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Emerging Web 2.0 applications in open access scholarly journals in the field of agriculture and food sciences

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# Emerging Web 2.0 applications in open access scholarly journals in the field of agriculture and food sciences

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## Abstract

**Purpose** – The study aims to focus on the application of Web 2.0 tools in Agriculture and Food Sciences open access journals. The changing trends in scholarly publishing processes have revolutionised the academic world. The shifting of academic journals to open access mode has been on the rise because of the numerous benefits associated with it. The high level of profitability reaped from open access titles has forced them to experiment with new and innovative technologies, including Web 2.0. The new shift in the form of Web 2.0 has sifted in to the open access journal world. Open access journals in the field of Agriculture and Food Sciences are growing and so are the features and functionalities within them. Because of these new innovative tools there is an urgent need to focus on their adoption.

**Design/methodology/approach** – Directory of Open Access Journals, being one of the growing open access journal directories, was selected for the purpose of data gathering. The journals selected for the study included those titles which were currently active.

**Findings** – The open access journal landscape in the field of Agriculture and Food Sciences is influenced by the Web 2.0 revolution. The degree of experimenting with Web 2.0 in open access journals in Agriculture and Food Sciences is evident and can prove an excellent platform for the dissemination of agricultural information in a more advanced mode.

**Research limitations/implications** – The study will be helpful for journal administrators who belong to the field of Agriculture and Food Sciences to know the actual status of Web 2.0 adoption by the journals in their field. The study can also be helpful for journal administrators for the adoption of Web 2.0 tools to achieve a better, more innovative and interactive scholarly platform. It will also enable us to know how the new pioneering technology – Web 2.0 – can help to explore new innovative ways of managing information in the scholarly world in general and the Agriculture and Food Sciences discipline in particular.

**Originality/value** – The study can be extended to harness the effects of Web 2.0 on the research activities of the scholars associated with various disciplines of Agriculture and Food Sciences. How Agricultural scientists make use of Web 2.0 for sharing and exchange of information for their academic development can also be researched. The impact of Web 2.0 tools on the citation counts of open access journals can also be studied.

**Keywords** Web 2.0, RSS, ATOM, Social bookmarking, Twitter, Facebook, Open access, Scholarly journals, Scholarly communication, Open access journals, Agricultural sciences, Food sciences

**Paper type** Research paper



## 1. Introduction

The electronic scholarly publishing system has travelled a long way since the inception of the first journals, *Journal Des Scavans* and *Philosophical Transactions*, in 1665. Since then, journals have become one of the widely growing mediums whereby researchers can communicate their results to a national and international audience of peers (Brown and Boulderstone, 2008). According to Brown and Boulderstone, there were in 2007 about 23,000 “active”, “peer-reviewed” and “scholarly” journals. SciVerse SCOPUS (2012) alone indexes 18,500 active peer-reviewed journals (including 1,800 open access journals) (as on 25 May 2012).

The scholarly travel from Gutenberg to the Web has produced a number of possibilities for the scholarly world, especially journals, both toll-based and those based on an open access model. Oxford University Press defines open access as a practice of providing unrestricted access to, and re-use of, journal articles. This is different to libre access because of the implications for re-use of the scholarly content via free mode. Kinal and Rykiel (2013) witness open access as a factor to enhance the global information flow. By open access one refers to work that is freely available to users via the Internet without financial cost or legal or technical barriers. Users can freely “read, download, copy, distribute, print, search or link to” (Budapest Open Access Initiative, 2002) the full text of open access works, although it is expected that they will respect the integrity of authors’ work and that authors’ rights will be correctly acknowledged and cited (as cited in Kennan, 2011). Harnad (2005) stresses open access as “immediate, permanent, free online access to the full text of all refereed research journal articles”. Suber (2004) emphasises open access as “free online access” and the granting of “user permission for all legitimate scholarly uses”. Suber’s definition of open access is both from a pricing and permission perspective. Open access is also defined by the Association of Research Libraries in the USA as “any dissemination models created with no expectation of direct monetary return and which makes works available online at no cost to the readers” (as cited in Zhang, 2007). Lynch (2006) defines open access as “an increased elimination of barriers to the use of the scholarly literature by anyone interested in making such use”. Publishing open access makes your work immediately and permanently available online for everyone, everywhere (Springer, 2013). Via open access, articles are immediately made freely available to read, download and share (Wiley, 2013).

The adoption of open access by journals opened new horizons in the form of increased citations and better visibility for scholarly electronic publishing systems in general and journals in particular. The dissemination capability of journal content also increased with the adoption of open access by the journals. Presently a total of 7,696 open access journals are found in the Directory of Open Access Journals (DOAJ) alone (as on 08 May 2012). Sharing research resources of different kinds, in new ways, and on an increasing scale, is a central element in the research world and Web 2.0 is seen as providing the technical platform to enable these new forms of scholarly communication (Procter *et al.*, 2010). O’Reilly (2005) refers to Web 2.0 as a perceived second generation of web-based applications and services, and in particular, to the use of the Web as a platform for user-generated content and web-based communities, including particularly social networking, wikis and folksonomies (as cited in Sawant, 2012). Coined by Tim O’Reilly, the term describes the new Web: more interactive, built as a platform and tied to the collective intelligence of users. Simply, Web 2.0 is the next incarnation of the World Wide Web, where digital tools allow users to create, change and publish dynamic

content of all kinds (Stephens and Collins, 2007). Web 2.0, in contrast to the earlier Web, also called Web 1.0, is more participative and interactive, and emphasises online collaboration and communication with users by taking advantage of new software services and tools (O'Reilly, 2005, 2007). Openness and microcontent combine into a larger conceptual strand of Web 2.0, one that sees users as playing more of a foundational role in information architecture (Alexander, 2006). A participative set-up in the form of Web 2.0 has helped to overcome the barriers to communication and the distance between users (Stuart, 2010). Web 2.0 allows users to create, describe, post, search, collaborate, share and communicate online content in various forms (Macaskill and Owen, 2006; Virkus, 2008), thus giving a more participative set-up to them.

Dissemination of scholarly contents, which owes a great to open access, is now testing the waters with Web 2.0 tools also, to raise the scholarly platform to better heights. Web 2.0, an extension of Web 1.0, is gaining popularity in the digital world, as a number of digital scholarly platforms, including the open access journals, are adopting the Web 2.0 technology at a faster rate, as it brings people together in a more dynamic, interactive space (Giustini, 2006). This Web 2.0 adoption by scholarly journals has led to a new concept, "scholarly communication 2.0" (Ponte and Simon, 2011).

The changing trends in scholarly publishing processes have revolutionised the whole of the academic world. The shifting of academic journals to open access mode has been on the rise because of the innumerable benefits associated with open access. The high level of profitability ranging from higher citations to enhanced visibility (Lawrence, 2001; Schwarz and Kennicutt, 2004) reaped from open access titles has forced them to experiment with new and innovative technologies, including Web 2.0. The Web is shaping many of the functions and phases of the scholarly communication system (Delamothe, 2003; Guédon, 2001, 2004; Houghton *et al.*, 2009), and Web 2.0 is one which has given a more interactive platform to the scholarly mode of communication. The new shift in the form of Web 2.0 has sifted in to the open access journal world. Open access journals in the field of Agricultural Sciences and Food Sciences are growing and so are the features and functionalities within them. Because of these new innovative tools there is an urgent need to focus on their adoption. The study focuses on the adoption of Web 2.0 in the Agricultural Science and Food Sciences open access journals.

## 2. Review of literature

Adoption and use of Web 2.0 in scholarly communications has been researched by Procter *et al.* (2010). Social networking technologies enabled by Web 2.0 have been discussed as an evolutionary phenomenon in "eResearch" (Hall *et al.*, 2009). Even Web 2.0 adoption in the scholarly world has been visualised as a new metric in the scholarly authority – authority 2.0 (Jensen, 2007). Added value features of online scholarly journals have also been researched by Luzon (2007) in the form of new Internet-enabled features and functions, which help to meet the needs of the members of the scholarly community more effectively. Kulathuramaiyer (2007) highlights the role of mash-ups in complementing and enhancing digital journals by providing insights into the quality academic content, the extent of coverage and the enabling of expanded services. The future of scholarly communication in the Web 2.0-based environment has also been researched by Arms and Larsen (2007). They envisioned an infrastructure for cyberscholarship with the emergence of new forms of scientific discovery – Web 2.0. Khan *et al.* (2008) researched the use of emerging Web 2.0 technology, mash-ups in

digital journals, and how they can be helpful in providing innovative administrative tools in helping managers to ensure quality; better facilities for assisting authors and readers in making decisions regarding their submission of papers and in providing novel navigational features for finding relevant publications and collaborators in particular areas of interest. Web 2.0 will enable new forms of scholarly exchange, and interaction in the future has also been researched by [Maron and Smith \(2008\)](#). [Nikam and Babu \(2009\)](#) attempt to trace the evolution of scholarly communication from the days of publication of *Journal-des-Scavans* to the era of Web 2.0, explaining the open access movement in brief. Their study also explains Science 2.0 as the emerging practice in scientific knowledge sharing and scholarly communication. To enhance the functionality, offer excellent content and a variety of extended services, use of Web 2.0 applications in scholarly open access journals is very important ([Hu, 2012](#)). Numerous innovative uses of Web 2.0 applications to support the management of serials have been studied by [Badman and Hartman \(2008\)](#) and [Sutherland and Clark \(2009\)](#). They discuss the use of Web 2.0 technologies, such as Rich Site Summary or Really Simple Syndication (RSS) feeds, to create virtual journal reading rooms for patrons. [Badman and Hartman \(2008\)](#) provided useful explanations of RSS technologies that aggregate, deliver and organise feeds, and discussed the value of creating virtual reading rooms to increase awareness of the journal collection. [Collins \(2011\)](#) has also researched how serials are embracing the culture of openness via Web 2.0 tools. [Anderson and Dresselhaus \(2011\)](#) discussed the changes in information behaviour that have shaped publishing 2.0 out of the traditional publishing model.

Web 2.0 is a collaborative web development platform that has tremendous usage in building effective, interactive and collaborative virtual societies ([Hossain and Aydin, 2011](#)), and these features can best be utilised in open scholarly journals to achieve a successful scholarly communication model. The applications developed under the 2.0 umbrella include blogs, syndication tools such as RSS & ATOM, wikis, instant messaging, social networking sites (SNS), social tagging, mash-ups, social media sharing and many others ([Mahmood and Richardson, 2011](#)), which find a welcome place in scholarly journals at a global level. Since the scholarly world has always been an acceptor of new forms and ways of information, so it is embracing Web 2.0 technology. Some of the very traditional scholarly publishers established nearly 200 years ago have new and appealing solutions for old problems, such as faceted browsing and searching ([Ellis and Vasconcelos, 1999](#)), and are introducing various novel services and Web 2.0 features, ranging from simple widgets to full-blown applications (as cited in [Jacso, 2011](#)). Even [Alexander \(2006\)](#) comments on Web 2.0 as a new wave of innovation for teaching and learning. Web 2.0 is seen as providing the technical platform to enable these new forms of scholarly communications ([Procter et al., 2010](#)).

### 3. Methodology

The study was carried out by consulting the database of the DOAJ; titles classified under the heading Agriculture and Food Sciences were considered for the study. As on 31 December 2011, the directory listed 381 journals in the field of Agriculture and Food Sciences. All journal titles were manually checked up to 31 January 2012 to ascertain the presence and adaptability of Web 2.0 tools. The homepage of each journal title was explored for Web 2.0 adoption. Under this broad heading, the directory further sub-categorised them into six subjects, namely, Agriculture (General) (137), Animal

Sciences (102), Plant Sciences (50), Nutrition and Food Sciences (37), Forestry (37) and Aquaculture and Fisheries (18). However, when these titles were combined, a total of 359 distinct titles were recognised. When each title was further manually checked on their respective websites, website domains of four titles were found to be expired, and one title remained inaccessible during the whole study period. As such, the study is based on the data harvested from 354 distinct titles. The study reflects how open access journals in the field of Agriculture and Food Sciences and Food Sciences are experimenting with innovative Web 2.0 tools.

Though a number of Web 2.0 tools are available, the study was confined only to five most popular tools, i.e. *RSS*, *ATOM*, *Facebook*, *Twitter* and *Social Bookmarking*, as their presence on the journal websites could easily be traced by the simplest look and popularity of their icons.

RSS is defined as XML-based metadata content from a blog or other source. Web content is created or published in one place to be displayed in other places, such as in RSS aggregators (also called “readers”). Whenever the source gets updated, the RSS feed gets updated, and any aggregators that are subscribed to that feed are notified that there is new content available. People who use aggregators, such as Bloglines, NetVibes or Google Reader, to monitor RSS feeds get alerts when new content is added to blogs or news sites they have added to readers (Buigues-García and Giménez-Chornet, 2012; Chua and Goh, 2010; Davison-Turley, 2005; Holvoet, 2006; King and Brown, 2009; O’Shea and Levene, 2011; Stephens and Collins, 2007; Tripathi and Kumar, 2010).

ATOM is an XML-based syndication standard that makes subscription to the latest news an effortless process. Feed readers can be web-based applications, stand-alone clients or elements incorporated into the web browsers and email clients we already use on a daily basis (Wilson, 2008).

Facebook, one of the SNS, provide users with a chance to interact, share themselves and create content. It has proved a conversational and knowledge-sharing platform with a high level of feedback options (Stephens and Collins, 2007).

Twitter is a virtual social network allowing users to write short messages (of up to 140 characters), called tweets, that can be read by anyone with access to their page. It is an Internet social network and micro-blogging platform with both mass and interpersonal communication features for sharing (Buigues-García and Giménez-Chornet, 2012; Chen, 2011).

Social Bookmarking allows users to store, organise, search, manage and share web page bookmarks. Think about your list of favourites or bookmarked sites that you have on your own computer: a Social Bookmarking website makes this list available anywhere that you can connect to the Internet, so the user can access these bookmarks from home, work or even a public computer. Bookmarks can be saved privately, made available to other Internet users or shared with friends or colleagues (Click and Petit, 2010).

## 4. Discussion

### 4.1 Publisher versus country

A total of 278 publishers from 54 different countries contribute in the field of Agriculture and Allied Sciences at the open access scholarly platform. Among these, the maximum of 59 titles are from Brazil, followed respectively by 29 titles from the USA and 20 titles



each from Pakistan and Romania. However, when it comes to the utilisation of Web 2.0 tools to propagate and market their scholarly wealth, only 89 publishers from 31 countries have made use of them. From Table I, it is evident that majority of Web 2.0 enabled titles are also from Brazil, i.e. 27 (45.76 per cent), followed by 13 titles from the USA (44.83 per cent). Countries such as Turkey and Japan, which have a good range of open access titles, have yet to utilise Web 2.0 within them, as none of their titles are Web 2.0 enabled.

#### 4.2 Web 2.0 tools distribution

Among 354 journals, only 123 journals (35.75 per cent) make use of Web 2.0 tools, while the rest of the journals (231-65.25 per cent) have yet to avail of their benefits. From Figure 1, it is clear that among different Web 2.0 tools, RSS is the most popular and widely used tool, found in 85.37 per cent of Web 2.0 enabled journals (105), followed respectively by Social Bookmarking in 28 (22.76 per cent) of Web 2.0 enabled journals. Facebook and Twitter, the two social networking tools, which have maximum user base across the globe, however, remain underutilised in the open journal market. ATOM is used by 10 (8.13 per cent) journal titles (Figure 1).

#### 4.3 Web 2.0 tools support

When it comes to the number of Web 2.0 tools utilised by journals, it is found that most of the journals, i.e. 83 (67.48 per cent), make use of only one tool, followed respectively by two tools in 33 titles (26.83 per cent). A maximum of four tools have been utilised by seven titles only (5.69 per cent). However, no title has incorporated three tools, and none has integrated all the tools that were investigated in the study.

#### 4.4 Titles supporting single, two and four web 2.0 tools

Among the 83 titles, which have incorporated only one Web 2.0 tool, RSS is found in 73 titles, Social Bookmarking in six and Facebook in four. However, Twitter or ATOM as a solo tool are not utilised at all.

Four combinations of Web 2.0 tools are found in 33 titles, which have made use of two Web 2.0 tools. Among these, *RSS & Social Bookmarking* is found in 15 titles followed respectively by *RSS & ATOM* in nine titles and *Facebook & Twitter* in eight titles. On the other extreme, *RSS & Twitter* are utilised by one title only (Figure 2).

Visualising the incorporation of four different Web 2.0 tools, it was found that only two combinations were found in seven titles only. Six titles were found to have RSS, Facebook, Twitter & Social Bookmarking, whereas in the remaining title, RSS, ATOM, Facebook and Social Bookmarking were found.

#### 4.5 Nature of publishers supporting Web 2.0 tools

Universities have come to the forefront to support the movement of open access, as 36 Web 2.0 enabled titles (29.27 per cent) are published from universities, followed by 31 titles by open access-dedicated publishers (25.2 per cent) and 22 titles (17.89 per cent) by societies. Commercial publishers like Springer, Versita, etc. have also left their mark in this movement, as 8.13 per cent of titles (10) are supported by them. Professional associations, research centres and government organisations also contribute towards Web 2.0 enabled journals, as they contribute seven (5.69 per cent), five (4.07 per cent) and four (3.25 per cent) journal titles, respectively. Eight titles are the outcome of diverse organisations, thus were treated in the “others” category (Table II).

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Country	Total open access titles	Open access titles with Web 2.0 Features
Brazil	59	27 (45.76)
United States	29	13 (44.83)
Pakistan	20	8 (40)
Romania	20	1 (5)
Poland	14	4 (28.57)
Chile	12	8 (66.67)
Turkey	12	0 (0)
India	11	3 (27.27)
Japan	11	0 (0)
United Kingdom	10	6 (60)
Colombia	10	5 (50)
Venezuela	10	0 (0)
Croatia	9	3 (33.33)
Czech Republic	9	2 (22.22)
Iran	9	2 (22.22)
Spain	9	2 (22.22)
Mexico	8	5 (62.5)
Argentina	8	4 (50)
Italy	8	4 (50)
Canada	5	1 (20)
Indonesia	5	1 (20)
Serbia	5	0 (0)
Germany	4	2 (50)
Slovenia	4	1 (25)
South Africa	4	1 (25)
France	3	3 (100)
Finland	3	1 (33.33)
Switzerland	3	1 (33.33)
Bangladesh	3	0 (0)
Estonia	3	0 (0)
Australia	2	2 (100)
Belgium	2	2 (100)
Costa Rica	2	2 (100)
Slovakia	2	2 (100)
Nigeria	2	1 (50)
Bulgaria	2	0 (0)
Egypt	2	0 (0)
Hungary	2	0 (0)
New Zealand	2	0 (0)
Portugal	2	0 (0)
Norway	1	1 (100)
United Arab Emirates	1	1 (100)
China	1	0 (0)
Iraq	1	0 (0)
Israel	1	0 (0)
Kenya	1	0 (0)
Libya	1	0 (0)
Lithuania	1	0 (0)

**Table I.**  
Publisher versus country

*(continued)*



Country	Total open access titles	Open access titles with Web 2.0 Features
Malaysia	1	0 (0)
Peru	1	0 (0)
Russia	1	0 (0)
South Korea	1	0 (0)
Sri Lanka	1	0 (0)
Sweden	1	0 (0)

## Emerging Web 2.0 applications in open access journals

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Table I.

Note: Figures in parentheses indicate %

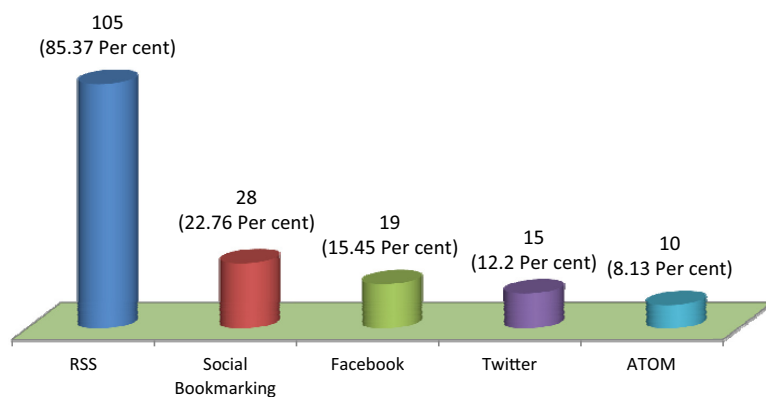


Figure 1.  
Web 2.0 tools dispersion

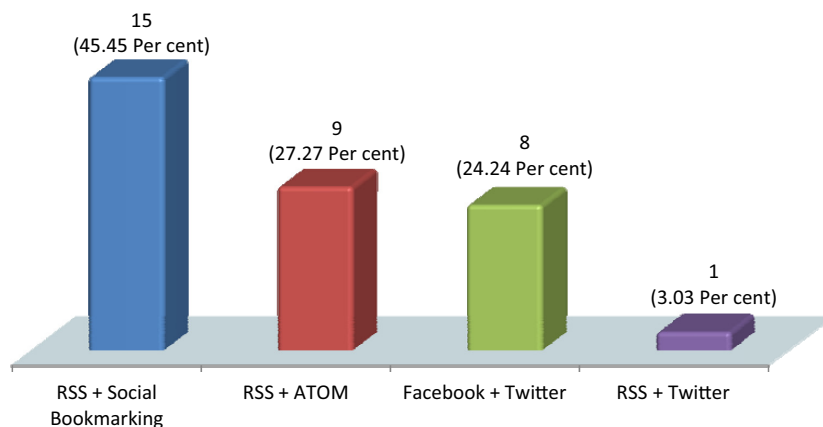


Figure 2.  
Titles supporting two Web 2.0 tools

Table III gives a vivid picture of leading publishers contributing towards Web 2.0 enabled journal titles.

Sustainability of open access journals is not an easy task and requires constant nourishment from financial and human resources. In this regard, 35.77 per cent of titles (37) were found to have availed themselves of the online hosting facilities of

international collaborative initiatives like *SciELO Project* (the Scientific Electronic Library Online)[1], which hosts 37 titles and *Redalyc Project* (Network of Scientific Journals from Latin America and the Caribbean, Spain and Portugal)[2], which hosts seven titles. Besides this, 12 titles have made use of Open Source Softwares – Open Journal System (12), Dspace (1) and Digital Commons (1).

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**5. Conclusion**

Experimentation and uptake of Web 2.0 tools by open access journals can in a real sense bring the open scholarly platform to global visibility. As the Web has evolved, new ways of using it for research have emerged, such as the social networking facilities enabled by Web 2.0 technologies. The next generation of the Web – the so-called Semantic Web – is now on the horizon, which will again enable new types of collaborative research to emerge (Hall *et al.*, 2009). Empowerment of the research world is highly attributed to the use of Web 2.0 tools in open access titles, as it will help in the achievement of better and wider scholarly platforms. Though the open access titles in

**Table II.**  
Nature of publishers  
contributing web 2.0  
enabled titles

Nature of publisher	No. of titles	(%)
University	36	29.27
Dedicated open access publisher	31	25.20
Society	22	17.89
Commercial publisher	10	8.13
Professional associations	7	5.69
Research centre	5	4.07
Governmental organisation	4	3.25
Others	8	6.50

**Table III.**  
Leading publishers  
contributing web 2.0  
enabled titles

Publisher	No. of titles (Web 2.0 enabled)
Asian Network for Scientific Information	8
BioMed Central	7
Versita Open	6
Scientific Research Publishing	4
PAGEPress Publications	3
Instituto de Investigaciones Agropecuarias, INIA	2
Internet Scientific Publications, Limited Liability Company (LCC)	2
Italian Society of Silviculture and Forest Ecology	2
Multidisciplinary Digital Publishing Institute Aktiengesellschaft (MDPI AG)	2
Science publications	2
Sociedade Brasileira de Fisiologia Vegetal	2
Sociedade Brasileira de Fitopatologia	2
Southern Cross Publishing	2
Universidad de Antioquia	2
Universidad de Costa Rica	2
Universidade Federal de Goiás	2
University of Zagreb	2

the field of Agriculture and Food Sciences have tested waters with Web 2.0 tools, the score is not a promising one, which is needed by global scholarly world. They have to evolve with the dynamic and ever growing Web 2.0 tools to achieve a true eResearch vision and a stronger, smarter and better research world. RSS is adopted by the majority of journals because of its easy adoption and customisation. This result is in tune with the results presented by [Kim and Abbas \(2010\)](#). With its merits of simplicity, timeliness, extensive sources and personalisation of syndication, and without the interference of information rubbish, RSS is the Web 2.0 technology that is utilised most widely ([Ruoyao Shi and Chen, 2011](#)). The majority of the Web 2.0 enabled journals are produced from Brazil, and are accessible via [SciELO \(2012\)](#), which provides access to journal content via RSS. This is another reason for the wider adoption of RSS by majority of journal titles. *Onderstepoort Journal of Veterinary Research*, *Ciencia y Tecnología Alimentaria*, *Journal of the International Society of Sports Nutrition*, *Agronomía Costarricense*, *Agronomía Mesoamericana*, *Revista Fitotecnia Mexicana* and *Revista Lasallista de Investigación* are the titles which have adopted a maximum of four Web 2.0 tools; this is really a poor score, and the rest of the journals have also to move up with maximum Web 2.0 tool adoption. Brazil leads in terms of Web 2.0 enabled journal titles because, with the help of the “Coordination of Improvement of Higher Level Personnel” (Capes) and the “National Council for Scientific and Technological Development” Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), R\$ 2.4 million a year is invested in Brazil’s scientific journals. This may be one of the reasons for their better adoption of Web 2.0 enabled journals. Also in Brazil, scientific production focuses much of its effort on Agricultural research and the Natural Sciences, which is again indicative of better adoption of Web 2.0 enabled journals in the field of Agricultural and Food Sciences ([Brasil, 2010](#)). Since the research results also reveal that majority of Web 2.0 enabled journals are from universities, it should be noted that technological research in Brazil is largely carried out in public universities and research institutes, and more than 73 per cent of funding for basic research comes from government sources ([Wikipedia, 2012](#)). The USA also leads in terms of Web 2.0 adoption in the journals because it has been a leader in scientific research and technological innovation since the late nineteenth century. Countries and the titles from their domain that have not tested waters with Web 2.0 enabled tools should adopt Web 2.0 interactivity in their journals, which will help in developing a Web 2.0 sensibility in the open access journals, and will then help in achieving a convenient scholarly communication platform. New Web 2.0-based scholarly modes of communication will help in rising like a phoenix that will provide greater accessibility to the open journal content. The editorial staff associated with open access journals should adhere to the adoption of more and more Web 2.0 tools, so that a more interactive environment in the scholarly world can be created. The adoption of Web 2.0 tools in open access journals can help editors to interact with the researchers interested in publishing in open access journals, answer questions and provide information about the various journal services. Web 2.0 technologies, if adopted to a greater level in the open access journals, can provide unique and powerful information sharing and collaborative platform for the scholarly world.

## Notes

1. The Scientific Electronic Library Online – SciELO is an electronic library covering a selected collection of Brazilian scientific journals. The library is an integral part of a project being

developed by FAPESP – Fundação de Amparo à Pesquisa do Estado de São Paulo, in partnership with BIREME – the Latin American and Caribbean Center on Health Sciences Information. Since 2002, the Project is also supported by CNPq – Conselho Nacional de Desenvolvimento Científico e Tecnológico (available at: [www.scielo.br/](http://www.scielo.br/)).

2. Redalyc started in 2002 as a research project from the Autonomous University of Mexico State (Universidad Autónoma del Estado de México-UAEM), with the aim of contributing to visibility and accessibility of scientific journals from Iberoamerica. Today, it provides open and free access to full-text articles of more than 640 journals from 13 countries Latin America and the Caribbean. Internet users can search at article and journal level, by subject or country, and download abstract, full-text and citation information. ([www.redalyc.org/homeBasic.aa](http://www.redalyc.org/homeBasic.aa)). Red de Revistas Científicas de América Latina y el Caribe, España y Portugal (Network of Scientific Journals from Latin America, Caribbean, Spain and Portugal).

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