

Guidelines for conducting a literature review using bibliometric analysis with the Bibliometrix package

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Presentation summary

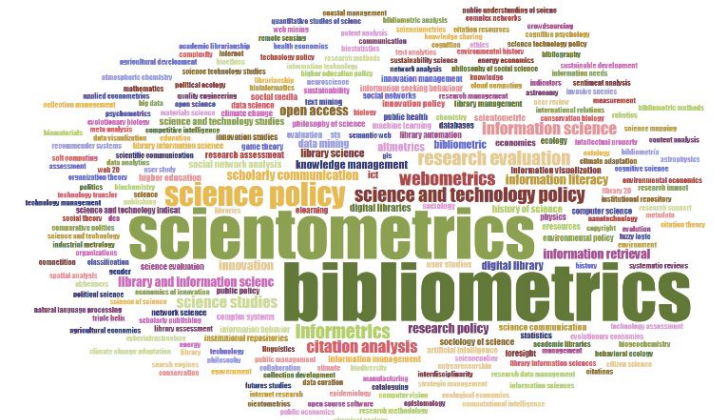
- Bibliometrics: theoretical aspects;
- General Guidelines for Searches in Databases;
- Database searches: Web of Science (WoS) and Scopus;
- Merging Scopus and WoS database files using R language;
- Bibliometric analysis using the biblioshiny package;
- References.

Bibliometrics: theoretical aspects

Bibliometrics: theoretical aspects

“The number of academic publications is increasing at a rapid pace and it is becoming increasingly unfeasible to remain current with everything that is being published.”

“bibliometrics has the potential to introduce a systematic, transparent, and reproducible review process based on the statistical measurement of science, scientists, or scientific activity”



Bibliometrics: theoretical aspects

- Bibliometric analysis looks at publication data from research projects to understand the dynamics of scientific investigation in a given field. A bibliometric approach is explicitly quantitative and uses statistical/mathematical methods.
- Through bibliometric analysis, it is possible to: identify the growth of publications in a field of research, identify the most cited articles, the most relevant journals that publish on the researched topic, the collaboration of researchers from different countries, co-citation and keywords networks and “trend topics”, etc.

Bibliometrics: theoretical aspects

It is important to know that:

Bibliometrics is a method and, as such, cannot be the objective of the article. The goal is always greater than the method. An example of the objective of an article that uses bibliometric analysis is: *“This research aims at providing a comprehensive map of the body of knowledge in the biomass and organic waste literature with a circular bioeconomy perspective.”* Ranjbari et al. (2022).

Bibliometrics course - Diffusion USP. (2018). Authors: Diego Clemente and Graziela Galvão.

Ranjbari, M., Esfandabadi, Z. S., Quatraro, F., Vatanparast, H., Lam, S. S., Aghbashlo, M., & Tabatabaei, M. (2022). Biomass and organic waste potentials towards implementing circular bioeconomy platforms: A systematic bibliometric analysis. *Fuel*, 318, 123585.

General Guidelines for Searches in Databases

General Guidelines for Searches in Databases

It is important to describe in detail in the methodology of the article the data collection procedure to carry out the systematic review of the literature.

It is very important to search for systematic literature review articles published by high-impact journals within your area of research.

How to write a literature review



General Guidelines for Searches in Databases

Before carrying out a bibliometric survey of your research area, it is essential to create a **research protocol**. It is important to:

- a. Identify search terms (search strings) and correctly use Boolean operators (**AND/OR**);
- b. Select the relevant databases for your study (eg **Scopus, Web of Science, Pubmed**, etc);
- c. Apply search filters (eg document type, language, year, etc.).
- d. Use support software to manage large “mass of data” (examples VOSviewer, Bibliometrix package, Excel, Mendeley, etc.)

General Guidelines for Searches in Databases

- All information from the search and filtering steps must be stored by the researcher;
- The dates of search in the databases must be recorded and mentioned in the methodology of the article;
- The objective is to allow research **replicability** by other authors with the same search and filter steps.

General Guidelines for Searches in Databases

Example of how to save the article search and filter steps

Research steps on WEB OF SCIENCE CORE COLLECTION and SCOPUS
 Research date: 03/10/17



			RESULTS
ISI Web of Science	KEYWORDS	"project management"	
		AND	
		"polic*" OR "public polic*" OR "government*" OR "regulat*" OR "standard*" OR "certification*"	
	FILTER 1	Articles	
	FILTER 2	Review	
TOTAL			
Scopus	KEYWORDS	"project management"	
		AND	
		"polic*" OR "public polic*" OR "government*" OR "regulat*" OR "standard*" OR "certification*"	
	FILTER 1	Articles	
	FILTER 2	Review	
FILTER 3	Articles in Press		
TOTAL			

General Guidelines for Searches in Databases

Example of how to save the article search and filter steps




Search terms:	"Circular economy" AND "Social"
Database:	Scopus
Date of collection:	May 13, 2022
Search applied to:	Title, abstract and keywords
First result:	2517 documents
Filters applied:	Document type (article and review) Article language: English writing only
Results after applying the filters:	1,750 documents

General Guidelines for Searches in Databases

Example of how to save the article search and filter steps

3. Materials, methods, and research design

A large, solid red arrow pointing to the right, highlighting the text below it.

A systematic bibliometric review analysis adopted from Belussi et al. [31] and Ranjbari et al. [8,32] was performed in this study to provide the state-of-the-art of biomass and organic waste potentials and applications in implementing CE platforms. The bibliometric analysis evolved in four steps: (1) descriptive bibliographic analysis to present the publication performance in terms of time distribution, sources, authors, contributing countries and institutions, and funding agencies, (2) keyword-based analysis to identify research hotspots and tendencies, (3) co-citation analysis of the cited references to discover the major research clusters and founders of the studied discipline, and (4) bibliographic coupling analysis of the articles to map the core emergent research sub-fields of the target literature. Fig. 1 visualizes the overall research design and methods employed in this study, corresponding to the relevant research questions. The defined search strategy to collect the most relevant data as well as methods of analysis are described in the following sub-sections.

3.1. Search strategy and data collection

General Guidelines for Searches in Databases

Example of how to save the article search and filter steps

3.1. Search strategy and data collection

A search protocol based on the preferred reporting items for systematic reviews and *meta*-analyses (PRISMA) statement [33] was developed to systematically identify, screen, and select relevant articles from the target literature. In this vein, Web of Science (WoS) Core Collection, as the world's most trusted global citation database, was used in this research. Given the main focus of this research, different combinations of the three main keywords "biomass", "waste", and "circular economy" were tested. As a result, the following search string including AND/OR operators was constructed: ("biomass-based waste" OR "biomass waste" OR "waste biomass" OR "waste from biomass" OR "organic waste" OR "organic-based waste" OR "biowaste" OR "bio-waste" OR "bio waste" OR "bio-based waste" OR "food waste" OR "crop residue*" OR "crop waste" OR "wood residue*" OR "wood waste" OR "forest* residue*") AND ("circular economy" OR "circular bioeconomy" OR "circular bio-economy" OR "circular bio economy").

OR "circular bio-economy" OR "circular bio economy").

The initial run of the search string on the field "Topic: title, abstract, author keywords, and keywords plus" in WoS returned a total of 826 articles. In the next step, the results were limited to only (i) peer-reviewed articles, (ii) journal articles, and (iii) English materials. Nevertheless, no time-period limit was applied to cover all scientific production within the study area. Consequently, 766 articles published from 2011 to 2021 remained for further consideration. To ensure the quality of the studied sample to perform a reliable analysis, the remaining articles were scanned based on their titles and abstracts to exclude irrelevant articles from the analysis. As a result, 120 articles were removed, leading to a total of 646 eligible articles as the final sample for conducting the bibliometric analysis. The details of the search strategy and the article selection process are tabulated in [Table 2](#).

General Guidelines for Searches in Databases

Example of how to save the article search and filter steps

Table 2

The search protocol to collect data from the target literature.

Search string	(“biomass-based waste” OR “biomass waste” OR “waste biomass” OR “waste from biomass” OR “organic waste” OR “organic-based waste” OR “biowaste” OR “bio-waste” OR “bio waste” OR “bio-based waste” OR “food waste” OR “crop residue*” OR “crop waste” OR “wood residue*” OR “wood waste” OR “forest* residue*”) AND (“circular economy” OR “circular bioeconomy” OR “circular bio-economy” OR “circular bio economy”)
Searched in Database	Topic: title, abstract, author keywords, and keywords plus Web of Science
The last update	September 8, 2021
First Result	826 articles
Inclusion criteria	(i) English documents, and (ii) peer-reviewed journal articles
Second result	766 articles
Screening stage	120 articles were removed
Final sample	646 articles



General Guidelines for Searches in Databases

The search starts with the delimitation of the **search keywords**;

The use of suitable keywords is essential for the quality of the search and the article!

Consider the following characteristics to delimit keywords:

- Use of different terms for the same subject to be searched;
- Use of terms that may contain differences in writing;
Ex: **product-service system(s)** or **product service system(s)**;
- Use of theme abbreviations can be useful;
Ex: **SDG** for **Sustainable Development Goal**

General Guidelines for Searches in Databases

You must use the **BOOLEAN operators** to combine words and expressions in searches. Boolean operators are words whose purpose is to define how the combination of terms and expressions of a query in a search system should be.

Two Boolean operators;

- **AND:** Restricts the search, that is, the results must contain one term AND the other;
- **OR:** Expands the search, that is, the results may contain one term OR the other.

General Guidelines for Searches in Databases

For search keywords, asterisk (*) and quotation marks (“”) can be used as follows:

- Asterisks (*):

Searches for words by their root, but with several possible suffixes.

Example: **polic*** will include both **policY** and **policIES**

regulat* will include both **regulatORY** and **regulatION**

General Guidelines for Searches in Databases

For search keywords, asterisk (*) and quotation marks ("") can be used as follows:

- Quotation marks (" ")

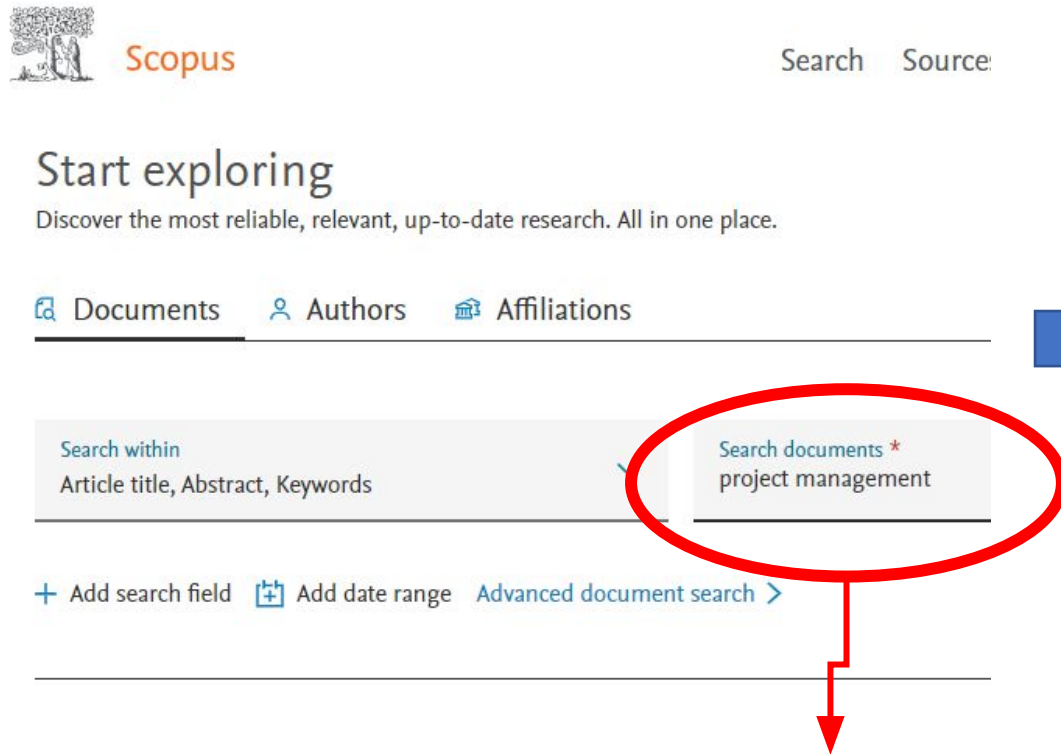
Function to fetch expressions exactly as they were written.

Example:

project management → the results will contain works that have the terms project and management in separate.

"project management" → the results will contain works with the specific expression "project management".

Exemplifying the use of Quotation marks (" ")



Scopus Search Source

Start exploring
Discover the most reliable, relevant, up-to-date research. All in one place.

Documents Authors Affiliations

Search within
Article title, Abstract, Keywords

Search documents *
project management

+ Add search field + Add date range Advanced document search >



Scopus

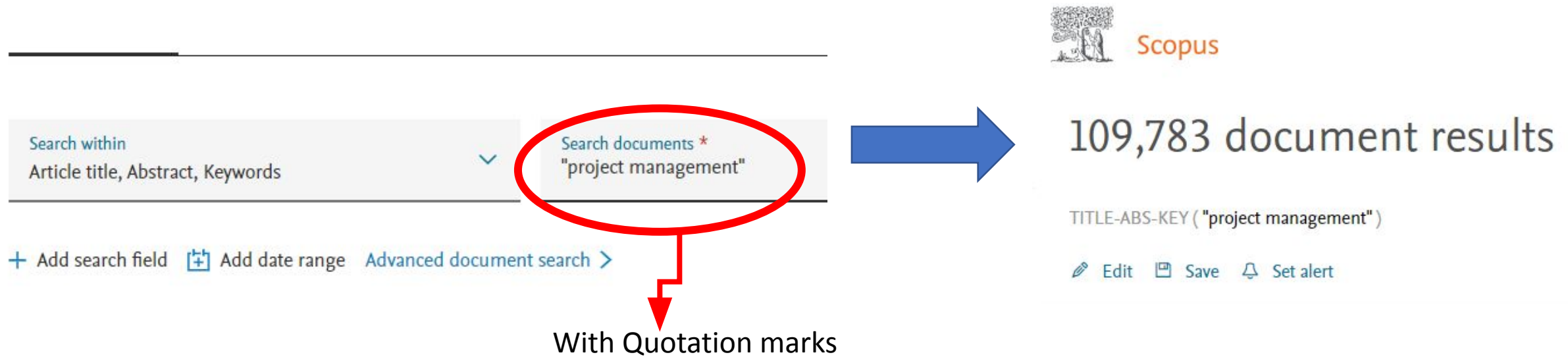
344,769 document results

TITLE-ABS-KEY (project AND management)

Edit Save Set alert

Without Quotation marks

Exemplifying the use of Quotation marks (" ")



Database searches: Web of Science (WoS) and Scopus

Database searches: Web of Science (WoS) and Scopus

- **Web of Science**, previously known as Web of Knowledge, is a database of bibliographic citations of multidisciplinary areas that covers the various journals of medical, scientific, and social sciences including humanities. It was inaugurated in 2004 by Thomson Reuters (Thomson Scientific), which is a part of Thomson Cooperation, to incorporate the citation indices and provides a scope for analysis of indexing and citations. <https://www.webofscience.com/>
- **Scopus** is the largest abstract and citation database of peer-reviewed literature – scientific journals, books and conference proceedings. Delivering a comprehensive overview of the world's research output in the fields of science, technology, medicine social sciences and arts and humanities, Scopus features smart tools to track, analyze and visualize research. <https://www.scopus.com/>

Database searches: Web of Science (WoS) and Scopus

Searching in WoS

DOCUMENTS CITED REFERENCES

1. Select topic: Searches title, abstract, author keywords, and Keywords Plus*.

Topic

⊖ And

*The data in KeyWords Plus are words or phrases that frequently appear in the titles of an article's references, but do not appear in the title of the article itself.

Database searches: Web of Science (WoS) and Scopus

Searching in WoS

Note that the Boolean operator OR was used to retrieve research that addresses sustainable agriculture OR organic agriculture within circular economy.

Clarivate Web of Science™

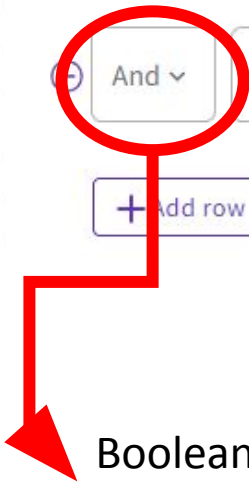
DOCUMENTS CITED REFERENCES

Topic

And

+ Add row + Add date range Advanced Search

X Clear Search



Boolean operator (AND) to find articles that address “circular economy” AND (“sustainable agriculture” OR “organic agriculture”).

After correctly inserting the keywords and Boolean operators, click on search.

Database searches: Web of Science (WoS) and Scopus

The initial search returned 79 documents

Web of Science™ Search Marked List History Alerts

Clarivate
Web of Science™

Search > Results for "circular economy" (Topic) AND "sustainable agriculture" OR "or..."

79 results from Web of Science Core Collection for:

Q "circular economy" (Topic) and "sustainable agriculture" OR "organic agriculture" (Topic)

Copy query link

Database searches: Web of Science (WoS) and Scopus

Applying search filters

Document Types

- Articles 46
- Review Articles 26
- Early Access 4
- Proceedings Papers 4
- Editorial Materials 3

Exclude [Refine](#)

You can use the filter **document types** to select articles, review and early access that are peer-reviewed documents. Click “Refine”.



Languages

- English 79

Exclude [Refine](#)

You can use the filter **language** and select articles written in English, Spanish, Portuguese. Click “Refine”.

72 results from Web of Science Core Collection for:

Q "circular economy" (Topic) and "sustainable agriculture" OR "organic agriculture" (Topic)

Refined By: Languages: English X Document Types: Articles or Review Articles or Early Access X [Clear all](#)

Note: The Web of Science features several filters that can be explored. All filtering must be methodologically justified within a bibliometric work.

Database searches: Web of Science (WoS) and Scopus

Applying search filters

Once the filters are applied, the final result must be exported for analysis by the researcher.

The Figure below shows the final information after the Web of Science filters, where all keywords used and filters applied are shown.



Clarivate Web of Science

72 results from Web of Science Core Collection for:

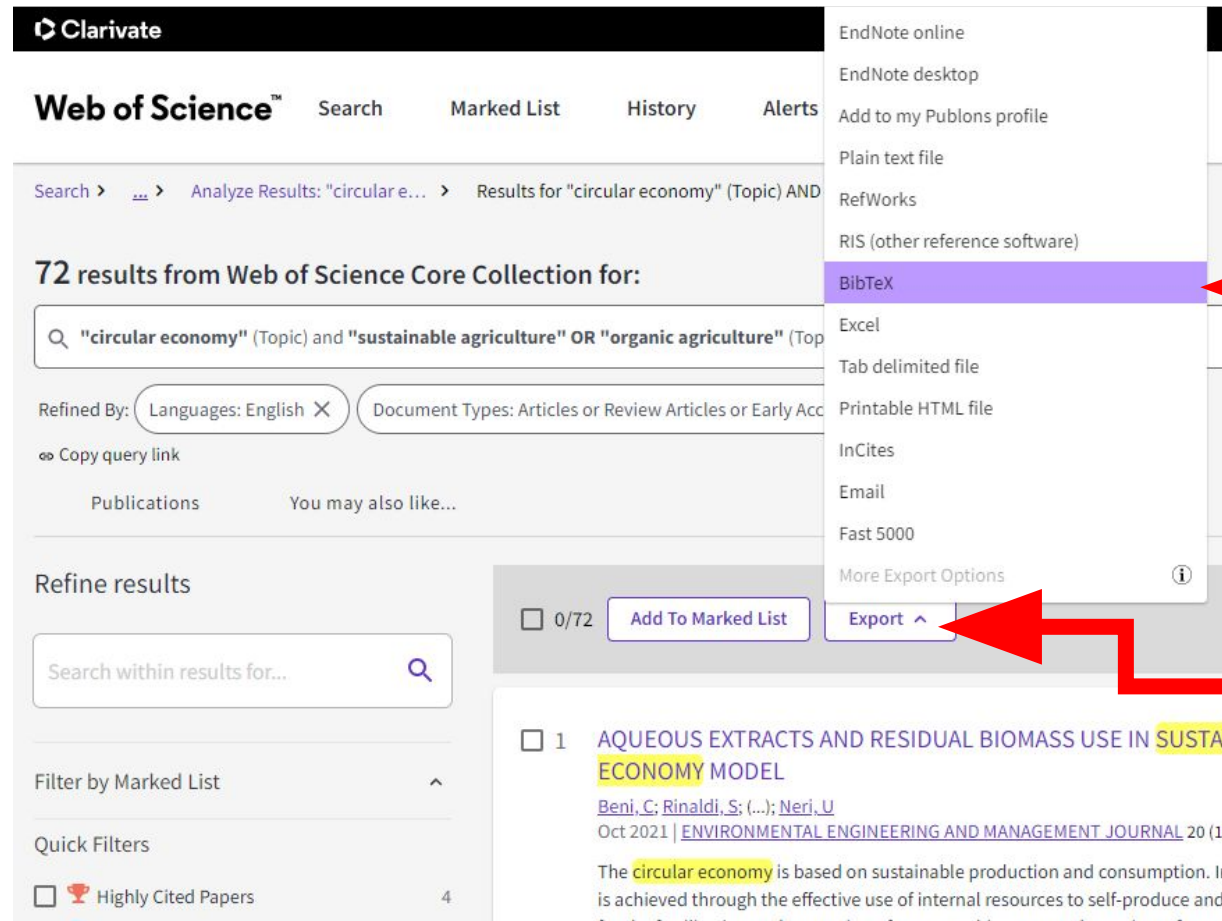
Q "circular economy" (Topic) and "sustainable agriculture" OR "organic agriculture" (Topic)

Refined By: Languages: English X Document Types: Articles or Review Articles or Early Access X Clear all

Database searches: Web of Science (WoS) and Scopus

Exporting document information

Clarivate
Web of Science™



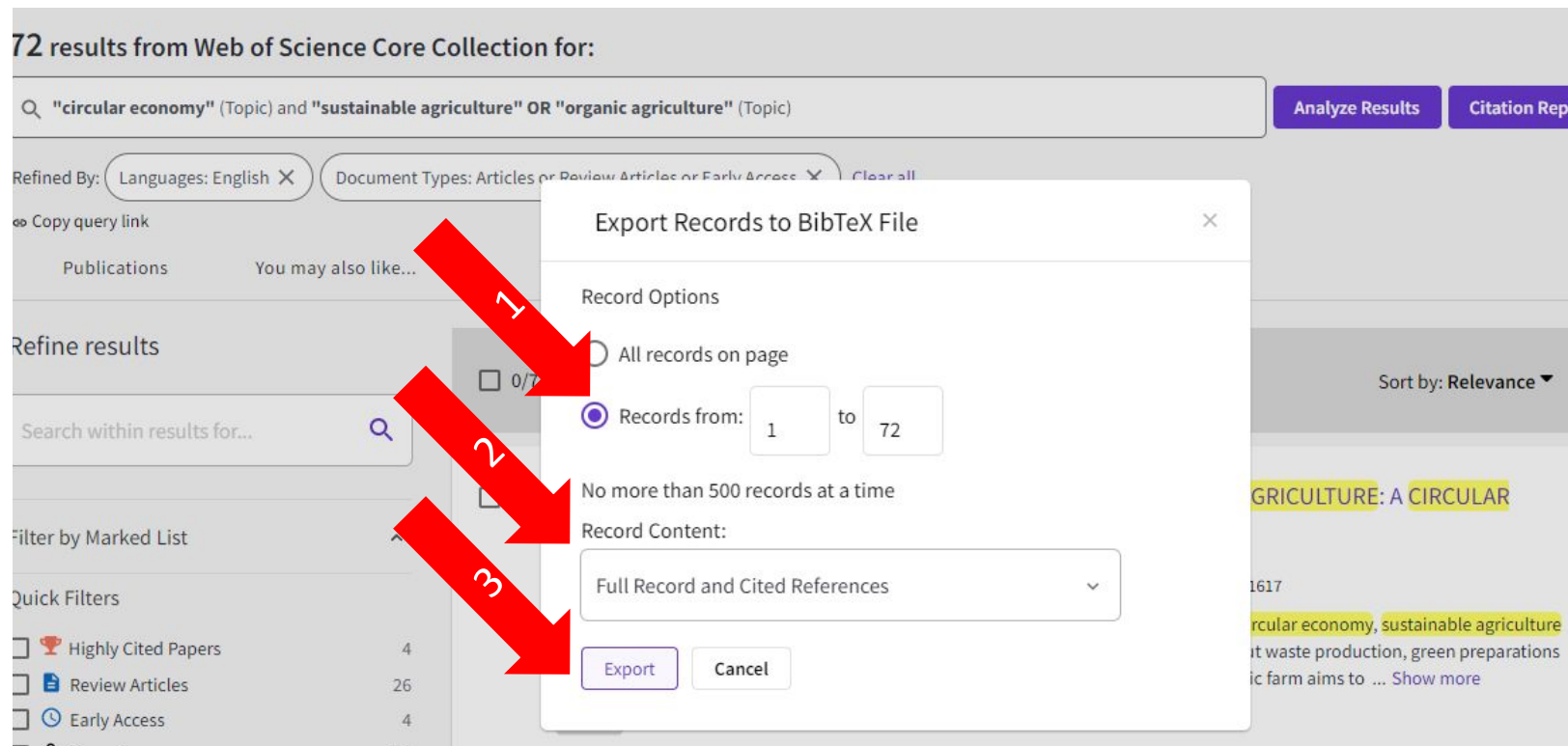
The screenshot shows the Clarivate Web of Science interface. At the top, there are navigation tabs: "Web of Science™", "Search", "Marked List", "History", and "Alerts". Below this, the search path is shown: "Search > ... > Analyze Results: 'circular e...' > Results for 'circular economy' (Topic) AND". The main content area displays "72 results from Web of Science Core Collection for:" followed by a search query: "circular economy" (Topic) and "sustainable agriculture" OR "organic agriculture" (Top). There are filters for "Refined By: Languages: English X" and "Document Types: Articles or Review Articles or Early Acc". An "Export" button is visible in the top right of the results area. A dropdown menu is open, showing various export formats: EndNote online, EndNote desktop, Add to my Publons profile, Plain text file, RefWorks, RIS (other reference software), BibTeX (highlighted in purple), Excel, Tab delimited file, Printable HTML file, InCites, Email, and Fast 5000. A red arrow points to the "Export" button, and another red arrow points to the "BibTeX" option in the dropdown menu.

Step 2: Select the type of format that the data will be exported. **To use it in the Bibliometrix package, choose the BibTeX format.**

Step 1: Click "export"

Database searches: Web of Science (WoS) and Scopus

Exporting document information



72 results from Web of Science Core Collection for:

Search: "circular economy" (Topic) and "sustainable agriculture" OR "organic agriculture" (Topic)

Refined By: Languages: English X Document Types: Articles or Review Articles or Early Access X

Export Records to BibTeX File

Record Options

- All records on page
- Records from: 1 to 72

No more than 500 records at a time

Record Content:

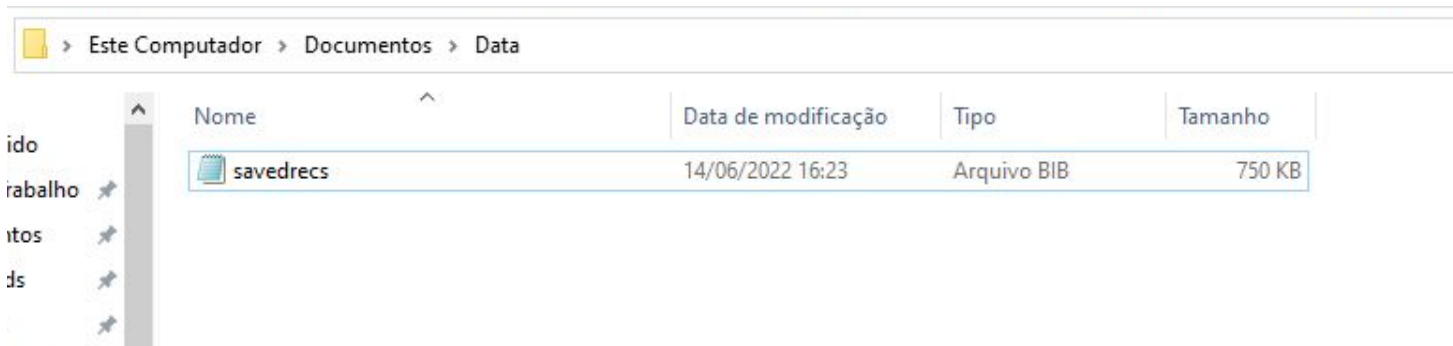
Full Record and Cited References

Export Cancel

1. Click “records from 1 to <TOTAL OF RESULTS>”
2. Select the option **Full record and cited references** under record content.
3. Then click “export”.

Database searches: Web of Science (WoS) and Scopus

Saving the file

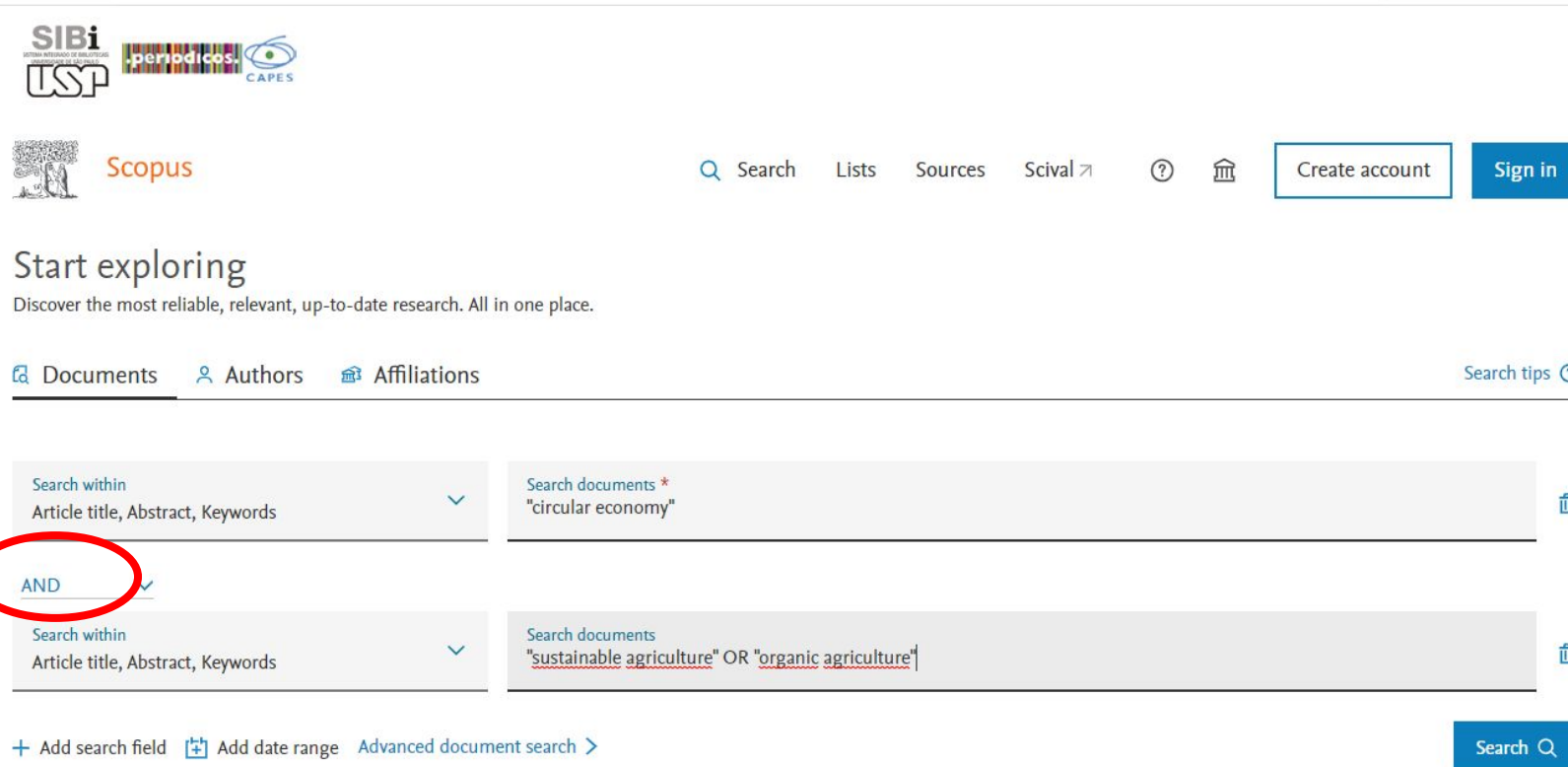


A file named 'savedrecs.bib' will be downloaded. Create a folder named 'Data' in **documents** on your computer.

This action is very important, we will need it to join the Web of Science and Scopus files using the R language.

Database searches: Web of Science (WoS) and Scopus

Searching in Scopus



The screenshot shows the Scopus search interface. At the top, there are logos for SIBi USP, periodicos, and CAPES. Below that is the Scopus logo and navigation links: Search, Lists, Sources, Scival, and icons for help and institutional access. There are buttons for 'Create account' and 'Sign in'. A section titled 'Start exploring' with the text 'Discover the most reliable, relevant, up-to-date research. All in one place.' is present. Below this are tabs for 'Documents', 'Authors', and 'Affiliations', along with a 'Search tips' link. The main search area contains two search fields. The first field is set to 'Search within: Article title, Abstract, Keywords' and contains the text '"circular economy"'. The second field is also set to 'Search within: Article title, Abstract, Keywords' and contains the text '"sustainable agriculture" OR "organic agriculture"'. Between these two fields, the Boolean operator 'AND' is selected and highlighted with a red circle. At the bottom left, there are links for '+ Add search field', '+ Add date range', and 'Advanced document search >'. At the bottom right, there is a blue 'Search' button with a magnifying glass icon.

FIRST STEP: include the search keywords;
SECOND STEP: select the field where the keywords should be used. Select **article title, abstract and keywords**.

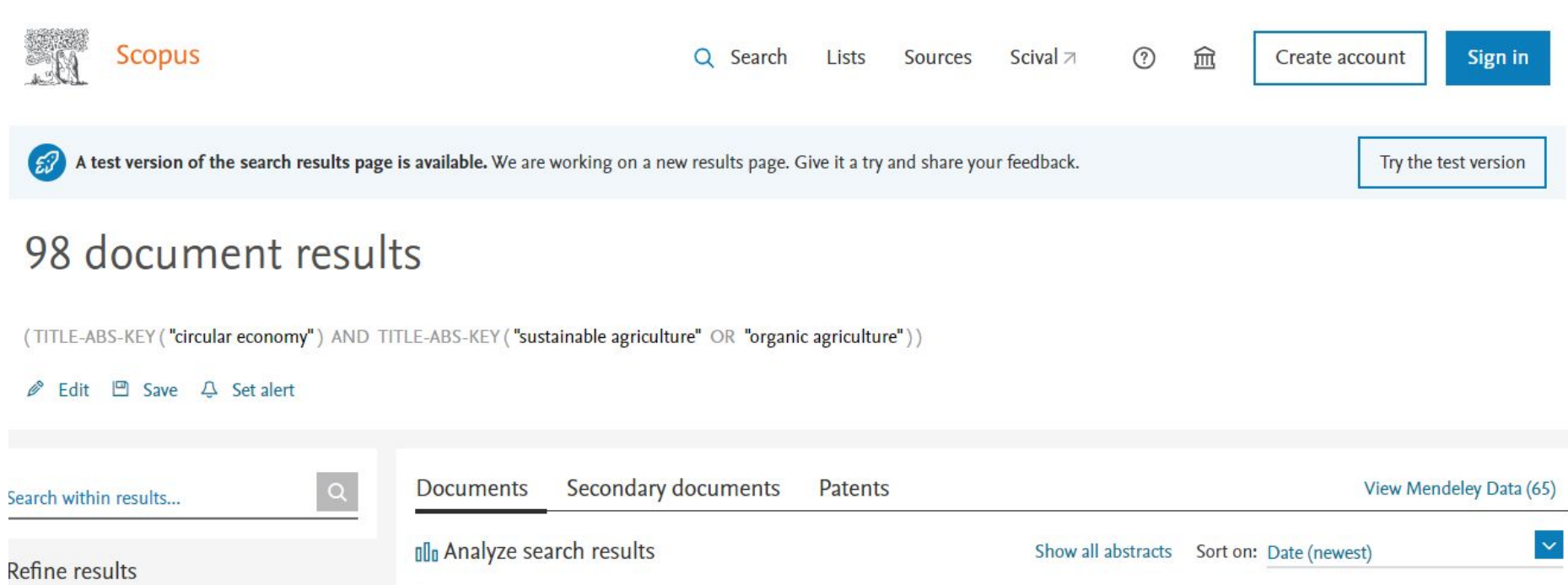


After correctly inserting the keywords and Boolean operators, click "search".

Database searches: Web of Science (WoS) and Scopus

Searching in Scopus

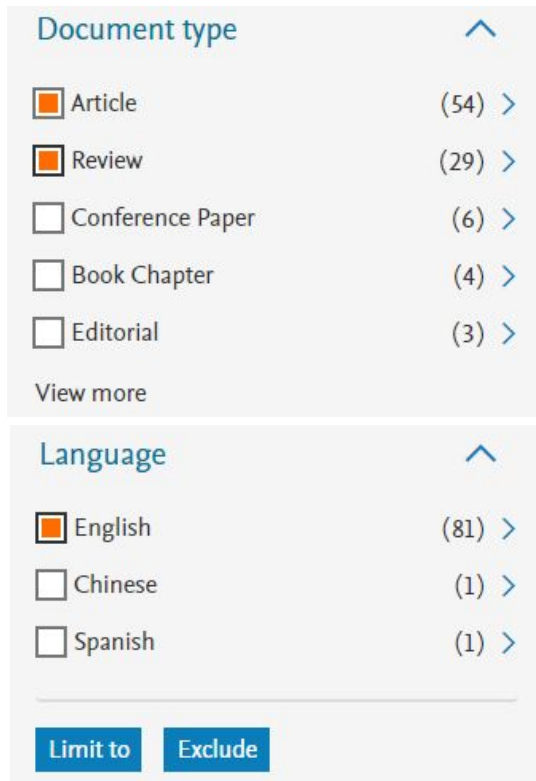
The initial search returned 98 documents



The screenshot shows the Scopus search results page. At the top, there is a navigation bar with the Scopus logo, a search icon, and links for Search, Lists, Sources, Scival, a help icon, a library icon, and buttons for 'Create account' and 'Sign in'. Below the navigation bar, a message states: 'A test version of the search results page is available. We are working on a new results page. Give it a try and share your feedback.' with a 'Try the test version' button. The main content area displays '98 document results' and the search query: '(TITLE-ABS-KEY ("circular economy") AND TITLE-ABS-KEY ("sustainable agriculture" OR "organic agriculture"))'. Below the query, there are icons for 'Edit', 'Save', and 'Set alert'. A search bar on the left allows for 'Search within results...'. The results are displayed in a table with columns for 'Documents', 'Secondary documents', and 'Patents'. There is a 'View Mendeley Data (65)' link. At the bottom, there is an 'Analyze search results' button, a 'Show all abstracts' button, and a 'Sort on: Date (newest)' dropdown menu.

Database searches: Web of Science (WoS) and Scopus

Applying search filters



The screenshot shows the Scopus search interface with two filter sections: 'Document type' and 'Language'. In the 'Document type' section, 'Article' is selected with 54 results, 'Review' is selected with 29 results, and 'Conference Paper', 'Book Chapter', and 'Editorial' are unselected with 6, 4, and 3 results respectively. In the 'Language' section, 'English' is selected with 81 results, 'Chinese' is unselected with 1 result, and 'Spanish' is unselected with 1 result. At the bottom of the filter section are two buttons: 'Limit to' and 'Exclude'.

FIRST STEP: select **document type** and **language**.

SECOND STEP: select **articles**, **reviews**, which are peer-reviewed. Select English or your preferred language according to the scope of your search.

THIRD STEP: select **limit to**.

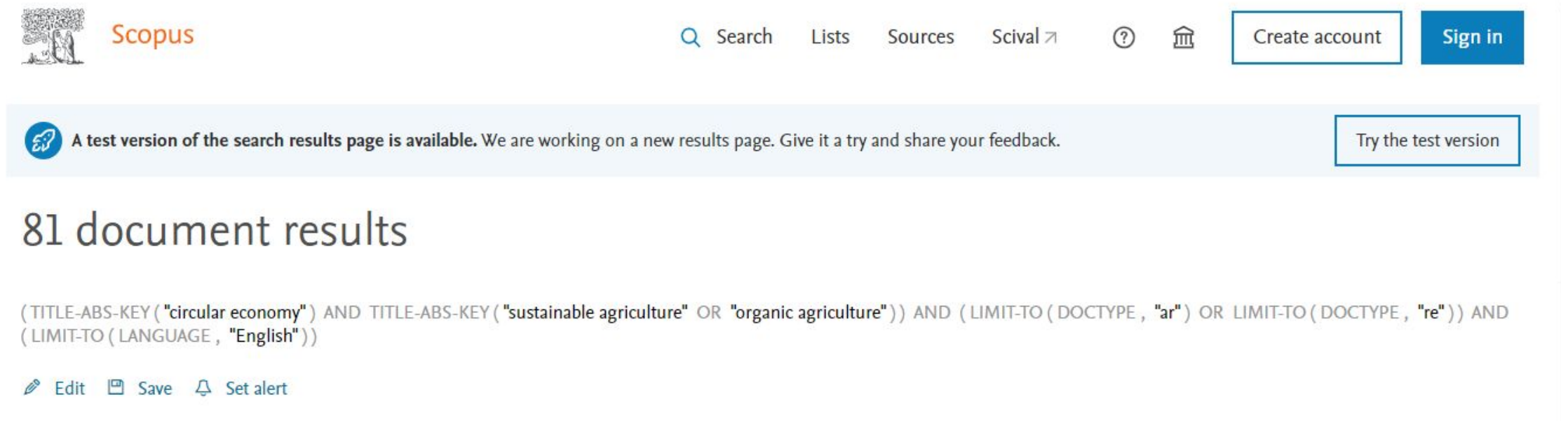
Note: The Scopus features several filters that can be explored. All filtering must be methodologically justified within a bibliometric work.

Database searches: Web of Science (WoS) and Scopus

Applying search filters

Once the filters are applied, the final result must be exported for analysis by the researcher.

The Figure below shows the final information after the Scopus filters, where all keywords used and filters applied are shown.



The screenshot shows the Scopus search results page. At the top left is the Scopus logo. To the right are navigation links: Search, Lists, Sources, Scival, a help icon, and a library icon. Further right are buttons for 'Create account' and 'Sign in'. Below the navigation is a light blue banner with a message: 'A test version of the search results page is available. We are working on a new results page. Give it a try and share your feedback.' and a 'Try the test version' button. The main content area displays '81 document results' and the search query: '(TITLE-ABS-KEY ("circular economy") AND TITLE-ABS-KEY ("sustainable agriculture" OR "organic agriculture")) AND (LIMIT-TO (DOCTYPE, "ar") OR LIMIT-TO (DOCTYPE, "re")) AND (LIMIT-TO (LANGUAGE, "English"))'. At the bottom of the query area are icons for 'Edit', 'Save', and 'Set alert'.

Database searches: Web of Science (WoS) and Scopus

Export document information



The screenshot shows the Scopus search results interface. At the top, there are tabs for 'Documents', 'Secondary documents', and 'Patents'. Below these, there are options to 'Analyze search results', 'Show all abstracts', and 'Sort on: Date (newest)'. A red arrow labeled '1' points to the 'All' dropdown menu in the toolbar. Another red arrow labeled '2' points to the 'Export' button in the same toolbar. Below the toolbar is a table of search results.

Document title	Authors	Year	Source	Cite
Conversion of waste into organo-mineral fertilizers: current technological trends and prospects <i>Open Access</i>	Bouhia, Y., Hafidi, M., Ouhdouch, Y., (...), Zeroual, Y., Lyamlouli, K.	2022	Reviews in Environmental Science and Biotechnology 21(2), pp. 425-446	

1. **First step:** Click “all”
2. **Second step:** Click “export”

Database searches: Web of Science (WoS) and Scopus

Export document information

Select your method of export

MENDELEY
 ExLibris RefWorks
 SciVal
 RIS Format
EndNote, Reference Manager
 CSV
Excel
 BibTeX
 Plain Text
ASCII in HTML

What information do you want to export?

<input checked="" type="checkbox"/> Citation information	<input checked="" type="checkbox"/> Bibliographical information	<input checked="" type="checkbox"/> Abstract & keywords	<input checked="" type="checkbox"/> Funding details	<input checked="" type="checkbox"/> Other information
<input checked="" type="checkbox"/> Author(s) <input checked="" type="checkbox"/> Author(s) ID <input checked="" type="checkbox"/> Document title <input checked="" type="checkbox"/> Year <input checked="" type="checkbox"/> EID <input checked="" type="checkbox"/> Source title <input checked="" type="checkbox"/> volume, issue, pages <input checked="" type="checkbox"/> Citation count <input checked="" type="checkbox"/> Source & document type <input checked="" type="checkbox"/> Publication Stage <input checked="" type="checkbox"/> DOI <input checked="" type="checkbox"/> Open Access	<input checked="" type="checkbox"/> Affiliations <input checked="" type="checkbox"/> Serial identifiers (e.g. ISSN) <input checked="" type="checkbox"/> PubMed ID <input checked="" type="checkbox"/> Publisher <input checked="" type="checkbox"/> Editor(s) <input checked="" type="checkbox"/> Language of original document <input checked="" type="checkbox"/> Correspondence address <input checked="" type="checkbox"/> Abbreviated source title	<input checked="" type="checkbox"/> Abstract <input checked="" type="checkbox"/> Author keywords <input checked="" type="checkbox"/> Index keywords	<input checked="" type="checkbox"/> Number <input checked="" type="checkbox"/> Acronym <input checked="" type="checkbox"/> Sponsor <input checked="" type="checkbox"/> Funding text	<input checked="" type="checkbox"/> Tradenames & manufacturers <input checked="" type="checkbox"/> Accession numbers & chemicals <input checked="" type="checkbox"/> Conference information <input checked="" type="checkbox"/> Include references



Cancel

3. **Third step:** Select BibTeX format.
4. **Fourth step:** Check all fields of information to export
5. **Fifth step:** Click “export”

Database searches: Web of Science (WoS) and Scopus

Saving the file

Computador > Documentos > Data

Nome	Data de modificação	Tipo	Tamanho
 savedreccs	14/06/2022 16:23	Arquivo BIB	750 B
 scopus	14/06/2022 17:35	Arquivo BIB	1.692 B

A file named 'scopus.bib' will be downloaded. Save the file in the 'Data' folder created in documents on your computer.

This action is very important, we will need it to join the Web of Science and Scopus files using the R language.

Merging of Scopus and WoS database files using R language

Merging of Scopus and WoS database files using R language

Bibliometrix is a full package for Science Mapping Workflow. Bibliometrix gives all the tools to execute a complete bibliometric analysis, following the Science Mapping Workflow. It was created and developed by Massimo Aria and Corrado Cuccurullo. **Biblioshiny** is a Shiny app providing a web-interface for bibliometrix.

Shiny is an R package that makes it easy to build interactive web apps straight from R.

Merging of Scopus and WoS database files using R language

Besides the bibliometrix package you can use other software for bibliometrics, for example the VOSviewer software. It is important to note that each software has different ways to perform bibliometrics. And sometimes it is not possible to integrate information between these software.

To better understand the Bibliometrix package, it is essential that you read the program manual, and other documents available at <https://www.bibliometrix.org/>

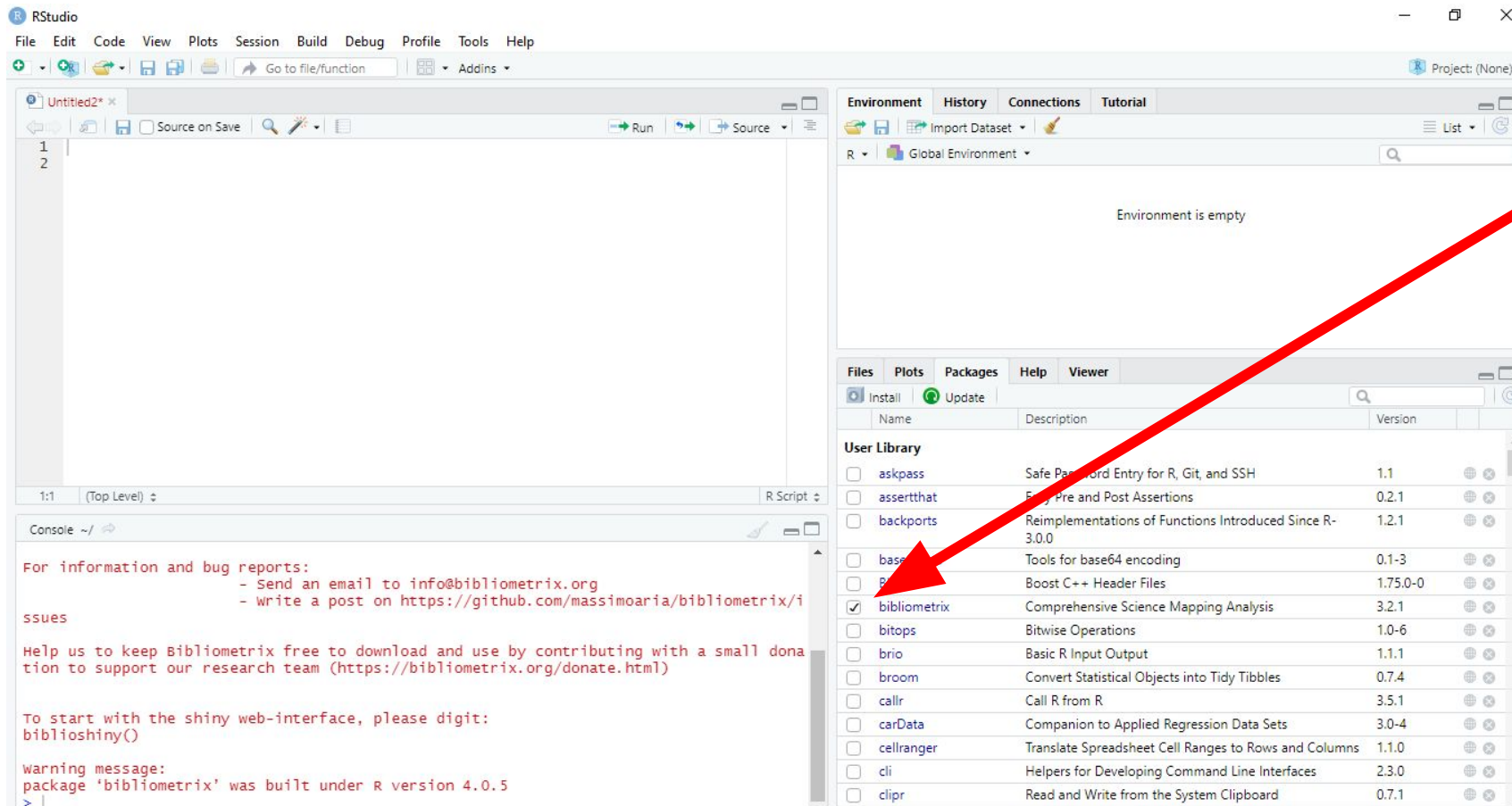
Merging of Scopus and WoS database files using R language

- To merge the files downloaded from the databases, you must open the RStudio program.
- After opening the program you must copy and paste a [script written in R language](#) that will join the two files, eliminating the duplicates. After executing the script a file named '[Database.xlsx](#)' will be generated in the "Data" folder in your computer's documents.
- You will use this "[Database.xlsx](#)" file in the Biblioshiny application from the Bibliometrix package.

Merging of Scopus and WoS database files using R language

Merging the files

First step: Open the Rstudio software

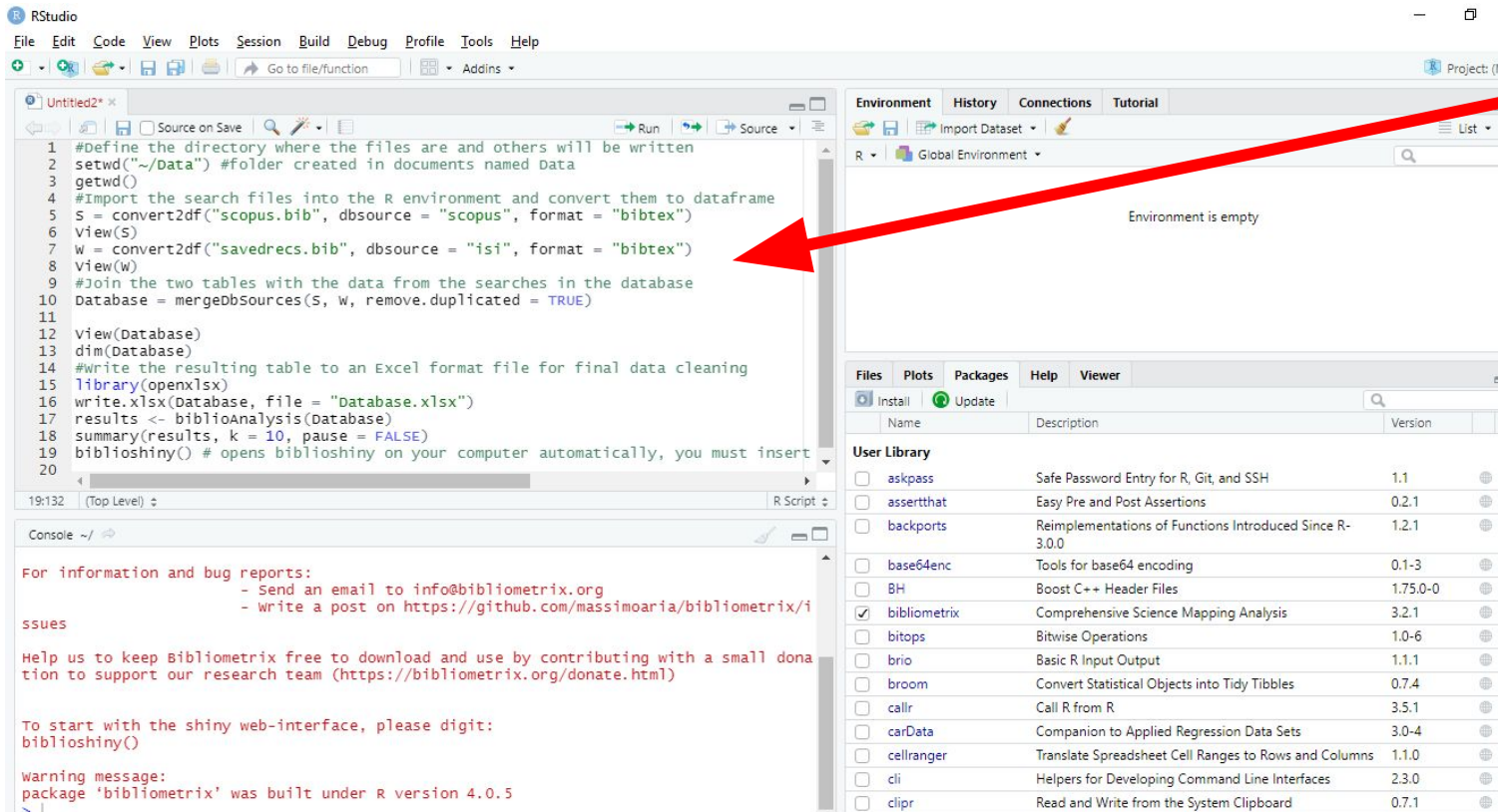


Step Two: Click
 “bibliometrix”
 under User Library

Note: **Instructions on how to download RStudio and load the Bibliometrix package have been made available in another file.**

Merging of Scopus and WoS database files using R language

Merging the files



```

1 #Define the directory where the files are and others will be written
2 setwd("~/Data") #folder created in documents named Data
3 getwd()
4 #Import the search files into the R environment and convert them to dataframe
5 S = convert2df("scopus.bib", dbsource = "scopus", format = "bibtex")
6 View(S)
7 W = convert2df("savedrecs.bib", dbsource = "isi", format = "bibtex")
8 View(W)
9 #Join the two tables with the data from the searches in the database
10 Database = mergeObsources(S, W, remove.duplicated = TRUE)
11
12 View(Database)
13 dim(Database)
14 #write the resulting table to an Excel format file for final data cleaning
15 library(openxlsx)
16 write.xlsx(Database, file = "Database.xlsx")
17 results <- biblioAnalysis(Database)
18 summary(results, k = 10, pause = FALSE)
19 biblioshiny() # opens biblioshiny on your computer automatically, you must insert
20
  
```

Third step: Copy and paste the "R_script_2022" to the RStudio editor.

Merging of Scopus and WoS database files using R language

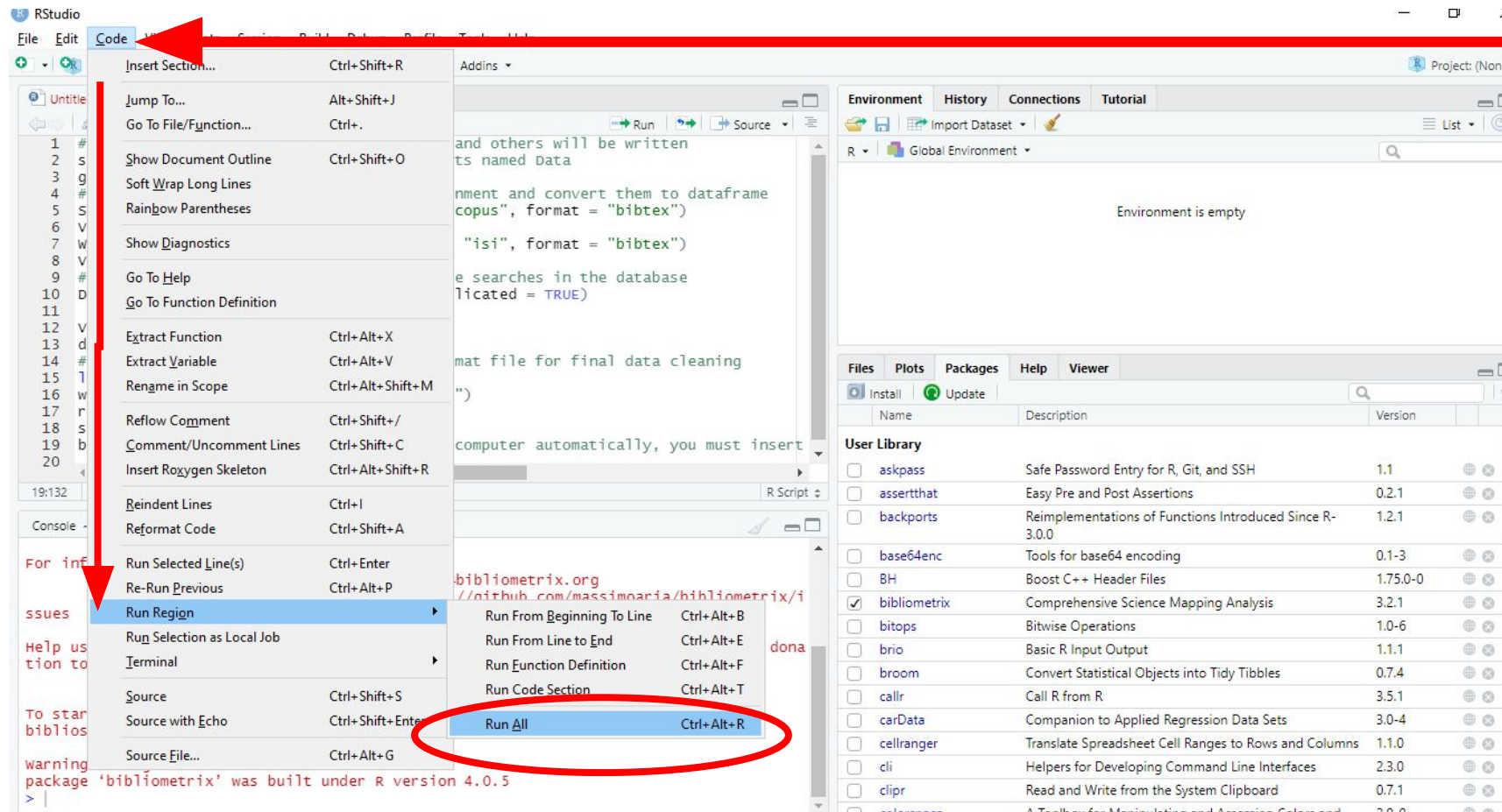
Merging the files

```
library(bibliometrix) #Load the Bibliometrix app for the R environment
#Define the directory where the files are and others will be written
setwd("~/Data") #folder created in documents named Data
getwd()
#Import the search files into the R environment and convert them to dataframe
S = convert2df("scopus.bib", dbsource = "scopus", format = "bibtex")
View(S)
W = convert2df("savedrecs.bib", dbsource = "isi", format = "bibtex")
View(W)
#Join the two tables with the data from the searches in the database
Database = mergeDbSources(S, W, remove.duplicated = TRUE)
View(Database)
dim(Database)
#Write the resulting table to an Excel format file for final data cleaning
library(openxlsx)
write.xlsx(Database, file = "Database.xlsx")
results <- biblioAnalysis(Database)
summary(results, k = 10, pause = FALSE)
biblioshiny() # opens biblioshiny on your computer automatically, you must insert the file "Database.xlsx" to perform the analysis.
```

Script in R to merge
bibliometric files

Merging of Scopus and WoS database files using R language

Merging the files

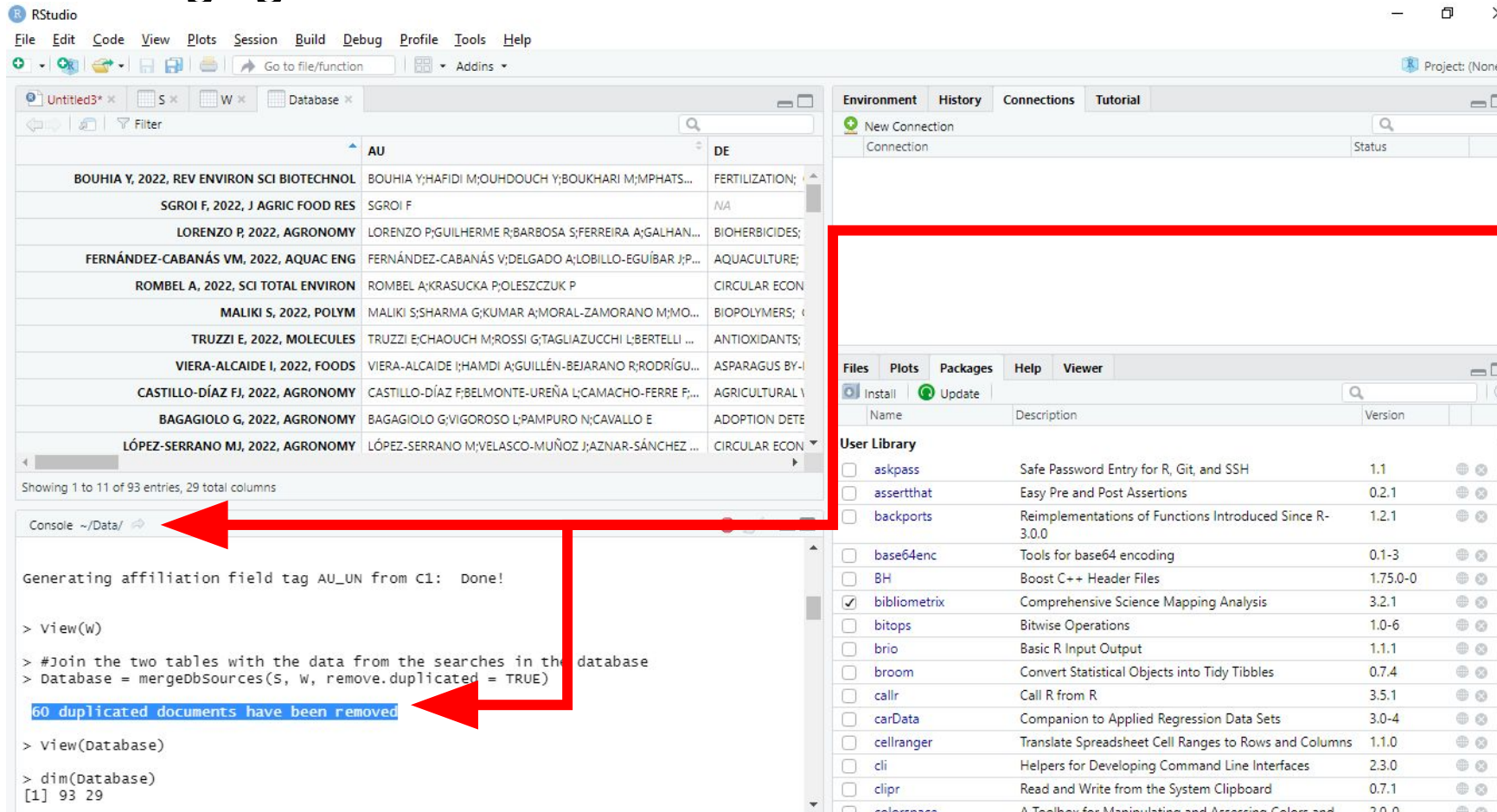


Fourth step: Click Code>Run Region>Run All. This action will execute the script.

Another option is to select all lines of code and then click Run.

Merging of Scopus and WoS database files using R language

Merging the files



The screenshot shows the RStudio interface. The top-left pane displays a table with columns 'AU' and 'DE'. The bottom-left pane shows the R console with the following output:

```

Generating affiliation field tag AU_UN from C1: Done!

> view(w)

> #Join the two tables with the data from the searches in the database
> Database = mergeDbSources(S, W, remove.duplicated = TRUE)
60 duplicated documents have been removed

> view(Database)

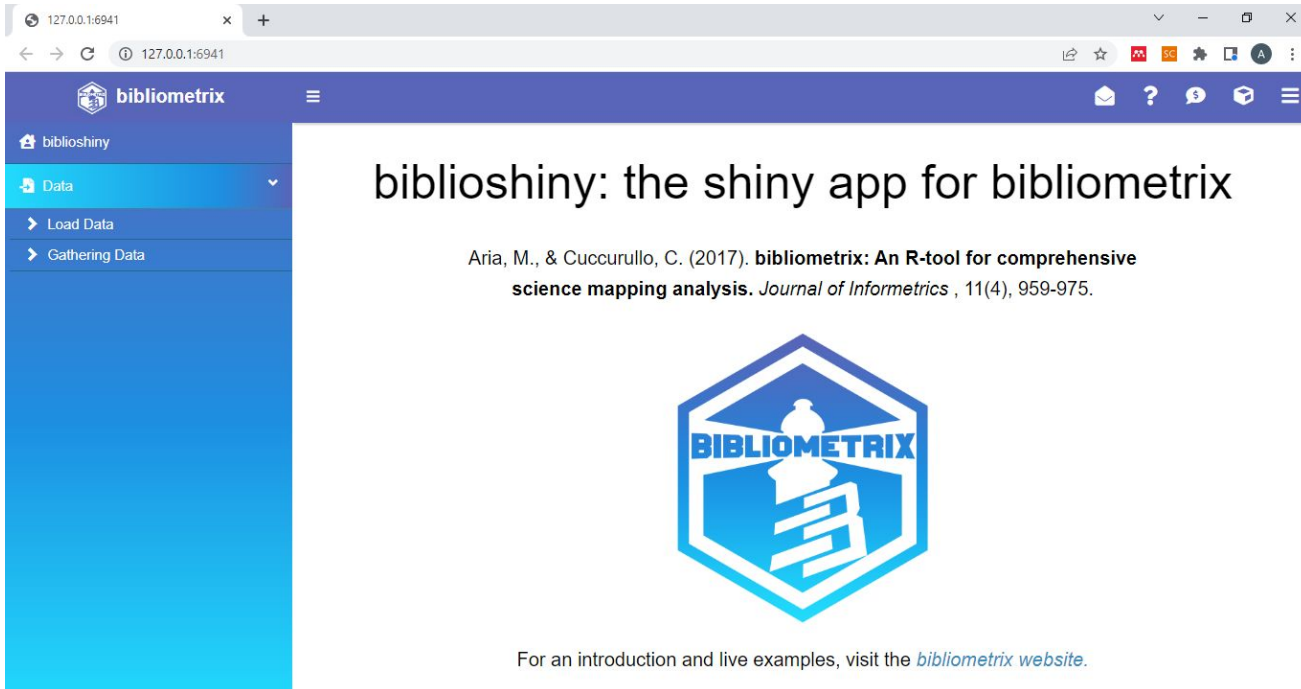
> dim(Database)
[1] 93 29
  
```

Red arrows point from the console output to the corresponding parts of the RStudio interface: one arrow points to the 'Console' tab, and another points to the 'Environment' pane where the 'Database' object is visible.

After executing the script, various information is available in the RStudio console, including the amount of duplicate documents that were eliminated after the files were joined.

Merging of Scopus and WoS database files using R language

Merging the files

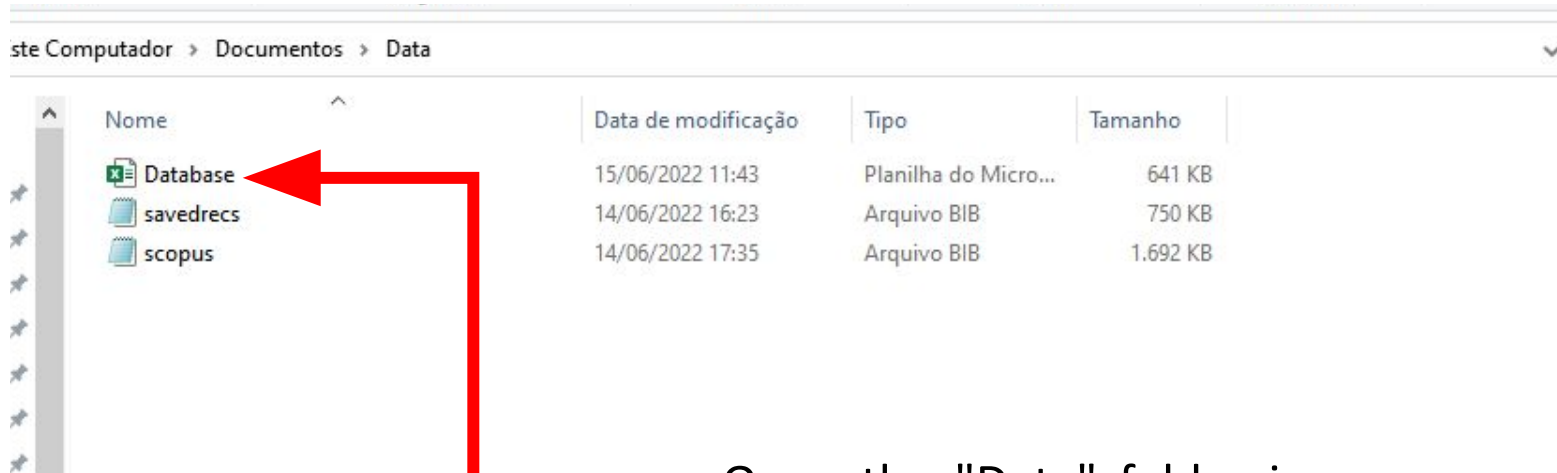


After executing the script in Rstudio, a web page opens for you to load the file “Database.xlsx” in biblioshiny;

Note: It is not necessary to run 'R_script_2022' every time you want to open biblioshiny.

Merging of Scopus and WoS database files using R language

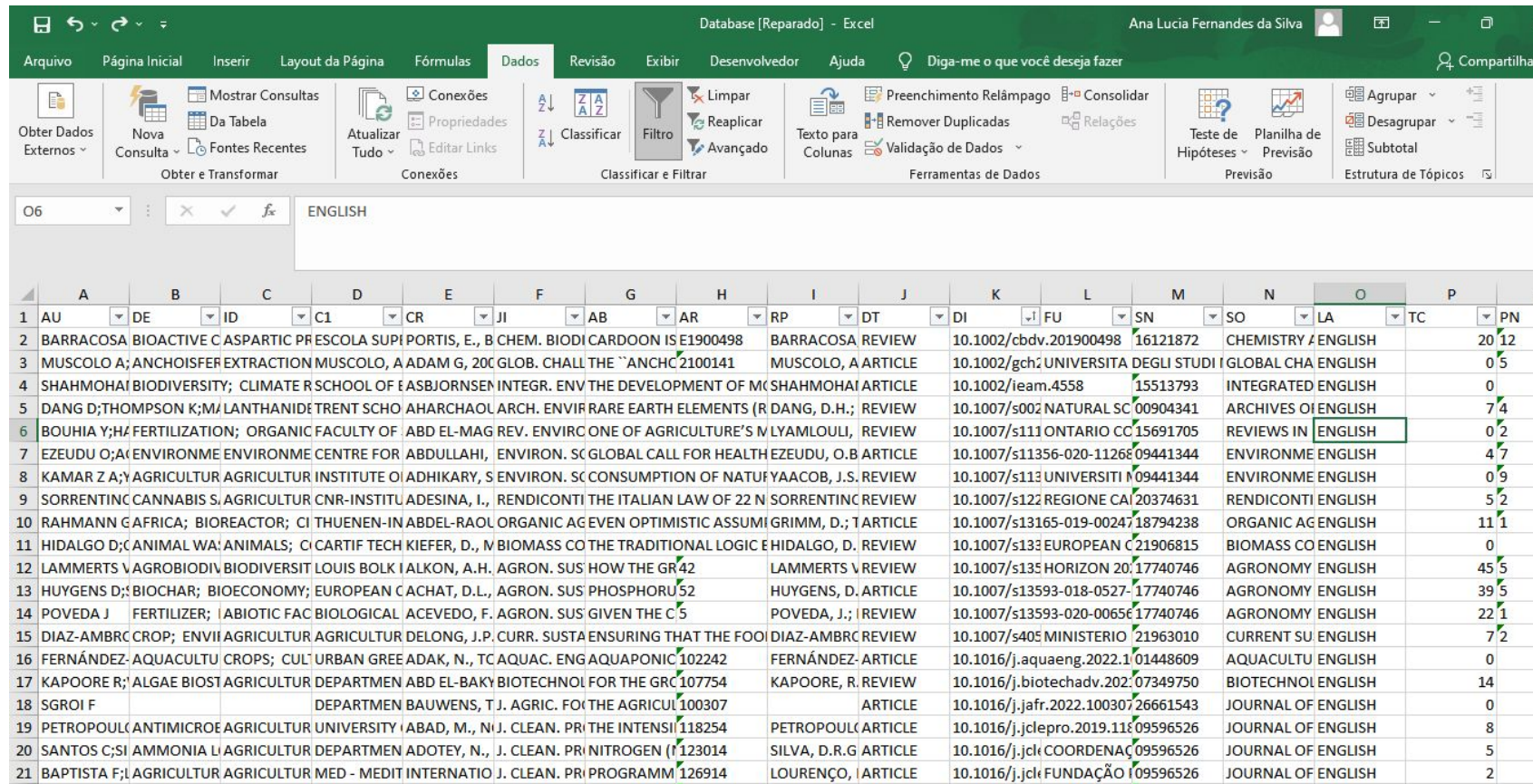
Merging the files



Open the "Data" folder in your computer's documents. A file named "Database.xlsx" contains all the information to perform the bibliometric analysis via the Bibliometrix package.

Merging of Scopus and WoS database files using R language

“Database.xlsx”



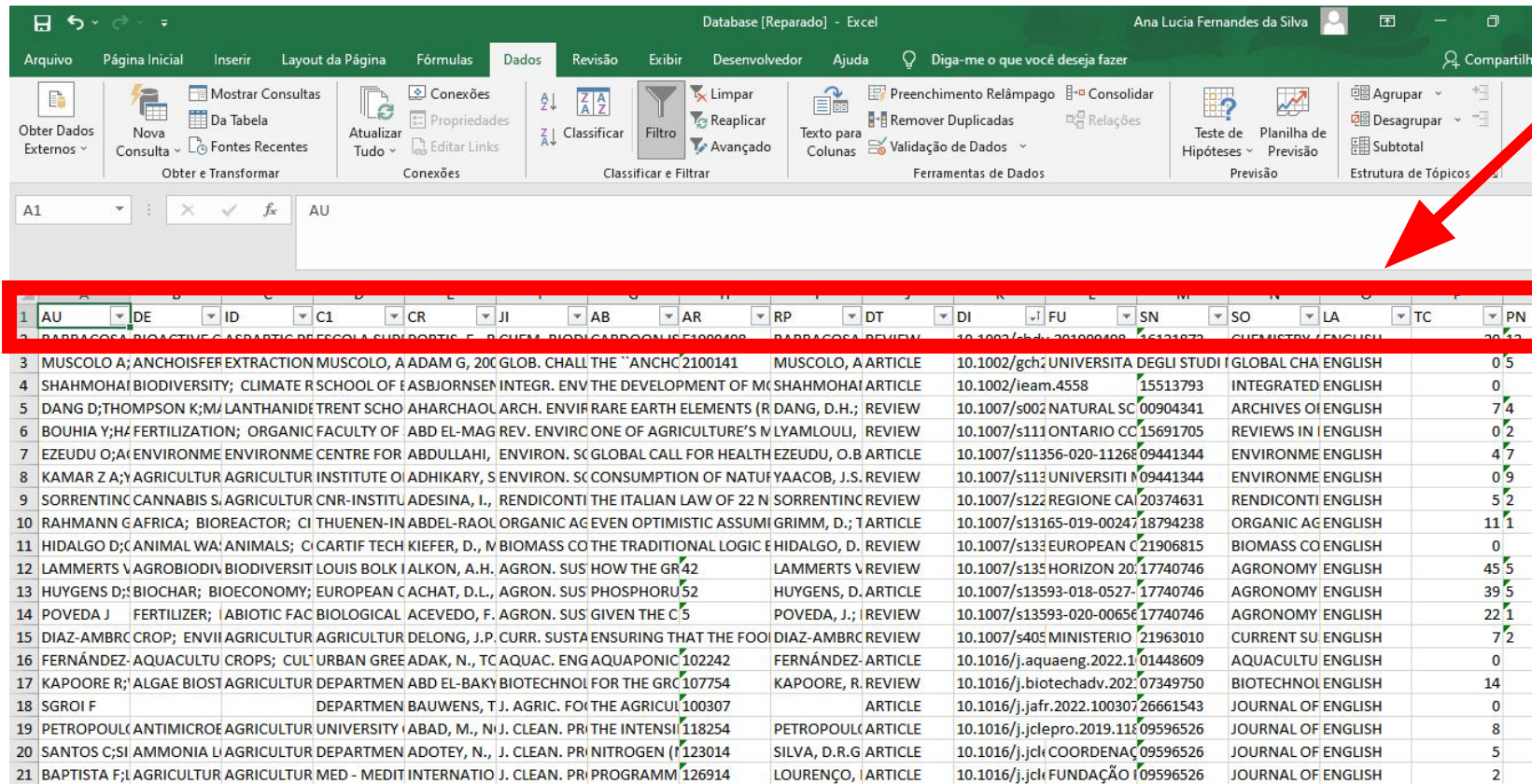
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1	AU	DE	ID	C1	CR	J1	AB	AR	RP	DT	DI	I1	FU	SN	SO	LA	TC	PN
2	BARRACOSA	BIOACTIVE C	ASPARTIC PR	ESCOLA SUP	PORTIS, E., B	CHEM. BIODI	CARDOON IS	E1900498	BARRACOSA	REVIEW	10.1002/cb	dv.201900498	16121872	CHEMISTRY	ENGLISH	20	12	
3	MUSCOLO A;	ANCHOISFER	EXTRACTION	MUSCOLO, A	ADAM G, 20	GLOB. CHALL	THE "ANCHC	2100141	MUSCOLO, A	ARTICLE	10.1002/gch	2 UNIVERSITA	DEGLI STUDI	GLOBAL CHA	ENGLISH	0	5	
4	SHAHMOHAJ	BIODIVERSITY;	CLIMATE R	SCHOOL OF	EASBJORNSEN	INTEGR. ENV	THE DEVELOPMENT	OF M	SHAHMOHAJ	ARTICLE	10.1002/ieam	.4558	15513793	INTEGRATED	ENGLISH	0		
5	DANG D;THOMPSON	K;M	LANTHANID	TRENT SCHO	AHARCHAOL	ARCH. ENVI	RARE EARTH	ELEMENTS	(R DANG, D.H.)	REVIEW	10.1007/s002	NATURAL SC	00904341	ARCHIVES OF	ENGLISH	7	4	
6	BOUHIA Y;H	FERTILIZATION;	ORGANIC FAC	ULTY OF	ABD EL-MAG	REV. ENVI	RONE OF	AGRICULTURE'S	M LYAMLOULI, REVIEW	10.1007/s111	3 ONTARIO CC	15691705	REVIEWS IN	ENGLISH	0	2		
7	EZEUDU O;A	ENVIRONME	ENVIRONME	CENTRE FOR	ABDULLAHI,	ENVIRON. SC	GLOBAL CALL	FOR HEALTH	EZEUDU, O.B	ARTICLE	10.1007/s113	56-020-1126	09441344	ENVIRONME	ENGLISH	4	7	
8	KAMAR Z A;	AGRICULTUR	AGRICULTUR	INSTITUTE O	ADHIKARY, S	ENVIRON. SC	CONSUMPTION	OF NATUF	YAACOB, J.S.	REVIEW	10.1007/s111	3 UNIVERSITI	09441344	ENVIRONME	ENGLISH	0	9	
9	SORRENTINC	CANNABIS S.	AGRICULTUR	CNR-INSTITU	ADESINA, I.,	RENDICONTI	THE ITALIAN	LAW OF 22	N SORRENTINC	REVIEW	10.1007/s122	REGIONE CA	20374631	RENDICONTI	ENGLISH	5	2	
10	RAHMANN G	AFRICA; BI	OREACTOR; C	I THUENEN-IN	ABDEL-RAOL	ORGANIC AGE	VEN OPTIMIS	TIC ASSUMI	GRIMM, D.; T	ARTICLE	10.1007/s131	65-019-0024	718794238	ORGANIC AG	ENGLISH	11	1	
11	HIDALGO D;	C ANIMAL WA	ANIMALS; C	I CARTIF TECH	KIEFER, D.,	M BIOMASS CO	THE TRADITIONAL	LOGIC E	HIDALGO, D.	REVIEW	10.1007/s131	3 EUROPEAN	C21906815	BIOMASS CO	ENGLISH	0		
12	LAMMERTS V	AGROBIODIV	BIODIVERSIT	LOUIS BOLK	I ALKON, A.H.	AGRON. SUS	HOW THE GR	42	LAMMERTS V	REVIEW	10.1007/s131	5 HORIZON 20	.17740746	AGRONOMY	ENGLISH	45	5	
13	HUYGENS D;	BIOCHAR; B	IOECONOMY;	EUROPEAN C	CHAT, D.L.,	AGRON. SUS	PHOSPHORU	52	HUYGENS, D.	ARTICLE	10.1007/s13	593-018-0527	.17740746	AGRONOMY	ENGLISH	39	5	
14	POVEDA J	FERTILIZER;	ABIOTIC FAC	BIOLOGICAL	ACEVEDO, F.	AGRON. SUS	GIVEN THE C	5	POVEDA, J.;	REVIEW	10.1007/s13	593-020-0065	17740746	AGRONOMY	ENGLISH	22	1	
15	DIAZ-AMBR	C CROP; EN	VII AGRICULTUR	AGRICULTUR	DELONG, J.P.	CURR. SUSTA	ENSURING	THAT THE	FOOD	DIAZ-AMBR	C REVIEW	10.1007/s40	5 MINISTERIO	21963010	CURRENT SU	ENGLISH	7	2
16	FERNÁNDEZ-	AQUACULTU	CROPS; CUL	URBAN GREE	ADAK, N.,	TC AQUAC. ENG	AQUAPONIC	102242	FERNÁNDEZ-	ARTICLE	10.1016/j.aqu	aeng.2022.1	01448609	AQUACULTU	ENGLISH	0		
17	KAPOORE R;	ALGAE BIOST	AGRICULTUR	DEPARTMEN	ABD EL-BAKY	BIOTECHNO	FOR THE GR	107754	KAPOORE, R.	REVIEW	10.1016/j.bi	otechadv.202	.07349750	BIOTECHNO	ENGLISH	14		
18	SGROI F			DEPARTMEN	BAUWENS, T.J.	AGRIC. FO	THE AGRICUL	100307		ARTICLE	10.1016/j.ja	fr.2022.100307	26661543	JOURNAL OF	ENGLISH	0		
19	PETROPOUL	(ANTIMICRO	AGRICULTUR	UNIVERSITY	(ABAD, M.,	N) J. CLEAN. PR	THE INTENS	118254	PETROPOUL	(ARTICLE	10.1016/j.jc	lepro.2019.11	09596526	JOURNAL OF	ENGLISH	8		
20	SANTOS C;S	I AMMONIA	L AGRICULTUR	DEPARTMEN	ADOTEY, N.,	J. CLEAN. PR	NITROGEN	(123014	SILVA, D.R.G	ARTICLE	10.1016/j.jc	l COORDENA	09596526	JOURNAL OF	ENGLISH	5		
21	BAPTISTA F;	L AGRICULTUR	AGRICULTUR	MED - MEDIT	INTERNATIO	J. CLEAN. PR	PROGRAMM	126914	LOURENÇO,	ARTICLE	10.1016/j.jc	l FUNDAÇÃO	09596526	JOURNAL OF	ENGLISH	2		

The file contains information about authors, year of publication, number of citations, article title and other information.

Merging of Scopus and WoS database files using R language

“Database.xlsx”

Field tags



1	AU	DE	ID	C1	CR	J1	AB	AR	RP	DT	DI	FU	SN	SO	LA	TC	PN
2	PARRACOSA; BIOACTIVE L-ASPARTIC ACID FROM SUBSTITUTED PARRACOSA; REVIEW										10.1007/s11111-000-0000-0		15513793	CHEMISTRY (ENGLISH)		20	12
3	MUSCOLO A; ANCHOISFER EXTRACTION	MUSCOLO, A	ADAM G	2006	GLOBAL CHALLENGE					ARTICLE	10.1002/gch.2	UNIVERSITA DEGLI STUDI		GLOBAL CHALLENGE	ENGLISH	0	5
4	SHAHMOHAJ; BIODIVERSITY; CLIMATE RESILIENCE	SHAHMOHAJ			ENVIRONMENTAL INTEGRATION					ARTICLE	10.1002/ieam.4558		15513793	INTEGRATED ENGLISH		0	
5	DANG D; THOMPSON K; MANTHANIDIS				ARCHIVES OF ENVIRONMENTAL SCIENCE					REVIEW	10.1007/s002	NATURAL SCIENCE	0904341	ARCHIVES OF ENGLISH		7	4
6	BOUHIA Y; HAZEL FERTILIZATION; ORGANIC				AGRICULTURE'S SUSTAINABILITY					REVIEW	10.1007/s11111-000-0000-0	ONTARIO COLLEGE	15691705	REVIEWS IN ENGLISH		0	2
7	EZEUDU O; AFRICAN ENVIRONMENTAL	ABDULLAHI			ENVIRONMENTAL SCIENCE					ARTICLE	10.1007/s11356-020-11268-0		09441344	ENVIRONMENTAL ENGLISH		4	7
8	KAMAR Z A; AGRICULTURE	ADHIKARY, S			ENVIRONMENTAL SCIENCE					REVIEW	10.1007/s11111-000-0000-0	UNIVERSITA	09441344	ENVIRONMENTAL ENGLISH		0	9
9	SORRENTINO; CANNABIS SATIVA	ADESINA, I.			RENDICONTI DELLA ACCADEMIA DEI LINGUISTI					REVIEW	10.1007/s122	REGIONE CALABRIA	20374631	RENDICONTI ENGLISH		5	2
10	RAHMANN G AFRICA; BIOREACTOR; CIRCULAR	THUENEN-IN	ABDEL-RAOUF		ORGANIC AGRICULTURE					ARTICLE	10.1007/s13165-019-00247-1		18794238	ORGANIC AGRICULTURE ENGLISH		11	1
11	HIDALGO D; CIRCULAR ECONOMY; ANIMAL	CARTIER	TECHNICAL		BIOMASS CO-PRODUCTION					REVIEW	10.1007/s133	EUROPEAN COMMISSION	21906815	BIOMASS CO-PRODUCTION ENGLISH		0	
12	LAMMERTS V; AGROBIOLOGICAL	LOUIS BOLK			AGRONOMY					REVIEW	10.1007/s135	HORIZON	2017740746	AGRONOMY ENGLISH		45	5
13	HUYGENS D; BIOCHAR; BIOECONOMY; EUROPEAN	CACHAT, D.L.			AGRONOMY					ARTICLE	10.1007/s13593-018-0527-1		17740746	AGRONOMY ENGLISH		39	5
14	POVEDA J; FERTILIZER; ABIOLOGICAL	ACEVEDO, F.			AGRONOMY					REVIEW	10.1007/s13593-020-00656-1		17740746	AGRONOMY ENGLISH		22	1
15	DIAZ-AMBROSIO; CROP; ENVIRONMENTAL	DELONG, J.P.			CURRENT SUSTAINABILITY					REVIEW	10.1007/s405	MINISTERIO	21963010	CURRENT SUSTAINABILITY ENGLISH		7	2
16	FERNÁNDEZ; AQUACULTURE CROPS; CIRCULAR	URBAN GREEN			ENGINEERING					ARTICLE	10.1016/j.aquaeng.2022.11		01448609	AQUACULTURE ENGLISH		0	
17	KAPOORE R; ALGAE BIOTECHNOLOGY	ABDEL-BAKY			BIOTECHNOLOGY					REVIEW	10.1016/j.biotechadv.2022.07		349750	BIOTECHNOLOGY ENGLISH		14	
18	SGROI F; AGRICULTURE	BAUWENS, T.J.			AGRICULTURE					ARTICLE	10.1016/j.jafr.2022.100307		26661543	JOURNAL OF ENGLISH		0	
19	PETROPOULOS; ANTIMICROBIAL	ABAD, M.			THE INTENSIFICATION OF					ARTICLE	10.1016/j.jclepro.2019.1118		09596526	JOURNAL OF ENGLISH		8	
20	SANTOS C; SILVER AMMONIA LIQUOR	ADOTEY, N.			NITROGEN FIXATION					ARTICLE	10.1016/j.jclepro.2019.1118		09596526	JOURNAL OF ENGLISH		5	
21	BAPTISTA F; AGRICULTURE	LOURENÇO, J.			PROGRAMM					ARTICLE	10.1016/j.jclepro.2019.1118		09596526	JOURNAL OF ENGLISH		2	

Main metadata fields (and field tags):

- AU Authors
- AF Authors' full name
- TI Title
- SO Document source (e.g. Journal name)
- DT Document type
- DE Authors' keywords
- ID Keywords Plus (assigned by WoS machine learning algorithm)
- AB Abstract
- C1 Authors' affiliations
- RP Corresponding author' affiliation
- CR Cited references
- TC Total citations
- PY Publication year
- DI DOI
- SC Subject category

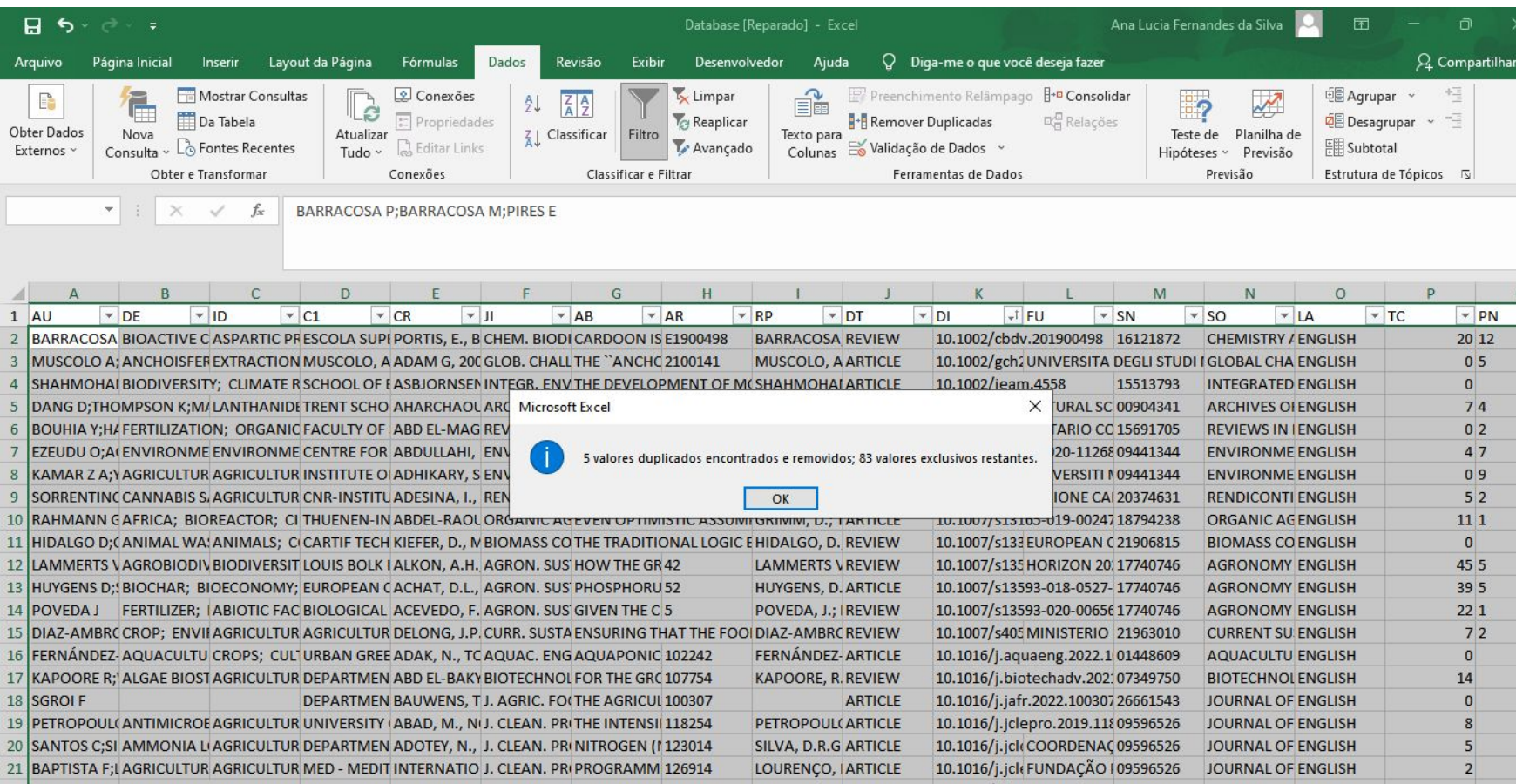
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http://www.bibliometrix.org/documents/Field_Tags_bibliometrix.pdf

Merging of Scopus and WoS database files using R language

“Database.xlsx”

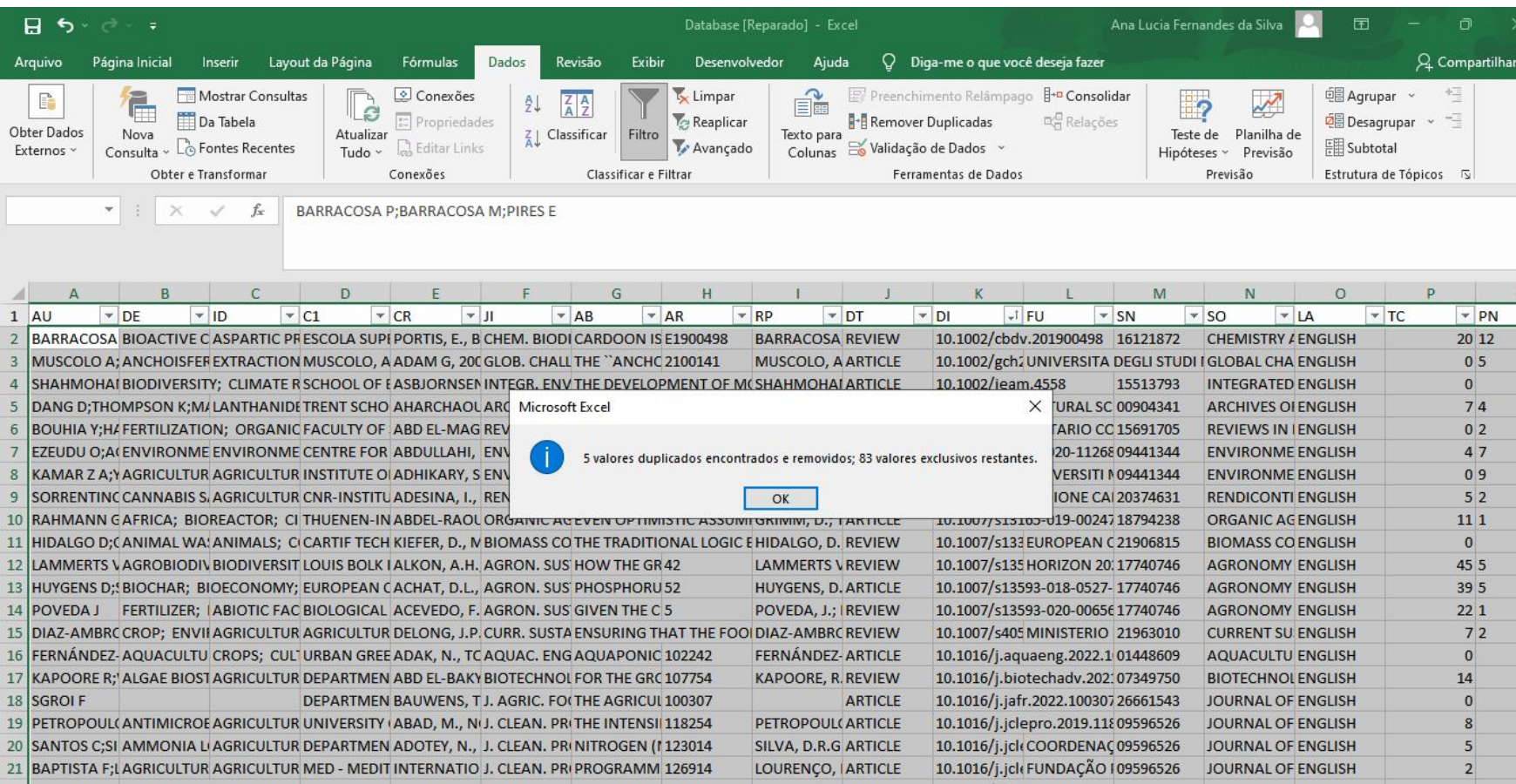


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MUSCOLO A;	ANCHOISFER	EXTRACTION	MUSCOLO, A	ADAM G, 20	GLOB. CHALL	THE "ANCHC	2100141	MUSCOLO, A	ARTICLE	10.1002/gch	UNIVERSITA	DEGLI STUDI	GLOBAL CHA	ENGLISH	0	5		
SHAHMOHAI	BIODIVERSITY;	CLIMATE R	SCHOOL OF	ASBJORNSEN	INTEGR. ENV	THE DEVELOPMENT	OF M	SHAHMOHAI	ARTICLE	10.1002/ieam.4558		15513793	INTEGRATED	ENGLISH		0		
DANG D;	THOMPSON K;	M	LANTHANID	TRENT SCHO	AHARCHAOL	ARC												
BOUHIA Y;	H	FERTILIZATION;	ORGANIC FACULTY	OF	ABD EL-MAG	REV												
EZEUDU O;	A	ENVIRONME	ENVIRONME	CENTRE FOR	ABDULLAHI,	ENV												
KAMAR Z A;	Y	AGRICULTUR	AGRICULTUR	INSTITUTE OI	ADHIKARY, S	ENV												
SORRENTIN	C	CANNABIS S	AGRICULTUR	CNR-INSTITU	ADESINA, I.,	REN												
RAHMANN G	A	FRICA; BIOREACTOR;	C	THUENEN-IN	ABDEL-RAO	ORGANIC AGE	VEN OPTIMISTIC	ASSUMI	GRIMM, D.,	ARTICLE	10.1007/s13100-019-00247	18794238	ORGANIC AGE	ENGLISH	11	1		
HIDALGO D;	C	ANIMAL WA	: ANIMALS;	C	CARTIF TECH	KIEFER, D.,	M	BIOMASS CO	THE TRADITIONAL	LOGIC E	HIDALGO, D.,	REVIEW	10.1007/s133	EUROPEAN C	21906815	0		
LAMMERTS	V	AGROBIODIV	BIODIVERSIT	LOUIS BOLK	I	ALKON, A.H.	AGRON. SUS'	HOW THE GR	42	LAMMERTS	V	REVIEW	10.1007/s135	HORIZON 20	17740746	45		
HUYGENS D;	B	BIOCHAR;	BIOECONOMY;	EUROPEAN	CACHAT, D.L.,	AGRON. SUS'	PHOSPHORU	52	HUYGENS, D.	ARTICLE	10.1007/s13593-018-0527-	17740746	AGRONOMY	ENGLISH	39	5		
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FERNÁNDEZ-	A	AQUACULTU	CROPS; CUL	URBAN GREE	ADAK, N.,	TC	AQUAC. ENG	AQUAPONIC	102242	FERNÁNDEZ-	ARTICLE	10.1016/j.aquaeng.2022.1	01448609	AQUACULTU	ENGLISH	0		
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SGROI F			DEPARTMEN	BAUWENS, T.J.	AGRIC. FO	THE AGRICUL	100307		ARTICLE	10.1016/j.jafr.2022.100307	26661543	JOURNAL OF	ENGLISH	0				
PETROPOUL	(ANTIMICROE	AGRICULTUR	UNIVERSITY	ABAD, M.,	N.	J. CLEAN. PR	THE INTENS	118254	PETROPOUL	(ARTICLE	10.1016/j.jclepro.2019.11	09596526	JOURNAL OF	ENGLISH	8	
SANTOS C;	S	AMMONIA L	AGRICULTUR	DEPARTMEN	ADOTEY, N.,	J.	CLEAN. PR	NITROGEN	(123014	SILVA, D.R.G	ARTICLE	10.1016/j.jcl	COORDENAÇ	09596526	JOURNAL OF	ENGLISH	5
BAPTISTA F;	L	AGRICULTUR	AGRICULTUR	MED - MEDIT	INTERNATIO	J. CLEAN. PR	PROGRAMM	126914	LOURENÇO,	ARTICLE	10.1016/j.jcl	FUNDAÇÃO	09596526	JOURNAL OF	ENGLISH	2		

Note: Even after removing the duplicates in RStudio, you should check the "Database.xlsx" file for duplicates. You can check for duplicates via DOI or document title.

Merging of Scopus and WoS database files using R language

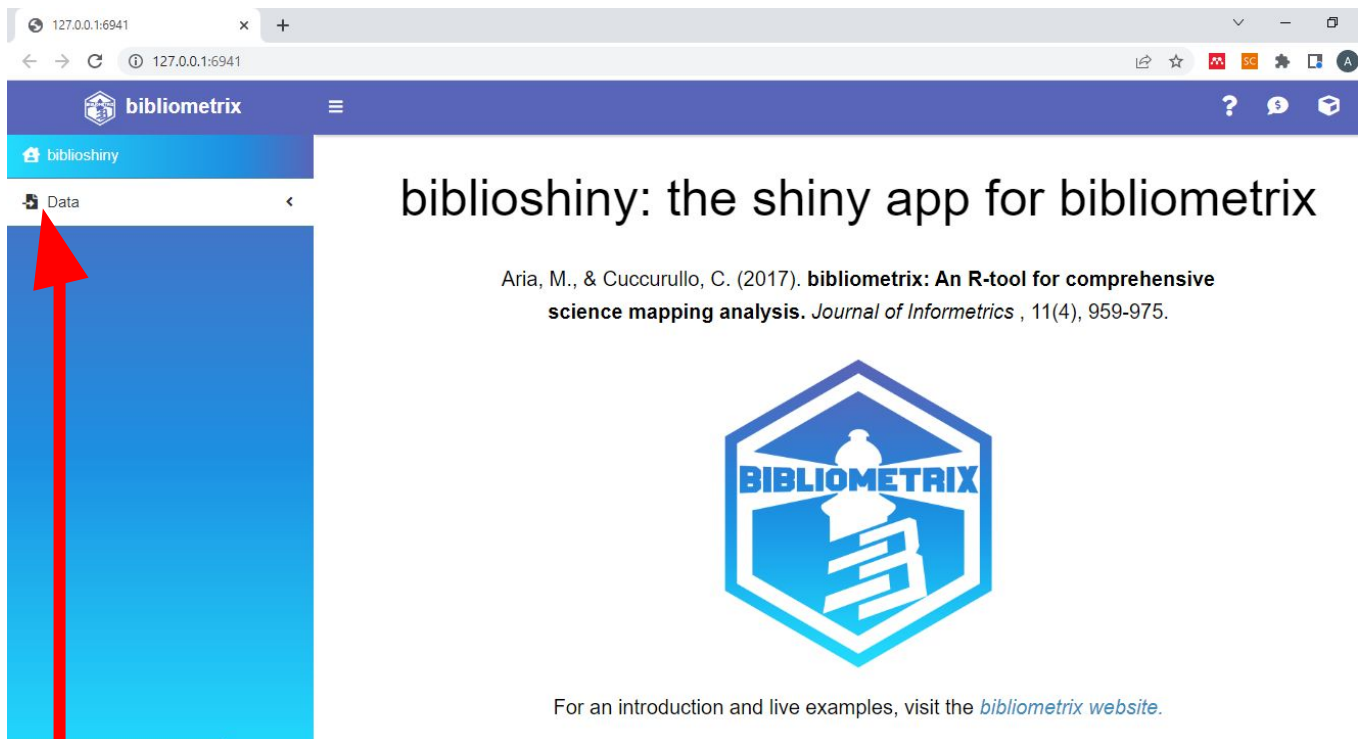
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SHAHMOHAI	BIODIVERSITY;	CLIMATE R	SCHOOL OF	ASBJORNSEN	INTEGR. ENV	THE DEVELOPMENT	OF M	SHAHMOHAI	ARTICLE	10.1002/ieam.4558		15513793	INTEGRATED	ENGLISH		0		
DANG D;	THOMPSON K;	M	LANTHANID	TRENT SCHO	AHARCHAOL	ARC							TURAL SC	00904341	ARCHIVES OF	ENGLISH	7	4
BOUHIA Y;	H FERTILIZATION;	ORGANIC	FACULTY OF	ABD EL-MAG	REV								TARIO CC	15691705	REVIEWS IN	ENGLISH	0	2
EZEUDU O;	A ENVIRONME	ENVIRONME	CENTRE FOR	ABDULLAHI,	ENV								20-11268	09441344	ENVIRONME	ENGLISH	4	7
KAMAR Z A;	Y AGRICULTUR	AGRICULTUR	INSTITUTE OI	ADHIKARY, S	ENV								VERSITI M	09441344	ENVIRONME	ENGLISH	0	9
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RAHMANN G	AFRICA; BIOREACTOR;	CI	THUENEN-IN	ABDEL-RAO	ORGANIC AGE	VEN OPTIMISTIC	ASSUMI	GRIMM, D.,	ARTICLE	10.1007/s13100-019-00247	18794238		ORGANIC A	ENGLISH		11	1	
HIDALGO D;	C ANIMAL WA	: ANIMALS;	CI	CARTIF TECH	KIEFER, D.,	M	BIOMASS CO	THE TRADITIONAL	LOGIC E	HIDALGO, D.	REVIEW	10.1007/s133	EUROPEAN C	21906815	BIOMASS CO	ENGLISH		0
LAMMERTS V	AGROBIODIV	BIODIVERSIT	LOUIS BOLK	I ALKON, A.H.	AGRON. SUS'	HOW THE GR	42	LAMMERTS V	REVIEW	10.1007/s135	HORIZON 20:	17740746	AGRONOMY	ENGLISH		45	5	
HUYGENS D;	BIOCHAR; BIOECONOMY;	EUROPEAN	CACHAT, D.L.,	AGRON. SUS'	PHOSPHORU	52		HUYGENS, D.	ARTICLE	10.1007/s13593-018-0527-	17740746		AGRONOMY	ENGLISH		39	5	
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FERNÁNDEZ-	AQUACULTU	CROPS; CUL	URBAN GREE	ADAK, N.,	TC	AQUAC. ENG	AQUAPONIC	102242	FERNÁNDEZ-	ARTICLE	10.1016/j.aquaeng.2022.1	01448609	AQUACULTU	ENGLISH		0		
KAPOORE R;	ALGAE BIOST	AGRICULTUR	DEPARTMEN	ABD EL-BAKY	BIOTECHNOL	FOR THE GRC	107754	KAPOORE, R.	REVIEW	10.1016/j.biotechadv.202	07349750		BIOTECHNOL	ENGLISH		14		
SGROI F			DEPARTMEN	BAUWENS, T.J.	AGRIC. FO	THE AGRICUL	100307		ARTICLE	10.1016/j.jafr.2022.100307	26661543		JOURNAL OF	ENGLISH		0		
PETROPOUL	C ANTIMICROE	AGRICULTUR	UNIVERSITY	ABAD, M.,	N. J. CLEAN.	PR	THE INTENS	118254	PETROPOUL	C	ARTICLE	10.1016/j.jclepro.2019.118	09596526	JOURNAL OF	ENGLISH		8	
SANTOS C;	SI AMMONIA	L	AGRICULTUR	DEPARTMEN	ADOTEY, N.,	J. CLEAN. PR	NITROGEN	(123014	SILVA, D.R.G	ARTICLE	10.1016/j.jcl	COORDENAÇ	09596526	JOURNAL OF	ENGLISH		5
BAPTISTA F;	L AGRICULTUR	AGRICULTUR	MED - MEDIT	INTERNATIO	J. CLEAN. PR	PROGRAMM	126914	LOURENÇO,	ARTICLE	10.1016/j.jcl	FUNDAÇÃO	09596526	JOURNAL OF	ENGLISH		2		

Note: The existence of duplicates even after elimination via RStudio occurs because the information coming from the databases sometimes has a different format.

Bibliometric analysis using the Bibliometrix package



127.0.0.1:6941

127.0.0.1:6941


bibliometrix

biblioshiny

Data

biblioshiny: the shiny app for bibliometrix

Aria, M., & Cuccurullo, C. (2017). **bibliometrix: An R-tool for comprehensive science mapping analysis**. *Journal of Informetrics*, 11(4), 959-975.

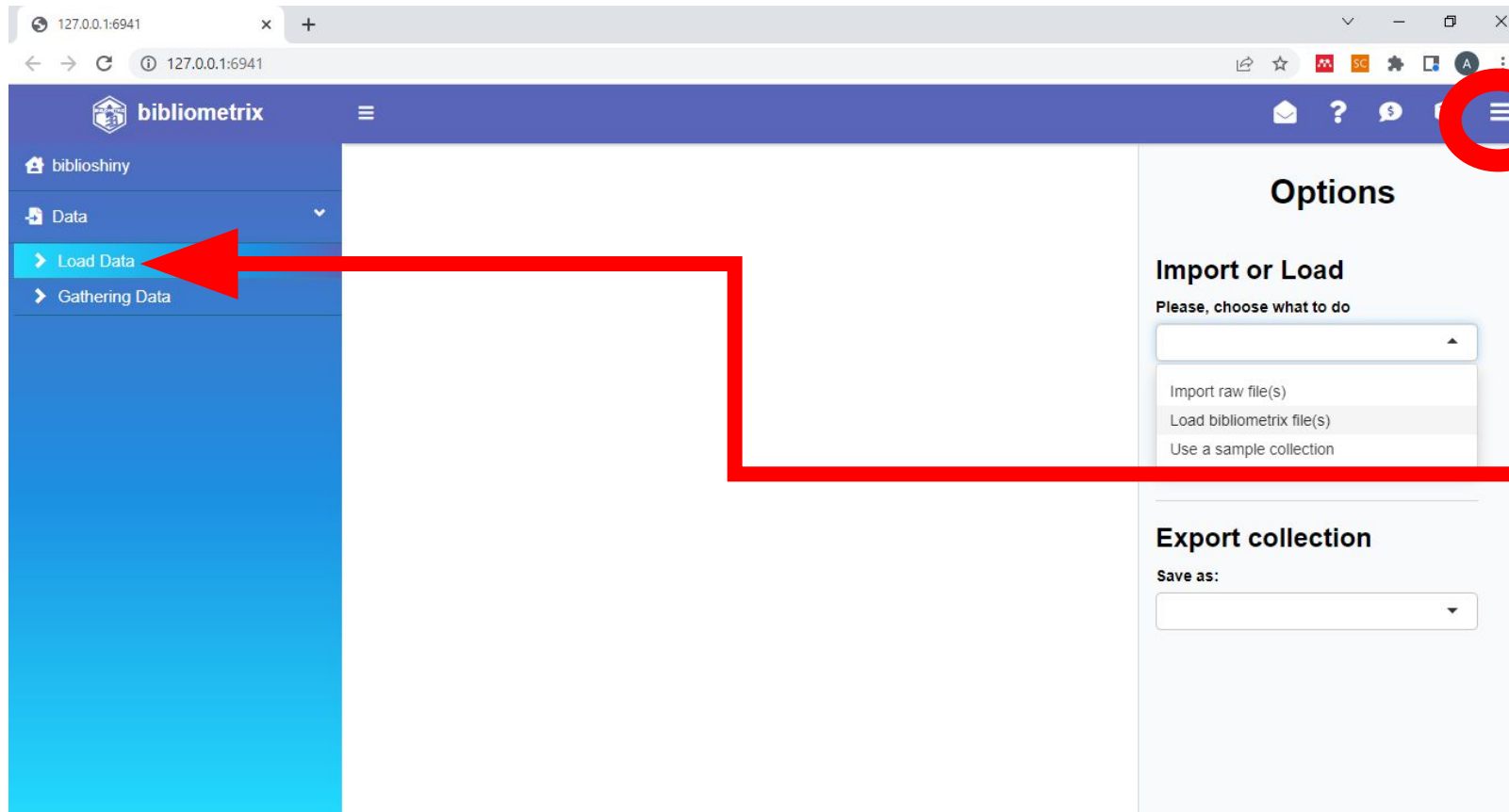


For an introduction and live examples, visit the [bibliometrix website](#).

Step 1: Access the biblioshiny page that opened in your browser.

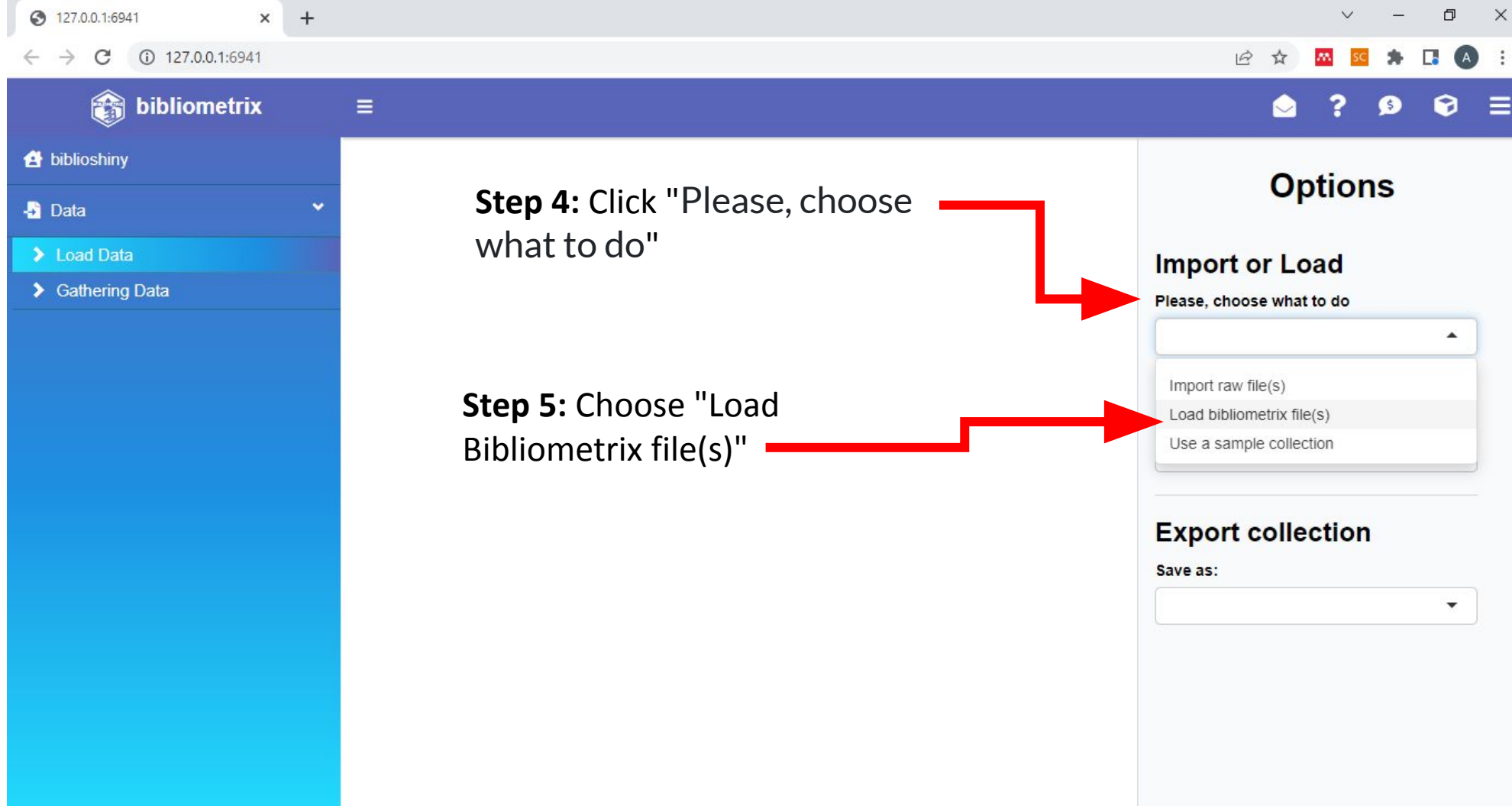
Step 2: Click “Data”.

Bibliometric analysis using the Bibliometrix package



Step 3: Click “Load Data” and click on the icon

Bibliometric analysis using the Bibliometrix package

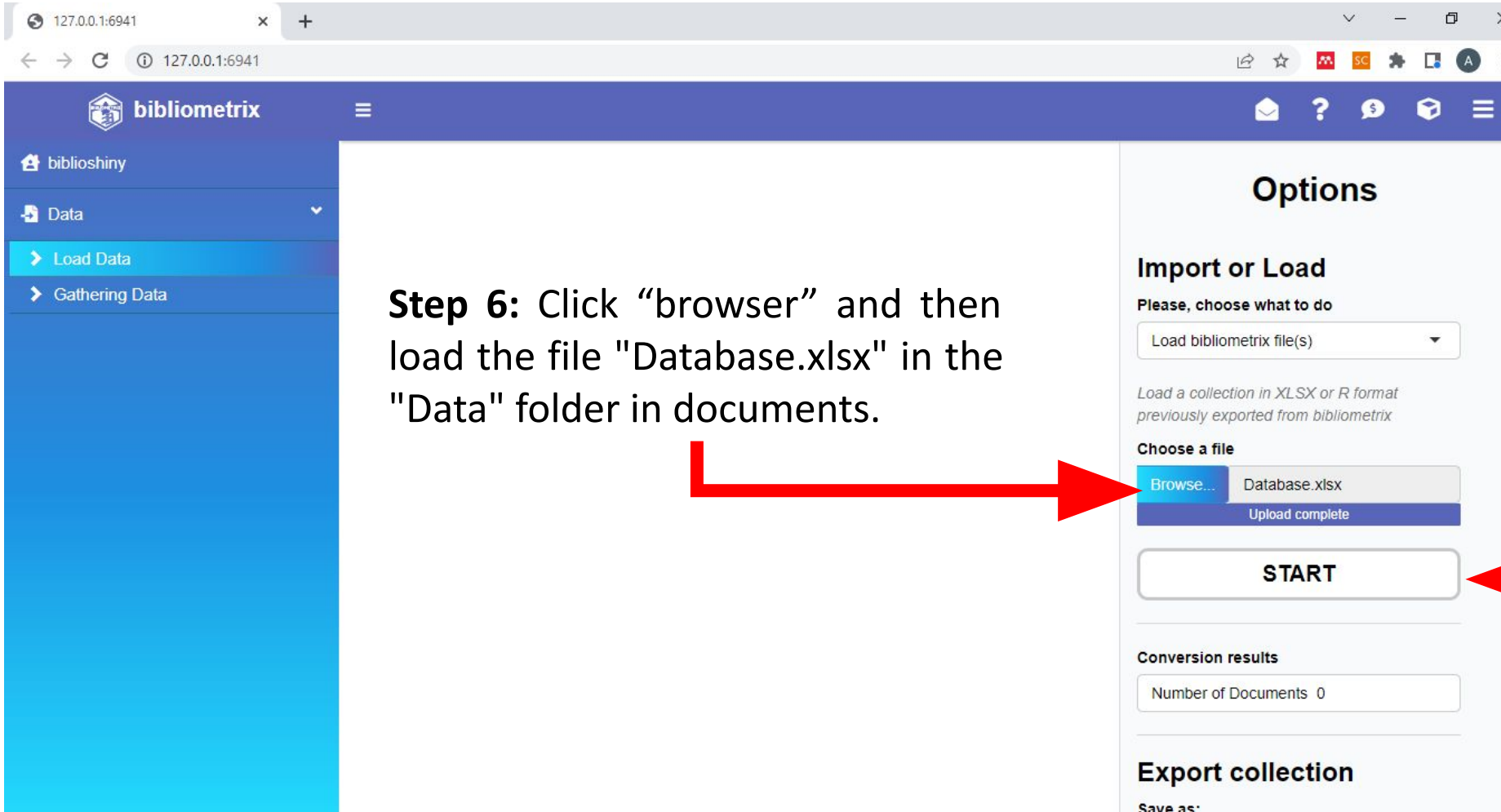


The screenshot shows the Bibliometrix web interface. On the left, a navigation menu includes 'biblioshiny', 'Data', 'Load Data', and 'Gathering Data'. The 'Load Data' option is highlighted. On the right, the 'Options' panel is open, showing the 'Import or Load' section. A dropdown menu is open, and 'Load bibliometrix file(s)' is selected. Red arrows point from text annotations to the dropdown menu and the selected option.

Step 4: Click "Please, choose what to do"

Step 5: Choose "Load Bibliometrix file(s)"

Bibliometric analysis using the Bibliometrix package



The screenshot shows the Bibliometrix web interface. On the left, a sidebar contains a menu with 'biblioshiny', 'Data', 'Load Data', and 'Gathering Data'. The 'Load Data' option is highlighted. The main content area is titled 'Options' and includes sections for 'Import or Load', 'Choose a file', 'START', 'Conversion results', and 'Export collection'. In the 'Choose a file' section, a file named 'Database.xlsx' is selected, and the 'START' button is highlighted with a red arrow.

Step 6: Click “browser” and then load the file "Database.xlsx" in the "Data" folder in documents.



Step 7: Click “start”



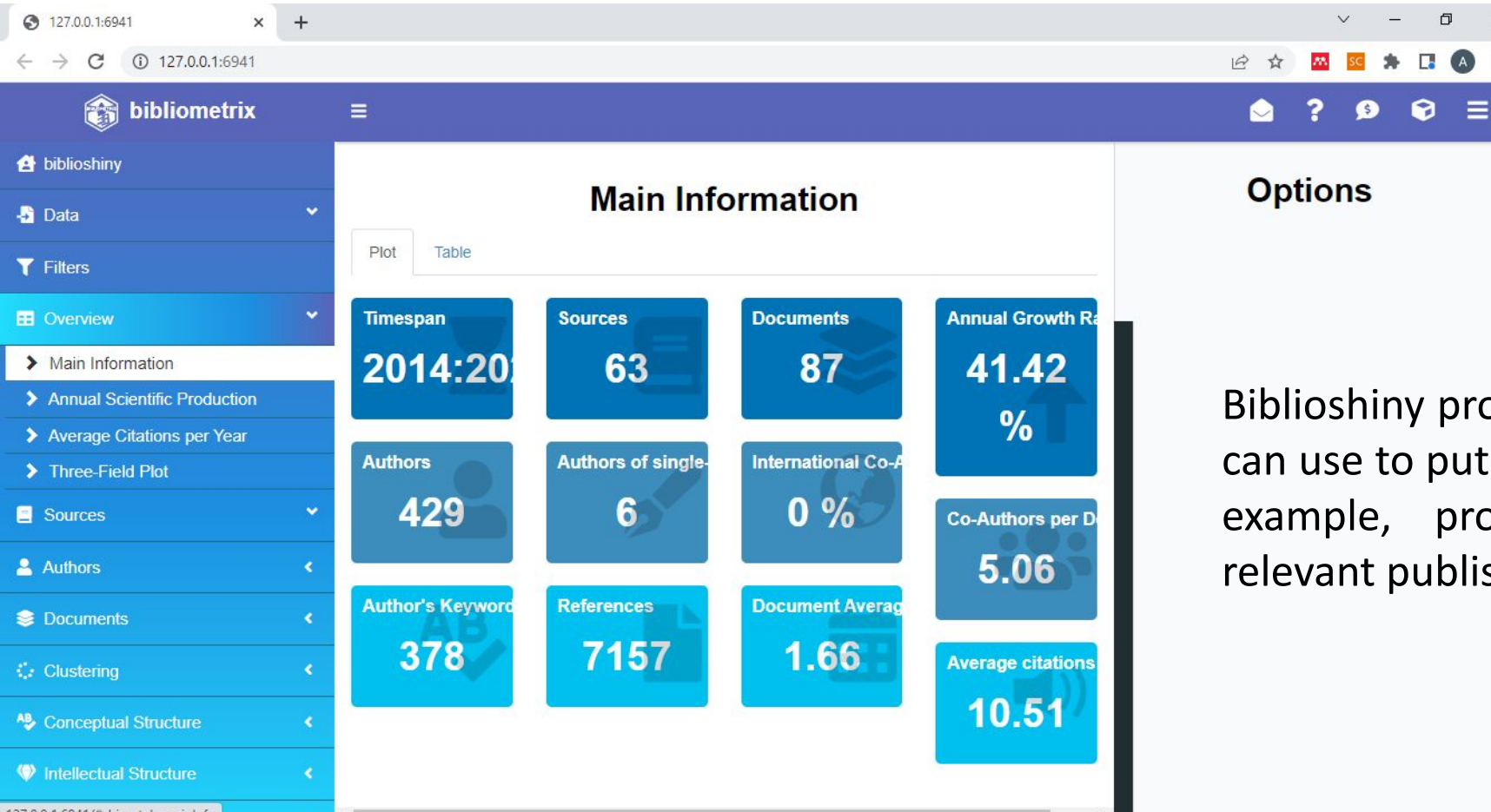
Bibliometric analysis using the Bibliometrix package

Biblioshiny menu

DOI	AU	DE	ID	C1	CR
10.1002/ebdv.201900498	BARRACOSA P; BARRACOSA M; PIRES E	BIOACTIVE COMPOUNDS; BIOLOGICAL ACTIVITY; BIOMASS; CYNARA CARDUNCULUS; PHENOLIC COMPOUNDS	ASPARTIC PROTEINASE; BIOCIDES; CAFFEYOYLQUINIC ACID; COSMETIC; FATTY ACID DERIVATIVE; FLAVONOID; INULIN; LIGNOCELLULOSE; OIL; PHENOL DERIVATIVE	ESCOLA SUPERIOR AGRÁRIA DE VISEU - INSTITUTO POLITÉCNICO DE VISEU, VISEU, 3500-806, PORTUGAL; CENTRO DE ESTUDOS EM EDUCAÇÃO, TECNOLOGIAS E S	PORTIS, E., BARCHI, L., ACQUADRO, A., MACUA, J.I., LANTERI, S., 'GENETIC DIVERSITY ASSESSMENT IN CULTIVATED CARDOON BY AFLP (AMPLIFIED FRAGMENT LENGTH
10.1002/gch2.202100141	MUSCOLO A; MAURIELLO F; MARRA F; CALABRO P; RUSSO M; CIRIMINNA M	ANCHOISFERT; ANCHOVY; CIRCULAR ECONOMY; FISH WASTE; ORGANIC FERTILIZERS	EXTRACTION; SOIL; IDENTIFICATION; CAPACITY	MUSCOLO, A (CORRESPONDING AUTHOR), UNIV MEDITERRANEA REGGIO CALABRIA, DIPARTIMENTO AGR, I-89124 REGGIO DI CALABRIA, ITALY; PAGLIARO, M (CORRESPONDING	ADAM G. 2001, SOIL BIOL BIOCHEM, V33, P943, DOI 10.1016/S0038-0717(00)00244-3; AHUJA I. 2020, WASTE MANAGE, V115, P95, DOI 10.1016/J.WASMAN.2020.07.02
10.1002/ieam.4558	SHAHMOHAMADLOO R; FEBRIA C; FRASER E; SIBLEY P	BIODIVERSITY; CLIMATE RESILIENCE; REGENERATIVE AGRICULTURE;		SCHOOL OF ENVIRONMENTAL SCIENCES, UNIVERSITY OF GUELPH, GUELPH, ON, CANADA; DEPARTMENT OF INTEGRATIVE	ASBJORNSEN, H., HERNANDEZ-SANTANA, V., LIEBMAN, M., BAYALA, J., CHEN, J., HELMERS, M., ONG, C.K., SCHULTE, L.A.,

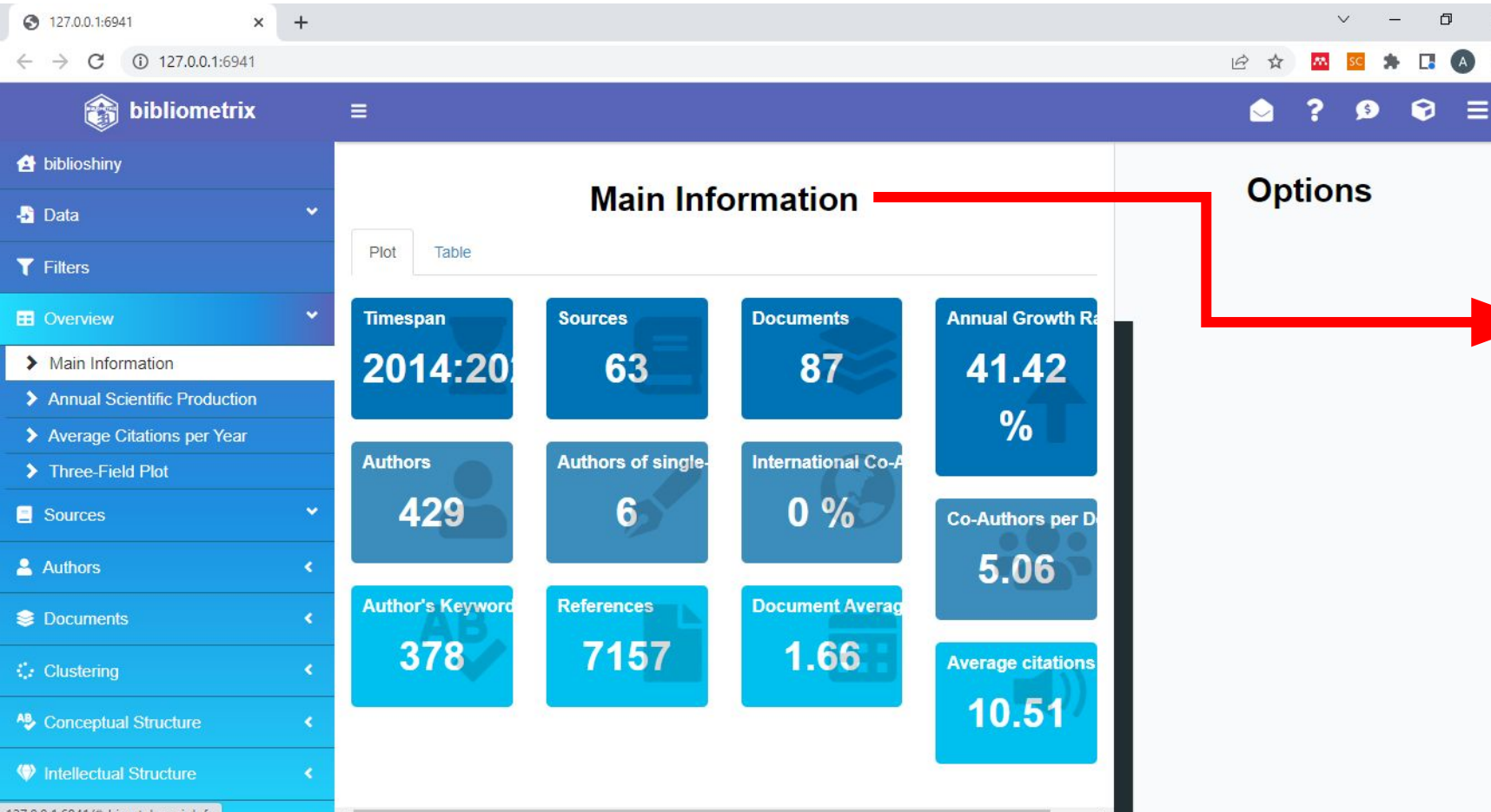
Overview after loading the "Database.xlsx" file.

Bibliometric analysis using the Bibliometrix package



Biblioshiny provides a lot of information that you can use to put together your review article. As an example, production over time, the most relevant publishing sources.

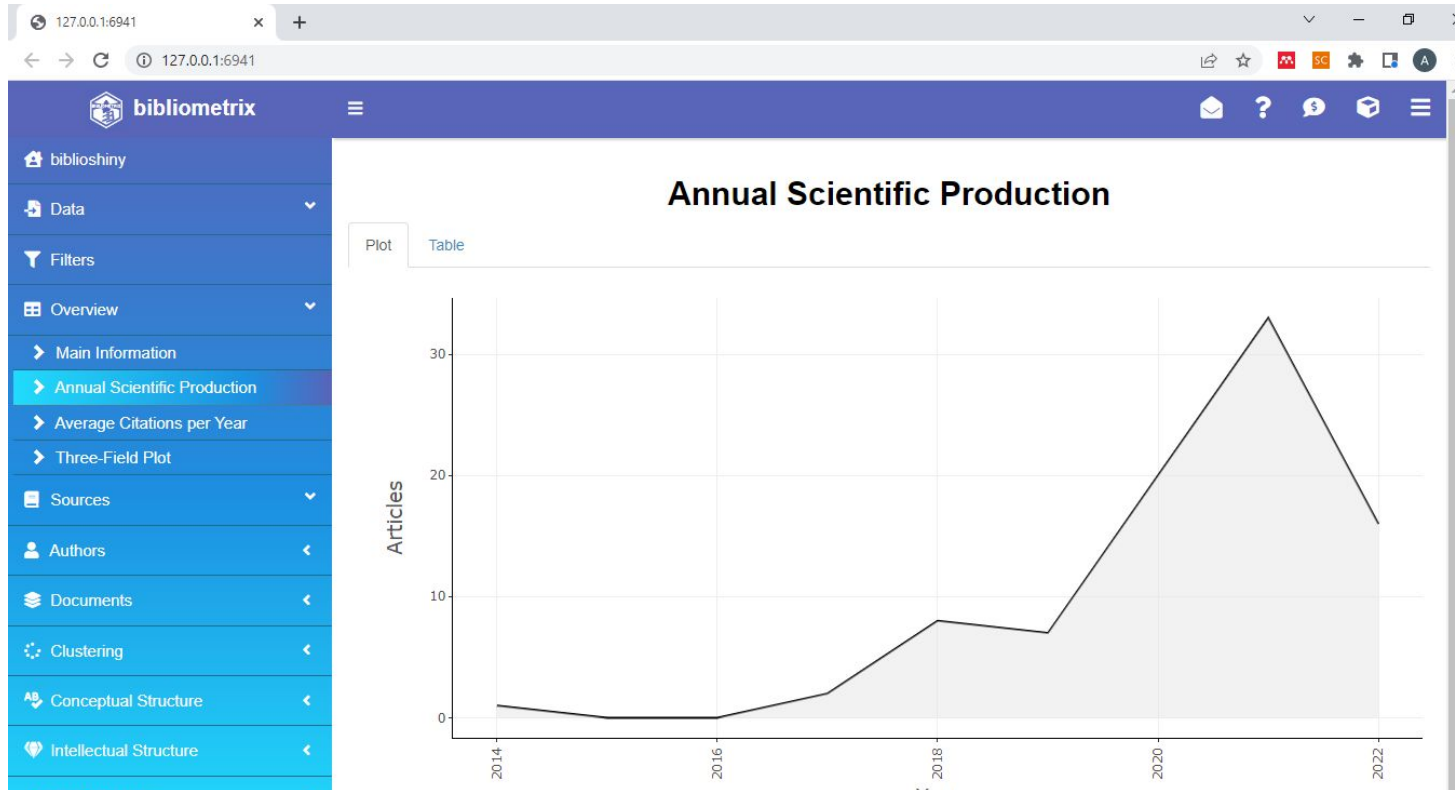
Bibliometric analysis using the Bibliometrix package



Indicates the number of scientific journals, number of documents in the sample, annual growth rate of publications, etc.

Bibliometric analysis using the Bibliometrix package

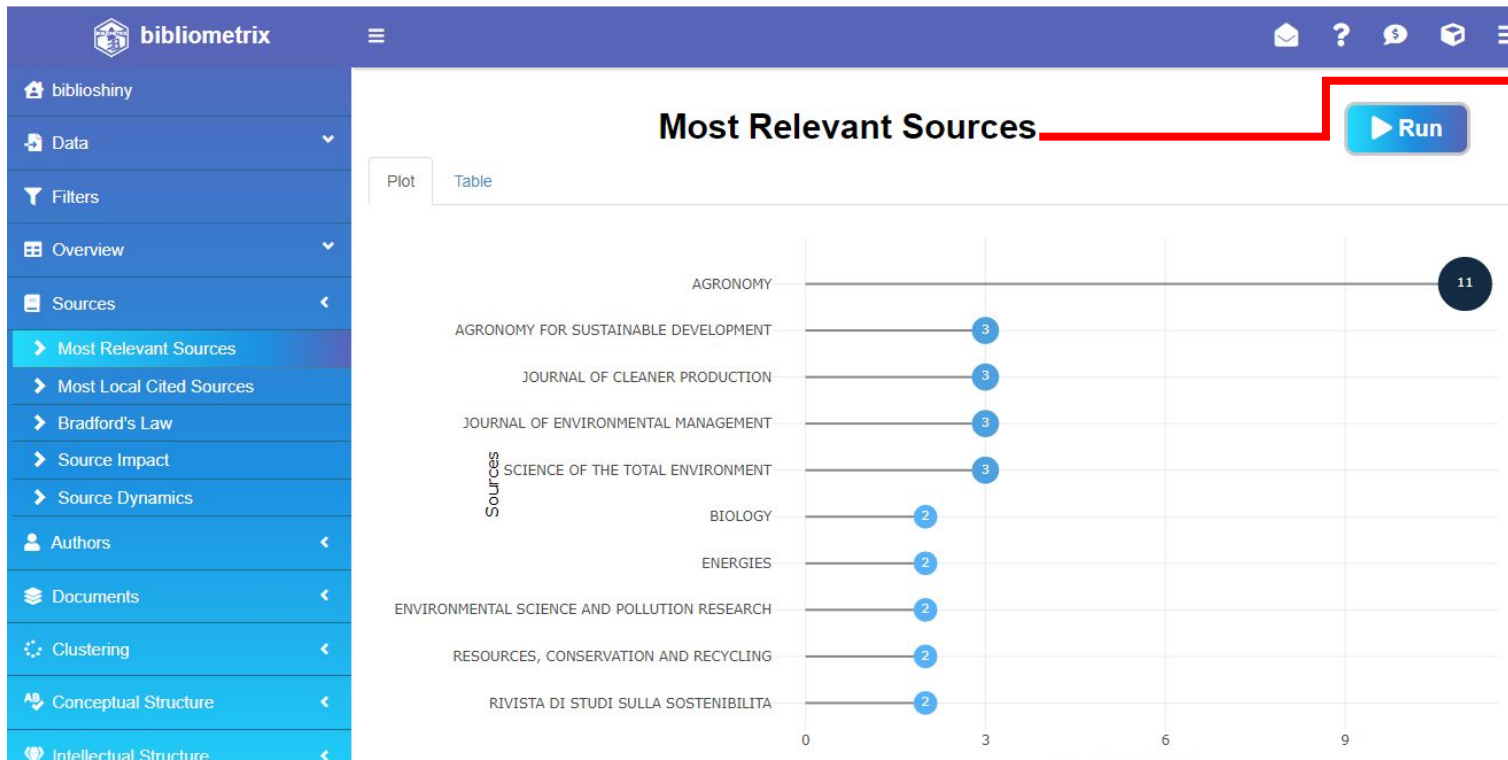
Examples



Analyzing our sample ("circular economy" AND "sustainable agriculture" OR "organic agriculture"), we see an increase in scientific production between 2020 and 2021.

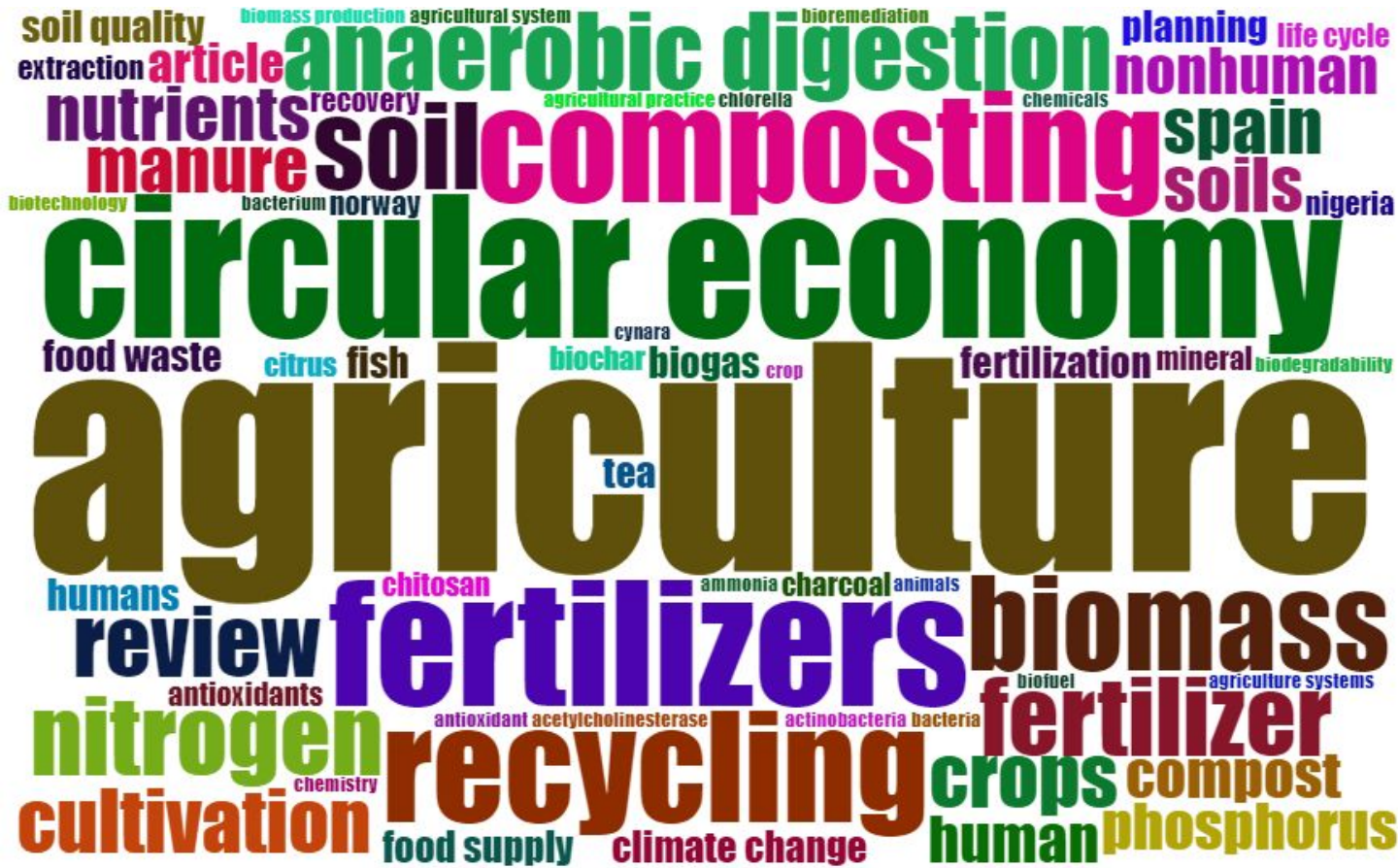
Bibliometric analysis using the Bibliometrix package

Examples



Main sources of publication on the topic under analysis.

Bibliometric analysis using the Bibliometrix package



WordCloud

Bibliometric analysis using the Bibliometrix package

Reference that addresses the main indicators of bibliometrics

Article

Bibliometric Methods in Management and Organization

Ivan Zupic¹ and Tomaž Čater¹

Abstract

We aim to develop a meaningful single-source reference for management and organization scholars interested in using bibliometric methods for mapping research specialties. Such methods introduce a measure of objectivity into the evaluation of scientific literature and hold the potential to increase rigor and mitigate researcher bias in reviews of scientific literature by aggregating the opinions of multiple scholars working in the field. We introduce the bibliometric methods of citation analysis, co-citation analysis, bibliographical coupling, co-author analysis, and co-word analysis and present a workflow for conducting bibliometric studies with guidelines for researchers. We envision that bibliometric methods will complement meta-analysis and qualitative structured literature reviews as a method for reviewing and evaluating scientific literature. To demonstrate bibliometric methods, we performed a citation and co-citation analysis to map the intellectual structure of the *Organizational Research Methods* journal.

Organizational Research Methods
2015, Vol. 18(3) 429-472
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sagepub.com/journalsPermissions.nav
DOI: 10.1177/1094428114562629
orm.sagepub.com



Zupic, I., & Čater, T. (2015). Bibliometric Methods in Management and Organization. *Organizational Research Methods*, 18(3), 429–472.

<https://doi.org/10.1177/1094428114562629>

Bibliometric analysis using the Bibliometrix package

Examples of bibliometrics articles using the bibliometrix package

Bashir, M. F. (2022). Oil price shocks, stock market returns, and volatility spillovers: a bibliometric analysis and its implications. *Environmental Science and Pollution Research*, 1-20.

Secinaro, S., Brescia, V., Calandra, D., & Biancone, P. (2020). Employing bibliometric analysis to identify suitable business models for electric cars. *Journal of cleaner production*, 264, 121503.




Review Article | Published: 19 January 2022

Oil price shocks, stock market returns, and volatility spillovers: a bibliometric analysis and its implications

Muhammad Farhan Bashir 

Environmental Science and Pollution Research 29, 22809–22828 (2022) | [Cite this article](#)

1719 Accesses | 4 Citations | [Metrics](#)

 This article has been [updated](#)

Journal of Cleaner Production 264 (2020) 121503



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Review

Employing bibliometric analysis to identify suitable business models for electric cars

Silvana Secinaro, Valerio Brescia, Davide Calandra*, Paolo Biancone

Management Department – University of Turin – Corso Unione Sovietica 218, Bis – 10134, Turin, Italy



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https://sites.google.com/view/eventtraining/home/science_mapping_bibliometria
- Bibliometrics course - Diffusion USP. (2018). Authors: Diego Clemente and Graziela Galvão.
- Ranjbari, M., Esfandabadi, Z. S., Quatraro, F., Vatanparast, H., Lam, S. S., Aghbashlo, M., & Tabatabaei, M. (2022). Biomass and organic waste potentials towards implementing circular bioeconomy platforms: A systematic bibliometric analysis. *Fuel*, 318, 123585.
- Zupic, I., & Čater, T. (2015). Bibliometric Methods in Management and Organization. *Organizational Research Methods*, 18(3), 429–472. <https://doi.org/10.1177/1094428114562629>
- R_scripts for bibliometrics: https://github.com/laurogama/R/blob/main/biblioanalysis/script_bibliometrix.R