relato de pesquisa

# SCIENTIFIC JOURNALS: Brazilian titles indexed in WoS in 2013 to 2015

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**ABSTRACT** Journals are an essential element for the advancement of science. This study analyzed the Brazilian scientific journals indexed in the most important multidisciplinary databases. The goals of this study were to: a) identify Brazilian journals indexed in Scopus and the Web of Science from 2013 to 2015; b) characterize the essential elements of the journals: field of knowledge, publisher, annual number of issues; file format of available articles; and c) specify the type of access. The data was collected through standard forms. Information on the institutional aspects of the journals was obtained from the journal's pages and the Ulrichs web directory. A total of 42 new journals were identified in the databases, comprising the research corpus. The most prominent knowledge areas were Agrarian and Biological Sciences, with 14 titles (33.34%), followed by Medicine, with eight (19.05%), and Arts and Humanities, with seven (16.67%). A total of 39 journals were Open Access (92.85%), and 61.9% of these charges no fees to authors (Platinum open access).

**Keywords**: Scientific communication. Brazilian scientific journals. Open Access.

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## 1 INTRODUCTION

The arrival of the web 2.0 technologies has set the stage for two databases, Scopus and Web of Science (WoS), to be recognized as world references. Both databases contribute to the production of bibliometric indicators by indexing scientific journals. The number of indexed Brazilian journals has been increasing, as has the authors preoccupation with validating the quality of their work by publishing in major journals.

Studies such as Packer (2011), Rodrigues and Oliveira (2012), Leta (2012), Rodrigues and Abadal (2014a; 2014b), Mugnaini, Digiampietri and Mena-Chalco (2014) and Rodrigues, Quartiero and Neubert (2015) approach the way Brazilian journals are present in international literature, due in part to Open Access (OA) policies and the Scientific Electronic Library Online (SciELO) platform. While in the so called central countries the editorial model is based on commercial publishers, privatizing knowledge produced with public funds and control the subscription prices and the quantity of journals in various fields for commercial purposes (MCGUIGAN; RUSSEL, 2008), in Latin America, and Brazil in particular, internationally recognized journals depends essentially on public resources. (RODRIGUES; ABADAL, 2014b; MUELLER, 2011; PACKER, 2011).

Research about the growth of Brazilian journals indexed in WoS and Scopus, including the aspects of their editorial policy, is relevant to identify the international visibility. This study, following the work of Rodrigues, Quartiero and Neubert (2015), identified Brazilian journals newly incorporated into the databases

between 2013 and 2015, characterized the essential elements of each journal (knowledge area, publisher, annual number of issues, and softwares) and determined their type of access.

## 2 SCIENTIFIC COMMUNICATION AND THE SCIENTIFIC JOURNAL

Since scientific publication is a component of public knowledge, it is in constant development by and for humanity, and its predominant interest, above any ideological considerations, is to maintain the publications channels. Science consists only of what can be communicated from one individual to another and it has been communicated and documented over the years (CHALMERS, 1994; ZIMAN 1981, 1996). It depends on the written word for two main reasons: a) it is essential to maintain an organized public record of theories, research results, formulas, and models so that other scientists may consult; and b) the scientific community requires research to be formally documented so it can critique, replicate, and improve its ideas and techniques (ZIMAN, 1981). The editors and reviewers have expertise to analyze the submitted studies and present them to the scientific community, ensuring the content's reliability through the peer review process (MUELLER, 2006; WHITLEY, 1974; ZIMAN, 1979).

Not only scientists are concerned about the repercussion of scientific publication, but also scientist that intend to publish their researches, scientists that wish to read recent publications, commercial publishers responsible for spreading the publications and libraries that need current relevant content to fulfill their role of disseminating information (FJÄLLBRANT, 1997).

Changes in scientific communication technologies have raised questions about the costs added by commercial publishers in the scientific publishing system. The concentration of titles is one reason, since three major commercial publishers (Elsevier, Springer-Kluwerand and Wiley-Blackwell) hold the rights to 42% of all articles published and the most prestigious journals, while other 2,000 publishers are responsible for the remaining journals, none with more than 3% of the total (MCGUIGAN; RUSSEL, 2008).

The "Matthew effect", generated by the hold of the most prestigious titles reproduces a cycle in which periodicals that are part of the nucleus should remain in the nucleus, while other journals cannot break the barrier to achieve greater visibility. Such a system is particularly damaging for pheriferic countries, since it weakens national publications, result of the local scientific community efforts, by attracting the best papers to international journals (YUNTA, 2010).

Furthermore, a publication bubble is formed when journals focus on very specific knowledge areas, making them essential for certain subjects. The publishing market involves political, economic, national interests, as well as large commercial publishers, universities and researchers seeking recognition and prestige in the academic community.

### 2.1 The open access movement

The Open Access (OA) movement has arisen in the scientific communication area, promoting free access to all digital literature and the removal of restrictive licenses (Suber, 2012). The concept was introduced at the Budapest Open Access Initiative (BOAI) conference in February 2001 and was publicly available on February 14, 2002. The movement is formalized in a declaration, which addresses not only the costs of OA, but also copyright restrictions (LAAKSO, 2014; SUBER, 2012).

It was established at this meeting that OA would follow two ways or roads: a) Green - which is the self-archiving of articles published in traditional journals, either in institutional/ thematic repositories or in authors' personal websites; and b) Golden - defined by the BOAI as publications in OA journals, without cost to the readers or to the libraries. Either the author or the institution that supports the journal should finance this process (MIGUEL, CHINCHILLA-RODRIGUEZ; MOYA-ANEGÓN, 2011). The Platinum way, not defined by the BOAI, is a publication model in which no fees are charged to authors or institutions. First proposed by Haschak (2007), the publication costs in this model are covered by volunteer work, educational and research institutions, donations or subsidies. Studies have indicated that platinum way is the most cost-effective access model for scientists (BEALL, 2012; CRAWFORD, 2011; VAN NOORDEN, 2013).

Digital forms of scientific communication have reached a point in which OA is not only desirable but inevitable, because science requires a much wider distribution of its results. Several foundations and governments, including some from Europe and North America, are adhering to this socioeconomic and cultural tendency and requi-

ring that publicly funded research should be Open Access (ODLYZKO, 2013; SOLOMON, 2013).

One problem in the publishing process, that demands OA as a solution, is the abusive prices of large publishers, which makes it difficult to maintain libraries updated and to purchase individual articles. This is contradictory, since content creators give away their work, once they donate publishing rights to a company that profits each time the article is sold, while the publisher denies or limits the access through costs and restrictions to the scientific community and even for the author, while profiting in the editorial scheme (UNESCO, 2015a; WILLINSKY, 2006).

According to Mueller (2006), however, publishers claim that by restricting access to content they are protecting the author's rights.

> [...] such publishers are powerful companies, not only financially, but politically as well, since they own the journals and hold the copyrights of the works they publish, they actually control the scientific communication system. In addition, the most reputable publishers still derive power precisely from the prestige attributed to them by the community. The discourse of the publishers, by not allowing free access, is that they protect the author and the text integrity (MUELLER, 2006, 34, translated by the authors).

This statement derives from the fact that the scientific publication in Open Access has been receiving considerable citations and, in an attempt of obtaining more prestige, the commercial publishers restrain that access with a contradictory argument they are protecting the authors interests (MUELLER, 2016). From this perspective, being aware of the publishing market's interests is important to comprehend the current state of the Brazilian scientific publication system.

## 2.2 The influence of open access on the brazilian scientific publication system

The SciELO project has been working with Brazilian editors since the 1990s, even before the OA Declarations to promote visibility for national journals, guaranteeing greater visibility to the country. Since 2014, the SciELO Citation Index began to include citations from journals indexed in the WoS (PACKER, 2014) in addition to the national citations that it has registered since 2000. According to Mugnaini, Digiampietri and Mena-Chalco (2014), due to the effort Brazil has been depositing in national research, the scientific production has been ranked in better positions amongst world scientific literature in the last 15 years.

Rodrigues, Quartiero and Neubert (2015) point out that 99% of the Brazilian journals indexed in the WoS and Scopus databases are OA and that the fields of knowledge with most titles are Medicine (23.5%), Agrarian and Biological Sciences (19.4%) and Social Sciences (11.4%).

According to Rodrigues and Oliveira (2012), Brazil is the Latin American leader in total of journals and, according to Miguel, Chinchilla-Rodriguez and Moya-Anegón (2011), more than 95% of Brazil's ISI and SCOPUS indexed journals are OA, which is well above other regions. The great proliferation of OA is due to two main factors: a) the efforts of researchers and research groups within universities and academic associations; and b) intensive use of the SciELO platform.

Leta (2012, p. 47) registered the growth of international publications by Brazilian authors, noting that "[...] more than 90% of articles are produced by authors associated with universities [...]" and that the most intense fields of production in 2010 were Medicine in SCOPUS and Agriculture in WoS. It is also highlighted that "[...] the increase publication by Brazilian authors seems to be a consequence of the increased indexation of Brazilian journals in the WoS and Scopus" (LETA, 2012, p. 51).

Mugnaini, Digiampietri and Mena-Chalco (2014) found that the number of Brazilian journals has increased in the WoS and SciELO, which implies an increase in national article production and, therefore, a greater presence of Brazilian research in these databases.

Mueller (2011) investigated SciELO indexed journals and identified 193 that were edited by associations (47%) and universities (35%), the clear majority of which (85%) commercialized printed versions and provided a free digital version. Ten percent of the journals, mainly in the areas of Medicine, Agriculture and Biology, charged author fees.

In addition to the increase of indexed national journals in the most important databases, it is possible to identify changes in the Brazilian scientific publication scenery: although dedicated almost exclusively to Platinum OA with no subscription or author fees, a rise in author fees has

accompanied with few migration of quality journals to commercial publishers (OLIVEIRA, 2015).

The publication of digital journals has altered the geographical availability of publications, being separated into three categories; a) those with Internet Protocol (IP) or password-controlled access, produced by commercial publishers; b) OA journals in which the authors pay the production costs; and c) OA journals in which the publishing institution bears the production costs. The study of published documents in recognized journals is in consonance with a movement that was born global and that managed, in a few years, to interfere in one of the most stable and lucrative enterprises within science – commercial publishers.

## 3 METHODOLOGICAL PROCEDURES

The data was collected between October and December of 2015 and the methods adopted were documental, quantitative and descriptive. By cross-referencing the periodicals indexed in WoS and Scopus during 2013, 2014 and 2015 with actualized lists of the same databases, a total of 42 new titles were found. From the new titles list, a form was used to collect data from each journal's website, supplemented as necessary with data from the Ulrichs web Global Serials Directory. The variables studied were: journal title, indexation (WoS, Scopus or both), ISSN, E-ISSN, web link, sponsoring institution type, name of institution, file types supported, area of knowledge, type of access, support from the National Council for Scientific and Technological Development, the number of annual issues and the languages accepted for submissions.

Each journal's area of knowledge was determined according to Scopus criteria. When Scopus was unclear, Scimago was consulted and any remaining doubts were resolved by analyzing the objectives and mission of the journal through a technical reading of several issues. Different fields of knowledge may overlap in a single journal: 16 journals were classified in one field, 15 in two, and one in three. For the purposes of data treatment and analysis, however, only the first listed field of knowledge was considered for each journal.

## 4 RESULTS AND DISCUSSION

In a previous study, Rodrigues, Quartiero and Neubert (2015) identified 314 Brazilian journals indexed in Scopus and WoS until the year of 2012, among which 107 titles were indexed in both databases, 200 were exclusively indexed in Scopus and 7 exclusively in WoS, accounting for 34.08%, 63.69% and 2.23% of the total, respectively. The 42 new titles added between 2013 and 2015 represent a 13.37% increase over the previous period. This section analyzes and discusses the data of these 42 newly indexed Brazilian journals. The coverage of Brazilian journals remains broader in Scopus than in WoS, with 73.80% (31) of the new journals being exclusively indexed in this database, 9.53% (4) were in both databases, and 16.67% (7) indexed only in WoS.

The position of WoS as an index of world scientific production was hegemonic until 2004, when Elsevier launched Scopus. Scopus is less restrictive in its indexing, so it has greater coverage (YUNTA, 2010; PACKER, 2011), which explains why 83.33% (35) of the journals here studied are indexed in this database.

Rodrigues and Oliveira (2012) counted Brazil as the Latin American country with greater number of OA publications in both databases, intensified though the SciELO platform. Packer (2011) indicates that there were 255 Brazilian titles indexed in WoS in 2008, while Rodrigues and Abadal (2014a) found a combined total of 252 journals listed in WoS and Scopus in March 2012. Considering that for Brazil, such as for other developing countries, it is a challenge to assure visibility in the international scientific literature, integrating its production into the top world indexes, the number of 314 Brazilian journals identified by Rodrigues, Quartiero and Neubert (2015) is remarkable, such as the 13.37% growth in these titles, identified in the present research and in the references here mentioned.

The first characteristic to study was the knowledge area (Table 1). Fourteen of the 42 journals (33.34%) were from Agrarian and Biological Sciences, the fastest growing field in the databases, followed by Medicine, with eight titles (19.05%) and the Arts and Humanities, with seven titles (16.67%). Two areas presented two new journals each: Health Professions and Psychology (4.76%); and nine areas presented one new title each (2.38%) in the following fields: Chemistry; Dentistry, Planetary and Earth Sciences, Environmental Science, Mathematics, Neuroscience, Nursing, Pharmaceutics, and Social Sciences. There were no new journals in 13 of the fields examined in this study, as shown in Table 1.

**Table 1:** Periodicals by field of knowledge

| Field | Total | % |
|---|---|---|
| Arts and Humanities | 7 | 16.67% |
| Biochemistry, Genetics and Molecular Biology | - | - |
| Environmental Science | 1 | 2.38% |
| Computer science | - | - |
| Materials Science | - | - |
| Agrarian and Biological Sciences | 14 | 33.34% |
| Decision Science | - | - |
| Planetary and Earth Sciences | 1 | 2.38% |
| Social Sciences | 1 | 2.38% |
| Economics, Econometrics and Finance | - | - |
| Energy | - | - |
| Nursing | 1 | 2.38% |
| Engineering | - | - |
| Chemical engineering | - | - |
| Pharmacology, Toxicology and Pharmaceuticals | 1 | 2.38% |
| Physics and Astronomy | - | - |
| Immunology and Microbiology | - | - |
| Mathematics | 1 | 2.38% |
| Medicine | 8 | 19.05% |
| Multidisciplinary | - | - |
| Business, Management and Accounting | - | - |
| Neuroscience | 1 | 2.38% |
| Dentistry | 1 | 2.38% |
| Health Professions | 2 | 4.76% |
| Psychology | 2 | 4.76% |
| Chemistry | 1 | 2.38% |
| Veterinary Medicine | - | - |
| Total | 42 | 100.00% |

**Source:** research data

The concentration of journals in Agrarian Science results is consistent with the study of Oliveira (2015), who confirms this area as the greater of titles indexed in WoS and Scopus, respectively 27% and 22.4%. A UNESCO report from 2015 indicates that Agriculture is the most outstanding area of Brazilian scientific specialization.

According to UNESCO (2015b), the Life Sciences dominate Brazilian publications, with highlight to the Medical Sciences, leader in the number of documents publicized between the years of 2008 and 2014, with 52,334 Medicine publications, followed by Biological Sciences (46,676), and Agriculture (21,181).

Medicine appears in second place, considering the number of indexed titles added to the already 73 indexed titles counted in a previous study by Rodrigues, Quartiero and Neubert (2015), remaining the area with the highest concentration of Brazilian journals indexed in WoS and Scopus. According to a

study by Mugnaini, Leite and Leta's (2011), Health was the third most prominent area for Brazilian authors in international publications in WoS, following the Exact and Earth Sciences and Biological Sciences.

The Arts and Humanities ranked third in the present study, with seven new indexed journals, that becomes 32 when combined with Rodrigues, Quartiero and Neubert's (2015) data. This confirms a continuous growth pattern, since Rodrigues and Oliveira (2012) identified 12 journals in this field in 2011, and Rodrigues, Quartiero and Neubert (2015) identified 25 in 2012, an increase of over 100% in the period between researches.

The knowledge areas with the greatest increase in journals between 2013 and 2015 are those already involving the majority of WoS and Scopus indexed Brazilian journals, which included the Social Sciences, third in the concentration of titles, although its growth was only 2.38%, the equivalent of one journal.

Table 2 presents the publishers responsible for the newly indexed journals. The institutions were categorized according to Mueller's (2011), Laakso and Björk's (2012) and Solomon's (2013) classifications, with the types: universities, government agencies, research institutes, scientific and professional societies and commercial publishers. The term 'associations' was used for scientific/professional associations and societies, while 'university' was used as a generic term for all higher education institutions and their subdivisions, including colleges, postgraduate programs, etc.

**Table 2:** Publishers according to field of knowledge

| Area | Societies | | Commercial | | Government | | Institutes | | Universities | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | n | Issues | n | Issues | n | Issues | n | Issues | n | Issues | n | % | Issues |
| Agrarian and Biological Sciences | 7 | 33 | 1 | 4 | 1 | 4 | 1 | 4 | 4 | 34 | 14 | 33.3 | 79 |
| Arts and Humanities | 1 | 3 | - | - | 1 | 6 | - | - | 5 | 14 | 7 | 16.6 | 23 |
| Chemistry | - | - | - | - | 1 | 4 | - | - | - | - | 1 | 2.3 | 4 |
| Dentistry | 1 | 6 | - | - | - | - | - | - | - | - | 1 | 2.3 | 6 |
| Planetary and Earth Sciences | 1 | 6 | - | - | - | - | - | - | - | - | 1 | 2.3 | 6 |
| Environmental Sciences | - | - | - | - | - | - | - | - | 1 | 3 | 1 | 2.3 | 3 |
| Health Professions | 2 | 10 | - | - | - | - | - | - | - | - | 2 | 4.7 | 10 |
| Mathematics | 1 | 2 | - | - | - | - | - | - | - | - | 1 | 2.3 | 2 |
| Medicine | 8 | 71 | - | - | - | - | - | - | - | - | 8 | 19 | 71 |
| Neuroscience | - | - | - | - | - | - | 1 | 3 | - | - | 1 | 2.3 | 3 |
| Nursing | - | - | - | - | - | - | - | - | 1 | 6 | 1 | 2.3 | 6 |
| Pharmacology, Toxicology and Pharmaceuticals | 1 | 6 | - | - | - | - | - | - | - | - | 1 | 2.3 | 6 |
| Psychology | 2 | 7 | - | - | - | | - | - | - | - | 2 | 4.7 | 7 |
| Social Sciences | - | - | - | - | - | - | - | - | 1 | 4 | 1 | 2.3 | 4 |
| Total | 24 | 144 | 1 | 4 | 4 | 14 | 2 | 7 | 12 | 61 | 42 | 100 | 100 |
| % | 57.1 | 62.6 | 2.3 | 1.7 | 7.1 | 6.1 | 4.7 | 3 | 28.6 | 26.5 | 100 | 100 | 100 |

**Source:** research data

Scientific societies published 24 (57.15%) journals, followed by universities, with 12 (28.57%), government, with three (7.14%), institutes, with two (4.76%), and commercial publishers, responsible for only one (2.38%) new title. The leading publishers and financial supporters of Agrarian and Biological Science journals were associations (seven journals: 16.67%) and universities (four journals: 9.52%). Arts and Humanities journals were mostly funded and published by universities (five journals: 11.90%). Medicine journals were widely funded by associations (eight journals: 19.05%).

In accordance with the characteristics of the indexed titles in WoS and Scopus until 2012, as presented in the study by Rodrigues, Quartiero and Neubert's (2015): Agrarian and Biological Science publications continue to be concentrated at Societies and Universities, the journals of Arts and Humanities are mostly published by Universities, while Medicine Journals are published mainly by Societies. In both studies, Universities and Associations were found to be the largest journal publishers in Brazil, responsible for 87.9% of journals indexed in WoS and Scopus until 2012 (46.8% and 41.1%, respectively) and for 85.72% of those indexed between 2013 and 2015.

Table 2 presents the concentration of journals by each publishing institution and the number of issues. Highlights include the Medicine journals published by Associations, with an average of 8.87 issues per title and Agrarian and Biological Sciences journals published by Universities, which averaged 8.5 issues per title. The areas with the least number of issues were Arts and Humanities published by Universities, with an average of 2.8, and Mathematics published by Associations, with two issues per title. These differences in the publishing volume are in accordance with the communication flow and its velocity for each area, reflecting in the number of publications in different scientific areas (MEADOWS, 1999).

The third aspect of interest is the journal distribution in publishing platforms by knowledge area. A total of 23 titles (54.76%) used a single platform, while the other 19 (45.24%) used combinations of two platforms, as shows Table 3.

Table 3: Distribution of the journals in the editorial plataforms

| Area | OJS | Other | Home | Scielo | Home + OJS | Scielo + OJS | Scielo + Home | Total | % |
|---|---|---|---|---|---|---|---|---|---|
| Agrarian and Biological Sciences | 2 | 1 | 2 | 4 | - | 3 | 2 | 14 | 33.3 |
| Arts and Humanities | 3 | - | 1 | - | 2 | - | 1 | 7 | 16.6 |
| Chemistry | - | - | - | 1 | - | 1 | - | 2 | 4.7 |
| Dentistry | - | - | - | 1 | - | - | - | 1 | 2.4 |
| Environmental Science | 1 | - | - | | - | - | - | 1 | 2.4 |
| Health Professions | - | - | - | - | - | - | 2 | 2 | 4.7 |
| Mathematics | 1 | - | - | - | - | - | 2 | 1 | 2.4 |
| Medicine | - | - | 1 | 2 | - | - | 5 | 8 | 19 |
| Neuroscience | 1 | - | - | - | - | - | - | 1 | 2.3 |
| Nursing | - | - | - | - | - | 1 | - | 1 | 2.3 |
| Pharmacology, Toxicology and Pharmaceuticals | - | - | - | - | - | - | 1 | 1 | 2.3 |
| Psychology | - | - | 1 | - | - | - | 1 | 2 | 4.7 |
| Social Sciences | - | - | 1 | - | - | - | 1 | 1 | 2.3 |
| Total | 8 | 1 | 6 | 8 | 2 | 5 | 12 | 42 | 100 |
| % | 19 | 2.4 | 14.2 | 19 | 4.7 | 11.9 | 28.6 | 100 | |

**Source: Research data**

SciELO is the most used platform, in 25 publications (59.52%): only one platform of eight journals (19.05%), used in combination with Open Journal Systems (OJS) in five journals (11.90%) and used in 12 journals (28.58%) in combination with a proprietary publishing platform. Proprietary publishing platforms were used by 20 journals (47.62%), being the sole platform of six (14.28%), used in combination with OJS in two (4.76%) and, as mentioned previously, in combination with SciELO in 12 (28.58%). OJS was used in 15 journals: eight exclusively (19.05%), with a proprietary website in two (4.76%), and in conjunction with SciELO in five (11.90%). Only one title (2.38%) is published in another platform, edited by a Society[1], BioOne, that doesn't fit in any of the other categories.

It should be noted that, from 2012, SciELO started to use the platform Scholar One, of Thomson Reuters, as an online management system for journal manuscripts, starting to function, in addition to publishing platform, as a system of editorial management, similar to OJS (MENDONÇA, 2015).

Table 4 presents data on the languages accepted by the journals. Since the titles accept more than one language for submission, there is an overlap among the accepted languages, the percentages were calculated in relation to the total of titles analyzed (42).

**Table 4:** Languages accepted for publication in the 42 newly-indexed journals

| Language | N | % |
|---|---|---|
| Portuguese | 30 | 71.43% |
| English | 41 | 97.62% |
| Spanish | 22 | 52.38% |
| French | 7 | 16.67% |
| Italian | 1 | 2.38% |

**Source:** research data

There is a prevalence of English as the most accepted language in submissions. Of 42 newly indexed journals, 41 (97.62%) accepted submissions in English, 30 (71.43%) in Portuguese, 22 (52.38%) in Spanish, seven (16.67 %) in French and one (2.38%) in Italian. English opens doors for the internationalization of journals, a characteristic inherent in current scientific communication (PACKER, 2011). Portuguese may be a barrier to visibility, since English is the current *lingua franca* for issues of global influence, which interferes in the potential of citations that the author and the journal may receive.

The document formats available by platform are presented in Table 5.

**Table 5:** Document format provided by platform

| Platform | PDF and HTML | PDF, HTML and XML | Total |
|---|---|---|---|
| OJS | 2 | 6 | 8 |
| Other | - | 1 | 1 |
| Proprietary | 3 | 3 | 6 |
| Scielo | - | 8 | 8 |
| Proprietary/OJS | - | 2 | 2 |
| Scielo/OJS | - | 5 | 5 |
| Scielo/Proprietary | - | 12 | 12 |
| Total | 5 | 37 | 42 |
| % | 11.90% | 88.10% | 100% |

**Source:** research data

1 *South American Journal of Herpetology, edited by Brazilian Society of Herpetology.*

None of the journals provide a single file format, while all of them offer PDF and HTML files; thus, the distinguishing factor is XML. SciELO journals (see Table 3) are required to provide files in PDF, HTML and XML formats, which accounts for the high number of cases (59.52%) in the sample. OJS, proprietary platforms and the BioOne journal also provide files in the three formats, totaling 88.10% of the newly indexed journals in Scopus and WoS. This indicates the growing importance of the XML format in online scientific publishing, which structures the text so that information can be easily searched and retrieved, thus facilitating the use of sophisticated metrics.

The type of access was also investigated. In table 6, Platinum OA refers to a financing model in which the publishing institution is responsible for the costs of the journals. In the Golden OA the authors pay the fees, whether by submission or publication, or by other types of fees (e.g., exceeded page limits, illustrations or translations); the term Subscription refers to journals that charge users for access to the online version, while 'platinum-subscription/printed' indicates OA journals that only charge for printed copies.

Table 6: Access type and number of issues by field of knowledge

| *Field* | **Platinum** | | **Gold** | | **Subscription** | | **Platinum - Subscription/ Printed** | | **Total** | |
|---|---|---|---|---|---|---|---|---|---|---|
| | n | Issues | n | Issues | n | Issues | n | Issues | n | Issues |
| Agrarian and Biological Sciences | 6 | 24 | 4 | 22 | 1 | 3 | 3 | 30 | 14 | 79 |
| Arts and Humanities | 6 | 19 | - | - | 1 | 4 | - | - | 7 | 23 |
| Chemistry | 1 | 4 | - | - | - | - | - | - | 1 | 4 |
| Dentistry | 1 | 6 | - | - | - | - | - | - | 1 | 6 |
| Planetary and Earth Sciences | 1 | 6 | - | - | - | - | - | - | 1 | 6 |
| Environmental Science | 1 | 3 | - | - | - | - | - | - | 1 | 3 |
| Health professions | 1 | 4 | 1 | 6 | - | - | - | - | 2 | 10 |
| Mathematics | 1 | 2 | - | - | - | - | - | - | 1 | 2 |
| Medicine | 5 | 43 | 1 | 12 | - | - | 2 | 16 | 8 | 71 |
| Neuroscience | 1 | 3 | - | - | - | - | - | - | 1 | 3 |
| Nursing | - | - | 1 | 6 | - | - | - | - | 1 | 6 |
| Pharmacology, Toxicology and Pharmaceuticals | - | - | 1 | 6 | - | - | - | - | 1 | 6 |
| Psychology | 1 | 2 | - | - | 1 | 5 | - | - | 2 | 7 |
| Social Sciences | 1 | 4 | - | - | - | - | - | - | 1 | 4 |
| **Total** | **26** | **120** | **8** | **52** | **3** | **12** | **5** | **46** | **42** | **230** |
| % | **61.9%** | **52.17%** | **19.05%** | **22.61%** | **7.15%** | **5.22%** | **11.9%** | **20%** | **100%** | **100%** |

Source: research data

OA remains dominant among Brazilian journals in 92.86% (39) of the cases. Institutionally fully supported OA, the Platinum road, was dominant among the journals (26 journals, 61.9%). Platinum journals also published the most issues per year (120 of 230 issues: 52.17%). The greatest production in a single field was in Medicine, with 43 total issues.

OA journals that charges author fees were the second most frequent model (8 journals, 19.05%), among which Agrarian and Biological Sciences stood out.

A total of five OA journals, three from Agrarian and Biological Sciences and two from Medicine (11.9%), offered a paid printed version, with a combined total of 46 annual issues (20%). The least frequent access model was subscription, with only three periodicals (7.15%), from Agrarian and Biological Sciences, Arts and Humanities and Psychology, that together produce 12 annual issues (5.22%). Therefore, the issues of 92.85% (39) of the journals are provided at no cost to readers, while 73.80% (31) charge neither readers nor authors.

Of the 42 newly indexed journals, 18 (42.86%) specified that they were supported by the National Council for Scientific and Technological Development (CNPq). The largest concentration was in Agrarian and Biological Sciences: nine (21.43%) publications, of which five were edited by associations, two by universities, one by the government and one by institutes. Three Arts and Humanities journals received CNPq funding (7.14%), one edited by an association, one by the government and one by a university. Two (4.76%) titles of the Health Professions area edited by Associations also receive financial support. The associations receive funding for two more titles: one in the Medicine area and other in the field of Pharmacology, Toxicology and Pharmaceuticals. From the titles edited by universities, the areas of Social Sciences and Nursing have funding for one title each. In the remaining titles it was not possible to locate this information.

## 5 CONCLUSIONS

It can be observed that there is a concentration of titles in the areas of Agrarian and Biological Sciences, area in which Brazil stands out in terms of scientific production, Medicine and Arts and Humanities.

Regarding the technical aspects, it was verified the use of the OJS platform by a considerable number of journals (15), just behind SciELO (25), as the most prominent platforms in the national scenario, as well as the incorporation of PDF, HTML and XML formats in their documents. These are indicators of professionalization in publishing activity, compliance to quality criteria and standardization within Brazilian scientific publishing, whether by adopting management platforms or formats that enable portability and maximize indexing and retrieval. Most of these journals are aware an article's impact can be enhanced by being published in English and already adopt English as the predominant language in the manuscripts.

A determining factor for the implementation of aspects that can influence the publication quality is the institutional and financial support the journal receives, especially in the model used by Brazilian journals. It was possible to identify that CNPq supports at least 17 of the newly indexed journals (40.47%), outside those who do not clearly state their funding sources. This is especially relevant in the national scenario because of the relationship between publishers and the model of access practiced in the country, in which there are mainly the adoption of the Platinum Open Access and the small presence of commercial publishers.

The results on the publishing entities confirm the model practiced in the region: in which associations (57.15%) and universities (28.57%) represent the prominent title publishers (85.72%). As for the type of access, 92.85% of the analyzed periodicals are in Open Access, that is, they provide their full text issues freely. In this way, it is possible to perceive that the adoption of the platinum route as a successful publishing model, as practiced in Brazil, is supported by the structure of publishing institutions, financed by the government and with the management of the editorial flow and publication of content in standard platforms, such as SciELO and OJS.

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## *PERIÓDICOS CIENTÍFICOS: títulos brasileiros indexados em bases internacionais*

***RESUMO*** *Os periódicos são elemento essencial para o avanço da ciência. A pesquisa analisou os periódicos científicos brasileiros incorporados as bases indexadoras multidisciplinares consideradas mais importantes. Desse modo, objetivou-se a) identificar a lista de periódicos brasileiros indexados na WoS e Scopus de 2013 a 2015; b) caracterizar os elementos essenciais das revistas: área de conhecimento, entidades editoras, número de fascículos anual; software utilizado e formato dos artigos disponibilizados; e, c) especificar o tipo de acesso dos periódicos. Utilizou-se a ficha documental para o procedimento de coleta de dados. A obtenção das informações referentes aos aspectos institucionais dos periódicos deu-se pela página das próprias revistas e consulta ao diretório Ulrichs Web. Foram identificadas 42 novas revistas indexadas às bases, que compõe o corpus da pesquisa. Os resultados e conclusões obtidas confirmam que as áreas do conhecimento com o maior número de títulos são as Ciências Agrárias e Biológicas com 14 títulos (33,34%), Medicina com 8 periódicos (19,05%) e Artes e Humanidades com 7 (16,67%). O Acesso Aberto é comum a 39 revistas (92,85%), sendo 61,9% sem cobrança de taxas aos autores, a via platina.*

***Palavras-chave****: Comunicação científica. Periódicos científicos brasileiros. Acesso Aberto.*

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