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Journals in the category "Food Science & Technology" in the Journal Citation Report database

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ABSTRACT
Different models of scientific communication are becoming more universal and the opportunities of publishing are more numerous and sophisticated. This study analyzed the category "Food Science & Technology" in the Journal Citation Reports (JCR) database to determine how many journals are currently in it, how many journals are in several scientific categories, how many journals are published by commercial and by non-commercial publishers, what are the publishing models of each journal, journal impact factor (IF) and quartile - Q. The analysis of the publishing models and quartiles in which the journal is located showed that IF and the reputation of the journal are more important to scientists for publishing the results than the publishing policy. The interdisciplinarity of the field was determined through different WoS categories because the journals were included in 25 other categories in addition to the "Food Science & Technology" category.

Introduction

Scientific communication is a formal way of communication among scientists that occurs today through traditional (journals, monographs, conferences, projects) and non-traditional communication channels (private correspondence, blogs, social networks and other e-channels). The aim of scientific communication is to share scientific information within the scientific community, but also within the economic and social community, because the application of new knowledge and technologies develops social and economic segments of the community. The dominant channels for scientific communication in the humanities and arts are still monographs, while in the social sciences the journals are increasingly prevalent, and in the STEM fields (science, technology, engineering and mathematics - STEM) the journal has always been the most important communication channel. The scientists publish their scientific achievements according to the set standards of quality of scientific work in journals that enable the evaluation of achievements, and as a result they receive recognition in the scientific field and the advancement in the structure of the scientific community (Borgman, 2009).

In the 2020 model, Hurd predicted transformations in scientific communication back in the year 2000, and came to the conclusion that the system for delivering scientific communication results would rely on electronic communication and media (Hurd, 2000), i.e. the development of the technology created conditions for sharing the information on a global level, interactive access to information that is not limited in time and space, and in the e-journals longer and more comprehensive information (text, image, sound, video) can be presented (Hasenay and Mokriš Marendić, 2009). As the scientific communication grew and as it became increasingly difficult to keep track of all published papers, the need for unification

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arose. In the second half of the 20th century, various databases began to be intensively developed, which made it possible to search a large number of publications by various publishers. One of the most important databases is WoS CC as a source of data for research on scientific and communication activities (Birkle et al., 2020), and the Journal Citation Reports (JCR) citation database is used to evaluate scientific communication and determine the quality of journals within each scientific field. The emergence of increasingly sophisticated interfaces and tools has enabled different strategies for publishing scientific results, depending on the scientific field in which scientific communication takes place, and a browsing strategy that depends on quick query (trial and error tactics) (Vakkari and Huuskonen, 2012) by linking various documents to similar or the same topics, which ultimately leads to easier use of the network as a source for information searching.

For the scientific communication in the field of biotechnical sciences, which belongs to the STEM field, the journal is the primary channel for communication. According to the Ordinance on Scientific and Artistic Fields, Disciplines and Branches (NN 32/13, 2013), there are seven disciplines in the scientific field of biotechnical sciences: Agriculture (agronomy), Forestry, Wood technology, Biotechnology, Food technology, Nutrition and Interdisciplinary biotechnical sciences. For each discipline, there are scientific categories within the JCR. In this research, an analysis of the journals for the discipline of Food Technology was made. It is often a great challenge for scientists to choose a journal for publishing the results of their scientific research, which will be considered as a1 papers in the process of advancement into academic rank according to the Ordinance on the Conditions for the Advancement into Academic Rank Article 16, Item 2 (NN 28/2017), in the discipline and the field in which the rank is chosen, because when choosing a journal, scientists choose prestigious journals with a high impact factor (IF) to publish their results (Baffy et al., 2020), but the authors find also important the reliability of the peer review, the usefulness of the reviewers' feedback, the reputation of the journals and the belief that their article is within the scope of the journal (Rowley et al., 2020), furthermore, they have to select the journals that are in the certain scientific categories[1] and scientific fields within the JCR, since it is crucial for the calculation of the bibliometric indicators in the quantitative evaluation of the scientific work of an individual scientist for the advancements in the academic ranks. In the a1 papers, in the scientific discipline of Food Technology, there are also papers indexed in the Emerging Sources Citation Index (ESCI), but only those published after 2017.

Scientific publishing

Unlike literary publishing, where publishers pay the authors for publishing their works, in scientific publishing the authors often publish the results of their research free of charge, and for the purpose of scientific communication, often transferring the copyright for the published work to the publisher. In scientific publishing, there are different stakeholders with different priorities: publishers (publishing and making a profit), libraries (accessibility, archiving and storage), scientists (communication and reputation) and readers (free access) (Baffy et al., 2020). The role of the scientists in scientific publishing is multiple because they can be: authors (publishing the results of their research), reviewers (evaluation and control), editors (responsibility for published works) and readers (communication).

There are commercial and non-commercial publishers of scientific journals. Commercial publishers (e.g. Elsevier, Springer, Wiley, etc.) base their business models on creating the value for the benefits of their shareholders (Copiello, 2020), while non-commercial publishers (scientific institutions, associations, societies, etc.) do not charge for publishing or accessing the papers in journals, but they are funded by various subsidies and donations. With the development of digital publishing, there have been changes in scientific publishing as the most printed journals nowadays have their e-versions, and also an increasing number of journals publish only in the e-form. In addition to the subscription model for each journal, various other business models have emerged. Among the first business models of scientific publishing are the so-called "big deal" model and the open-access (OA) model.

"Big deal"

"Big deal" is a model in which publishers prepare collections of journals in their own edition, and after paying the subscription (either individual, institutional or consortial), users are given access via IP addresses of the institutions or consortia. The results of using this model are questionable, because on the one hand there are publishers who make profit and on the other hand

[1] Each entry in the basic Web of Science collection contains the category of the original publication in the Web of Science Categories field. Available at: https://images.webofknowledge.com/images/help/WOS/hp_subject_category_terms_tasca.html

there are users who have access to a large number of journals many of which they have no interest for (Baffy et al., 2020). In these turbulent times for scientific publishing, libraries and library consortia have a great responsibility to systematically analyze and monitor the scientific communication of the scientists at the institutions, retrieval of information, funding sources for research publishing and other metrics in order to reach better agreements in negotiations with commercial publishers for the various accesses to journal collections offered by individual publishers (Machovec, 2020).

Open access (OA)

With the development of the Internet, the way of sharing scientific information has also changed, the possibility of sharing scientific information on a global level without compensation, for the purpose of sharing knowledge, has been achieved. According to the Budapest Open Access Initiative in 2002, the Berlin Declaration in 2003 and the Croatian Open Access Declaration (Declaration - Open Access – Open Access to Scientific Information, 2012) in 2012, the open access is defined as: "*unrestricted, free, and undisturbed online access to digital scientific information that allows scientific information to be read, stored, distributed, searched, reached, indexed and/or used in any other legal way*" that is, completely free access to scientific information, but with respect for copyright protection (supervision over the integrity of the work and proper citation).
According to Suber, OA is the online information free of charge and free of greater restrictions on copyright and licenses, and there are two models of open access: *gratis* (provides free access, but restrictions remain) and *libre* (free access, but some Creative Commons licenses must be used) (Suber 2012).
There are *Gold OA* (free access after publishing) and *Green OA* (supports self-archiving in various repositories or personal websites) used in OA. The Gold OA has several publishing models: the pay article-processing charges (APC) model paid by the authors or institutions, the diamond model is usually sponsored (lump-sum periodic payments), and publishing for authors and access for readers are unlimited, while some publishers use a hybrid model (subscription charging but also APC option) (Baffy et al. 2020; Macan 2018) which is the most unfavorable form because the same information is paid twice, on the one hand the libraries pay for the subscription and on the other hand the authors pay for the open access publication. Recognizing the need to change the way of publishing of scientific works, academic libraries advocate for a change from a subscription model to the OA model with APC (Machovec, 2020), and this process has been further accelerated by the Plan S, an initiative for OA to all publicly funded scientific research ("Plan S' and 'COAlition S' - Accelerating the Transition to Full and Immediate Open Access to Scientific Publications", 2018). Some publishers (e.g. Springer Nature) have committed to full-text publication in OA, and are in the process of changing from a subscription or hybrid model of publishing to the OA, and such journals are called Transformative Journals (Open Research | Springer Nature, 2019).
Although the OA for scientific communication has many more advantages and possibilities, with the advent of the OA, the so-called "predatory publishers" have also appeared. "Predatory publishers" publish journals in OA with APC, but without conducting a review process, quality editorial policy and their only goal is to achieve financial gain (Beall, 2012). Such publishing of scientific results is unprofessional and illegitimate, and ultimately the authors (mostly young scientists who are not yet familiar with all the rules of scientific communication and publishing) are deceived because they think they have published a paper in a relevant journal. In order to avoid problems with the selection of journals for the publication of research results, libraries should systematically conduct information literacy trainings.

Scientific journals

Scientific journals are the fundamental communication channels for publishing scientific achievements among scientists in the STEM fields. The Croatian Encyclopedia, among other things, states that: *"Scientific journals provide four basic functions in the social system of science: communicative, formating, environmental function and the function of a permanent archiving of science. These functions are interdependent. According to their communicative function, journals are among the formal manifestation of communication in science. Journals shape relationships and the most important means of institutionalizing of science: the relationships among scientists as authors, reviewers and editors on the one hand and publishers on the other, and the institutes such as scientific authority, quality control mechanisms, the public, ethical norms of freedom, responsibility and trust, intellectual property right and priority in publishing right and the right to protection of these rights. These institutes are universal for all sciences and at the same time specific for each special scientific community in a given scientific field, and the journals themselves are constitutive for these special communities or, in other words, sciences without journals are not possible.*" ("Journal | Hrvatska

Enciklopedija (Croatian Encyclopedia)" 2021.). Since the middle of the 20th century, there has been an increasing number of scientific journals focused on certain scientific fields, but there are also wide-range journals (e.g. Nature or Sciences) that publish papers from different scientific fields, and papers are selected on the basis of originality, importance, interdisciplinary interest and are subjected to review procedure, and the impact of published papers is increasing. In 2006, the first mega-journal PLOSOne appeared, followed by Scientific Reports. The mega-journals have four characteristics: wide scope, large publicist writing, the APC model and the editorial policy based on the selection according to the technical or scientific contribution and with one blind review (Wakeling et al., 2019) ("PLOS ONE: Accelerating the Publication of Peer-Reviewed Science" n.d.).The different elements are used to assess the quality of the category, and although bibliometric experts and librarians always emphasize that the assessing of the quality of a journal should be approached multidimensionally (Macan and Petrak, 2015; Moed, 2005; Garfield, 2006), for the most authors the impact factor (*IF*) is still considered to be the most important element.

Web of Science Core Collection Database (WoS CC)

The Web of Science Core Collection (WoS CC) with its Science Citation Index Expanded (SCI-EXPANDED), Social Sciences Citation Index (SSCI), Conference Proceedings Citation Indeks - Science (CPCI-S), and Emerging Sources Citation Index (ESCI)[2] is the oldest and the most respected database that is used in a variety of ways, from daily information seeking and information searching to the use of analytical data sets for bibliometric analysis. The main feature of the WoS CC database is its journal selectivity which is focused on the international impact of the journal. Due to the growing number of journals, Clarivate Analytics published a new Emerging Sources Citation Index (ESCI) in 2015, which includes journals that have passed the editorial evaluation (24 evaluation criteria) as the first step in inclusion in some of the aforementioned citation indexes ("ESCI", n.d.). Nowadays, WoS CC is a balanced database with the complete citation links and enhanced metadata that support a wide range of informational purposes. The data in WoS CC is used not only for information retrieval but also for the various analyses, trend tracking, research impact assessments, topic mapping, etc. In order to improve retrieval of the necessary information within WoS, the WoS Subject Categories scheme has been developed, and currently there are 254 categories based on the journals and scientific fields they belong to, and it allows filtering by category, but it should be noted that due to interdisciplinarity the journals are often put in several different categories (Birkle et al., 2020).

5. Journal Citation Reports Database (JCR)

Journal Citation Reports is a part of the "Web of Science family", and serves to evaluate and identify prestigious world journals from all fields of science. The data available in the JCR are used by scientists to select journals for publishing their research results, and by researchers to conduct various analyses (Journal Citation Reports, n.d.). "Food Science & Technology" is a scientific category of JCR that is classified in the group "Biology & Biochemistry; Chemistry; Engineering", which includes resources related to various aspects of food research and production, including food additives and contaminants, food chemistry and biochemistry, meat science, microbiology and food technology, milk science, food engineering and processing, cereal grain science, brewing and food quality and safety. Figure 1. ("Food Science & Technology - Category", n.d.). Table 1 shows the profile of the category from which it is clear that it belongs to the Science Citation Index Expanded (SCI-EXPANDED) edition, and the analysis reveals that it is a relatively new category because the first indicators for the journals could be calculated only in 2003. All indicators relevant to the category, from the number of published papers (*Articles*), the total number of citations (*Total Citates*) over the average value of all journals' IF in the category (*Median Impact Factor*) to the total IF (*Aggregate Citing Half-Life*), are constantly growing. Since 2021, the Emerging Sources Citation Index (ESCI) edition has been formed in the JCR, in which Food Technology currently has 20 journals. JCI is a new indicator in JCR that, among other indicators, can be used to evaluate journals. The JCI normalizes the relative impact of citations of a particular journal as the ratio of citations in the subject category, e.g. the values greater than 1.0 mean that the impact of citations is higher than the average citations in the category and vice versa, less than 1.0 indicates citations lower than the category average (Director and Clarivate 2021). It should be emphasized that the journals indexed in the ESCI edition do not have calculations for IF and their corresponding Q, but they are classified according to the Journal Citation Indicator (JCI) and are therefore not presented in this study.

[2] Citation indices available to the Croatian Academic Union

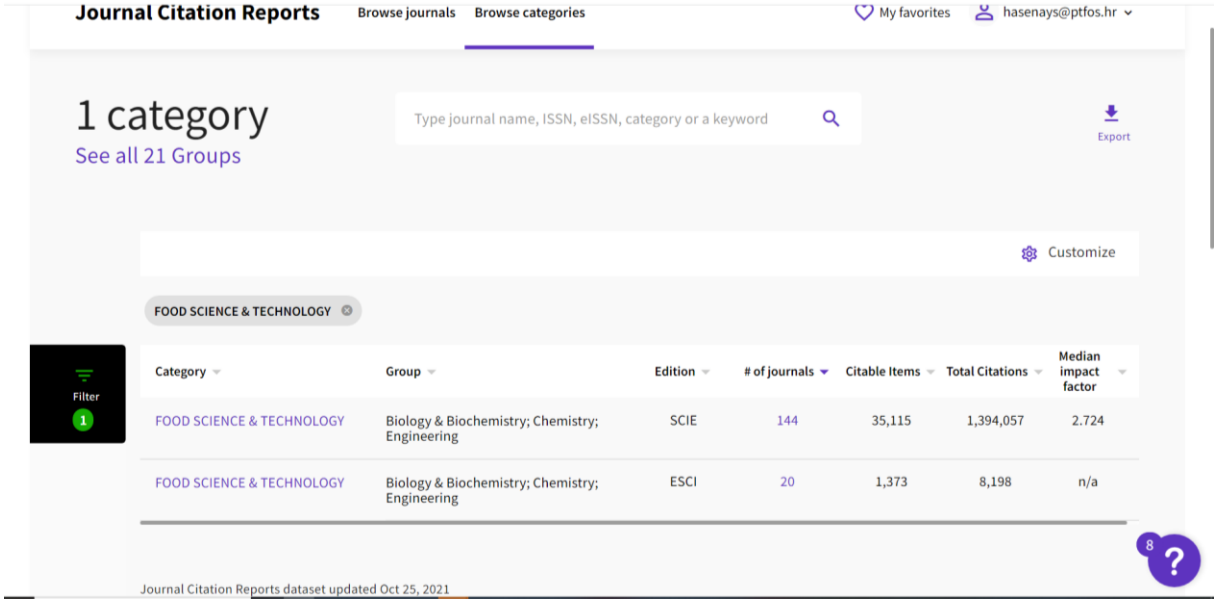

Figure 1. Category Food Science & Technology

Table 1. Profile of the category in JCR "Food Science & Technology"[3]

Year	Edition	#Journals	Articles	Total Cites	Median Impact Factor	Aggregate Impact Factor	Aggregate Immediacy Index	Aggregate Cited Half-Life	Aggregate Citing Half-Life
2020	SCIE	144	35,115	1,394,057	2.724	4.309	1.127	7.1	7.6
2019	SCIE	139	28,527	1,051,204	2.095	3.279	0.828	7.4	8.0
2018	SCIE	135	26,239	913,528	1.720	2.851	0.698	7.6	8.3
2017	SCIE	132	24,595	805,763	1.781	2.612	0.569	7.7	8.5
2016	SCIE	130	22,201	684,982	1.419	2.326	0.523	7.6	8.7
2015	SCIE	125	22,571	628,901	1.451	2.251	0.489	7.6	8.7
2014	SCIE	123	21,081	557,157	1.222	2.077	0.409	7.5	8.7
2013	SCIE	123	19,963	503,290	1.206	2.066	0.367	7.2	8.5
2012	SCIE	124	19,879	460,291	1.207	1.947	0.333	7.2	8.5
2011	SCIE	128	18,470	421,932	1.165	1.898	0.315	7.2	8.5
2010	SCIE	128	17,763	375,442	0.930	1.823	0.313	7.2	8.5
2009	SCIE	118	15,806	335,591	0.939	1.777	0.298	7.2	8.4
2008	SCIE	107	14,568	291,502	0.993	1.717	0.273	7.1	8.4
2007	SCIE	103	14,306	257,166	0.911	1.583	0.281	7.2	8.6
2006	SCIE	96	11,934	215,707	0.857	1.466	0.231	7.3	8.5
2005	SCIE	93	11,052	189,422	0.708	1.346	0.202	7.3	8.6
2004	SCIE	94	9,936	169,623	0.635	1.257	0.192	7.4	8.6
2003	SCIE	94	9,783	152,602	0.627	1.159	0.188	7.4	8.7
2002	SCIE	92	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
2001	SCIE	94	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
2000	SCIE	95	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
1999	SCIE	91	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
1998	SCIE	90	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
1997	SCIE	87	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

[3] Category Profile: FOOD SCIENCE & TECHNOLOGY. Accessed: 24.3. 2021. Link: https://jcr.clarivate.com/JCRCategoryProfileAction.action?year=2019&categoryName=FOOD%20SCIENCE%20%26%20TECHNOLOGY&edition=SCIE&category=JY

The aims and methods of research

The aims of this study were to determine how many journals are in the WoS CC category of "Food Science & Technology"; how many journals are published by commercial and non-commercial publishers; what is the publishing policy of a particular journal and the interdisciplinarity of the scientific field. After reviewing the journals in the category "Food Science & Technology", a descriptive analysis was made for each journal in the JCR to determine the interdisciplinarity of the journal and the journal's website to discover the publication models and scientific topics covered in these journals. The survey was conducted in the period from 1 to 12 February 2022.

Results and discussion

The analysis of the Food Science & Technology category revealed a steady increase in the number of journal titles from the year 1997 (87 titles) to 2020 (144 titles in which 35115 papers were published) (Table 1). All the titles in Table 1 are linked to the journals' websites with the instructions on how to publish. The largest IF 13.635 has the journal "Annual Review of Food Science and Technology" published by the American publisher Annual Reviews, the journal has one volume and one issue per year. This journal is in the citation index SCIE from the first volume in 2010 when it did not have IF and was in Q4, and already in 2011 IF was 3.600 and classified in Q1. The first quartile (Q1) includes 35 journals with an IF range of 4.451 to 13.635, but the largest number of journals in Q1 (14 journals) had an IF range of 5.070 to 5.916. In the second quartile (Q2) there are 36 journals with an IF range of 2.741 to 4.374. The IF range for 36 journals in the third quartile (Q3) is 1.833 to 2.727, while in the fourth quartile (Q4) there is a range of 0.077 to 1.813 and one journal without IF (cf. Appendix 2).

Out of a total of 144 journals in the WoS Food Science & Technology category, 73 titles are exclusively in the Food Science & Technology[4] category while the remaining 71 are in addition to the Food Science & Technology category in 25 other categories (Figure 2.): Chemistry, Applied (18 titles) ; Nutrition & Dietetics (14 titles); Biotechnology & Applied Microbiology (11 titles); Toxicology (7 titles); Biochemistry & Molecular Biologist (4 titles); Horticulture (4 titles); Agriculture, Multidisciplinary (4 titles); Agricultural Economics & Policy (4 titles); Chemistry, Medicinal (3 titles); Engineering, Chemical (3 titles); Agronomy (3 titles); Microbiology (4 titles); Pharmacology & Pharmacy (2 titles); Agriculture, Dairy & Animal Science (2 titles); Chemistry, Analytical (2 titles); Neurosciences (2 titles); Entomology (1 title); Plant Sciences (1 title); Spectroscopy (1 title); Mycology (1 title); Behavioral Sciences (1 title); Physiology (1 title); Environmental Sciences (2 titles); Engineering, Manufacturing (1 title); Immunology (1 title). A review of the journals' websites showed that for all titles classified in the JCR only in the Food Science & Technology category, the goals and scientific topics cited by the journal are much broader, and other categories could be assigned to them in the WoS scientific categories.

The analysis of the journal publishers showed that 103 journals were published by commercial publishers (Elsevier, Wiley, Springer, etc.), and the remaining 41 titles were published by various faculties, institutes, unions and associations (Figure 3).

The analysis of the models used to publish in WoS journals in the Food Science & Technology category (Figure 4) shows that the largest number of the titles was published in one of the Gold OA models: the hybrid model (90 titles), then the the pay article-processing charges (APC) model (22 titles), although transformative journals are in fact hybrid for the purposes of this research have been singled out as a separate part (10 titles), then the so-called diamond model, model without fee for publishing and accessing the published works (12 titles) and model of free publishing but with subscription for access to published works (10 titles). Most Gold OA titles support self-archiving in different repositories or personal websites (Green OA) but under different conditions (e.g. all Elsevier publishers have an embargo of 12 months).

According to the data in the JCR, out of 144 journals in the Food Science & Technology category, 26 journals are in OA (Appendix 2). However, an analysis of the web pages of each title found that eight more journals have OA: CYTA-Journal of Food, Journal of Oil Palm Research, Journal of Oleo Science, Ciencia e Tecnica Vitivinicola, Irish Journal of Agricultural and Food Research, International Food Research Journal, Listy Cukrovarnicke A Reparske, Rivista Italiana Delle Sostanze Grasse.

The analysis shows that, out of a total of 34 titles in OA, 12 titles have the diamond model, and 22 titles have the APC model, but it was also found that the largest number of journals in OA from both publication models is in the fourth quartile (Figure 5).

[4] In Table 1. marked in gray

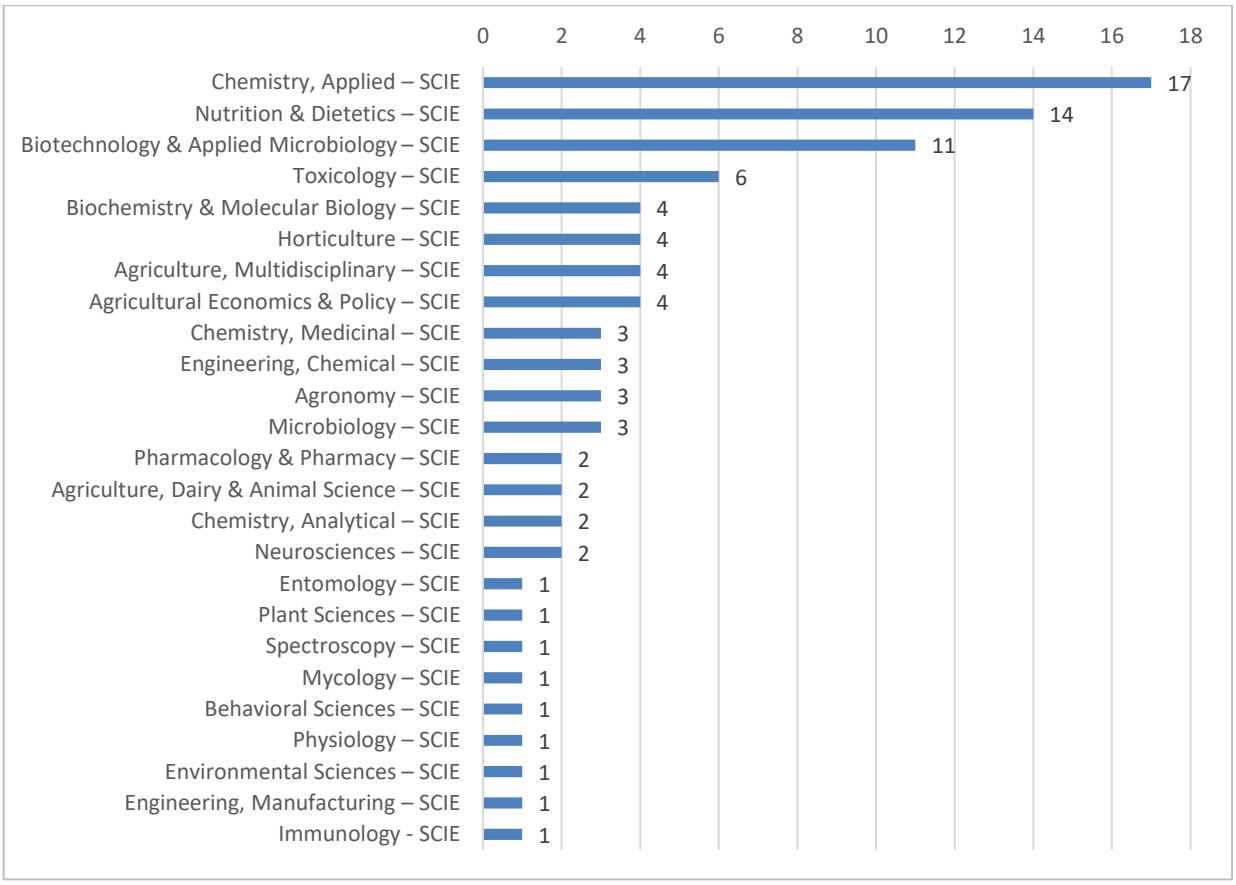

Figure 2. Other categories in which journals are included

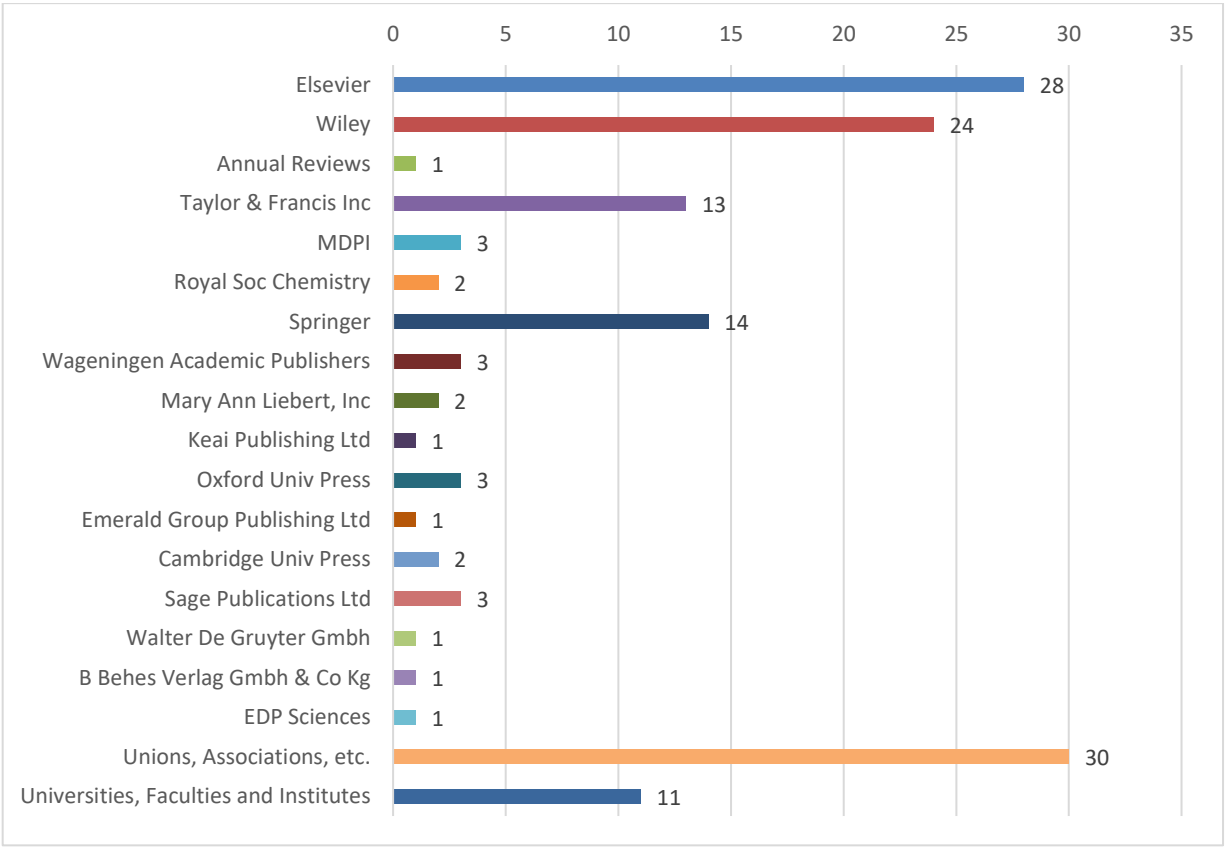

Figure 3. Number of journals per publisher

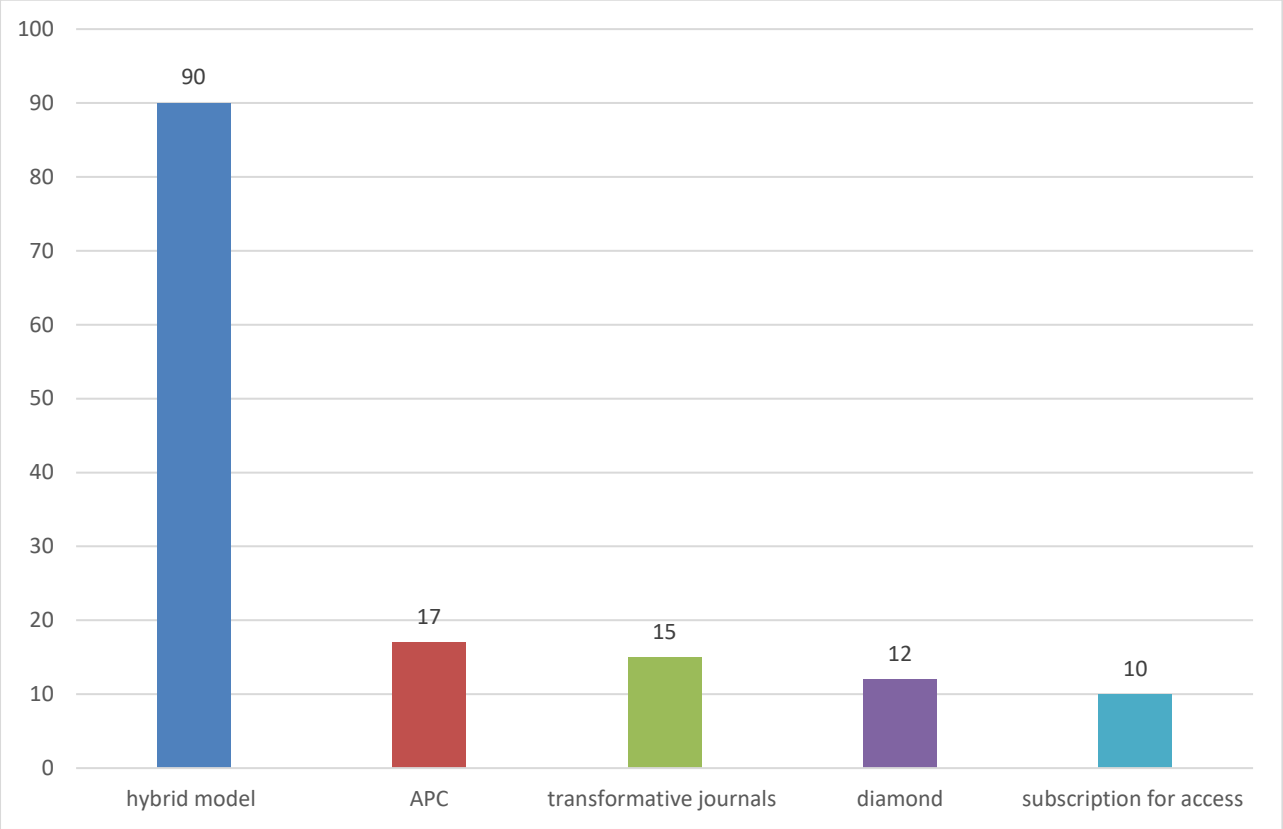

Figure 4. Number of journals classified according to the publishing model

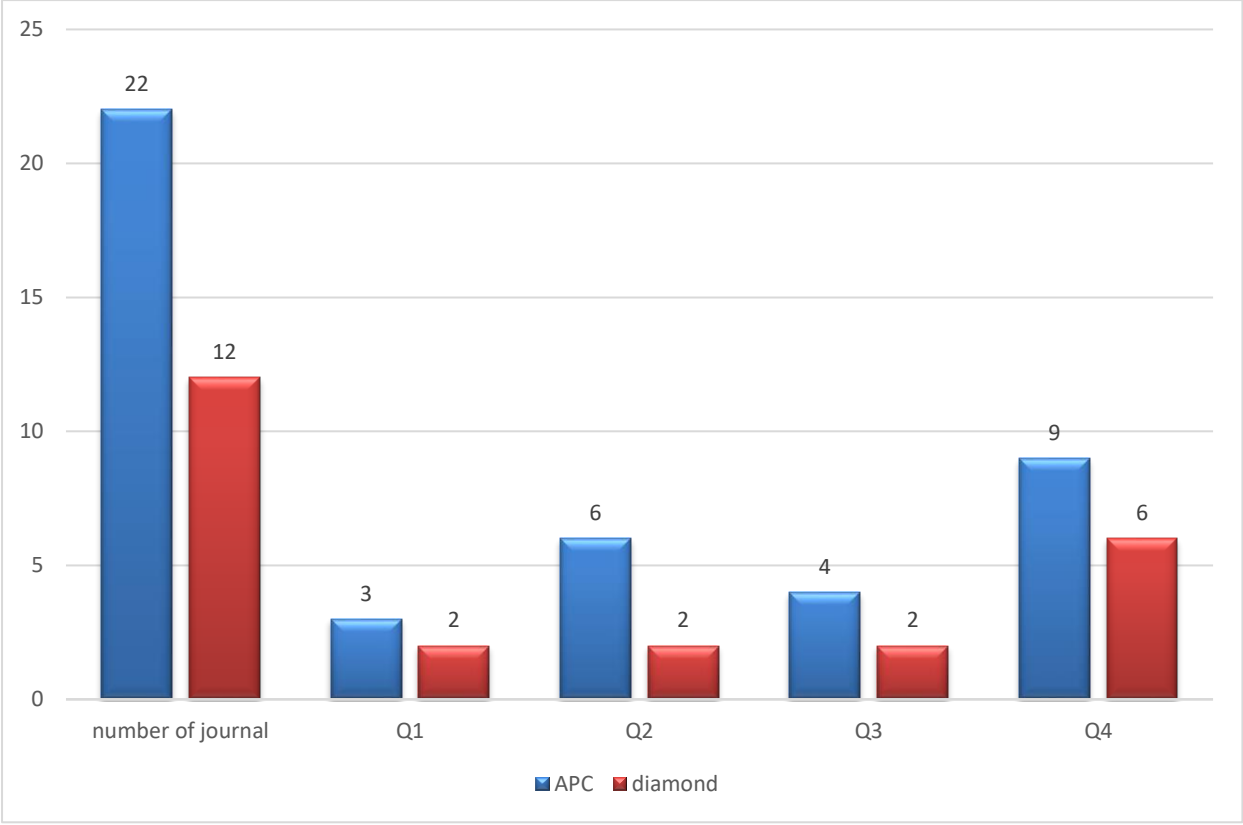

Figure 5. Number of journals classified according to the publication model in OA and quartiles

Conclusions

With the development of technology, interfaces and tools used in scientific publishing are also being developed. Different models of scientific communication are becoming more universal, and the possibilities for publishing are more numerous and sophisticated. Due to growing public pressure for OA scientific information, commercial publishers have realized that they have to change their business policy in scientific publishing and together with the traditional publishing models offer the opportunity to publish in OA with APC, and more and more commercial publishers (Springer, Elsevier, Wiley) have so-called transformative journals that are in the process of a complete transition from a hybrid model to an OA.

To the scientists in the field of biotechnical sciences in the discipline of Food Technology in the Science Citation Index Expanded (SCI-EXPANDED) in the WoS category Food Science & Technology were offered 144 titles distributed in four quartiles according to the IF of each journal with a tendency for a constant increase in the number of titles, as in the ESCI citation index there are 20 titles that belong to the category of Food Science & Technology. The fact of the interdisciplinarity of the fields determined through the different WoS categories should certainly not be overlooked, since except in the category of Food Science & Technology journals are included in 25 other categories: Chemistry, Applied (17 titles); Nutrition & Dietetics (14 titles); Biotechnology & Applied Microbiology (11 titles); Toxicology (6 titles); Biochemistry & Molecular Biology (4 titles); Horticulture (4 titles); Agriculture, Multidisciplinary (4 titles); Agricultural Economics & Policy (4 titles); Chemistry, Medicinal (3 titles); Engineering, Chemical (3 titles); Agronomy (3 titles); Microbiology (3 titles); Pharmacology & Pharmacy (2 titles); Agriculture, Dairy & Animal Science (2 titles); Chemistry, Analytical (2 titles); Neurosciences (2 titles); Entomology (1 title); Plant Sciences (1 title); Spectroscopy (1 title); Mycology (1 title); Behavioral Sciences (1 title); Physiology (1 title); Environmental Sciences (1 title); Engineering, Manufacturing (1 title); Immunology (1 title). Some of these categories cover scientific disciplines in the scientific field of biotechnical sciences (nutrition, agriculture, ecology, biotechnology), then, the scientific field of natural sciences in the disciplines of chemistry and biology, the scientific field of biomedical sciences in the disciplines of basic medical science, pharmacy, immunology, the scientific field of technical sciences in the disciplines engineering, chemical engineering.

Although the WoS category Food Science & Technology contains 26 OA journals, a detailed analysis of the journals' websites identified eight more OA journals: CYTA-Journal of Food, Journal of Oil Palm Research, Journal of Oleo Science, Ciencia e Tecnica Vitivinicola, Irish Journal of Agricultural and Food Research, International Food Research Journal, Listy Cukrovarnicke A Reparske, Rivista Italiana Delle Sostanze Grasse. By comparing the models of publishing and quartiles in which the journal is placed, it was confirmed that the IF, the reputation of the publication and the publishing speed are more important to the authors to publish their research results than the possibility of OA.

Both commercial and non-commercial publishers of the journals on food technology have recognized the importance of adapting to the new technologies and trends in scientific publishing and the vast majority are adjusting to open access in scientific achievements.

The results of this research should be useful for facilitating and guiding scientists in the field of Biotechnical Sciences in selecting scientific journals in which they publish their research results.

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Appendix 1. Journals in the category Food Science & Technology included in JCR for 2020.[5]

	journal	IF	JCI	publisher	quartile	model
1.	Annual Review of Food Science and Technology	13.635	1.39	Annual Reviews	Q1	subscription with green model and embargo
2.	Comprehensive Reviews in Food Science and Food Safety	12.811	1.36	Wiley	Q1	hybrid
3.	Trends in Food Science & Technology	12.563	1.51	Elsevier Science London	Q1	hybrid
4.	Critical Reviews in Food Science and Nutrition	11.176	1.41	Taylor & Francis Inc	Q1	hybrid
5.	Food Hydrocolloids	9.147	2.15	Elsevier Sci Ltd	Q1	hybrid
6.	Global Food Security-Agriculture Policy Economics and Environment	7.772	1.13	Elsevier	Q1	hybrid
7.	Food Chemistry	7.514	1.88	Elsevier Sci Ltd	Q1	hybrid
8.	Food Reviews International	6.478	0.68	Taylor & Francis Inc	Q1	hybrid
9.	Food Research International	6.475	1.57	Elsevier	Q1	hybrid
10.	Food Packaging and Shelf Life	6.429	1.55	Elsevier	Q1	hybrid
11.	Antioxidants	6.313	1.24	MDPI	Q1	APC
12.	Journal of Food and Drug Analysis	6.079	1.44	Food & Drug Adminstration	Q1	diamond
13.	Current Opinion in Food Science	6.031	0.77	Elsevier Sci Ltd	Q1	hybrid
14.	Food and Chemical Toxicology	6.025	1.46	Pergamon-Elsevier Science Ltd	Q1	hybrid
15.	Innovative Food Science & Emerging Technologies	5.916	1.55	Elsevier Sci Ltd	Q1	hybrid
16.	Molecular Nutrition & Food Research	5.820	1.51	Wiley	Q1	hybrid
17.	Food Engineering Reviews	5.758	0.59	Springer	Q1	hybrid
18.	Food Quality and Preference	5.565	1.61	Elsevier Sci Ltd	Q1	hybrid
19.	Food Control	5.548	1.49	Elsevier Sci Ltd	Q1	hybrid
20.	Postharvest Biology and Technology	5.537	2.01	Elsevier	Q1	hybrid
21.	Food Microbiology	5.516	1.40	Academic Press Ltd-Elsevier Science Ltd	Q1	hybrid
22.	Food & Function	5.396	1.16	Royal Soc Chemistry	Q1	hybrid
23.	Journal of Food Engineering	5.354	1.23	Elsevier Sci Ltd	Q1	hybrid
24.	Journal of Agricultural and Food Chemistry	5.279	1.48	Amer Chemical Soc	Q1	hybrid
25.	International Journal of Food Microbiology	5.277	1.40	Elsevier	Q1	hybrid
26.	Meat Science	5.154	0.92	Elsevier Sci Ltd	Q1	hybrid
27.	Food Science and Human Wellness	5.154	0.92	Keai Publishing Ltd	Q1	diamond
28.	npj Science of Food	5.070	0.88	Springer Nature	Q1	APC
29.	LWT-Food Science and Technology	4.952	1.39	Elsevier	Q1	hybrid
30.	Journal of Food Composition and Analysis	4.556	1.02	Academic Press Inc Elsevier Science	Q1	hybrid
31.	Food Policy	4.552	1.73	Elsevier Sci Ltd	Q1	hybrid
32.	Toxins	4.546	0.96	MDPI	Q1	APC
33.	Food and Bioproducts Processing	4.481	0.99	Elsevier	Q1	hybrid
34.	Food and Bioprocess Technology	4.465	1.14	Springer	Q1	hybrid
35.	Journal of Functional Foods	4.451	1.08	Elsevier	Q1	hybrid
36.	International Journal of Dairy Technology	4.374	0.83	Wiley	Q2	hybrid
37.	Foods	4.350	0.97	MDPI	Q2	APC
38.	Food Bioscience	4.240	1.02	Elsevier	Q2	hybrid

[5] Journal Data Filtered By: Selected JCR Year: 2020 Selected Editions: SCIE Selected Categories: 'FOOD SCIENCE & TECHNOLOGY' Selected Category Scheme: WoS. Accessed: 21/2.2022. Link: https://jcr.clarivate.com/jcr/browse-journals

	journal	IF	JCI	publisher	quartile	model
39.	Food and Energy Security	4.109	1.24	Wiley	Q2	hybrid
40.	Journal of Dairy Science	4.034	1.50	Elsevier Science Inc	Q2	hybrid
41.	Plant Foods for Human Nutrition	3.921	0.83	Springer	Q2	transformative /hybrid
42.	Food Technology and Biotechnology	3.918	0.63	Faculty Food Technology Biotechnology	Q2	diamond
43.	Food & Nutrition Research	3.894	0.90	Swedish Nutrition Foundation-Snf	Q2	APC
44.	International Journal of Food Sciences and Nutrition	3.833	0.88	Taylor & Francis Ltd	Q2	hybrid
45.	Food Structure-Netherlands	3.769	0.92	Elsevier	Q2	hybrid
46.	International Journal of Food Science and Technology	3.713	0.91	Wiley	Q2	hybrid
47.	Journal of The Science of Food and Agriculture	3.639	1.03	Wiley	Q2	hybrid
48.	Journal of Cereal Science	3.616	0.95	Academic Press Ltd-Elsevier Science Ltd	Q2	hybrid
49.	Journal of Insects as Food and Feed	3.484	1.20	Wageningen Academic Publishers	Q2	hybrid
50.	Food Additives & Contaminants Part B-Surveillance	3.407	0.78	Taylor & Francis Ltd	Q2	hybrid
51.	Food Analytical Methods	3.366	0.87	Springer	Q2	transformative /hybrid
52.	World Mycotoxin Journal	3.353	0.70	Wageningen Academic Publishers	Q2	hybrid
53.	EFSA Journal	3.336	0.65	European Food Safety Authority-Efsa	Q2	diamond
54.	Food Security	3.304	0.75	Springer	Q2	transformative /hybrid
55.	Journal of Texture Studies	3.223	0.66	Wiley	Q2	hybrid
56.	Foodborne Pathogens and Disease	3.171	0.77	Mary Ann Liebert, Inc	Q2	hybrid
57.	Journal of Food Science	3.167	0.80	Wiley	Q2	hybrid
58.	Chemical Senses	3.160	0.73	Oxford Univ Press	Q2	hybrid
59.	Food Biophysics	3.114	0.73	Springer	Q2	transformative /hybrid
60.	Food Quality and Safety	3.102	0.50	Oxford Univ Press	Q2	APC
61.	Food and Agricultural Immunology	3.101	0.73	Taylor & Francis LTD	Q2	APC
62.	Food Additives And Contaminants Part A-Chemistry Analysis Control Exposure & Risk Assessment	3.057	0.67	Taylor & Francis Ltd	Q2	hybrid
63.	International Dairy Journal	3.032	0.84	Elsevier Sci Ltd	Q2	hybrid
64.	European Food Research and Technology	2.998	0.78	Springer	Q2	transformative /hybrid
65.	Journal of Sensory Studies	2.991	0.72	Wiley	Q2	hybrid
66.	Analytical Methods	2.896	0.86	Royal Soc Chemistry	Q2	hybrid
67.	Journal of Bioscience and Bioengineering	2.894	0.74	Soc Bioscience Bioengineering Japan	Q2	subscription
68.	Food Science & Nutrition	2.863	0.70	Wiley	Q2	APC
69.	Journal of Medicinal Food	2.786	0.71	Mary Ann Liebert, Inc	Q2	hybrid
70.	Food and Environmental Virology	2.778	0.74	Springer	Q2	APC
71.	Starch-Starke	2.741	0.60	Wiley-V C H Verlag Gmbh	Q2	hybrid
72.	International Journal of Food Properties	2.727	0.68	Taylor & Francis Inc	Q3	APC
73.	Journal of Food Biochemistry	2.720	0.54	Wiley	Q3	hybrid
74.	Journal of Food Science and Technology-Mysore	2.701	0.66	Springer India	Q3	transformative /hybrid
75.	Australian Journal of Grape and Wine Research	2.688	1.15	Wiley	Q3	hybrid

	journal	IF	JCI	publisher	quartile	model
76.	Biotechnology Progress	2.681	0.69	Wiley	Q3	hybrid
77.	European Journal of Lipid Science and Technology	2.679	0.57	Wiley	Q3	hybrid
78.	Korean Journal for Food Science of Animal Resources	2.622	0.56	Korean Soc Food Science Animal Resources	Q3	hybrid
79.	Flavour and Fragrance Journal	2.576	0.47	Wiley	Q3	hybrid
80.	International Journal of Gastronomy and Food Science	2.537	0.62	Elsevier	Q3	hybrid
81.	British Food Journal	2.518	0.97	Emerald Group Publishing Ltd	Q3	hybrid
82.	Food Science of Animal Resources	2.471	0.61	Korean Soc Food Science Animal Resources	Q3	hybrid
83.	Journal of Food Quality	2.450	0.48	Wiley-Hindawi	Q3	APC
84.	Journal of Food Measurement and Characterization	2.431	0.60	Springer	Q3	transformative /hybrid
85.	Food Science and Biotechnology	2.391	0.58	Korean Society Food Science & Technology-Kosfost	Q3	transformative /hybrid
86.	Journal of Food Process Engineering	2.356	0.47	Wiley	Q3	hybrid
87.	Oeno One	2.305	0.62	Vigne Et Vin Publications Int	Q3	diamond
88.	CyTA-Journal of Food	2.255	0.56	Taylor & Francis Ltd	Q3	APC
89.	American Journal of Enology and Viticulture	2.253	0.76	Amer Soc Enology Viticulture	Q3	hybrid
90.	Journal of Food Processing and Preservation	2.190	0.51	Wiley	Q3	hybrid
91.	Polish Journal of Food and Nutrition Sciences	2.111	0.53	Inst Animal Reproduction & Food Research Polish Acad Science	Q3	APC
92.	Journal of Food Protection	2.077	0.49	Int Assoc Food Protection	Q3	hybrid
93.	Food and Nutrition Bulletin	2.069	0.44	Sage Publications Inc	Q3	hybrid
94.	Journal of the American Society of Brewing Chemists	2.062	0.40	Taylor & Francis Ltd	Q3	hybrid
95.	Agribusiness	2.057	0.40	Wiley	Q3	hybrid
96.	Journal of Oil Palm Research	2.057	0.40	Malaysian Palm Oil Board	Q3	diamond
97.	Bioscience Biotechnology and Biochemistry	2.043	0.43	Taylor & Francis Ltd	Q3	hybrid
98.	Food Science and Technology International	2.023	0.48	Sage Publications Ltd	Q3	hybrid
99.	Microbial Risk Analysis	2.000	0.53	Elsevier	Q3	hybrid
100.	Cereal Chemistry	1.984	0.42	Wiley	Q3	hybrid
101.	Journal of Essential Oil Research	1.963	0.41	Taylor & Francis Ltd	Q3	hybrid
102.	Journal of Food Safety	1.953	0.43	Wiley	Q3	hybrid
103.	Journal of AOAC International	1.913	0.43	Oxford Univ Press Inc	Q3	hybrid
104.	Journal of Dairy Research	1.904	0.71	Cambridge Univ Press	Q3	hybrid
105.	Packaging Technology and Science	1.875	0.44	Wiley	Q3	hybrid
106.	Journal of the American Oil Chemists Society	1.849	0.44	Wiley	Q3	hybrid
107.	Chemosensory Perception	1.833	0.43	Springer	Q3	transformative /hybrid
108.	Applied Biological Chemistry	1.813	0.55	Springer Singapore Pte Ltd	Q4	APC
109.	Journal of Aquatic Food Product Technology	1.767	0.38	Taylor & Francis Inc	Q4	hybrid
110.	Journal of the Institute of Brewing	1.759	0.48	Inst Brewing	Q4	hybrid
111.	South African Journal of Enology and Viticulture	1.733	0.51	South African Soc Enology & Viticulture-Sasev	Q4	APC
112.	Food Science and Technology	1.718	0.44	Soc Brasileira Ciencia Tecnologia Alimentos	Q4	APC
113.	International Journal of Food Engineering	1.713	0.32	Walter De Gruyter Gmbh	Q4	hybrid

	journal	IF	JCI	publisher	quartile	model
114.	Grasas Y Aceites	1.650	0.34	Consejo Superior Investigaciones Cientificas-Csic	Q4	diamond
115.	Journal of Oleo Science	1.601	0.37	Japan Oil Chemists Soc	Q4	APC
116.	Journal of Wine Economics	1.569	0.89	Cambridge Univ Press	Q4	hybrid
117.	Food Biotechnology	1.564	0.32	Taylor & Francis Inc	Q4	hybrid
118.	Agricultural and Food Science	1.375	0.44	Scientific Agricultural Soc Finland	Q4	diamond
119.	Journal of Food and Nutrition Research	1.333	0.31	Vup Food Research Inst, Bratislava	Q4	hybrid
120.	Ciencia E Tecnica Vitivinicola	1.296	0.28	Estacao Vitivinicola Nacional	Q4	diamond
121.	Czech Journal of Food Sciences	1.279	0.31	Czech Academy Agricultural Sciences	Q4	APC
122.	Journal of Consumer Protection and Food Safety	1.177	0.24	Springer International Publishing Ag	Q4	transformative /hybrid
123.	Irish Journal of Agricultural and Food Research	1.125	0.38	Teagasc	Q4	diamond
124.	Emirates Journal of Food and Agriculture	1.041	0.37	United Arab Emirates Univ	Q4	hybrid
125.	International Food Research Journal	1.014	0.23	Univ Putra Malaysia Press	Q4	APC
126.	Natural Product Communications	0.986	0.21	Sage Publications Inc	Q4	APC
127.	Quality Assurance and Safety of Crops & Foods	0.922	0.24	Wageningen Academic Publishers	Q4	hybrid
128.	Italian Journal of Food Science	0.875	0.22	Chiriotti Editori	Q4	APC
129.	Food Science and Technology Research	0.668	0.18	Japanese Soc Food Sci & Technology	Q4	hybrid
130.	Acta Alimentaria	0.650	0.17	Akademiai Kiado Zrt	Q4	hybrid
131.	Food and Drug Law Journal	0.619	0.41	Food Drug Law Inst	Q4	hybrid
132.	Sugar Industry-Zuckerindustrie	0.613	0.11	Verlag Dr Albert Bartens	Q4	subscription
133.	Mitteilungen Klosterneuburg	0.571	0.19	Hoehere Bundeslehranstalt Und Bundesamt Fuer Wein-Und Obstb	Q4	hybrid
134.	Rivista Italiana Delle Sostanze Grasse	0.563	0.12	Innovhub Ssi-Area Ssog	Q4	diamond
135.	Cereal Foods World	0.538	0.19	Aacc International	Q4	hybrid
136.	Food Hygiene and Safety Science	0.464	0.13	Food Hygiene & Safety	Q4	subscription
137.	Food Technology	0.367	0.03	Inst Food Technologists	Q4	subscription
138.	Journal of Food Safety and Food Quality-Archiv Fur Lebensmittelhygiene	0.356	0.07	M H Schaper Gmbh Co Kg	Q4	subscription
139.	Fleischwirtschaft	0.320	0.07	Deutscher Fachverlag Gmbh	Q4	subscription
140.	Journal of the Japanese Society for Food Science and Technology-Nippon Shokuhin Kagaku Kogaku Kaishi	0.206	0.05	Japan Soc Food Science Technology	Q4	subscription
141.	Listy Cukrovarnicke A Reparske	0.202	0.07	Listy Cukrovarnicke Reparske	Q4	diamond
142.	Deutsche Lebensmittel-Rundschau	0.136	0.02	B Behes Verlag Gmbh & Co Kg	Q4	subscription
143.	International Sugar Journal	0.077	0.03	Int Sugar Journal Ltd	Q4	subscription
144.	Dairy Science & Technology	n/a	1.35	Springer France od 2017. EDP Sciences	n/a	APC

Appendix 2. OA journals in the field of Food Science & Technology

	journal	IF	JCI	publisher	quartile	model
1.	Antioxidants	6.313	1.24	MDPI	Q1	APC
2.	Journal of Food and Drug Analysis	6.079	1.44	Food & Drug Adminstration	Q1	diamond
3.	Food Science and Human Wellness	5.154	0.92	Keai Publishing Ltd	Q1	diamond
4.	npj Science of Food	5.070	0.88	Springer Nature	Q1	APC
5.	Toxins	4.546	0.96	MDPI	Q1	APC
6.	Foods	4.350	0.97	MDPI	Q2	APC
7.	Food Technology and Biotechnology	3.918	0.63	Faculty Food Technology Biotechnology	Q2	diamond
8.	Food & Nutrition Research	3.894	0.90	Swedish Nutrition Foundation-Snf	Q2	APC
9.	EFSA Journal	3.336	0.65	European Food Safety Authority-Efsa	Q2	diamond
10.	Food Quality and Safety	3.102	0.50	Oxford Univ Press	Q2	APC
11.	Food and Agricultural Immunology	3.101	0.73	Taylor & Francis LTD	Q2	APC
12.	Food Science & Nutrition	2.863	0.70	Wiley	Q2	APC
13.	Food and Environmental Virology	2.778	0.74	Springer	Q2	APC
14.	International Journal of Food Properties	2.727	0.68	Taylor & Francis Inc	Q3	APC
15.	Journal of Food Quality	2.450	0.48	Wiley-Hindawi	Q3	APC
16.	Oeno One	2.305	0.62	Vigne Et Vin Publications Int	Q3	diamond
17.	CyTA-Journal of Food	2.255	0.56	Taylor & Francis Ltd	Q3	APC
18.	Polish Journal of Food and Nutrition Sciences	2.111	0.53	Inst Animal Reproduction & Food Research Polish Acad Science	Q3	APC
19.	Journal of Oil Palm Research	2.057	0.40	Malaysian Palm Oil Board	Q3	dijamant
20.	Applied Biological Chemistry	1.813	0.55	Springer Singapore Pte Ltd	Q4	APC
21.	South African Journal of Enology and Viticulture	1.733	0.51	South African Soc Enology & Viticulture-Sasev	Q4	APC
22.	Food Science and Technology	1.718	0.44	Soc Brasileira Ciencia Tecnologia Alimentos	Q4	APC
23.	Grasas Y Aceites	1.650	0.34	Consejo Superior Investigaciones Cientificas-Csic	Q4	diamond
24.	Journal of Oleo Science	1.601	0.37	Japan Oil Chemists Soc	Q4	APC
25.	Agricultural and Food Science	1.375	0.44	Scientific Agricultural Soc Finland	Q4	diamond
26.	Ciencia E Tecnica Vitivinicola	1.296	0.28	Estacao Vitivinicola Nacional	Q4	diamond
27.	Czech Journal of Food Sciences	1.279	0.31	Czech Academy Agricultural Sciences	Q4	APC
28.	Irish Journal of Agricultural and Food Research	1.125	0.38	Teagasc	Q4	diamond
29.	International Food Research Journal	1.014	0.23	Univ Putra Malaysia Press	Q4	APC
30.	Natural Product Communications	0.986	0.21	Sage Publications Inc	Q4	APC
31.	Italian Journal of Food Science	0.875	0.22	Chiriotti Editori	Q4	APC
32.	Rivista Italiana Delle Sostanze Grasse	0.563	0.12	Innovhub Ssi-Area Ssog	Q4	diamond
33.	Listy Cukrovarnicke A Reparske	0.202	0.07	Listy Cukrovarnicke Reparske	Q4	diamond
34.	Dairy Science & Technology	n/a	1.35	Springer France od 2017. EDP Sciences	n/a	APC