ORIGINAL

Scientific production of Bolivian universities

Producción científica de las universidades bolivianas

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ABSTRACT

Introduction: higher education is undergoing significant changes due to the existence of agents promoting substantial changes in universities.
Objective: to evaluate the scientific production of Bolivian universities in the Scopus database through a bibliometric study.
Methods: a descriptive bibliometric study was conducted. The time period analyzed was documents with publication dates between January 1, 2000, and December 31, 2020.
Results: private universities predominated in Bolivia with 54 %, and the remaining 46 % were public universities. The private university with the highest scientific production was the Universidad Católica San Pablo with 5,3 %, followed by the Universidad Privada de Bolivia with 4,4 %. Most articles were original, with 1 797 documents, 43 141 citations, and 24,01 citations per document, followed by conference articles.
Conclusions: the scientific production of Bolivian universities in Scopus during the 2000-2020 period had much lower indicators than expected, with low productivity and scientific performance. The universities with the highest scientific production over the 20-year period were the Universidad Mayor de San Andrés, followed by the Universidad Mayor de San Simón. The number of published documents had a growth trend over time. Original articles predominated, and the predominant language of publication was English. According to the research area, the best indicators were in agriculture, social sciences, and medicine.

Keywords: Scientific Production; Universities; Bibliometrics; Bolivia; Science Evaluation.

RESUMEN

Introducción: la educación superior está inmersa en un grupo importante de cambios debido a la existencia de agentes que promueven cambios sustanciales sobre las universidades.
Objetivo: evaluar a través de un estudio bibliométrico la producción científica de las universidades bolivianas en la base de datos de Scopus.
Métodos: se realizó un estudio bibliométrico descriptivo. El periodo del tiempo a analizar, fueron los documentos con fecha de publicación entre el 1 enero 2000 y el 31 diciembre del 2020.
Resultados: respecto a la distribución de las universidades bolivianas predominaron las universidades privadas con el 54 % y el 46 % restante eran universidades públicas. La universidad privada que tuvo mayor producción científica fue la Universidad Católica San Pablo con el 5,3 % seguida de la Universidad Privada

de Bolivia con 4,4 %. La mayoría de los artículos fueron originales con 1 797 documentos, 43 141 número de citas y 24,01 citas por documento, seguido de los artículos de conferencia.

Conclusiones: la producción científica de las universidades bolivianas en Scopus, en el periodo 2000-2020, tuvo indicadores muy inferiores a lo esperado, con una baja productividad y desempeño científico. La mayor producción científica en el corte de 20 años, fue de la Universidad Mayor de San Andrés, seguida de la Universidad mayor de San Simón. El número de documentos publicados, tuvo una línea de tendencia al crecimiento en el tiempo. Predominaron los artículos originales y el idioma de publicación que imperó fue el inglés. Según el área de investigación, tuvieron mejores indicadores las temáticas de agricultura, ciencias sociales y medicina.

Palabras clave: Producción Científica; Universidades; Bibliometría; Bolivia; Evaluación de la Ciencia.

INTRODUCTION

Higher education is immersed in important changes due to agents promoting substantial university changes. Research is the source of real problem-solving; however, this solution will never occur if what is investigated is not disseminated and published. Hence this relationship is reflected in the phrase: "What is not published does not exist".

The importance of research in all areas of knowledge is undeniable. In addition, the new educational paradigm must tend to carry out early actions to train competent, honest researchers who apply the appropriate methodology. For this reason, publication, as part of scientific and academic communication, constitutes an essential element of the ethical and moral obligation of every researcher.[1]

At the international level, research is recognized and valued daily as closely related to a country's economic development. The same development is reflected in the productivity of researchers.[2]

In Bolivia, scientific research has been an activity with serious difficulties. Some studies agree that the number of professionals dedicated to research and Bolivian scientific production is low.[3,4,5,6]

It must be considered that the number of published scientific articles measures universities' scientific production. To objectively evaluate scientific production, it is necessary to consult with external evaluators that allow it to be carried out objectively, like in other countries.

Therefore, for this purpose, we will use the Scopus database, which is configured as the world's largest database of scientific literature. It has more than 70 million articles and 1.4 billion cited references. In addition, it has more than 70,000 institutional and 12 million author profiles and mainly comprises academic journals and conference proceedings.[7]

In the study by Auza-Santiváñez[6] he mentions that scientific research has many limitations in Bolivia. This is worrisome and is generally related to the lack of knowledge that there are national or international journals to publish, the lack of mentors or research paradigms due to their scarcity, as well as the lack of knowledge about the aspects of the article submission process that fall into editorial immobility, that is, in a refusal to publish. From their identification, we will get closer to discovering what they investigate, how much, and where they publish it.

Therefore, given the problem described ad supra, our research will aim to evaluate, through a bibliometric study, the scientific production of Bolivian universities between 2000-2020 based on information from the database of Scopus.

METHODS

Design

It is a non-experimental study (descriptive observational, cross-sectional) based on records from the Scopus database between 2000-2020.

Type of Study

A descriptive bibliometric study was carried out. It is a quantitative investigation that uses the comparative analysis of the bibliographic data provided by recognized secondary sources based on the counting, ordering, and classification of the data obtained.

This study is descriptive since the characteristics and distribution of a phenomenon at a given moment are analyzed. In this case, the behavior of the scientific publications of university institutions of a country. In bibliometric studies, productivity (number of articles), visibility (indexing of articles in the database), and scientific impact (citations received by articles evaluated in other articles published by other authors in general) are studied. Like the rest of the descriptive studies, it is limited to describing one or several phenomena without the intention of establishing causal relationships with other factors.

Bibliometric studies allow dimensioning of knowledge production in a given area or region.

Geographical delimitation of the study
From a geographical point of view, those publications where the affiliation of at least one of the authors corresponded to Bolivian universities were limited. The study included 33 Bolivian universities (Associated with the CEUB) and eight state and private regimes, which published at least one article in the Scopus database.

Temporary delimitation of the study
The period to be analyzed were the documents with a publication date between January 1, 2000, and December 31, 2020.

Search strategy
The following search matrix was built from this list, with the limitation of the period studied: AFFIL("UNIVERSIDAD MAYOR REAL Y PONTIFICIA DE SAN FRANCISCO XAVIER") OR AFFIL("UMRPSFXCH") OR AFFIL("UNIVERSIDAD MAYOR DE SAN ANDRÉS") OR AFFIL("UNIVERSIDAD MAYOR DE SAN SIMÓN") OR AFFIL("UMSS") OR AFFIL("UNIVERSIDAD AUTÓNOMA TOMÁS FRÍAS") OR AFFIL("UATF") OR AFFIL("UNIVERSIDAD TÉCNICA DE ORURO") OR AFFIL("UTO") OR AFFIL("UNIVERSIDAD AUTÓNOMA GABRIEL RENÉ MORENO") OR AFFIL("UAGRM") OR AFFIL("UNIVERSIDAD AUTÓNOMA JUAN MISAEL SARACHO") OR AFFIL("UAJMS") OR AFFIL("UNIVERSIDAD AUTÓNOMA DEL BENI "JOSÉ BALLIVIÁN" ") OR AFFIL("UABJB") OR AFFIL("UNIVERSIDAD NACIONAL "SIGLO XX" ") OR AFFIL("UNSXX") OR AFFIL("UNIVERSIDAD AMAZÓNICA DE PANDO") OR AFFIL("UAP") OR AFFIL("UNIVERSIDAD PÚBLICA DE EL ALTO") OR AFFIL("UPEA") OR AFFIL("UNIVERSIDAD CATÓLICA BOLIVIANA "SAN PABLO" ") OR AFFIL("UCB") OR AFFIL("ESCUELA MILITAR DE INGENIERÍA "MARISCAL ANTONIO JOSE DE SUCRE" ") OR AFFIL("EMI") OR AFFIL("UNIVERSIDAD ANDINA SIMÓN BOLÍVAR") OR AFFIL("UNIVERSIDAD ADVENTISTA DE BOLIVIA") OR AFFIL("UNIVERSIDAD BETHESDA") OR AFFIL("UNIVERSIDAD BOLIVIANA DE INFORMÁTICA") OR AFFIL("UNIVERSIDAD CENTRAL") OR AFFIL("UNIVERSIDAD CRISTIANA DE BOLIVIA") OR AFFIL("UNIVERSIDAD DE AQUINO BOLIVIA") OR AFFIL("UNIVERSIDAD DE LA AMAZONÍA BOLIVIANA") OR AFFIL("UNIVERSIDAD DE LA CORDILLERA") OR AFFIL("UNIVERSIDAD DE LOS ANDES") OR AFFIL("UNIVERSIDAD EVANGÉLICA BOLIVIANA") OR AFFIL("UNIVERSIDAD LA SALLE") OR AFFIL("UNIVERSIDAD LATINOAMERICANA") OR AFFIL("UNIVERSIDAD LOYOLA") OR AFFIL("UNIVERSIDAD NACIONAL DEL ORIENTE") OR AFFIL("UNIVERSIDAD NACIONAL ECOLÓGICA") OR AFFIL("UNIVERSIDAD NUESTRA SEÑORA DE LA PAZ") OR AFFIL("UNIVERSIDAD NUR") OR AFFIL("UNIVERSIDAD PARA EL DESARROLLO Y LA INNOVACIÓN") OR AFFIL("UNIVERSIDAD PARA LA INVESTIGACIÓN ESTRATÉGICA EN BOLIVIA") OR AFFIL("UNIVERSIDAD PRIVADA ABIERTA LATINOAMERICANA") OR AFFIL("UNIVERSIDAD PRIVADA BOLIVIANA") OR AFFIL("UNIVERSIDAD PRIVADA CUMBRE") OR AFFIL("UNIVERSIDAD PRIVADA DE CIENCIAS ADMINISTRATIVAS Y TECNOLÓGICAS") OR AFFIL("UNIVERSIDAD PRIVADA DE ORURO") OR AFFIL("UNIVERSIDAD PRIVADA DE SANTA CRUZ DE LA SIERRA") OR AFFIL("UNIVERSIDAD PRIVADA DEL CHACO") OR AFFIL("UNIVERSIDAD PRIVADA DEL VALLE") OR AFFIL("UNIVERSIDAD PRIVADA DOMINGO SAVIO") OR AFFIL("UNIVERSIDAD PRIVADA FRANZ TAMAYO") OR AFFIL("UNIVERSIDAD PRIVADA INDÍGENA TAWANTINSUYU AXLLA") OR AFFIL("UTA") OR AFFIL("UNIVERSIDAD REAL DE LA CÁMARA NACIONAL DE COMERCIO") OR AFFIL("UNIVERSIDAD SALESIANA DE BOLIVIA") OR AFFIL("UNIVERSIDAD SAN FRANCISCO DE ASÍS") OR AFFIL("UNIVERSIDAD SIMÓN I") OR AFFIL("UNIVERSIDAD TÉCNICA PRIVADA COSMOS") OR AFFIL("UNIVERSIDAD TECNOLÓGICA BOLIVIANA") OR AFFIL("UNIVERSIDAD TECNOLÓGICA PRIVADA DE SANTA CRUZ") OR AFFIL("UNIVERSIDAD UNIDAD") OR AFFIL("UNIVERSIDAD UNIÓN BOLIVARIANA") OR AFFIL("UNIVERSIDAD INDÍGENA AYMARA") OR AFFIL("UNIVERSIDAD INDÍGENA QUECHUA") OR AFFIL("UNIVERSIDAD INDÍGENA GUARANÍ") OR AFFIL("UNIVERSIDAD MILITAR MARISCAL BERNARDINO BILBAO RIOJA") OR AFFIL("UNIVERSIDAD POLICIAL MCAL. ANTONIO JOSÉ DE SUCRE") OR AFFIL("UNIVERSIDAD PEDAGÓGICA") AND AFFILCOUNTRY(Bolivia) AND (LIMIT-TO (PUBYEAR,2020) OR LIMIT- TO (PUBYEAR,2019) OR LIMIT-TO (PUBYEAR,2018) OR LIMIT-TO (PUBYEAR,2017) OR LIMIT-TO (PUBYEAR,2016) OR LIMIT-TO (PUBYEAR,2015) OR LIMIT-TO (PUBYEAR,2014) OR LIMIT-TO (PUBYEAR,2013) OR LIMIT-TO (PUBYEAR,2012) OR LIMIT-TO (PUBYEAR,2011) OR LIMIT-TO (PUBYEAR,2010) OR LIMIT-TO (PUBYEAR,2009) OR LIMIT-TO (PUBYEAR,2008) OR LIMIT-TO (PUBYEAR,2007) OR LIMIT-TO (PUBYEAR,2006) OR LIMIT-TO (PUBYEAR,2005) OR LIMIT-TO (PUBYEAR,2004) OR LIMIT-TO (PUBYEAR,2003) OR LIMIT-TO (PUBYEAR,2002) OR LIMIT-TO (PUBYEAR,2001) OR LIMIT-TO (PUBYEAR,2000)).

Two thousand one hundred seventy-six documents published by Bolivian universities were included, corresponding to those in which at least one of the authors belonged to one of the universities affiliated with the CEUB.[8]

Data processing and analysis Bibliometric analysis
The documents downloaded to a database in RIS format from Scopus were recovered. Then the dimensions were processed with various programs (Bibexel, Excel, and Access) to obtain the bibliometric indicators: general, universities, or authors.

Network visualization

The co-occurrence matrices for analyzing social networks between countries and terms will be developed with the Bibexel and VOSviewer 1.6.15 (https://www.vosviewer.com/) programs to visualize the relationships between said networks. Normalization of the university fields and the keywords were carried out. Specifically, those terms with a frequency of appearance greater than or equal to 100 will be taken.

Statistic analysis

Descriptive statistics techniques were used: absolute numbers and percentages and inferential statistics. The results of the variables will be processed using the Microsoft Excel program and the statistical package MedCalc version 13.0. Differences will be considered significant with p-values less than 0.05.

Ethical aspects

In this investigation, no experiments or observations will be carried out on animals or humans, so it will not be necessary to use medical ethics, which are the principles or norms of human conduct referring to medical or paramedical personnel, since we will work with research already published in scientific journals.

RESULTS AND DISCUSSION

Our study found that, regarding the distribution of Bolivian universities and other scientific institutions indexed in this database, according to the source of financing, private universities predominate with 54 %. In comparison, public universities remain in second place with 46 %. It should be noted that there were no publications corresponding to the Bolivian universities of the special regime and indigenous.

Figure 1 shows the distribution of documents according to the affiliation of Bolivian public universities. The university with the greatest scientific production in the 20-year cut was the Universidad Mayor de San Andrés with 44,1 %, followed by the Universidad Mayor de San Simón with 23,9 %.
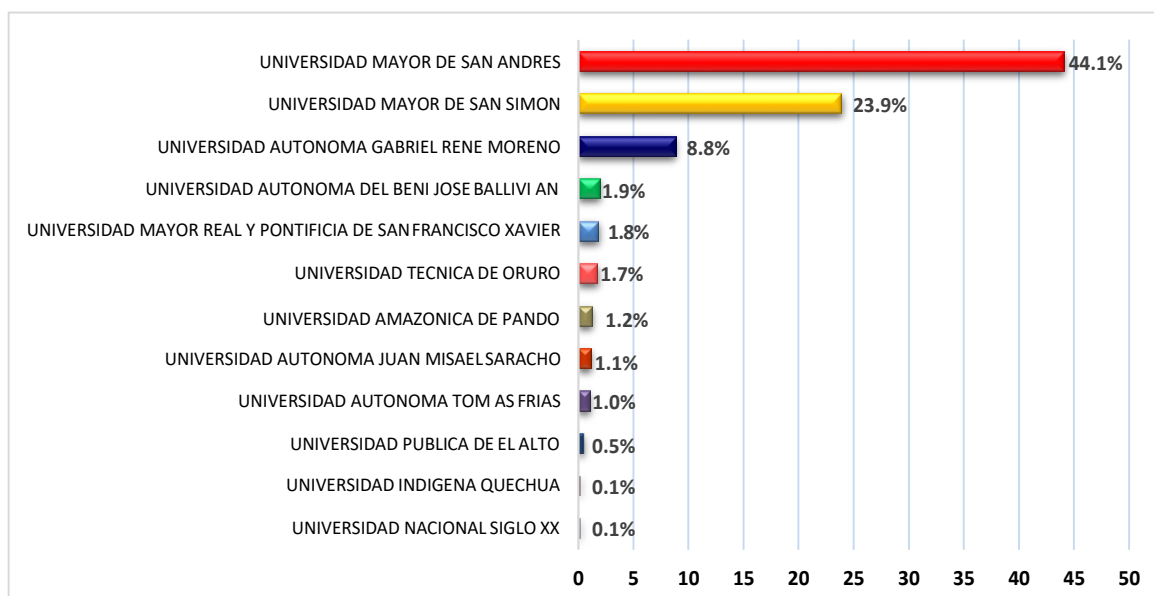
Figure 1. Distribution of documents according to the affiliation of Bolivian public universities.

Bolivian private universities are the most numerous in the country, and the distribution of documents can be seen in Figure 2. The private university with the highest scientific production was the Universidad Católica San Pablo with 5,3 %, followed by the Universidad Privada de Bolivia with 4,4 %. Even though private universities represent more than 50 % of registered in the Scopus database, the highest percentage of publications corresponds to public universities.

In general, the scientific production of universities, according to the number of documents published, had a growing trend line over time. Regarding appointments per year, a fluctuation was observed, with a marked downward trend from 2015 (Figure 3).

The marked decrease observed in the citations of Bolivian universities in the last five years may be due to several reasons: the most common is that several publications take longer to be cited due to the low visibility of the journal where it has been published, but it may also be because the topics addressed by the publications

are not new enough to be cited. In addition, it is not easy for journals that are not published in English to capture citations from Anglo-Saxon publications.[9]
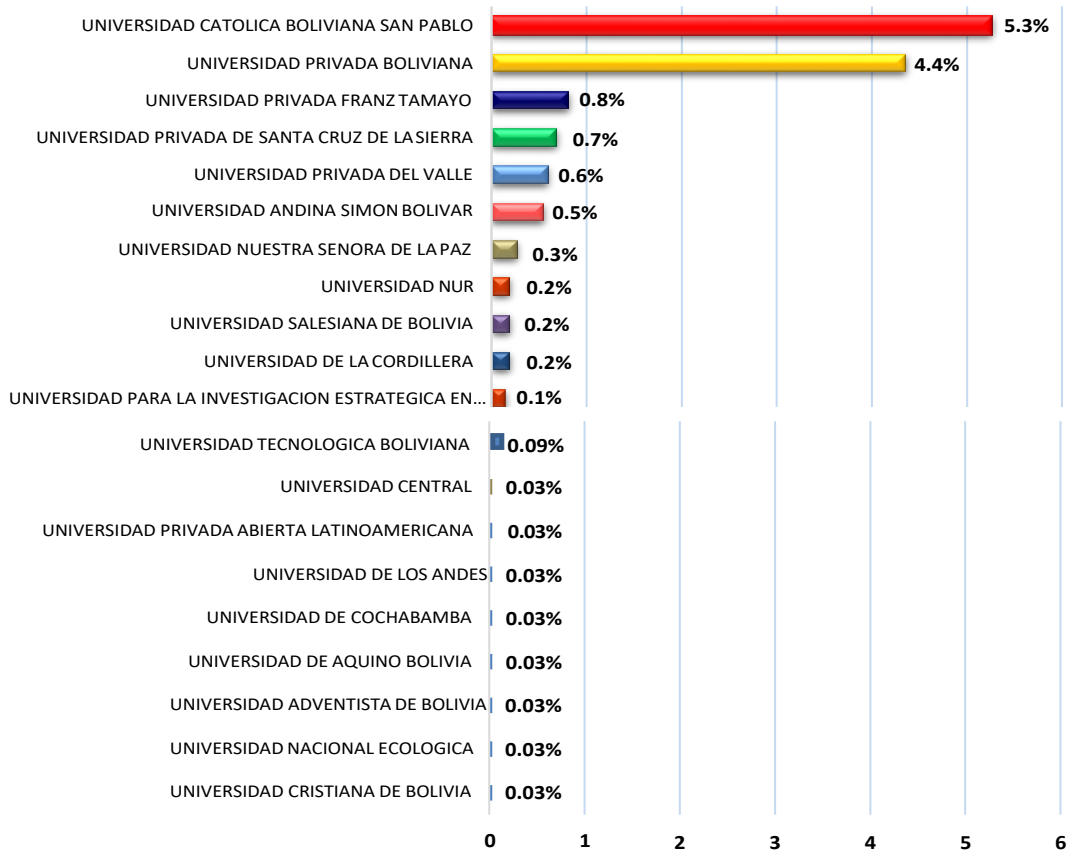

Figure 2. Distribution of documents according to the affiliation of Bolivian private universities

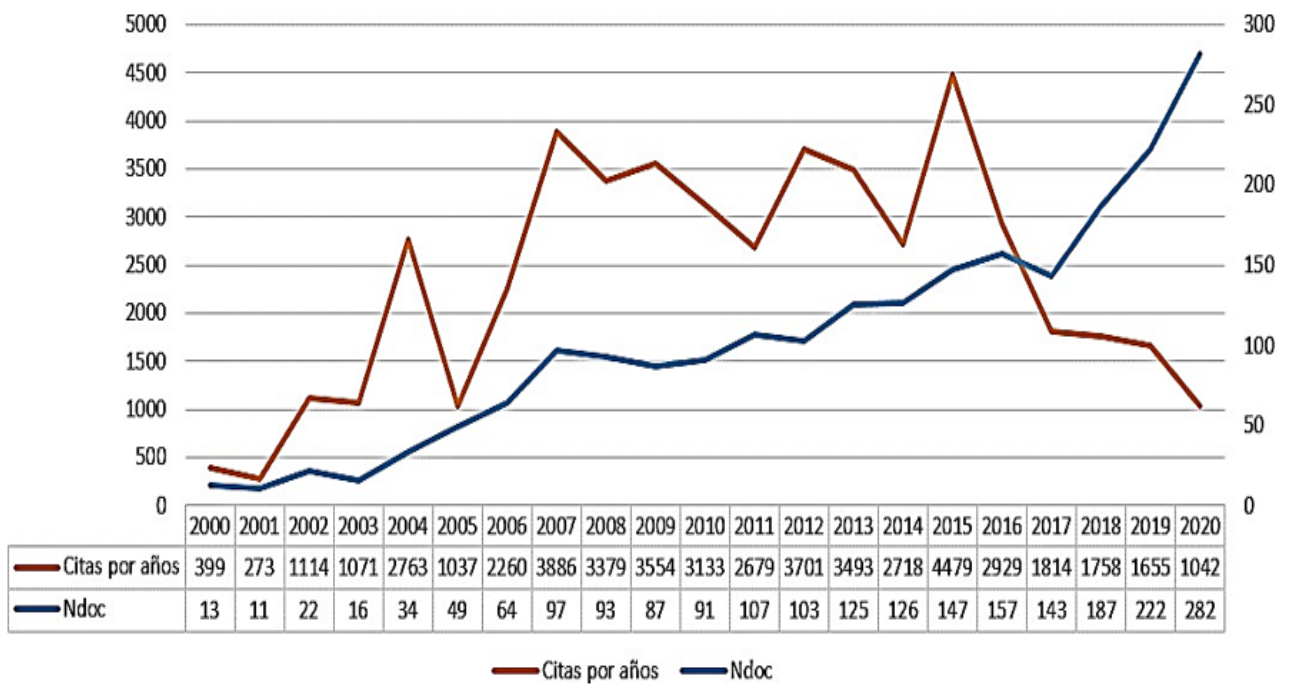|	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Citas por años	399	273	1114	1071	2763	1037	2260	3886	3379	3554	3133	2679	3701	3493	2718	4479	2929	1814	1758	1655	1042
Ndoc	13	11	22	16	34	49	64	97	93	87	91	107	103	125	126	147	157	143	187	222	282

Figure 3. Number of documents and citations by year.

Table 1 shows the distribution of documents according to the type of articles collected in the previous figure, where original articles predominated with 1797 documents, 43141 citations, and 24,01 citations per document, followed by conference articles.

Table 1. Classification of documents according to the type of published articles

Type of Paper	Ndoc	Ncit	Cpd
Original Paper	1797	43141	24,01
Conference paper	173	1002	5,79
Review	80	3885	48,56
Book Chapter	59	370	6,27
Letters	31	146	4,71
Publisher	15	278	18,53
Errata	8	2	0,25
Notes	7	23	3,29
Brief Review	3	254	84,67
Data paper	3	36	12,00
Total	2176	49137	22,58

Source: Scopus database.

Table 2 shows the distribution of documents and the number of citations according to the publication language. English was predominant, with 1,991 documents and 48,357 citations published in that language, followed by the documents and number of citations in Spanish.

As we can see, English is the language of science, and the most cited articles are in this language.

Language has a restrictive role in scientific production, production, publication, and dissemination. Research from countries that do not have English as their first language has less impact.[10,11,12,13]

Table 2. Distribution of documents and number of citations according to the language of publication

Language	Ndoc	Ncit	Cpd
English	1991	48357	24,29
Spanish	216	770	3,56
Portuguese	15	48	3,20
French	6	44	7,33
German	1	1	1,00

Source: Scopus database.

The distribution of documents according to the research area is analyzed, where it can be seen that in the last 20 years, there was a predominance in the themes of agriculture (21,9 %), social sciences (17,7 %), medicine (10,2 %) and environment (9,3 %) (Figure 4).

The network of the visualization of the analysis of the co-occurrence of terms, shown in Figure 5, identified 6 clusters, of which the main areas of knowledge stand out from the thematic point of view: Environmental sciences, Earth sciences, Sciences biological, the COVID-19 pandemic, epidemiology, and public health.

The main areas of knowledge in the publications were fundamentally related to environmental sciences, mainly dedicated to recycling and pollution.

Another of the areas obtained by the analysis of networks was those related to earth sciences, which indicates that the universities have focused their work on the primary economic sources of the country. The same corresponds to the areas of biological sciences.

However, Bolivia, which is a country with wealth in the extractive industry of minerals and the industry of petroleum derivatives, does not appear in the topics addressed by the scientific production of the universities, which reveals that they have turned their backs on the main sources of wealth for the country and that the development achieved by this industry has been done without the contribution of the scientific potential of universities in a general sense.

In the last year, the world and Bolivia have suffered the ravages of the SARS-CoV-2 pandemic, which has

unleashed many publications related to the subject and displayed on the networks independently from the rest of health issues, biological and epidemiological sciences.
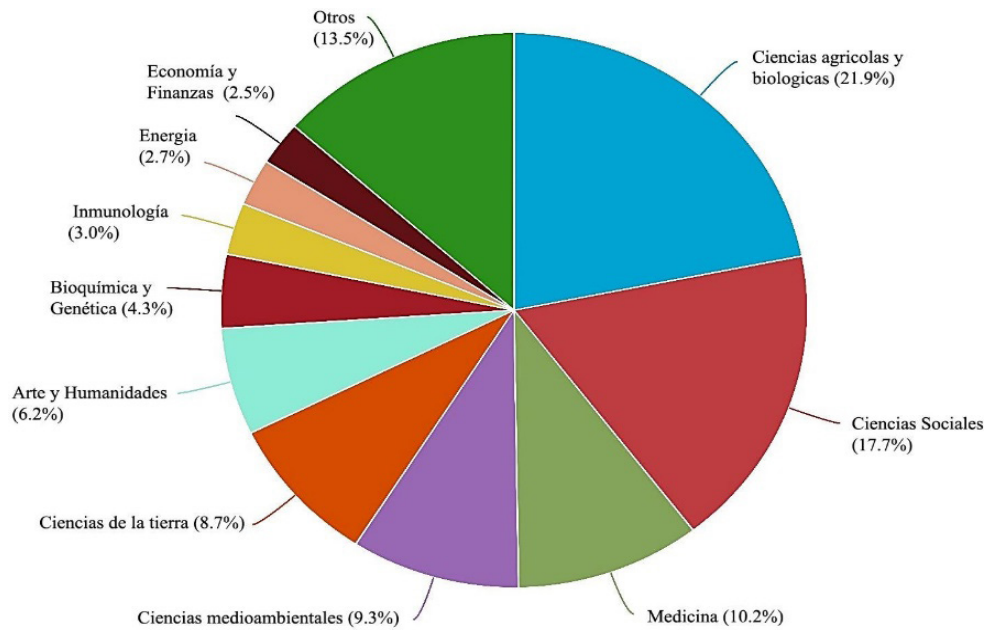

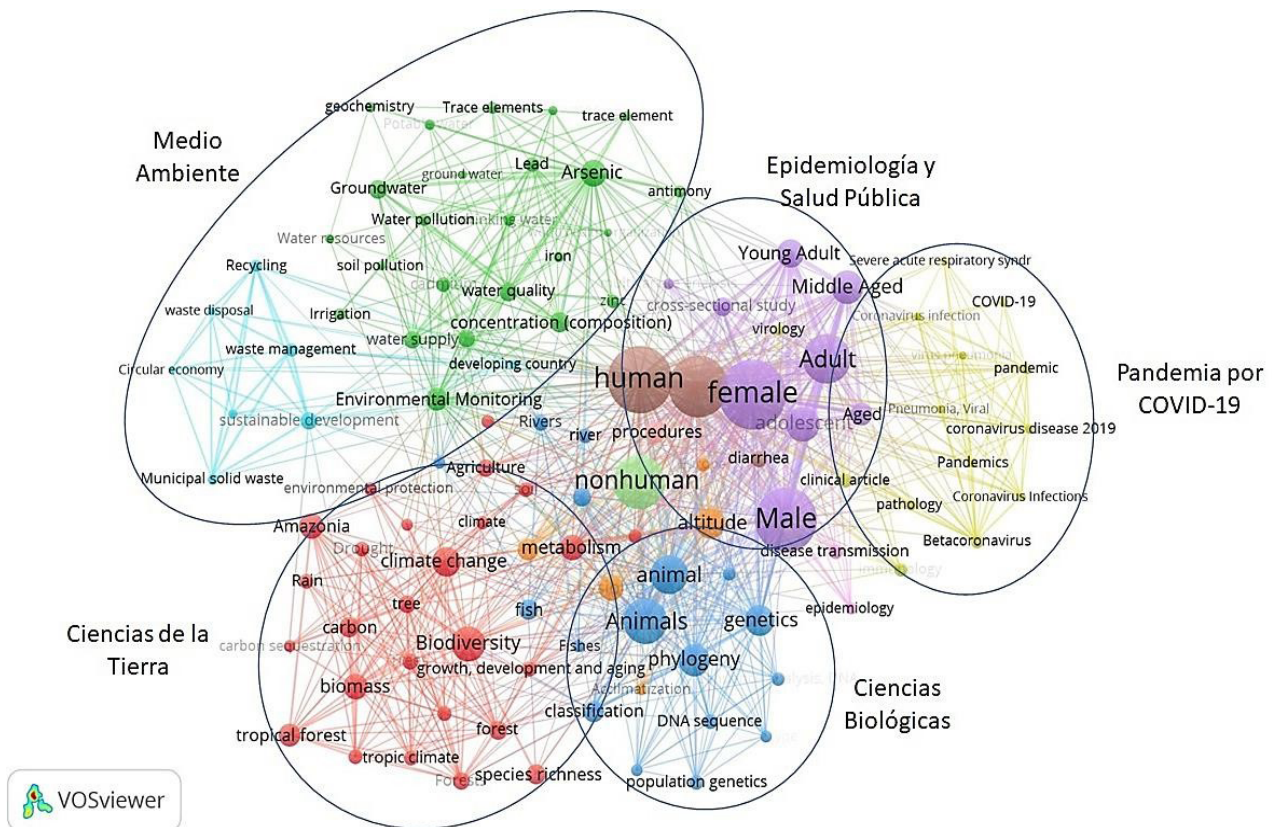**Figure 4**. Documents by research area.

Figure 5. Co-occurrence of themes within scientific production in Bolivian universities and institutions

The international collaboration network developed by Bolivian universities can be seen in Figure 6. It is common to find this network in Latin American countries with strong links with universities and institutions in the United States. It also serves as a bridge for triangulating collaborations with other countries in the Latin American area and outside this hemisphere.
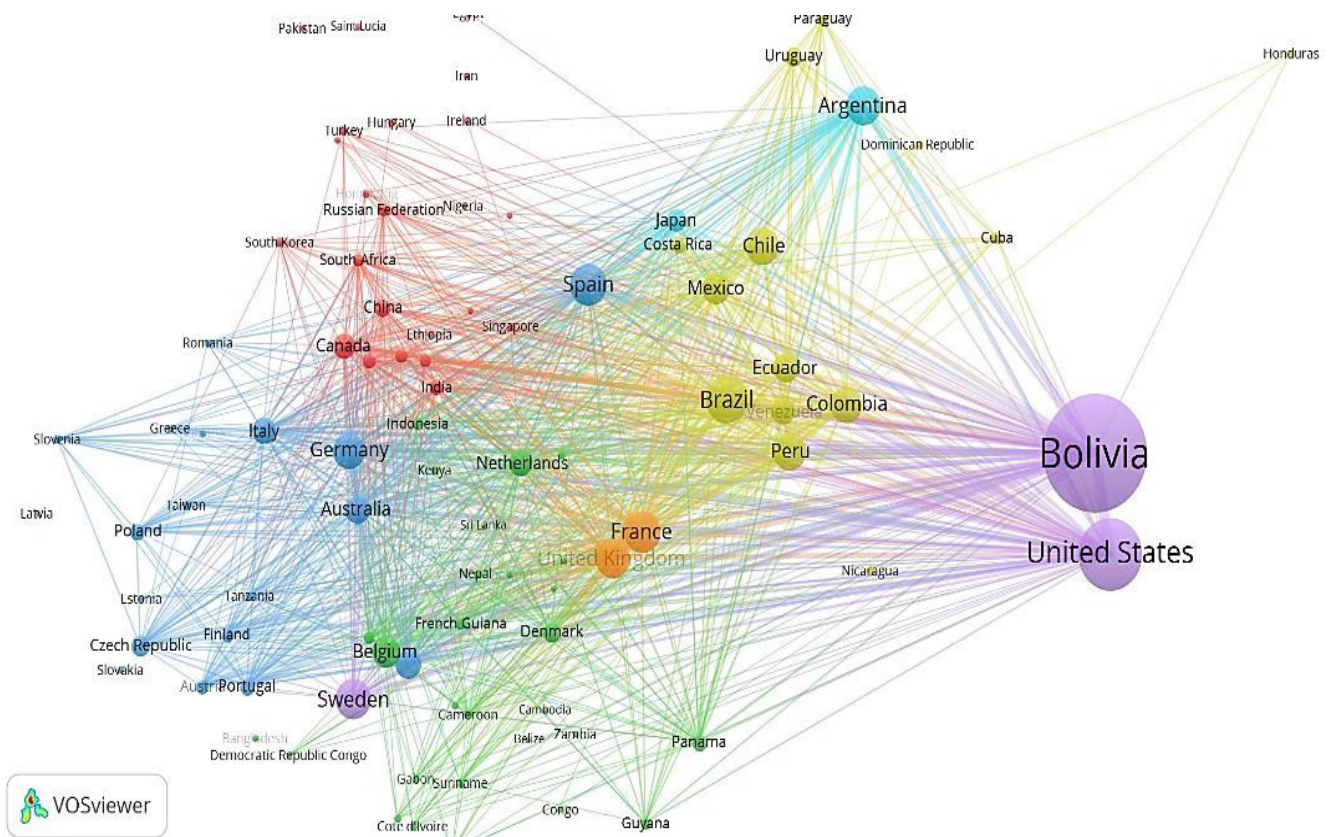
Figure 6. International collaboration network

It can be noted that Latin American countries have relatively important links with Argentina and, to a lesser extent, with South American countries such as Colombia, Ecuador, Peru, and Brazil. However, there is an emerging collaboration with Cuba and Nicaragua that does not reach the magnitude in terms of the number of documents shared by those above Latin American countries, perhaps encouraged by the agreements established with collaborative instruments created from the incorporation of Bolivia into multinational organizations such as ALBA/TCP.[14]

Everything seems to indicate that collaborative relationships with neighboring countries such as Paraguay and Uruguay are limited in number. However, this may be because these countries are not powers in scientific production in the area, as is the case with Brazil.

The collaborations with the countries of Europe and Asia are less close, although relations with Spain, France, and the United Kingdom stand out among these.

Although it collaborates with other developed countries, Bolivia remains significantly outside of collaboration networks with important countries such as Germany and other countries on the European continent.

It is also observed that collaboration with countries such as Argentina allows the triangulation of cooperation with other European countries and Japan.

Bolivia has to diversify international collaboration, although this has a great weight in the country's scientific production because it is the most effective way to increase its production while guaranteeing its sovereignty.[6]

It is well known that Bolivian scientific production at the expense of international collaboration reflects an almost absolute absence of leadership. Although this variable was not analyzed, a recently published article found that the leaders of the articles, who are the authors responsible for the correspondence given by the definition of this variable by the SIR, are non-Bolivian authors.[6]

Whenever a country emerges in scientific production, as in Bolivia, it is logical that, in the beginning, it does so without leadership due to the conditions typical of developing countries. Still, the university authorities should be alerted that in the agreements that establish themselves with other universities and research centers in other countries, Bolivian professionals' role is to increase scientific production based on emerging national talent gradually.

With an essential extractive industry such as lithium, gas and oil, copper, and other minerals and immense potential in biological diversity values, Bolivia should also become a producer of scientific results in the future and related medical-biological research with the living conditions in the heights that culminate in articles made by professionals linked to universities.

Figure 7 shows the collaboration network between Bolivian universities. The largest alliances are established with the UMSA and the UMSS, the public universities with the greatest scientific production and prestige in the country and solid collaboration links between them.

It would be important for private universities to strengthen their academic links with public universities in scientific production because they would be mutually advantageous relationships, especially for the former that aspire to improve their positions in international rankings.

Among the private universities with the greatest scientific production are the Bolivian Private University (UPB) and the Bolivian Christian University (UCB0), which have close ties with the UMSA. However, the UAGRM has powerful collaboration ties, the closest among all, with the UABJB, perhaps due to both universities' research profiles.
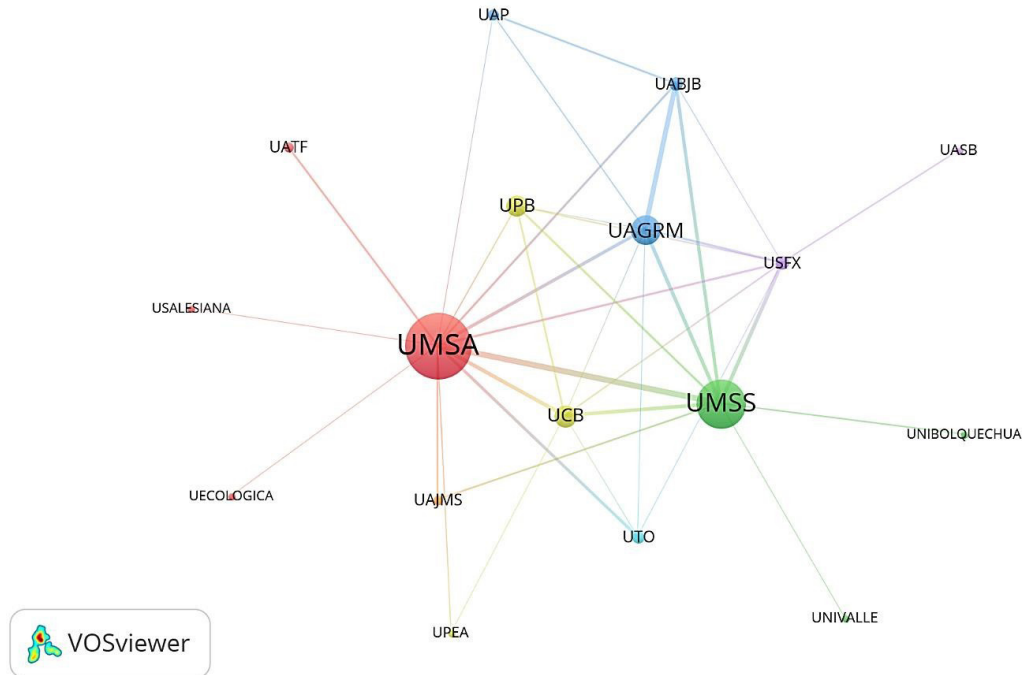

Figure 7. Collaboration network between Bolivian universities.

Table 3 shows the international collaboration between Bolivian public and private universities, which is significantly higher. This could be verified by comparing the scientific collaboration given by the value offered by the SIR as a variable for both types of university institutions. In the t-test for comparison of mean values, a value of t= -2,247 with 30 degrees of freedom and a value of p= 0,032 was obtained, which is statistically significant.

Table 3. International Collaboration of Universities		
	Public Universities	**Private Universities**
Sample size	12	20
Arithmetic significance	141,8333	11,1000
Standard Deviation	261,4605	22,7131
Statistical t-test	-2,247	
Degree of freedom	30	
Two-tailed probability	p = 0,0322	

The prestige of Bolivian universities is supported by outstanding international collaboration. This collaboration was significant when public and private universities were compared, which showed that this international collaboration is significantly higher in public universities. This may be because many agreements between universities and foreign institutions are made based on collaboration agreements between countries. Therefore, public universities are the most benefited by these government agreements.

Everything also seems to indicate that international collaboration with public universities presupposes that they are based on the prestige achieved by public institutions created many years ago with greater international experience than is given by the age and prestige of these universities.

The countries that are integrated into economic or other associations such as Alba/TCP and UNASUR must help to consolidate international collaboration in the field of university scientific research both in the state sector as it is a natural association for the exact nature of these or why not with the new universities that are emerging in the different countries that these associations contemplate.

Table 4 shows the mean values of scientific production and the h-Index values between Bolivian public and private universities.

The mean value of the h index among public universities is 20, while the h index of private universities is 3,7. When we compare the mean values using the t-test, assuming equal variances, we obtain a value of t= -3,224 with a p=0,003 with 30 degrees of freedom, indicating significant differences between the h-index values between public universities and private.

Public universities' scientific production is greater than private universities, and the latter has a lower impact given the h index they reach. This means that the visibility of publications from private universities is lower due to the number of citations they get and therefore develop a higher h-index.

It must be taken into account that the h-index links production and visibility and is a factor of impact or quality of this scientific production because the most cited articles generally correspond to publications found in more visible journals and that, due to the topic they address, produces a greater number of citations. The h-index allows us to differentiate the quality of this production between two universities with the same number of publications. This happens when we compare the values of the h-indexes of public and private universities.

Table 4. Mean values of scientific production and h-index values between Bolivian public and private universities

	Public Universities		Private Universities	
	Ndoc	H Index	Ndoc	H Index
Sample size	12	12	20	20
Arithmetic significance	159,0000	20,0000	15,0500	3,7000
Standard deviation	296,8014	21,79	31,7133	5,26
Statistical t-test	-2,172	-3,224	-2,172	-3,224
Degree of freedom	30	30	30	30
Two-tailed probability	p = 0,0379	p = 0,0030	p=0,0379	p=0,0030

The average number of publications of Bolivian public universities is 159,0, and that of private universities is 15,05. When we compare the mean values between both universities using the t-test for comparison of means, assuming equal variances, it gives us a significant difference with a value of p = 0,037 with 30 degrees of freedom and a value of the t-test = -2,172.

The production of the average public university is significantly higher than private universities, indicating that the professionals linked to these public universities publish more documents.

Perhaps it is because these universities have more professionals motivated to publish than private universities, because the research results are more favorable to be published in public universities, or because they have a greater scientific publication culture. It may be that public universities are more aware of how crucial scientific production is as a measure of the quality of the substantive research process, and there may also be more motivation or demand from the university authorities.

CONCLUSIONS

The scientific production of Bolivian universities in Scopus, 2000-2020, had indicators much lower than expected, with low productivity and scientific performance.

Universities were characterized according to their source of financing, with private universities predominating, followed by public ones. There were no publications corresponding to the Bolivian special regime and indigenous universities.

The greatest scientific production in the 20-year cut was from the Universidad Mayor de San Andrés, followed by the Universidad Mayor de San Simón. The number of documents published had a growing trend line over time. Original articles predominated, followed by conference articles, and the prevailing language of publication was English.

According to the research area, agriculture, social sciences, and medicine, they had better indicators. According to the analysis of the co-occurrence of terms, the main areas of knowledge from the thematic point of view were environmental sciences, earth sciences, biological sciences, COVID-19, and public health.

Based on these results, it is necessary to implement strategies that promote the development of Bolivian scientific production involving university authorities, teachers, master's students, and graduates.

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CONFLICT OF INTEREST
None.

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