average reputation per article.' It is predicated on the idea that "not all citations are created equal." SJR is a measure of a journal's scientific impact that takes into account both the number of citations received by the magazine and the importance or reputation of the journals from which such citations come; it measures the scientific impact of an average article in a journal, expresses how the central journal is an average article for global scientific discussion. The concept of SJR is based on the transfer of prestige between journals via citation links. The SJR is a size-independent prestige metric that ranks journals based on their "average prestige per article." It is based on the premise that "not all citations are created equal." Each incoming citation to a journal is weighted by the SJR of the citing journal, with a citation from a high-SJR source counting for more than a citation from a low-SJR source (Pathak & Mohan, 2019). SJR is a calculation of a scholarly journal's scientific inspiration that considers the number of citations acknowledged by the journal and the significance or reputation of the journals where such citations originate (Pereira, 2010).

**Table 2 Year Wise SJR**

Year	JAA	JKAS
2011	0.313	0.309
2012	0.305	0.659
2013	0.404	0.64
2014	0.434	0.737
2015	0.229	0.571
2016	0.291	0.839
2017	0.266	0.83

2018	0.553	0.988
2019	0.438	0.586
2020	0.631	0.568
<b>Mean</b>	<b>0.386</b>	<b>0.672</b>

JAA and JKAS started 2011 onwards, so that appeared with 0.313 and 0.309 points initially. The SJR value for the last ten years results illustrates that the highest SJR for JAA and JKAS journals is 0.631 in 2020 and 0.988 in 2018, respectively, and the lowest is 0.229 in 2015 and 0.309 in 2011. The total mean for the JAA is 0.386, and JKAS is 0.672.

**6.4 Citation Per Document**

Citations are an essential and expected component of scholarly communication. This indicator counts the number of citations received by documents from a journal and divides them by the number of published papers. The chart shows the growth of the average number of articles published in a magazine in the last two, three and four years. The two-year line is equivalent to the journal impact factor (Clarivate) metric.

**Table 3 Citation per Document(4Years/3Years/2Years)**

Year	JAA			JKAS		
	4 Year	3 Year	2 Year	4 Year	3 Year	2 Year
2011	0.604	0.585	0.484	0.569	0.569	0.667
2012	0.566	0.456	0.406	0.788	0.833	1.021
2013	0.596	0.599	0.644	0.928	1.094	1.114
2014	0.654	0.691	0.776	1.253	1.224	1.225
2015	0.346	0.341	0.311	1.222	1	1.182
2016	0.505	0.528	0.43	1.074	1.176	1.294
2017	0.953	0.942	1.511	2.512	2.776	3.439
2018	1.205	1.944	2.097	2.546	2.954	3.078
2019	1.803	1.936	2.096	2.365	2.191	1.211
2020	2.198	2.464	1.855	2.453	2.125	2.714
<b>Total</b>	<b>9.43</b>	<b>10.49</b>	<b>10.61</b>	<b>15.71</b>	<b>15.94</b>	<b>16.95</b>
<b>Mean</b>	<b>0.94</b>	<b>1.04</b>	<b>1.06</b>	<b>1.57</b>	<b>1.59</b>	<b>1.69</b>

2020 has the highest citation year for four years, three years, and two years of citation per document, with 2.198, 2.464, and 1.855 for JAA. 2018 has the highest four-year and three-year citation per document year, with JKAS receiving 2.546 and 2.954 citations, respectively. In the two years 2017, there were 3.439 citations per document. In 2015 and 2011, JAA had the fewest citations per document.

The total number of citations per document for four, three, and two years is 9.43, 10.49, and 10.61 for JAA and 15.71, 15.94, and 16.95 for JKAS, respectively. The four-year, three-year, and two-year average citations per document for JAA are 0.94, 1.04, and 1.06, respectively, and 1.57, 1.59, and 1.69 for JKAS.

**6.5 Self Cites And Total Cites**

Self-citation is one of the most challenging topics to tackle in scientific evaluation or citation analysis. Self-citation is a common practice, but it should not be overlooked in citation analysis. The number of citations from a journal citing articles to articles published by the same journal is referred to as journal self-citation. Table 4 shows the number of self-citations and total citations received by journals from 2011 to 2020.



**Table 4 Self Cites and Total Cites**

Year	JAA		JKAS	
	Self-Citation	Total Citation	Self-Citation	Total Citation
2011	0	48	10	33
2012	2	67	3	55
2013	1	91	20	70
2014	17	114	22	82
2015	1	57	20	72
2016	10	103	17	107
2017	16	194	17	272
2018	12	311	15	257
2019	16	362	4	149
2020	7	483	4	119
<b>Total</b>	<b>82</b>	<b>1830</b>	<b>132</b>	<b>1216</b>
<b>Mean</b>	<b>8.2</b>	<b>183</b>	<b>13.2</b>	<b>121.6</b>

JAA and JKAS journals registered to count citations beginning in 2011. JAA (17) and JKAS (22) received the most self-citations in 2014, and the highest total citations (483 and 272) were in the years 2020 and 2017, respectively. JAA had the lowest self-citation (0) and total citation (48) in 2011. JKAS received the fewest self-citations (3) in 2012 and the fewest total citations (33) in 2011. JAA obtained 82 self-citations and 1830 total citations, while JKAS received 132 self-citations and 1216 total citations, according to the SCImago ranking. The mean number of self-citations received is 8.2, and the highest total number of citations received is 183 for JAA and 13.2, 121.6 respectively for JKAS.

**6.6 External Cites and Cites Per Document**

The number of total citations per document and external citations per document (excluding journal self-citations) received by a journal's published documents over the previous three years. The number of external citations is calculated by deducting the number of self-citations from the total number of citations received by the journal's documents.

**Table 5 External Cites and Cites per Document**

Year	JAA		JKAS	
	External Cites per Document	Cites per Document	External Cites per Document	Cites per Document
2011	0.6	0.585	0.397	0.569
2012	0.448	0.456	0.788	0.833
2013	0.608	0.599	0.781	1.094
2014	0.606	0.691	0.896	1.224
2015	0.344	0.341	0.722	1

2016	0.482	0.528	0.989	1.176
2017	0.873	0.942	2.602	2.776
2018	1.929	1.944	2.782	2.954
2019	1.933	1.936	2.132	2.191
2020	2.505	2.464	2.054	2.125
<b>Total</b>	<b>10.328</b>	<b>10.486</b>	<b>14.143</b>	<b>15.942</b>
<b>Mean</b>	<b>1.03</b>	<b>1.05</b>	<b>1.41</b>	<b>1.59</b>

Table 5 shows that *JAA*'s highest external cites per document are 2.205, and cites per document are 2.464 in 2020, whereas *JKAS*'s highest external cites per document are 2.782, and cites per document are 2.954 in 2018. The table also shows that the lowest external cites per document and cites per document in *JAA* are 0.344 and 0.341 in 2015, and 0.397 and 0.569 in the *JKAS* journal in 2011. *JAA* received 10.328 external citations per document and 10.486 citations per document over the last ten years, whereas *JKAS* received 14.143 external citations per document and 15.942 citations per document. The *JAA* mean values for external cites per document and cites per document are 1.03 and 1.05, respectively, whereas the *JKAS* is 1.41 and 1.59.

### 6.7 Percentage of Internal Collaboration

Collaboration is an essential component of scientific research. As part of international collaborative research activity, a large number of research papers in the field of Physics and Astronomy are being published. International Collaboration accounts for articles written by researchers from various countries. The graph depicts the proportion of a journal's documents signed by researchers from more than one country, i.e. documents with more than one country address. Table 6 depicts the percentage of internal collaboration between the two journals.

**Table 6 Percentage of Internal Collaboration**

Year	JAA	JKAS
2011	23.28	33.33
2012	0	11.76
2013	13.33	17.39
2014	6.78	18.75
2015	38.3	30.56
2016	26.83	40
2017	13.89	38.1
2018	18.92	35.29
2019	14	38.89
2020	25.53	33.33
<b>Total</b>	<b>180.86</b>	<b>297.4</b>
<b>Mean</b>	<b>18.09</b>	<b>29.74</b>

Regarding internal collaboration, the highest percentage level in *JAA* in 2016 is 26.83, and the *JKAS* in 2019 is 38.89. *JAA* has no international collaboration, and the lowest (11.76) international collaboration for the *JKAS* journal was in 2012. Table 6 exposes that the total percentage of internal collaboration for the *JAA* and *JKAS* for the last ten years is 180.86 and 297.4, respectively and the mean score for the *JAA* n. and *JKAS* journal is 18.086 and 29.74, respectively.

### 6.8 Citable And Non-citable Documents

Several documents were published during the chosen year. It is commonly referred to as the country's scientific output. Not every article in a journal is considered primary research and thus "citable" and this chart shows the ratio of articles in three-year documents that include substantial research (research articles, conference papers, and reviews). These are documents that are not research articles, reviews, or conference papers.

**Table 7 Citable and Non Citable Documents**

Year	JAA		JKAS	
	Citable documents	Non citable documents	Citable documents	Non citable documents
2011	80	2	58	0
2012	145	2	66	0
2013	148	4	64	0
2014	160	5	67	0
2015	163	4	72	0
2016	193	2	91	0
2017	204	2	98	0
2018	155	5	87	0
2019	179	8	68	0
2020	190	6	56	0
<b>Total</b>	<b>1617</b>	<b>40</b>	<b>727</b>	<b>0</b>
<b>Mean</b>	<b>161.7</b>	<b>4</b>	<b>72.7</b>	<b>0</b>

Table 7 shows that the most citable documents in the *JAA* were published in 2017, with 204 citable documents, and the least citable documents were published in 2019, with a score of 8. In 2011, the number of citable documents was 80, and non-citable documents were two in 2011, 2012, 2016, and 2017. Citable documents have appeared irregularly in the *JAA* journal. The highest number of citable documents in the *JKAS* in 2017 is 98, with the lowest 56 number in 2020. Throughout the ten years, there were no non-citable documents in the *JKAS*.

### 6.9 Cited and Uncited Documents



Ratio of a journal's items, grouped in three years windows, which have been cited at least once vs. those not cited during the following year.

**Table 8 Cited and Uncited Documents**

Year	JAA		JKAS	
	Cited Documents	Uncited Documents	Cited Documents	Uncited Documents
2011	28	54	20	38
2012	40	107	24	42
2013	40	112	30	34
2014	50	115	36	31
2015	33	134	35	37
2016	56	139	48	43
2017	62	144	57	41
2018	79	81	49	38
2019	94	93	37	31
2020	97	99	31	25
<b>Total</b>	<b>579</b>	<b>1078</b>	<b>367</b>	<b>360</b>
<b>Mean</b>	<b>57.9</b>	<b>107.8</b>	<b>36.7</b>	<b>36</b>

In 2020, the *JAA* published the most cited documents (97) and the most uncited documents (144) in 2017. According to SCImago, the *JKAS* had 57 cited documents in 2017 and 43 uncited documents in 2016. The lowest cited and uncited documents for the *JAA* in 2011 were 28 and 54, respectively, and 20 and 25 for the *JKAS* in 2011 and 2020.

During the period, *JAA* publishes 579 cited documents and 1078 uncited documents, whereas *JKAS* publishes 367 and 360, respectively. For the last ten years, the *JAA* has a mean score of 57.9 for citable and un citable documents, respectively, whereas the *JKAS* has 36.7 and 36.

### 7.0 Major Findings

- ❖ The SJR value for the last ten years results illustrates that the highest SJR for *JAA* and *JKAS* journals is 0.631 in 2020 and 0.988 in 2018, respectively, and the lowest is 0.229 in 2015 and 0.309 in 2011. The total mean for the *JAA* is 0.386, and *JKAS* is 0.672.
- ❖ 2020 has the highest citation year for four years, three years, and two years of citation per document, with 2.198, 2.464, and 1.855 for *JAA*. 2018 has the highest four-year and three-year citation per document year, with *JKAS* receiving 2.546 and 2.954 citations, respectively. In the two years 2017, there were 3.439 citations per document. In 2015 and 2011, *JAA* had the fewest citations per document.
- ❖ *JAA* (17) and *JKAS* (22) received the most self-citations in 2014, and the highest total citations (483 and 272) were in the years 2020 and 2017, respectively. *JAA* had the lowest self-citation (0) and total citation (48) in 2011. *JKAS* received the fewest self-citations (3) in 2012 and the fewest total citations (33) in 2011.
- ❖ *JAA*'s highest external cites per document are 2.205, and cites per document are 2.464 in 2020, whereas *JKAS*'s highest external cites per document are 2.782, and cites per document are 2.954 in 2018. The table also shows that the lowest external cites per document and cites per document in *JAA* are 0.344 and 0.341 in 2015, and 0.397 and 0.569 in the *JKAS* journal in 2011.

- ❖ Regarding internal collaboration, the highest percentage level in *JAA* in 2016 is 26.83, and the *JKAS* in 2019 is 38.89. *JAA* has no international collaboration, and the lowest (11.76) international collaboration for the *JKAS* journal was in 2012.
- ❖ The most citable documents in the *JAA* were published in 2017, with 204 citable documents, and the least citable documents were published in 2019, with a score of 8. In 2011, the number of citable documents was 80, and non-citable documents were 2 in 2011, 2012, 2016, and 2017. Citable documents have appeared sporadically in the *JAA* journal. The highest number of citable documents in the *JKAS* in 2017 is 98, with the lowest 56 number in 2020.
- ❖ In 2020, the *JAA* published the most cited documents (97) and the most uncited documents (144) in 2017. According to SCImago, the *JKAS* had 57 cited documents in 2017 and 43 uncited documents in 2016. The lowest cited and uncited documents for the *JAA* in 2011 were 28 and 54, respectively, and 20 and 25 for the *JKAS* in 2011 and 2020.

## 8.0 Conclusion

SCImago is a robust database that provides valuable information for identifying core journals on a specific topic. Journals in the Physics and Astronomy disciplines are essential for disseminating research communication among researchers and scientific communities. Ranking scientific journals based on their scientometric indicators is now an essential criterion for assessing the quality of articles published in these journals. Journal ranking systems based on citation analysis will allow scientific communities and scholars to publish significant research articles in the most prestigious and reputed scientific journals. The SJR of a journal is a numeric value that represents the average number of weighted citations received during a given year for each document published in that journal over the previous three years. Higher SJR values are supposed to imply greater journal prestige.

## 9.0 References

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