unite! | University Network for Innovation, Technology and Engineering

Research Methodology & Scientific Writing MOOC – Unite!Energy

Funded by the European Union

Prof. Izabela Michalak

Personal data

Izabela Michalak

Wrocław University of Science and Technology
Faculty of Chemistry
Department of Advanced Material Technologies

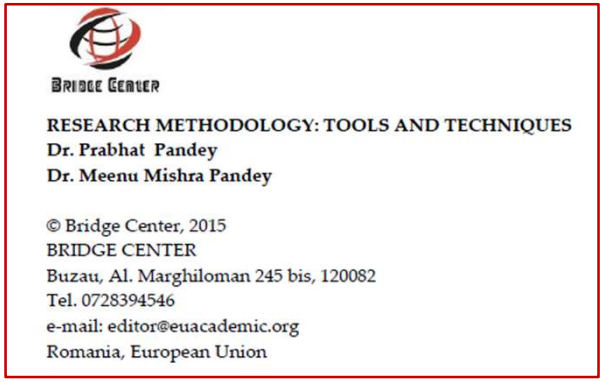
Smoluchowskiego 25, Wrocław, Poland
B-1, room 401/5

E-mail: izabela.michalak@pwr.edu.pl
Phone: +48 71 3202434

Research Methodology & Scientific Writing MOOC – content

Research process – Step 1

1. Formulating the research problem / Identifying a research topic
2. Finding background information / Extensive literature survey (systematic tracking of scientific literature; creating search queries; current databases – Web of Knowledge, Scopus, Google Scholar, etc.)
3. Developing the research hypothesis
4. Preparing the research design (approach / methodology)
5. Collecting the research data / Variables and their types (basic elements of statistical analysis)
6. Analysis of data
7. Hypothesis testing
8. Interpretation of data / Findings and drawing conclusions



Research Methodology & Scientific Writing MOOC – content

Research process – Step 2

1. Methods of presenting results (figures, tables, drawings, photos, etc.)
2. Preparing of the report / thesis
3. Writing of scientific publication:
   - Discussion of the structure of a research publication (Instructions for authors) / Different publication templates depending on the publisher
   - Abstract writing strategies / Preparing a graphic abstract
   - Preparing a Cover Letter
   - Discussing the publication submission system / Selecting the most appropriate journal
   - Corresponding with editors and responding to questions from reviewers and the editor

Assessment – Final report

Report – Research Methodology & Scientific Writing MOOC – Unite!Energy

1. Name and surname
2. E-mail address
3. University name
4. Scientific profiles – if applicable
5. PhD title / Proposed PhD title
6. Summary of planned research (500 words)
7. Graphical abstract presenting the topic of the PhD thesis
8. Keywords (5-7)
9. What is the research hypothesis put forward in the doctoral dissertation?
10. What is (or could be) the „bottleneck" in your research and why?
11. List of 3-5 best journals in the research area of the doctoral dissertation (e.g., with the highest Impact Factor and Category quartile, briefly justify)
12. List of the 5-10 best scientific papers in the research area of the doctoral dissertation (number of citations)
13. The best scientific publication you have read so far and motivate shortly your choice
14. The worst scientific publication you have read so far and motivate shortly your choice
15. List 3 patents (patent number) that are similar to the topic of the doctoral dissertation
16. Data on the researchers (2-3) and their affiliations where would you like to do an internship (briefly justify)

Deadline: 31 October 2025 ➡ **E-mail:** izabela.michalak@pwr.edu.pl

Types of journal articles

Original Research (or *Original Article, Research Article, Research,* or just *Article*) – this is the most common type of journal manuscript used to publish full reports of data from research.

Short reports or **Letters** or **Brief communications** – communicate brief reports of data from original research that editors believe will be interesting to many researchers, and that will likely stimulate further research in the field.

Review Articles – provide a comprehensive summary of research on a certain topic, and a perspective on the state of the field and where it is heading.

- Reviews are often written by **leaders in a particular discipline** after invitation from the Editors of a journal.
- Reviews are often **widely read** (for example, by researchers looking for a full introduction to a field) and **highly cited**.
- Reviews commonly **cite** approximately **100 primary research articles**.

---

https://www.springer.com/gp/authors-editors/authorandreviewertutorials/writing-a-journal-manuscript/types-of-journal-articles/10285504?srsltid=AfmBOorq80AaCu9VGv6ab_aDc8LtQttjRn3TbAZcso_SuNVCzDAzx06Q

Types of journal articles

Case Studies – these articles report **specific instances** of **interesting phenomena**.

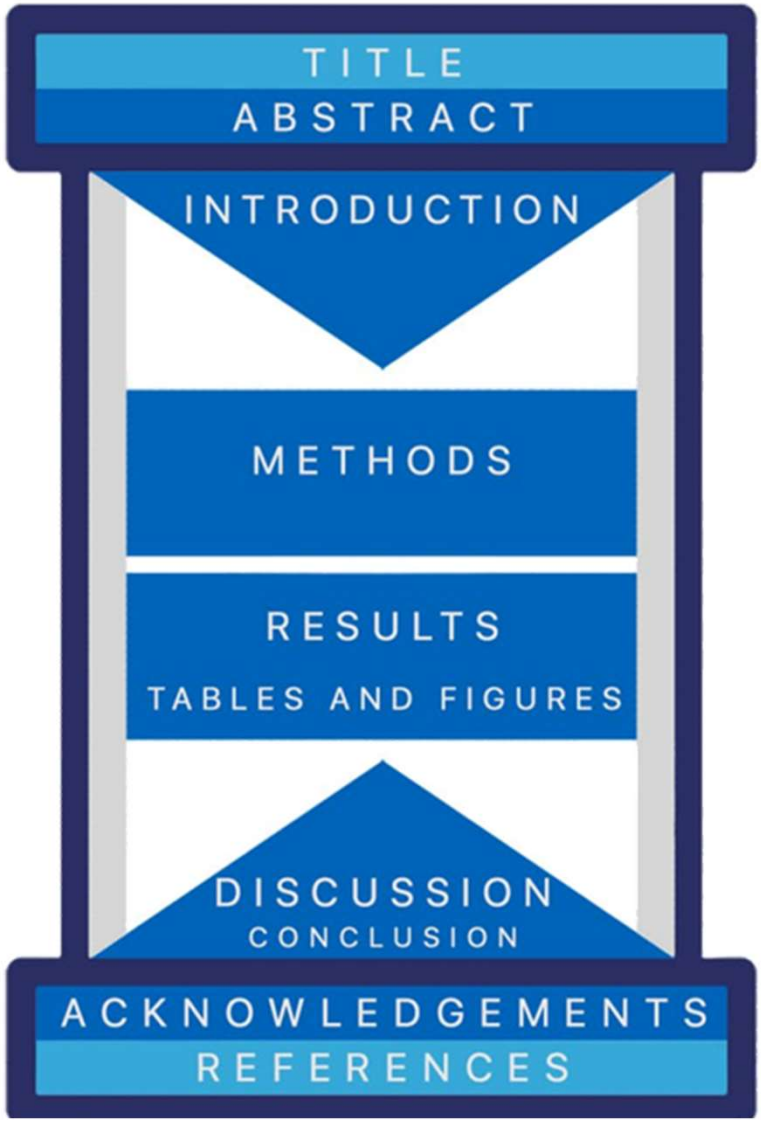
- A goal of Case Studies is to make other researchers aware of the possibility that a specific phenomenon might occur.
- This type of study is often used **in medicine** to report the occurrence of previously unknown or emerging pathologies.

Methodologies or Methods – these articles present a **new experimental method**, **test** or **procedure**.

- The method described may either be completely new, or may offer a better version of an existing method.
- The article should describe a demonstrable advance on what is currently available.

https://www.springer.com/gp/authors-editors/authorandreviewertutorials/writing-a-journal-manuscript/types-of-journal-articles/10285504?srsltid=AfmBOorq80AaCu9VGv6ab_aDc8LtQttjRn3TbAZcso_SuNVCzDAzx06Q

General structure of a scientific publication



Informative, Accurate, Attractive, Concise, Clear, Specific

What is known?
What is not known?
Research question?

Study Design, Setting, Subjects, Data Collection, and Data analysis

Recruitment/response,
Characteristics of sample,
Findings from primary analysies,
Secondary analyses and additional findings

Self explanatory,
Representation of key findings

Important results,
Integrating the findings with what is known in the literature,
Strengths and limitations,
Future studies

Forero et al. J Transl Med (2020) 18:425

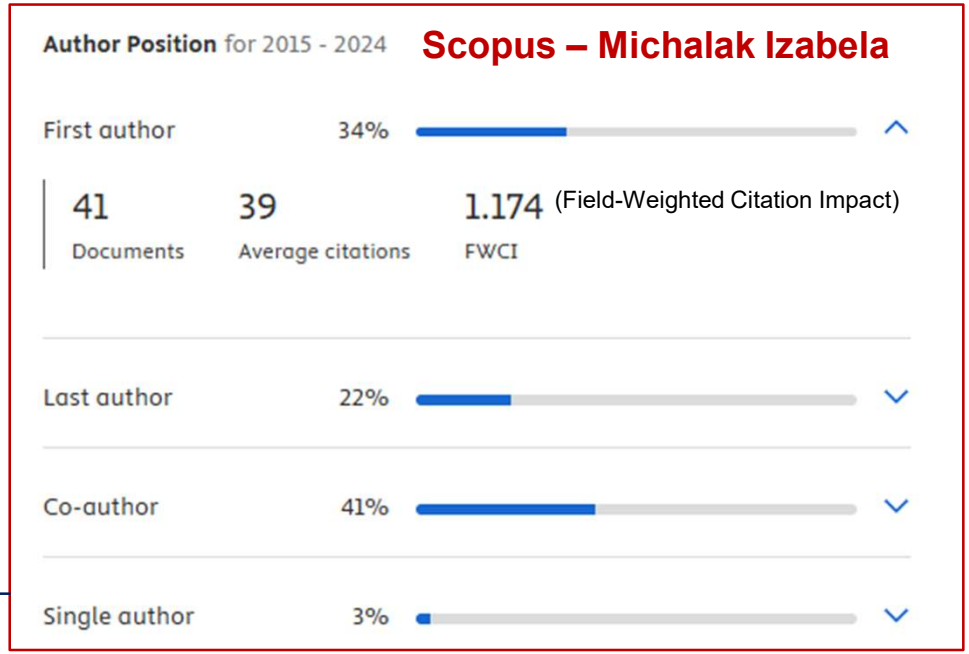
Preparation of the publication – tips

Whole manuscript

- ❑ The manuscript should be written linguistically and stylistically correct
- ❑ The same font and size throughout the work (unless otherwise indicated by the Journal)
- ❑ All authors should read the entire publication (not only their part of the research) before submitting to the Journal

Authors

- ❑ The meaning of the order of the listed authors varies between fields – in many disciplines, the author order indicates the magnitude of the contribution, with the last author usually representing the principal investigator



Forero et al. J Transl Med (2020) 18:425

Preparation of the publication – authors

Niedzbała *et al.*
Bioresources and Bioprocessing (2024) 11:27
https://doi.org/10.1186/s40643-024-00741-z

Bioresources and Bioprocessing

RESEARCH Open Access

Potential use of *Ulva intestinalis*-derived biochar adsorbing phosphate ions in the cultivation of winter wheat *Tristicum aestivum*

Natalia Niedzbała[1*], Ewa Lorenc-Grabowska[2], Piotr Rutkowski[2], Jacek Chęcmanowski[1], Anna Szymczycha-Madeja[3], Maja Wełna[3] and Izabela Michalak[1]

PhD student

Supervisor / Project manager

Author contributions

All authors contributed to the study conception and design. IM: conceptualization, methodology, supervision, data curation, writing—original draft, writing—review and editing, project administration, funding acquisition; NN: conceptualization, methodology, investigation, formal analysis, data curation, visualization, writing—original draft; ELG: methodology, investigation, resources, writing—original draft, writing—review and editing; JC: resources, writing—original draft; MW: methodology, resources,—review and editing; PR: resources, writing—review and editing. All authors read and approved the submitted manuscript.

Multi-author publication – interdisciplinary publication

Title and Abstract

- **The title and abstract are the most important parts of a paper**
- They are important:
  - **for editors**, who will scan the title and abstract to decide if it should be sent out for external peer review
  - **for reviewers**, who will get a first impression of the paper
  - **for readers**, as the title, abstract, and keywords are often the only parts of the paper that are freely accessible to everyone on-line

- The title should be **attractive and catch the reader's attention**
- Sometimes, there is a limit on the title length
- Some journals also require a **Running Title** – a short version of your title, consisting of 40 characters or less, including spaces

https://www.springer.com/gp/authors-editors/authorandreviewertutorials/writing-a-journal-manuscript/title-abstract-and-keywords/10285522?srsltid=AfmBOopRAYUilgVIAKI2r2COF3xqkxbsJZ8WUlNblslE-tBzEhOAbBOP

Abstract

- Abstract should provide a brief description of the main sections of the manuscript, describing key methods, findings and conclusions
- Once the abstract is completed, it helps to ask yourself four questions, each relating to one section:
  - „**What is known and why is this study needed**?" (**Background**)
  - „**What did we do**?" (**Methods**)
  - „**What did we find**?" (**Results**) – this section is the most important part of the abstract
  - „**What does it mean**?" (**Discussion**)
- Also ask yourself "**So what**?" (this is what editors and reviewers often ask themselves when reviewing papers)

- Usually 200-300 words (it depends on the Journal – if the abstract is longer, you won't be able to submit your paper to the Journal !)
- The abstract is usually written at the end – when the entire publication is ready
- **Please write your abstract with due care** !!!

---

https://www.springer.com/gp/authors-editors/authorandreviewertutorials/writing-a-journal-manuscript/title-abstract-and-keywords/10285522?srsltid=AfmBOopRAYUilgVIAKI2r2COF3xqkxbsJZ8WUlNblslE-tBzEhOAbBOP

Graphical abstract – review article

Bioresource Technology 375 (2023) 128830

Contents lists available at ScienceDirect

Bioresource Technology

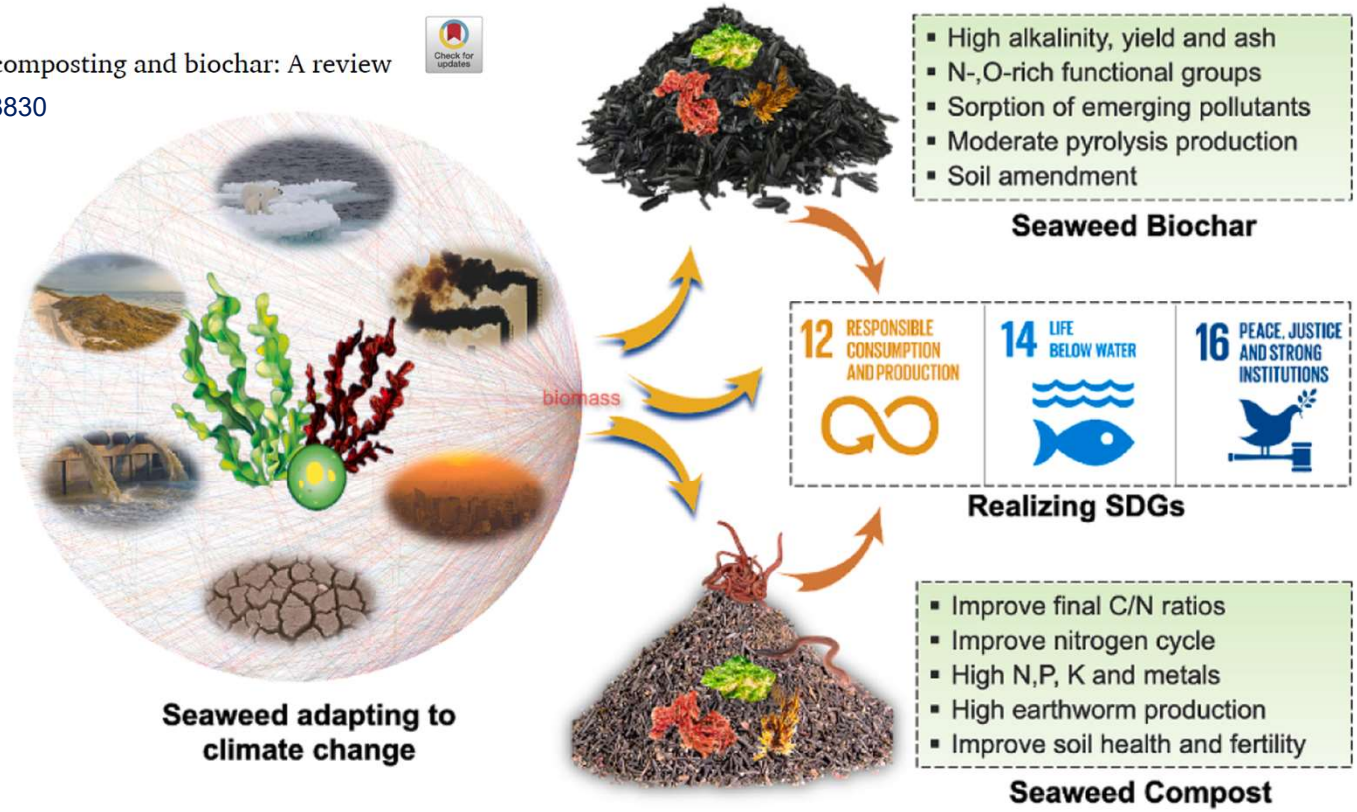
journal homepage: www.elsevier.com/locate/biortech

Review

Current application of seaweed waste for composting and biochar: A review

https://doi.org/10.1016/j.biortech.2023.128830

Journals are increasingly requesting the submission of a "**graphical**" or "**visual abstract**" alongside the body of the article.



https://www.elsevier.com/researcher/author/tools-and-resources/graphical-abstract

Waste Management 105 (2020) 256–267

Contents lists available at ScienceDirect

Waste Management

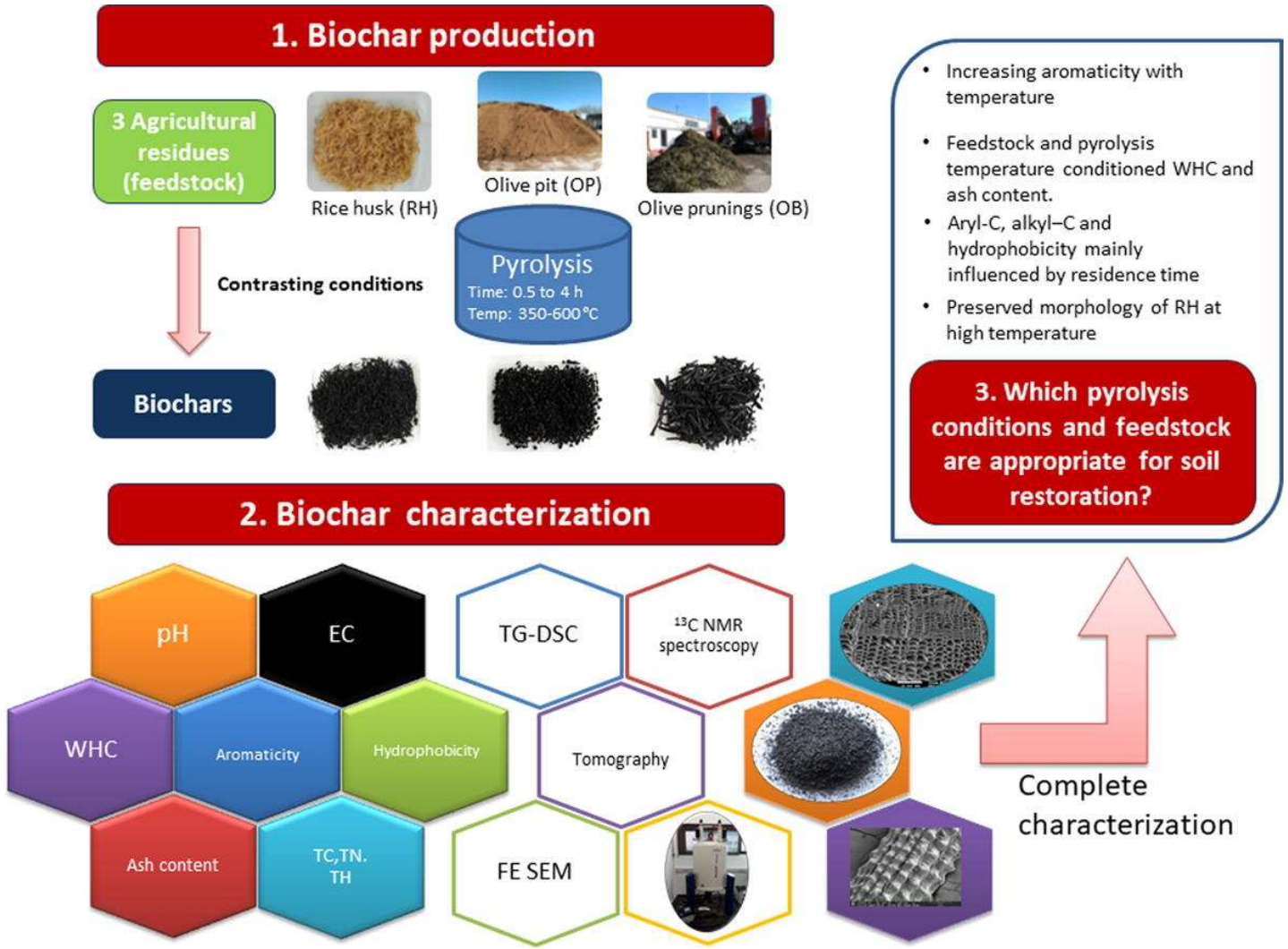
journal homepage: www.elsevier.com/locate/wasman

Chemical, physical and morphological properties of biochars produced from agricultural residues: Implications for their use as soil amendment

Paloma Campos [a], Ana Z. Miller [b], Heike Knicker [a], Manuel F. Costa-Pereira [c], Agustín Merino [d], José María De la Rosa [a,*]

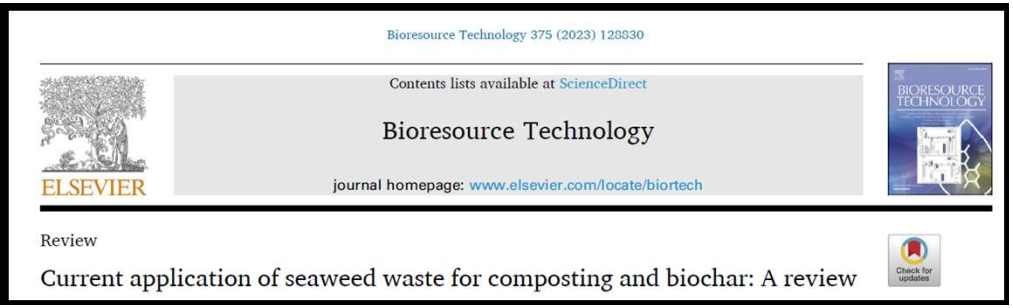
[a] Instituto de Recursos Naturales y Agrobiología de Sevilla (IRNAS-CSIC), Av. Reina Mercedes 10, 41012 Seville, Spain
[b] Hercules Laboratory, University of Évora, Largo Marquês de Marialva 8, 7000-809 Évora, Portugal
[c] CERENA, Instituto Superior Técnico, Universidade de Lisboa (IST-UL), Av. Rovisco Pais, 1, 1049-001 Lisbon, Portugal
[d] Department of Soil Science and Agricultural Chemistry, University of Santiago de Compostela–Lugo Campus, Lugo 27002, Spain

Graphical abstract – research article



https://doi.org/10.1016/j.wasman.2020.02.013

Highlights


Bioresource Technology 375 (2023) 128830

Contents lists available at ScienceDirect

Bioresource Technology

journal homepage: www.elsevier.com/locate/biortech

Review

Current application of seaweed waste for composting and biochar: A review

Highlights are a short collection of three to five bullet points that:

- Provide readers with a quick textual overview of the article
- Each individual Highlight should be a maximum of 85 characters long, including spaces
- Convey the core findings
- Describe the essence of the research (i.e. results or conclusion)
- Highlight what is distinctive about it

Highlights are **mandatory** for some journals and **optional** for others.

You can check the requirements for the journal you're submitting to by reading the **Guide for Authors**.

https://doi.org/10.1016/j.biortech.2023.128830

H I G H L I G H T S

- Seaweed derived-compost and biochar have distinct properties from terrestrial plants.
- Complex polysaccharides, moisture, metals, and C/N ratios affect compost production.
- Seaweed increases the earthworm cocoon and microbial consortium for vermicomposting.
- Biochar provides many functional groups for pollutant removal and soil amelioration.
- Pyrolysis temperature effects biochar yield, ash, O/C ratio, surface and porosity.

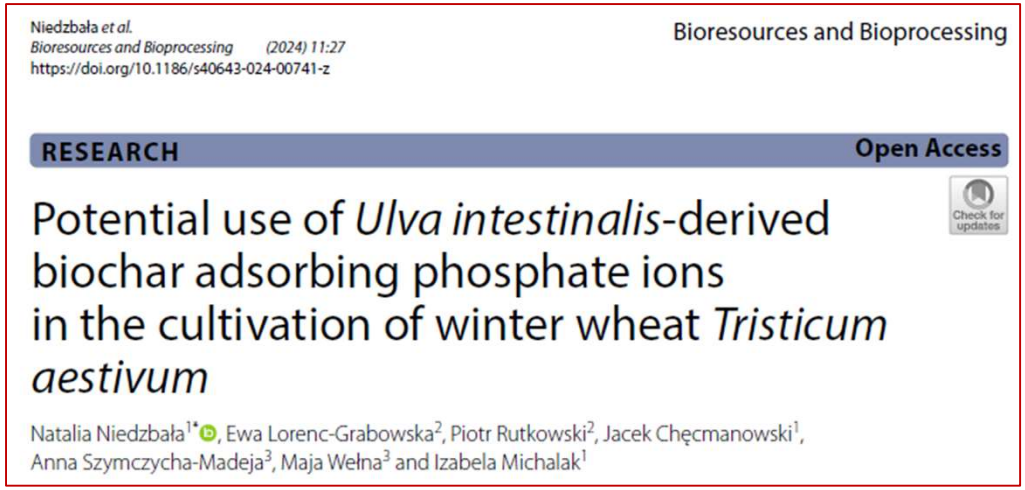
https://www.elsevier.support/publishing/answer/how-do-i-include-highlights-with-my-manuscript

Keywords

- Keywords are a tool to help **indexers** and **search engines** find relevant papers
- If database search engines can find your journal manuscript, readers will be able to find it too
- This will increase the number of people reading your manuscript, and likely lead to more citations
- However, to be effective, Keywords must be chosen carefully, they should:
  - Represent the content of your manuscript
  - Be specific to your field or sub-field
- 4-6 precise keywords

I arrange keywords in the order of research performed – chronologically

Example:



Niedzbała *et al.*
Bioresources and Bioprocessing (2024) 11:27
https://doi.org/10.1186/s40643-024-00741-z

Bioresources and Bioprocessing

RESEARCH Open Access

Potential use of *Ulva intestinalis*-derived biochar adsorbing phosphate ions in the cultivation of winter wheat *Tristicum aestivum*

Natalia Niedzbała[1*], Ewa Lorenc-Grabowska[2], Piotr Rutkowski[2], Jacek Chęcmanowski[1], Anna Szymczycha-Madeja[3], Maja Wełna[3] and Izabela Michalak[1]

Keywords Green seaweed, Pyrolysis, Biochar, Phosphate ions, Wastewater treatment, Soil additives

https://www.springer.com/gp/authors-editors/authorandreviewertutorials/writing-a-journal-manuscript/title-abstract-and-keywords/10285522?srsltid=AfmBOopRAYUilgVIAKI2r2COF3xqkxbsJZ8WUlNblslE-tBzEhOAbBOP

Introduction – content

- The Introduction should provide readers with **the background information** needed to understand your study, and the reasons why you conducted your experiments
- The Introduction should answer the question: **what question / problem was studied**?

- The introduction should have **a funnel shape** with clear sections on:
  - ***general background*** (what is this all about?)
  - ***what is known and what is unknown about this specific subject*** (why was this study needed, and why is it important?)
  - ***primary research question*** (what did we want to know?)
  - ***study aim and design*** (what did we do to answer the research question?)

https://www.springer.com/gp/authors-editors/authorandreviewertutorials/writing-a-journal-manuscript/introduction-methods-and-results/10285524?srsltid=AfmBOoquXojJz1JEeEBb8FvxsdgfUfPZPOHoRljomTj2x6Jl_WeIQlCu

Schematic presentation on the overall scope and objectives of the comprehensive review

In the „Introduction" section

The overarching objective of this review is to conduct a critical analysis of recent advancements in the application of biochar for carbon sequestration in soil and to explore climate change mitigation on a large scale. The overall scope of this review is presented in Fig. 2. Specifically, the commonly used thermal-based synthesis methods (e.g., pyrolysis)

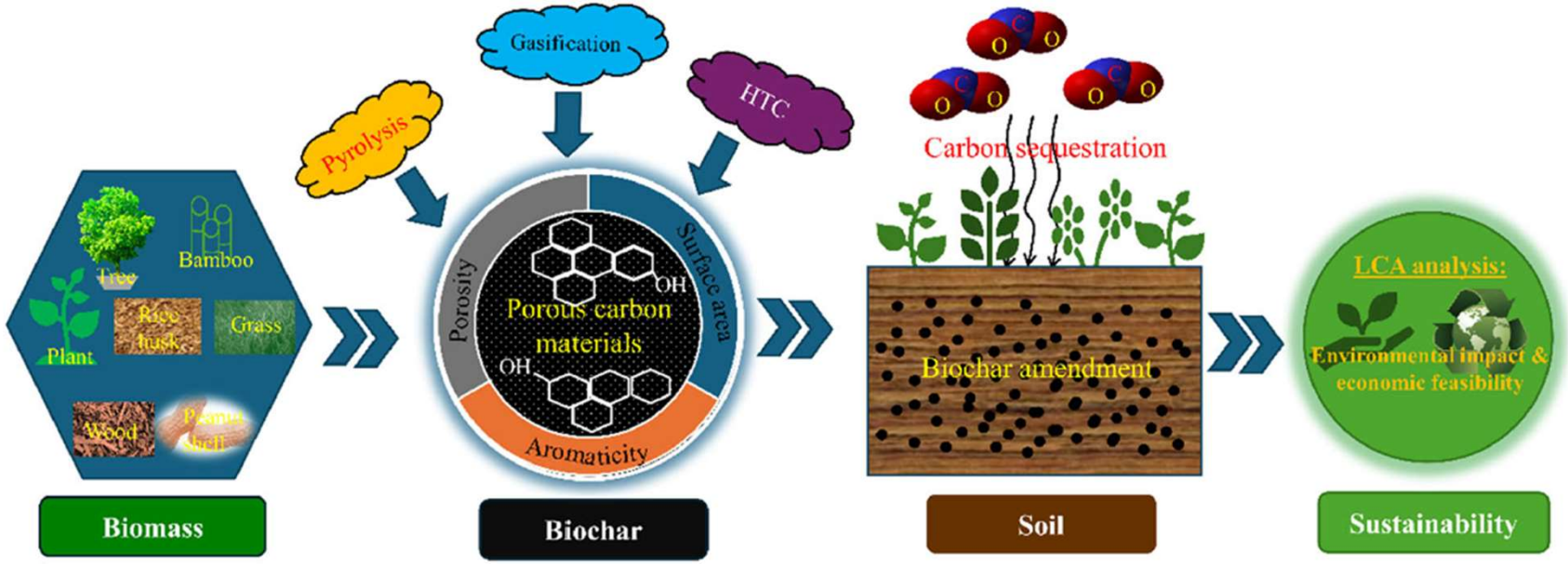
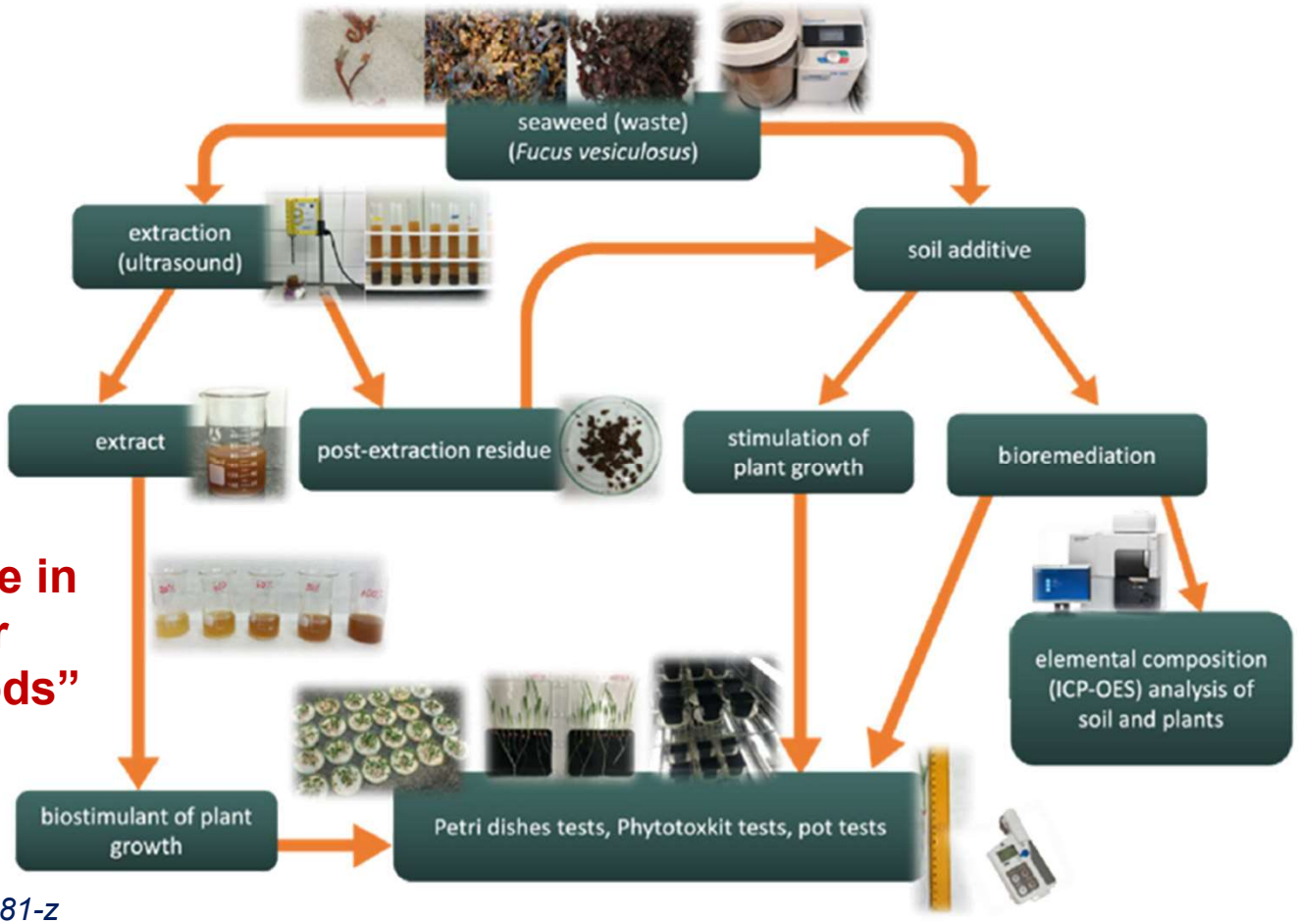


Fig. 2 | Schematic presentation on the overall scope and objectives of this comprehensive review. HTC hydrothermal carbonization.

https://doi.org/10.1038/s44296-025-00066-8

Research scheme

In the Introduction (last sentence): The effectiveness of the proposed solutions was verified in plant germination tests to assess the potential phytotoxicity of *Fucus vesiculosus* extracts (biostimulation on radish (*Raphanus sativus*)) as well as in pot experiments (biostimulation on radish and bioremediation on sorgo (*Sorghum saccharatum*) seeds, i.e., seeds that are recommended for phytotoxkit tests). The general scheme of performed experiments is presented in Fig. 1.



Such a scheme could be in the „Introduction" or in „Materials and Methods"

https://doi.org/10.1038/s41598-023-36881-z

Research scheme

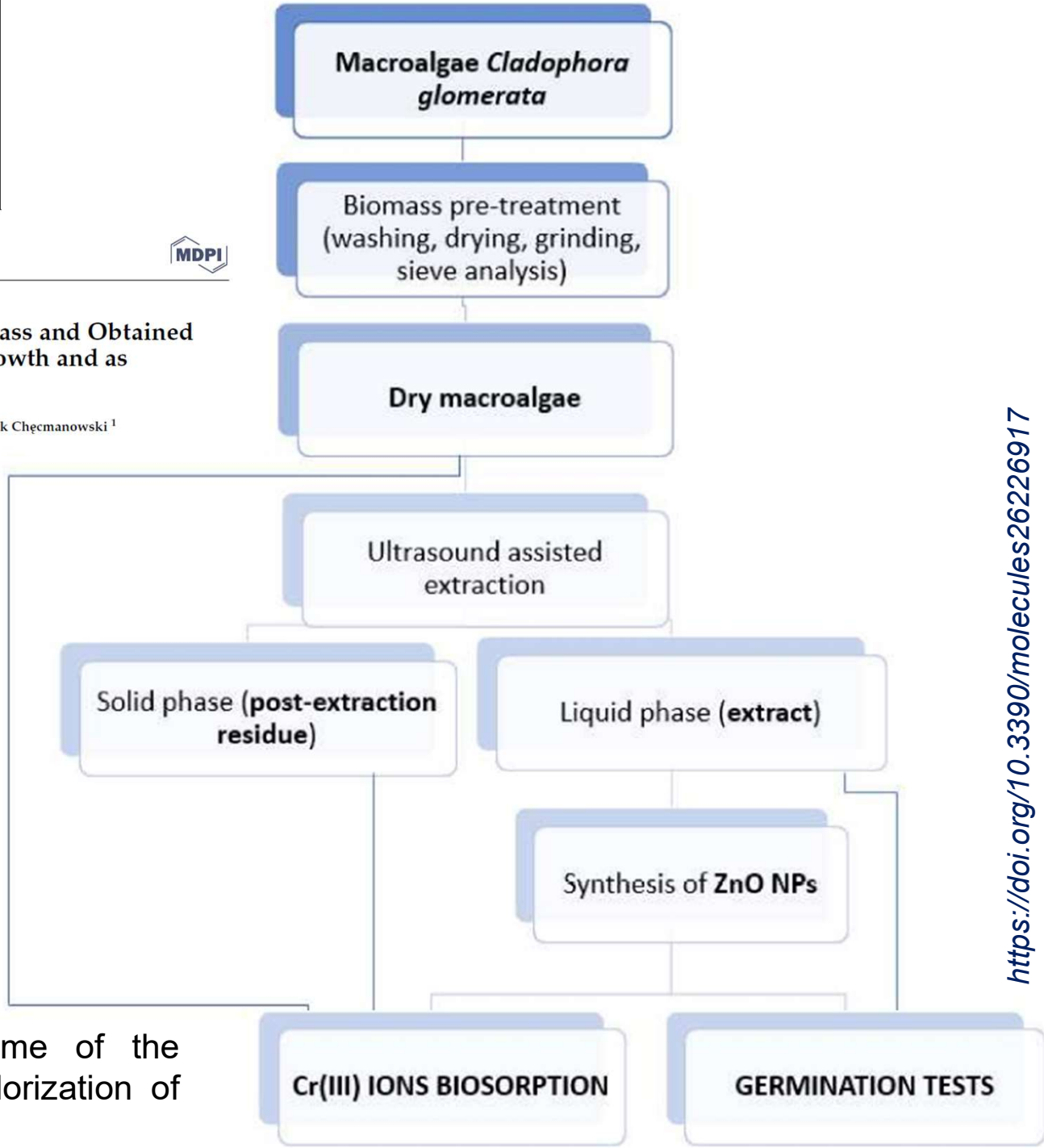
molecules

MDPI

Article

Valorization of *Cladophora glomerata* Biomass and Obtained Bioproducts into Biostimulants of Plant Growth and as Sorbents (Biosorbents) of Metal Ions

Katarzyna Dziergowska [1], Maja Wełna [2], Anna Szymczycha-Madeja [2], Jacek Chęcmanowski [1] and Izabela Michalak [1,*]



„Introduction”

Figure 1. The general scheme of the proposed approach for the valorization of *Cladophora glomerata*

https://doi.org/10.3390/molecules26226917

Introduction – length

- Look at the length of the Introduction (**maximum 10-15% of the total word count**) – 1.5 pages maximum (avoid long reviews about the topic of the article)
- Many journals provide the total number of words in an article that can be used

Engineering in Life Sciences

Eng. Life Sci. **2015**, *15*, 160–176 www.els-journal.com

Izabela Michalak
Katarzyna Chojnacka

Department of Advanced Material Technologies, Faculty of Chemistry, Wrocław University of Technology, Wrocław, Poland

Review

Algae as production systems of bioactive compounds

Algal extracts are gaining increasing interest due to their unique composition and possibilities of wide industrial applications. Various extraction techniques are used for conversion of algal biomass into extracts. Recently, attention of scientists has been paid to novel methods, such as enzyme-assisted extraction, microwave-assisted extraction, pressurized liquid extraction, supercritical fluid extraction, and ultrasound-assisted extraction, which enable the extraction of biologically active compounds without their degradation. In this review, the properties of biologically active compounds extracted from the biomass of algae reported in the literature are presented in a structured way. Algal extracts contain compounds such as carbohydrates, proteins, minerals, oil, fats, polyunsaturated fatty acids as well as bioactive compounds such as antioxidants (polyphenols, tocopherols [vitamin E], vitamin C, mycosporine-like amino acids), and pigments, such as carotenoids (carotene xanthophyll), chlorophylls, and phycobilins (phycocyanin, phycoerythrin), which possess antibacterial, antiviral, antifungal, antioxidative, anti-inflammatory, and antitumor properties. Finally, we assemble a list of applications of algal extracts in different developing branches of agriculture (biostimulants, bioregulators, feed additives) and in pharmaceutical industry.

Keywords: Algal extracts / Algae applications / Bioactive compounds / Biomass / Extraction methods

Received: September 9, 2014; *revised:* November 19, 2014; *accepted:* December 15, 2014

DOI: 10.1002/elsc.201400191

TIP: Do not write a literature review in your Introduction, but **do** cite reviews where readers can find more information if they want it.

Table 1. Review papers on biologically active compounds in algae.

Biologically active compounds	Reference
Polysaccharides	[1, 2, 10, 23–29]
Lipids and fatty acids	[1–3, 23–25, 27–29, 42]
Pigments	[1–4, 10, 23–25, 27, 29, 42, 43]
Antioxidants	[1, 2, 10, 23, 25, 26, 44, 49]
Proteins and amino acids	[1, 2, 10, 25, 27, 28]
Minerals	[25, 28]

The second most cited publication in my scientific achievements !

Engineering in Life Sciences

Eng. Life Sci. **2015**, *15*, 160–176 www.els-journal.com

Izabela Michalak
Katarzyna Chojnacka

Department of Advanced Material Technologies, Faculty of Chemistry, Wrocław University of Technology, Wrocław, Poland

Review

Algae as production systems of bioactive compounds

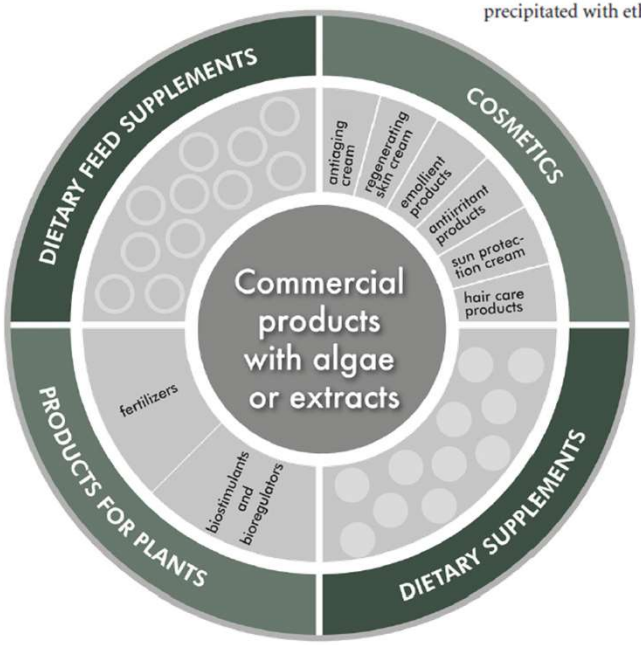
Algal extracts are gaining increasing interest due to their unique composition and

This publication includes:

- current knowledge review
- eye-catching figures
- detailed tables
- future prospects

Table 2. Examples of (a) antibacterial, (b) antiviral, (c) antifungal, (d) antioxidative, (e) anti-inflammatory, (f) antitumor properties of compounds in algal extracts.

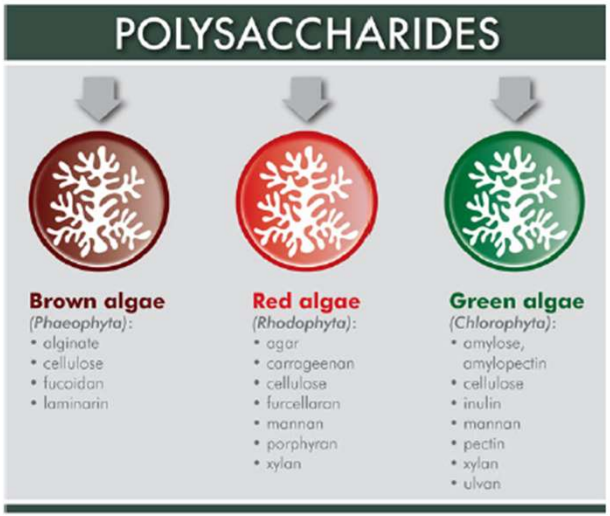
Extracted compound	Algal species	Extraction method	Target	Reference
(a) Antibacterial activity				
PUFAs	*Gracilaria corticata* *Ulva fasciata* *Enteromorpha compressa*	Solvent extraction with hexane, chloroform, ethyl acetate, chloroform:alcohol (1:1), methanol by soaking the material in the solvents thrice overnight at room temperature (1:3v/v)	Bacteria pathogenic to fish: *Edwardsiella tarda, Vibrio alginolyticus, Pseudomonas fluorescens, P. aeruginosa, Aeromonas hydrophila*	[92]
Fats (palmitic acid) Proteins (amino acids) Bioflavonoids (rutin, quercetin, and kaempherol)	*Ulva reticulata* *Caulerpa occidentalis* *Cladophora socialis* *Dictyota ciliolate* *Gracilaria dendroides*	Extraction of powdered algal samples with ethanol, chloroform, petroleum ether, water. Samples were soaked in the solvents for 24 h and homogenized in a blender with the solvents at room temperature	*Escherichia coli, P. aeruginosa, Stapylococcus aureus, Enterococcus faecalis*	[93]
Sulfated polysaccharide	*Sargassum swartzii*	Dried seaweed powder was extracted with water at 90–95°C for 16 h. The syrup was filtered through filter paper, cooled, and precipitated with ethanol	*S. aureus, Proteus vulgaris, E. coli, Bacillus subtilis, Pseudomonas aeroginosa, Salmonella typhi, Shigella flexineri, Klebsiella pneumoniae, E. faecalis,*	[94]



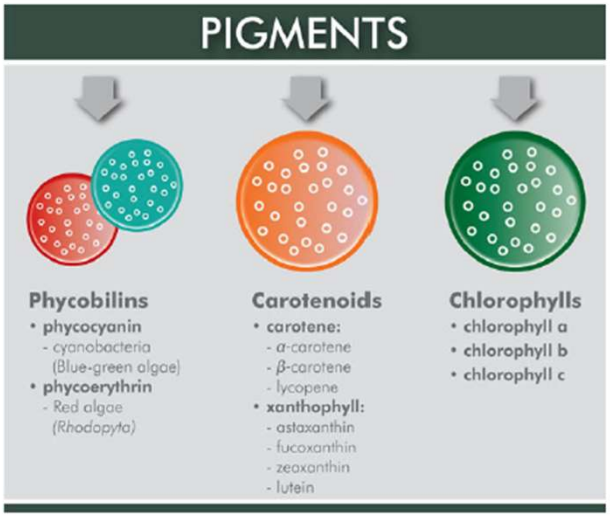
Practical application

Algal extracts produced by novel extraction techniques, such as supercritical fluid extraction, microwave-assisted extraction, ultrasound-assisted extraction, enzyme-assisted extraction and pressurized liquid extraction, have several applications in different branches of industry. These techniques protect the algal bioactive compounds from degradation. The multitude of applications results from the unique properties of algae. They are rich in compounds such as carbohydrates, proteins, minerals, oil, fats, and polyunsaturated fatty acids (e.g., eicosapentaenoic acid, docosahexaenoic acid, and γ-linolenic acid), as well as bioactive compounds, such as polyphenols, terpenoids, carotenoids, and tocopherols, which have antibacterial, antiviral, antifungal, antioxidative, anti-inflammatory, and antitumor properties. Algal extracts produced in solvent-free environments or with minimal use of solvents are safe for plants, animals, and humans. So far, they have been used in modern agriculture for plants (biostimulants, bioregulators, fertilizers), animals (feed additives), and humans (food, pharmaceuticals, cosmetics).

A. POLYSACCHARIDES



B. PIGMENTS



Introduction – background and citations

While writing **the background**, make sure your **citations** are:

- **Relevant:** this is the most important requirement. The studies you cite should be strongly related to your research question (you should cite original works, those that were created first)

- **Current:** every field is different, but you should aim to cite references that are **not more than 10 years** old if possible. Although be sure to cite the first discovery or mention in the literature even if it older than 10 years

- **Well balanced:** if experiments have produced contradictory results on a given topic, studies that presented both types of results should be reported/cited

https://www.springer.com/gp/authors-editors/authorandreviewertutorials/writing-a-journal-manuscript/introduction-methods-and-results/10285524?srsltid=AfmBOoquXojJz1JEeEBb8FvxsdgfUfPZPOHoRljomTj2x6Jl_WeIQlCu

Introduction – purpose / aim /objective of the study

- Once you have provided background material and stated the problem or question for your study, tell the reader the **purpose of your study**
- Usually the reason is to **fill a gap in the knowledge** or to **answer a previously unanswered question** – highlight the novelty of the work / the existing knowledge gap
- The final thing to include at the end of your Introduction is a clear and exact **statement of your study aims**. You might also explain in a sentence or two how you conducted the study (examples provided earlier in the presentation).
- **Finally: Ask yourself: „*Will this introduction sell my paper to editors, reviewers, readers, etc.*?"**

TIPS:

- Varied citation in the text of manuscript (not one per half of the page)
- In the introduction I use publications that I can then use in the „Materials and Methods" and „Results and Discussion" sections
- In some journals there is a reference limit – a limited number of cited publications
- All abbreviations used in the publication should be explained in the place where they appear for the first time

https://www.springer.com/gp/authors-editors/authorandreviewertutorials/writing-a-journal-manuscript/introduction-methods-and-results/10285524?srsltid=AfmBOoquXojJz1JEeEBb8FvxsdgfUfPZPOHoRljomTj2x6Jl_WeIQlCu

Materials and Methods

This section provides the reader with all the details of **how you conducted your study**.

You should:

- Describe what you did in the **past tense**
- Use **subheadings** to separate different methodologies (the description should be clear)
- Describe new methods in enough detail that another researcher **can reproduce your experiment**
- Describe established methods briefly, and **simply cite a reference** where readers can find more detail
- State **all** statistical tests and parameters (mentioned in the first presentation)

https://www.springer.com/gp/authors-editors/authorandreviewertutorials/writing-a-journal-manuscript/introduction-methods-and-results/10285524?srsltid=AfmBOoquXojJz1JEeEBb8FvxsdgfUfPZPOHoRljomTj2x6Jl_WeIQlCu

Example: description of the „Statistical analysis" section in the publication

Most often, this description is in the **„Materials and Methods"** section as the last subsection.

Statistical analysis. Statistical analysis was performed using *Statistica* ver. 13.0 (TIBCO Software Inc., Tulsa, OK, USA). For all experimental groups, descriptive statistics (mean and standard deviations or median and quantiles) were performed. The Shapiro–Wilk test was used to assess the normality of the distribution of experimental results. The Brown-Forsythe's test was used to check the homogeneity of variances. The statistical test (used to investigate the significance of differences between the tested groups) was selected based on the previously mentioned tests. The one-way analysis of variance (ANOVA) allowed the determination of the statistically significant differences between several groups. The Tukey multiple comparison test was used for normal distribution and homogeneous variances. For the lack of the normal distribution or lack of the homogeneity of variances, the Kruskal–Wallis test was used. The results were considered significantly different when $p < 0.05$.

https://doi.org/10.1038/s41598-023-36881-z

Materials and Methods

TIPS:

- The work schedule is recommended (example on the next slide)
- If there is a page limit in the manuscript, citations may be added to the described methods
- Specify the reagents used in the study, manufacturer and country
- For the equipment used, list the device type, model, and manufacturer
- Number all formulas / equations
- Pay attention to the units, they should be unified (e.g., ml or mL or cm^3)

https://www.springer.com/gp/authors-editors/authorandreviewertutorials/writing-a-journal-manuscript/introduction-methods-and-results/10285524?srsltid=AfmBOoquXojJz1JEeEBb8FvxsdgfUfPZPOHoRljomTj2x6Jl_WeIQlCu

PLOS ONE

RESEARCH ARTICLE

A comprehensive analysis of biosorption of metal ions by macroalgae using ICP-OES, SEM-EDX and FTIR techniques

Izabela Michalak[1]*, Małgorzata Mironiuk[1], Krzysztof Marycz[2,3]

1 Department of Advanced Material Technologies, Faculty of Chemistry, Wrocław University of Science and Technology, Wrocław, Poland, 2 Department of Experimental Biology, The Faculty of Biology and Animal Science, Wrocław University of Environmental and Life Sciences, Wrocław, Poland, 3 Faculty of Veterinary Medicine, Equine Clinic—Equine Surgery, Justus-Liebig-University, Gießen, Germany

„Materials and Methods"

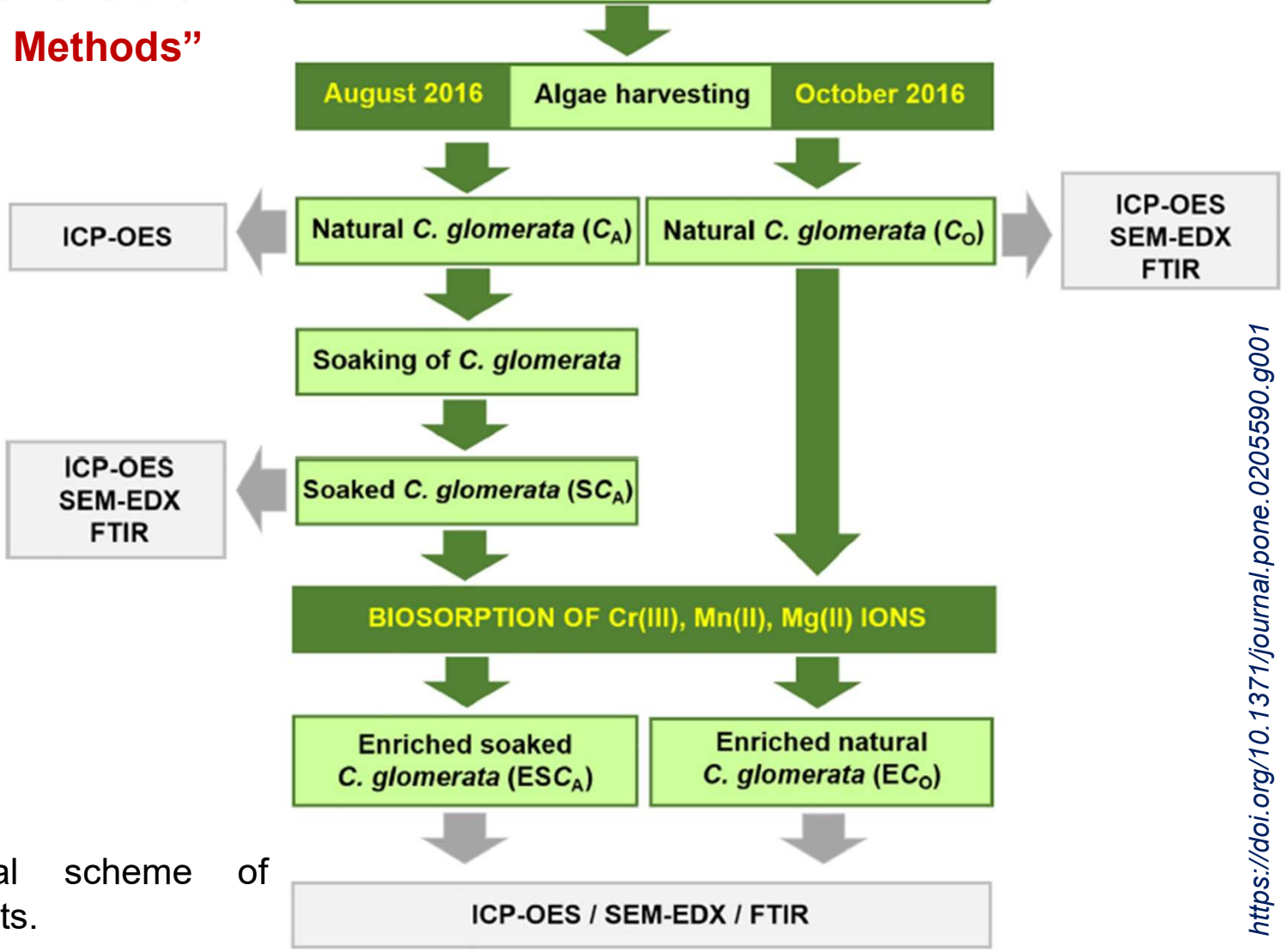


Fig 1. A general scheme of performed experiments.

https://doi.org/10.1371/journal.pone.0205590.g001

Cho et al. Applied Biological Chemistry (2024) 67:82
https://doi.org/10.1186/s13765-024-00933-3

KSABC
The Korean Society for Applied Biological Chemistry

In „Materials and Methods”

ARTICLE Open Access

AI-guided investigation of biochar's efficacy in Pb immobilization for remediation of Pb contaminated agricultural land

Yoora Cho[1,6†], Juin Yau Lim[1,2†], Avanthi Deshani Igalavithana[3], Geonwook Hwang[1], Mee Kyung Sang[4], Ondřej Mašek[5] and Yong Sik Ok[1*]

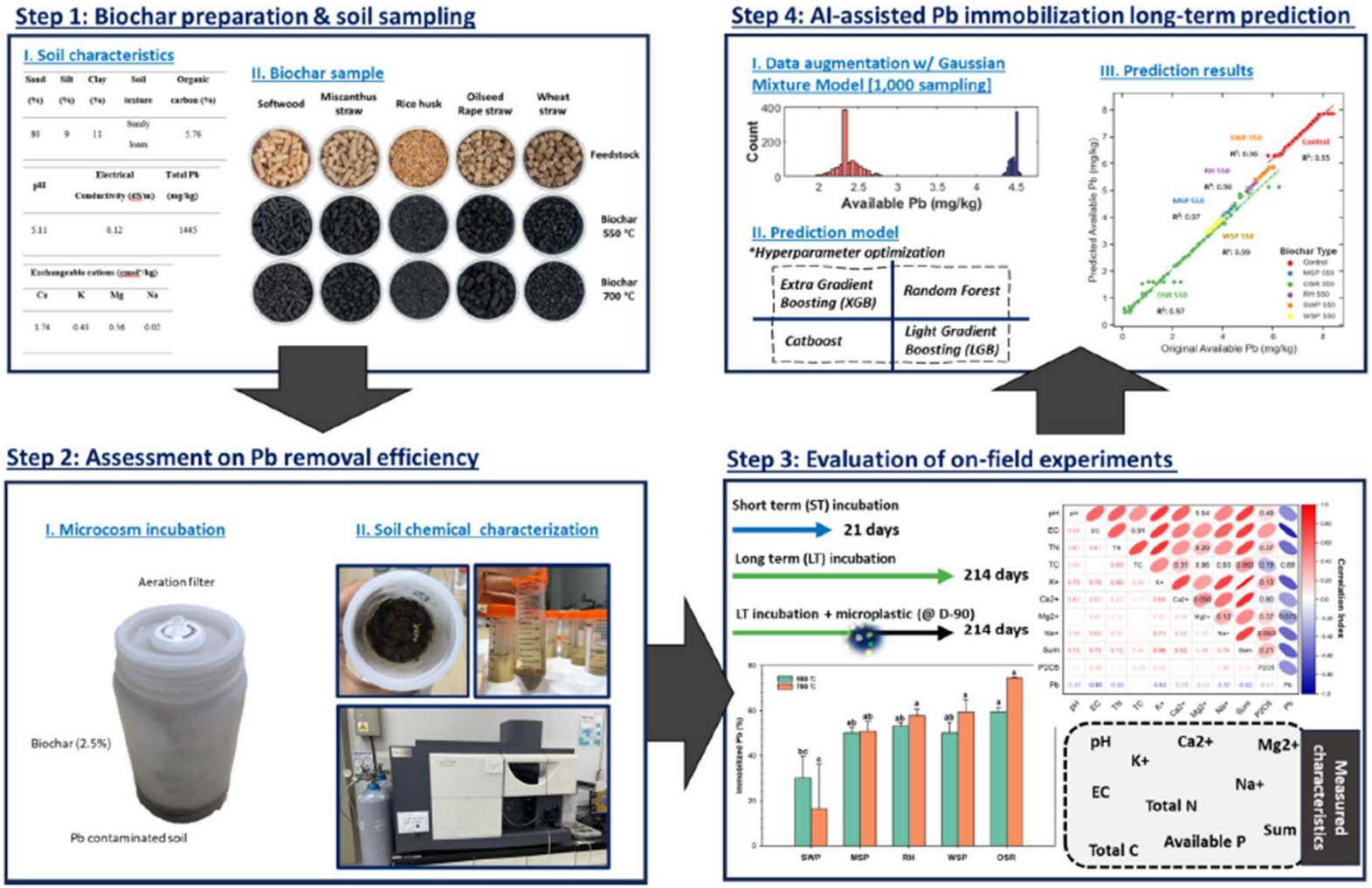


Fig. 1 An overall framework proposed to address the objective of determining the effectiveness of Pb immobilization with biochar

https://doi.org/10.1186/s13765-024-00933-3

Results and Discussion

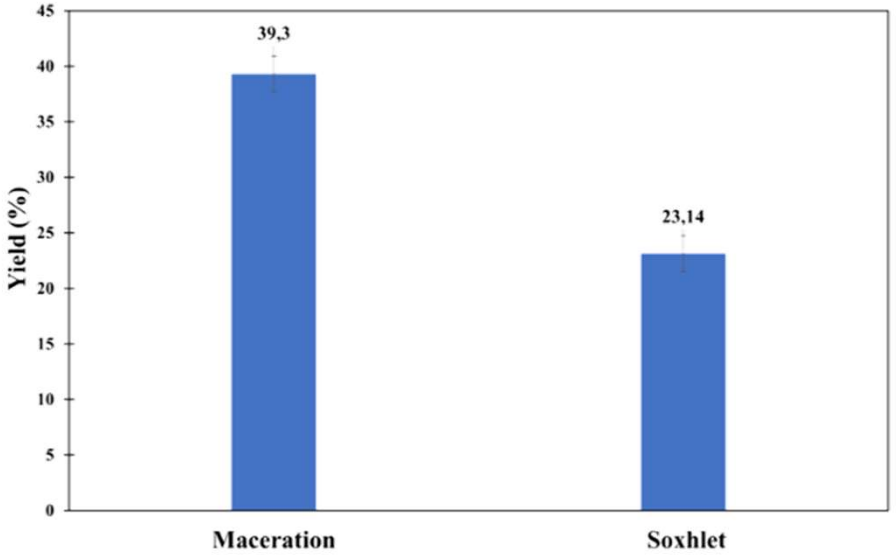
- Sometimes „Results" and „Discussion" **are separated**

- In the **Results section**, simply state what you found, but **do not** interpret the results or discuss their implications
- If the **Results and Discussion** constitute one section, after presenting the results they can be interpreted and related to the literature data
- As in the Materials and Methods section, use **subheadings** to separate the results of different experiments.
- Results should be presented in a **logical order**. In general this will be in order of importance, not necessarily the order in which the experiments were performed.
- Use the **past tense** to describe your results; however, refer to figures and tables in the present tense (e.g., Figure 1 presents…..)

https://www.springer.com/gp/authors-editors/authorandreviewertutorials/writing-a-journal-manuscript/introduction-methods-and-results/10285524?srsltid=AfmBOoquXojJz1JEeEBb8FvxsdgfUfPZPOHoRljomTj2x6Jl_WeIQlCu

Results and Discussion – Figures and Tables

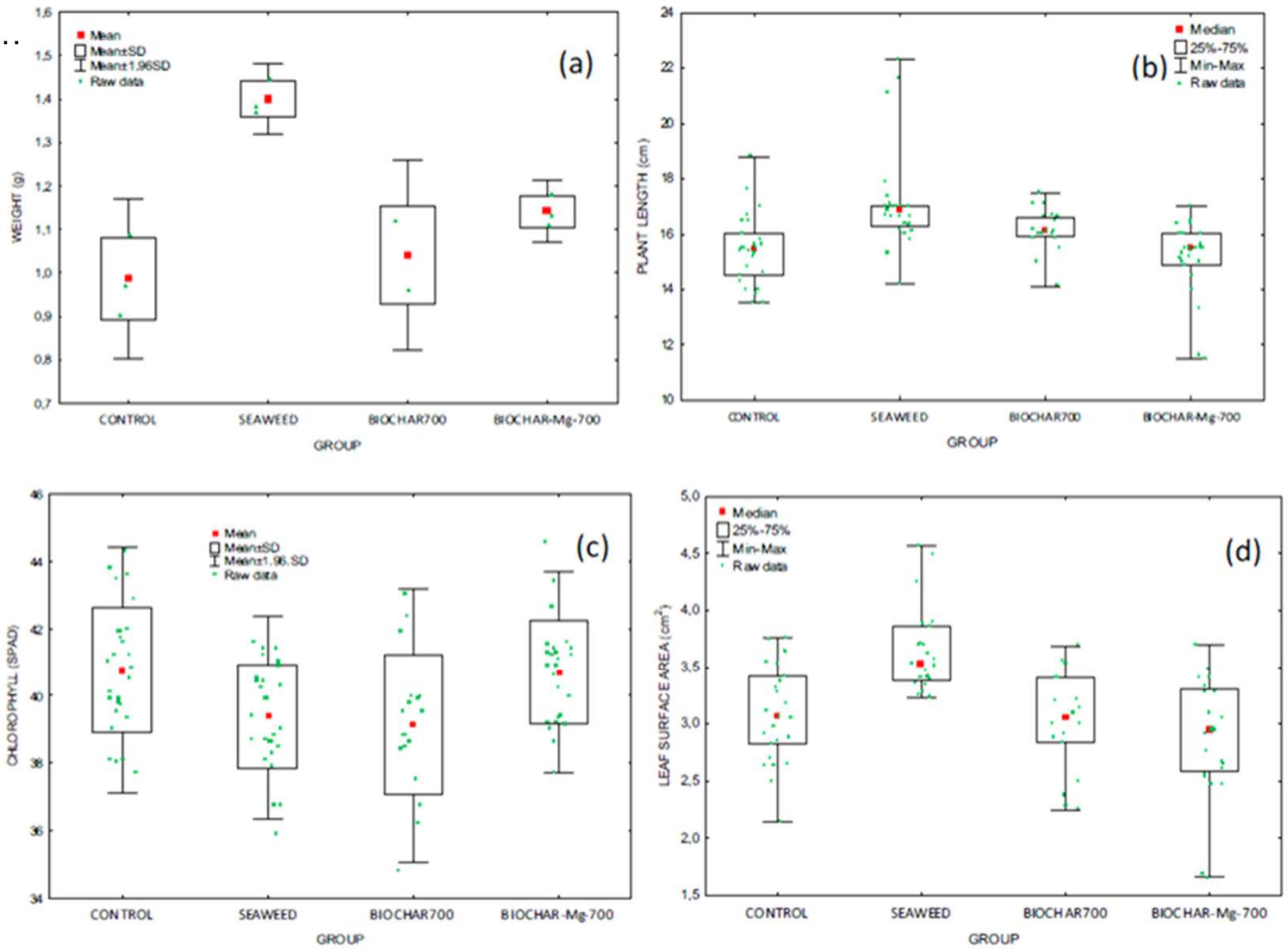
- **Do not duplicate data** among figures, tables, and text
  - A common mistake is to re-state much of the data from a table in the text of the manuscript
  - Instead, use the text to summarize what the reader will find in the table, or mention one or two of the most important data points
  - It is usually much easier to read data in a table than in the text
- Include **the results of statistical analyses** in the text, usually by providing *p* values wherever statistically significant differences are described.
- Do not include in the publication Figures with small amounts of data – it is better to describe it in one sentence in the publication
- There is usually a **limit to the number of tables / figures** in publications



https://www.springer.com/gp/authors-editors/authorandreviewertutorials/writing-a-journal-manuscript/introduction-methods-and-results/10285524?srsltid=AfmBOoquXojJz1JEeEBb8FvxsdgfUfPZPOHoRljomTj2x6Jl_WeIQlCu

Results and Discussion – Figures and Tables

Instead of Figure 1, 2, 3...
you can use
Figure 1(a), 1(b), 1(c)...
– limiting the number of figures in the publication



Niedzbała *et al.*
Bioresources and Bioprocessing (2024) 11:27
https://doi.org/10.1186/s40643-024-00741-z

Fig. 6 Results of the pot experiments (**a**) fresh weight of the aboveground parts of plants, (**b**) plant length, (**c**) chlorophyl, (**d**) leaf surface area using different soil additives

Figures and Tables

Figures and **tables** are often **the quickest way to communicate large amounts of complex information** that would be complicated to explain in text

- ❑ Figures and tables are also important **for attracting readers to your work**

Tables are a concise and effective way to present large amounts of data

- ❑ You should design them carefully so that you clearly communicate your results to busy researchers

The following is an example of a well-designed table:

- Clear and concise legend / caption
- Data divided into categories for clarity
- Sufficient spacing between columns and rows
- Units are provided
- Font type and size are legible
- Use the same abbreviations for a given parameter throughout the publication (e.g. q_m or q_{max} – for maximum sorption capacity)

---

https://www.springer.com/gp/authors-editors/authorandreviewertutorials/writing-a-journal-manuscript/figures-and-tables/10285530

Figures and Tables

Figures are ideal for presenting:

- Images
- Data plots
- Maps
- Schematics

Just like tables all figures need to have a clear and **concise legend caption** to accompany them.

All figures and tables in the manuscript **should be numbered chronologically** and there should be a reference to them in the text of the publication:

Pot experiments using enriched biochar

Pot experiments carried out after phytotoxicity studies on the same plant showed that biochar was not toxic to wheat (*Triticum aestivum*). Three different soil additives were used for these tests—*Ulva intestinalis* (S), biochar enriched with phosphate ions (B700 + P) and modified biochar enriched phosphate ions (B700$MgCl_2$ + P). The results are presented in Table 10 and Fig. 6.

https://doi.org/10.1186/s40643-024-00741-z

https://www.springer.com/gp/authors-editors/authorandreviewertutorials/writing-a-journal-manuscript/figures-and-tables/10285530

Appendix – Supplementary materials

If we have **more tables or figures** and there is no space in the main text of the manuscript, we can add them to the **Supplementary Materials**

Example:

Cho *et al. Applied Biological Chemistry* (2024) 67:82
https://doi.org/10.1186/s13765-024-00933-3

KSABC
The Korean Society for Applied Biological Chemistry

ARTICLE **Open Access**

AI-guided investigation of biochar's efficacy in Pb immobilization for remediation of Pb contaminated agricultural land

Yoora Cho[1,6†], Juin Yau Lim[1,2†], Avanthi Deshani Igalavithana[3], Geonwook Hwang[1], Mee Kyung Sang[4], Ondřej Mašek[5] and Yong Sik Ok[1*]

https://doi.org/10.1186/s13765-024-00933-3

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s13765-024-00933-3.

Supplementary Material 1
Supplementary Material 2
Supplementary Material 3
Supplementary Material 4

Acknowledgements
This work was supported by the National Research Foundation of Korea (NRF) grant funded by the Korean government (MSIT) (No. 2021R1A2C2011734). This research was also supported by the Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education (NRF-2021R1A6A1A10045235). This work was supported by the Technology Innovation Program (RS-2024-00432915, Development of biodegradable polymer and their applications using high-performance enzyme activation technologies for acceleration of biodegradability) funded By the Ministry of Trade, Industry & Energy (MOTIE, Korea).

Author Contributions
Yoora Cho: Formal analysis, Investigation, Writing – original draft, Visualization. Juin Yau Lim: Methodology, Formal analysis, Investigation, Writing – original draft. Avanthi Deshani Igalavithana: Methodology, Writing – review & editing. Geonwook Hwang: Writing – review & editing. Mee Kyung Sang: Methodology, Formal analysis, Writing – review & editing. Ondřej Mašek: Resources, Writing – review & editing. Yong Sik Ok: Conceptualization, Writing – review & editing, Funding acquisition, and Supervision.

Data Availability
All data generated or analyzed during this study are included in this published article and supplementary materials.

https://applbiolchem.springeropen.com/articles/10.1186/s13765-024-00933-3#Sec15

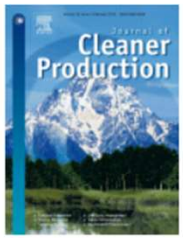
Publication – Get rights and content

If there is a figure or table in a given publication that interests you, you can ask the publisher for permission to include it in your publication.

Publication – Get rights and content

CCC | RightsLink

Sign in/Register



A comprehensive review of engineered biochar: Production, characteristics, and environmental applications

Author:
Hamed Kazemi Shariat Panahi,Mona Dehhaghi,Yong Sik Ok,Abdul-Sattar Nizami,Benyamin Khoshnevisan,Solange I. Mussatto,Mortaza Aghbashlo,Meisam Tabatabaei,Su Shiung Lam

Publication: Journal of Cleaner Production

Publisher: Elsevier

Date: 10 October 2020

Welcome to RightsLink

Elsevier has partnered with Copyright Clearance Center's RightsLink service to offer a variety of options for reusing this content.

I would like to... make a selection

To request permission for a type of use not listed, please contact Elsevier Global Rights Department.

Are you the author of this Elsevier journal article?

- make a selection
- reuse in a medical communications project
- reuse in a clinical trial
- rent this content
- purchase this content
- order reprints or e-prints
- reuse in a book/textbook
- **reuse in a journal/magazine**
- reuse in a presentation/slide kit/poster
- reuse in promotional materials/pamphlet/brochure
- reuse in training/CME Materials
- **reuse in a thesis/dissertation**
- reuse in coursepack/classroom materials
- reuse in a CD-ROM/DVD/other storage media
- reuse in news media
- make photocopies
- reuse in conference proceedings
- reuse in a government report
- post on a website
- reuse in broadcast media

make a selection

materials

MDPI

Publication – Get rights and content

Review

A Review on the Adaption of Alginate-Gelatin Hydrogels for 3D Cultures and Bioprinting

Magdalena B. Łabowska [1], Karolina Cierluk [2], Agnieszka M. Jankowska [1], Julita Kulbacka [3], Jerzy Detyna [1,*] and Izabela Michalak [4]

https://doi.org/10.3390/ma14040858

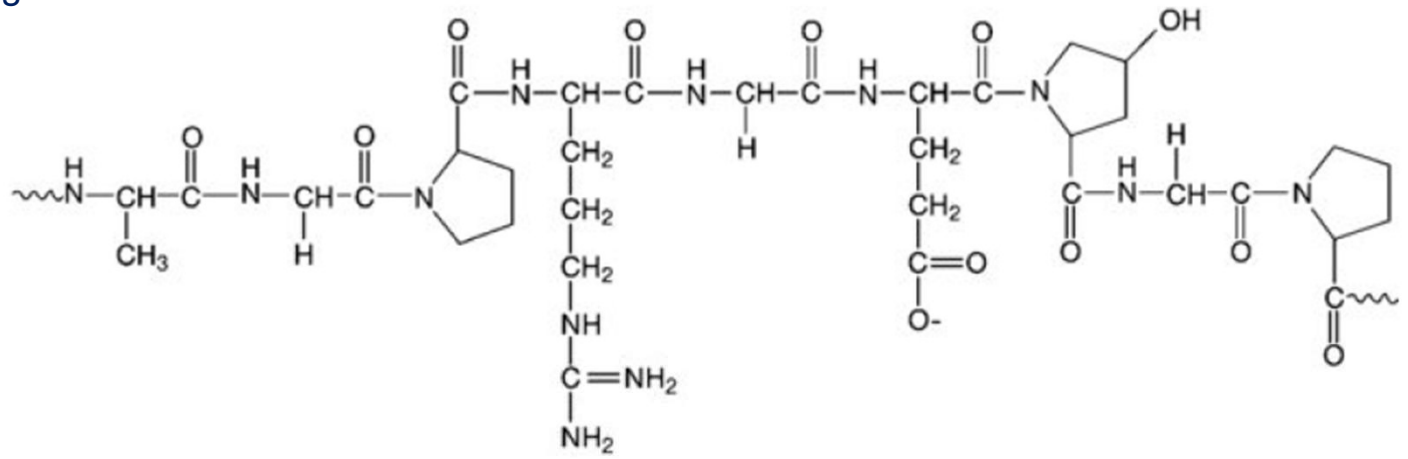


Figure 3. Chemical structure of gelatin. Reproduced with permission from [50]. Copyright 2020 John Wiley & Sons.

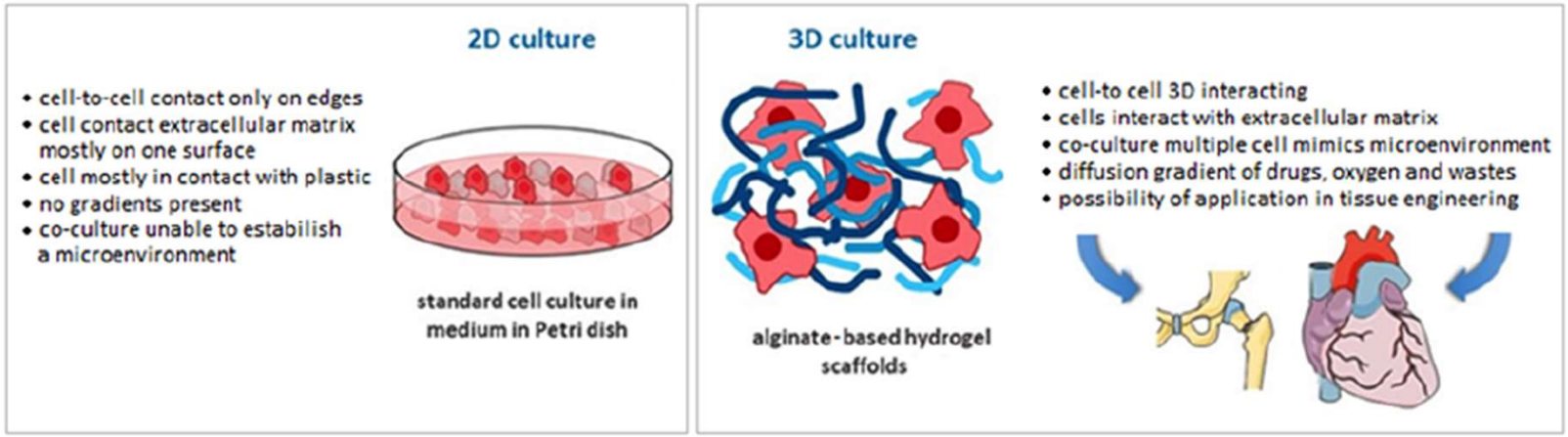
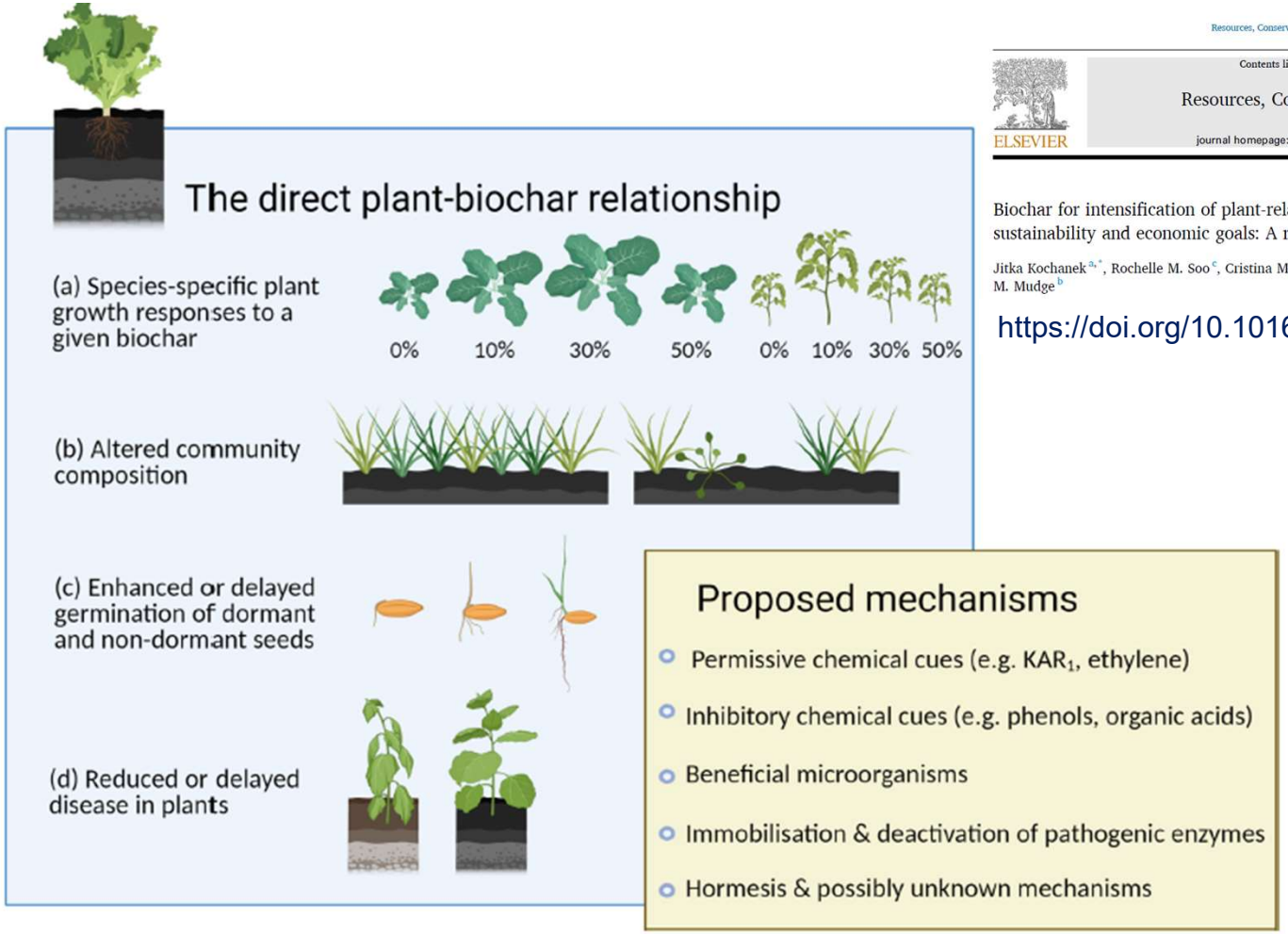


Figure 7. Comparison of 2D culture and 3D model based on alginate hydrogel (own source).



Resources, Conservation & Recycling 179 (2022) 106109

Contents lists available at ScienceDirect

Resources, Conservation & Recycling

journal homepage: www.elsevier.com/locate/resconrec

Biochar for intensification of plant-related industries to meet productivity, sustainability and economic goals: A review

Jitka Kochanek [a,*], Rochelle M. Soo [c], Cristina Martinez [d], Aloesi Dakuidreketi [d], Agnieszka M. Mudge [b]

https://doi.org/10.1016/j.resconrec.2021.106109

Fig. 2. Direct effects of biochar on plants that are not related to nutritional, water-holding, physical or liming attributes (the 'charcoal effect', (Graber et al., 2010). For example, (a) biphasic and species-specific responses to biochar occur whereby plant size or growth increase in dose-response trials to a species-specific maximal peak and then declines above the peak rate (Kochanek et al., 2016a, b; Spokas et al., 2012; Biederman and Harpole, 2013; Graber et al., 2010; Mukherjee and Lal, 2014); (b) biochar can alter plant community composition, reducing the density of some species and increasing others within the same site (Drake et al., 2015; Grau-Andres et al., 2021); (c) biochar can assist in or delay germination of dormant and non-dormant seeds, such as of agricultural, native and weedy species (Kochanek et al., 2016a); and (d) biochar can sometimes reduce or delay disease in plants (Elad et al., 2010; Jaiswal et al., 2019). Proposed mechanisms are an interplay of permissive chemical cues, such as the plant growth regulating compounds karrikinolide (KAR_1; Kochanek et al., 2016a) and ethylene (Fulton et al., 2013), and inhibitory cues such as phenols and organic acids; stimulation of beneficial microbiota at low concentrations and impairment at high concentrations (Graber et al., 2010; Elad et al., 2010; Warnock et al., 2007); immobilization and deactivation of pathogenic enzymes (Jaiswal et al., 2018c); low phytotoxin doses stimulating plant growth but high doses supressing growth (hormesis; Graber et al., 2010; Elad et al., 2010; Prithiviraj et al., 2007) and likely as-yet unknown phenomena (Backer et al., 2018). Created with BioRender.com.

BioRender: Scientific Image and Illustration Software; https://www.biorender.com/

Discussion

Discussion section should be an interpretation of your results.

You should:

- **Compare** your results with those from other studies: are they consistent? If not, discuss possible reasons for the difference
- Mention any **inconclusive results** and explain them as best you can
  - You may suggest additional experiments needed to clarify your results
- Briefly describe the **limitations** of your study to show reviewers and readers that you have considered your experiment's weaknesses
  - Many researchers are hesitant to do this as they feel it highlights the weaknesses in their research to the editor and reviewer
  - However doing this actually makes a positive impression of your paper as it makes it clear that you have an in depth understanding of your topic and can think objectively of your research

https://www.springer.com/gp/authors-editors/authorandreviewertutorials/writing-a-journal-manuscript/discussion-and-conclusions/10285528

Discussion of results

Open Chem., 2018; 16: 1066–1076 DE GRUYTER

Research Article Open Access

Izabela Michalak*, Sylwia Lewandowska, Jerzy Detyna, Sylwia Olsztyńska-Janus, Henryk Bujak, Paulina Pacholska

The Effect of Macroalgal Extracts and Near Infrared Radiation on Germination of Soybean Seedlings: Preliminary Research Results

Soaking of 100 soybean seeds in extract (40 ml) for 1 h

Abnormal

Normal

Table 2: The number of normal, abnormal and dead seedlings in the tested groups.

Group		Normal seedlings **		Abnormal seedlings ***		Dead seedlings ***	
		Average*	SD	Average*	SD	Average*	SD
1	C	84.5^{abcdef}	3.1	14.5^{a}	3.1	1.0	0.0
2	NIR3 E50	52.5^{agh}	4.8	28.3	3.0	19.3	2.1
3	NIR3 E100	55.5^{bijk}	2.9	24.8	3.5	19.8	4.8
4	NIR5 E50	47.3^{clm}	8.1	31.0	7.0	21.8	3.0
5	NIR5 E100	49.0^{dno}	2.4	26.0	1.8	25.0^{a}	3.5
6	NIR3	85.0^{gilnpr}	2.2	14.8^{b}	1.7	0.3^{a}	0.5
7	NIR5	85.3^{hjmost}	3.0	14.0^{c}	2.9	0.8	1.0
8	E50	44.5^{ekps}	4.2	33.3^{abc}	3.1	22.3	6.1
9	E100	47.8^{frt}	3.8	29.0	5.4	23.3	2.4

* – average from 4 replications in each group; SD – standard deviation
** – normal distribution, *ANOVA* test
*** – abnormal distribution, *Kruskal-Wallis* test
a, b... – statistically significant differences for $p<0.05$

The soaking of soybean seeds in macroalgal extract caused many of the germinated seedlings to be classified as abnormal and dead (the highest percentage) – seeds swelled in the extract

https://doi.org/10.1515/chem-2018-0115

New experiment – changing the method of the application of algal extract to soybean seeds

Open Chem., 2019; 17: 516–525 DE GRUYTER

Research Article

Sylwia Lewandowska*, Izabela Michalak, Katarzyna Niemczyk, Jerzy Detyna, Henryk Bujak, Pelin Arik

Influence of the Static Magnetic Field and Algal Extract on the Germination of Soybean Seeds

(a) Soaking of paper substrate in an algal extract **(b)** Putting 100 soybean seeds on a paper substrate **(c)** Storing of soybean seedlings in a growth chamber.

https://doi.org/10.1515/chem-2019-0039

Discussion – continued… and Conclusions

You should:

- Discuss **what your results may mean** for researchers in the same field as you, researchers in other fields, and the general public. How could your findings be applied?
- State how your results **extend the findings** of previous studies
- If your findings are preliminary, suggest **future studies** that need to be carried out
- Summarize the hypothesis (accepted or rejected) and purpose of the study

- Discuss your **Conclusions** in order of **most to least important**
- Conclusions should be supported by the results obtained
- **Often, this is the weakest section in the publications I review…**

https://www.springer.com/gp/authors-editors/authorandreviewertutorials/writing-a-journal-manuscript/discussion-and-conclusions/10285528

Acknowledgments

Acknowledgments:

- Its purpose is to **thank all of the people who helped with the research** but did not qualify for authorship (check the target journal's Instructions for Authors for authorship guidelines)
- Acknowledge anyone who provided **intellectual assistance**, **technical help** (including with writing and editing), or **special equipment** or **materials**

- Some journals request that you use this section to provide information about **funding** by including **specific grant numbers** and **titles** (check your target journal's instruction for authors for specific instructions)
- If you need to include **funding information**, list:
  - list the name(s) of the funding organization(s) in full
  - identify which authors received funding for what

Funding

This work was performed in the framework of grant: "Eco-friendly technologies for the management of seaweed biomass for products useful for sustainable agriculture and biosorbents used for the removal of heavy metal ions from the environment" (2019/33/B/NZ9/01844) from the National Science Centre in Poland.

https://www.springer.com/gp/authors-editors/authorandreviewertutorials/writing-a-journal-manuscript/acknowledgments-and-references/10285532; https://doi.org/10.1186/s40643-024-00741-z

References

References:

- Every statement of fact or description of previous findings in manuscript requires a supporting reference
- Generally, only the most relevant and recent articles need to be cited
- There is no correct **number of references for a manuscript**, but be sure to check the journal's guidelines to see whether it has limits on numbers of references
- Citations show that other researchers are performing work similar to your own – having current citations will help journal editors see that there is a potential audience for your manuscript
- Each Journal usually has its own citation style
- There are several freely and commercially available programs (such as Mendeley, EndNote, Zotero) that facilitate the citations process and the generation of the bibliography, including the details for multiple citation styles

Cited publications in References can make it easier to choose a potential journal to which we can submit our publication – it is worth checking which journal is most frequently cited.

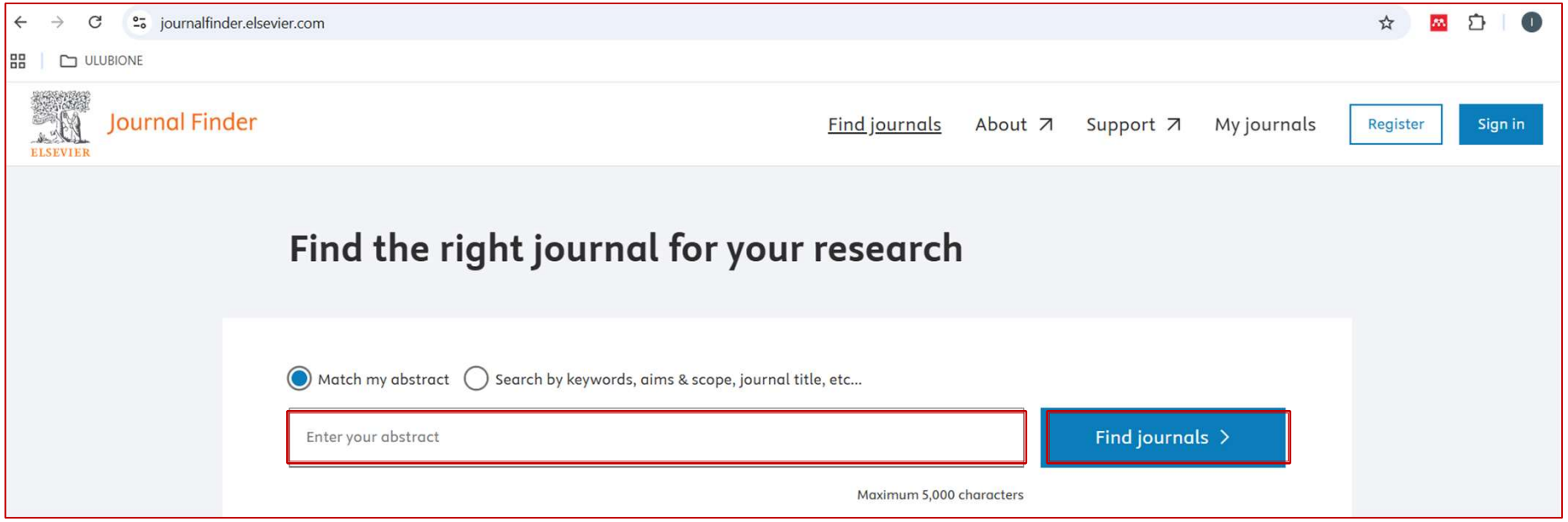
---

https://www.springer.com/gp/authors-editors/authorandreviewertutorials/writing-a-journal-manuscript/acknowledgments-and-references/10285532

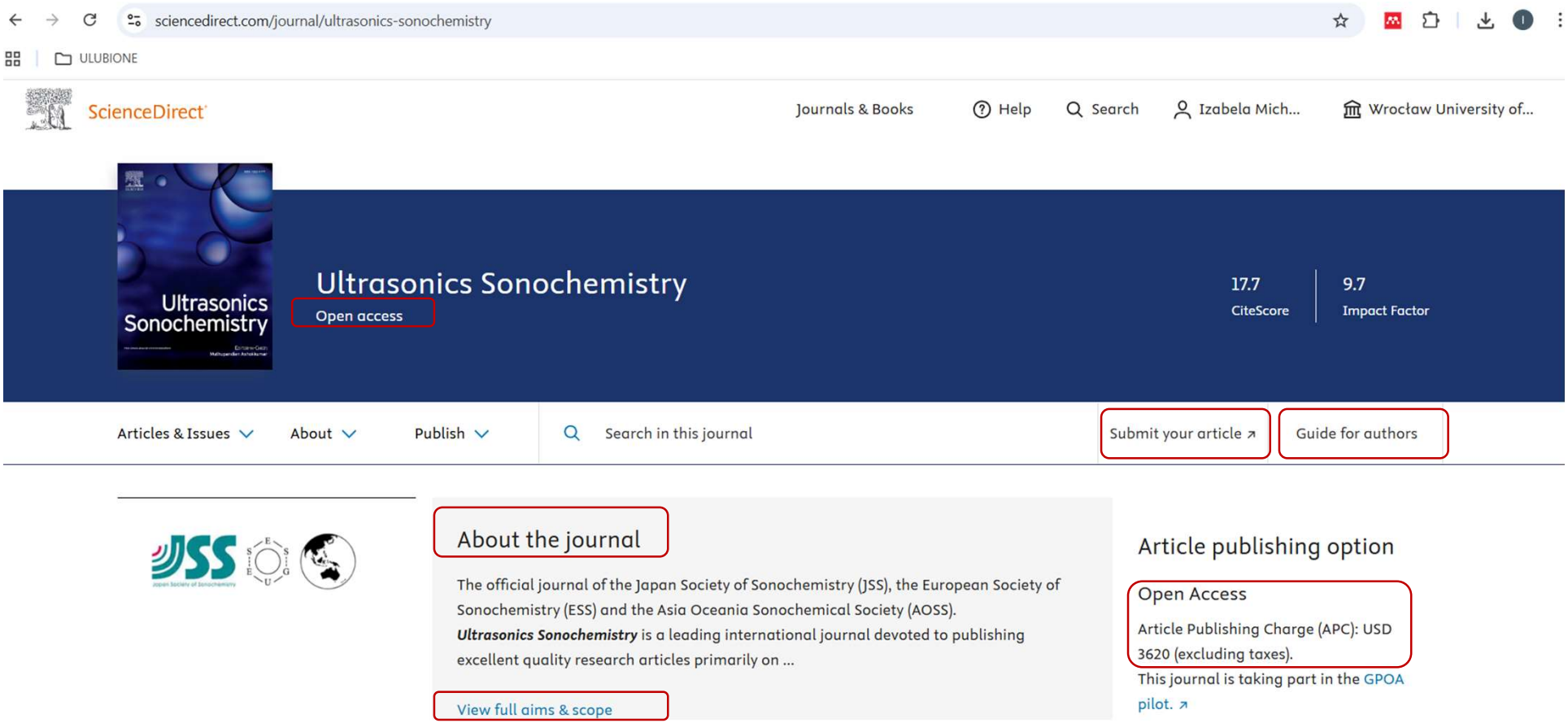
Where is the best place to publish my research?

Select few potential journals according to the following rules:

- ❑ Analyze the list of the journals you read and cite the most
- ❑ Ask the **co-authors**, they should be involved in choosing the journal/conference
- ❑ Ask more experienced colleagues, supervisors
- ❑ Use tools such as **Elsevier Journal Finder**



Website of the Journal



Open access facilitates the access to information and the potential to increase the reproducibility and the quality of research findings.

Many institutions cover researchers' OA publishing costs (known as **article processing charges**, or APCs) as part of **OA agreements** with the Publisher.

Website of the Journal – Aim and Scope

Aims & Scope

The official journal of the Japan Society of Sonochemistry (JSS), the European Society of Sonochemistry (ESS) and the Asia Oceania Sonochemical Society (AOSS).

Ultrasonics Sonochemistry is a leading international journal devoted to publishing excellent quality research articles primarily on chemical reactions and reactors induced by **ultrasonic waves**, namely **sonochemistry**. In addition to focusing on chemical reactions, ***Ultrasonics Sonochemistry*** also values contributions related to **cavitation** (acoustic or hydrodynamic) induced events and processing such as **sonoluminescence**, and chemical/physical/biological transformation of materials.

Ultrasonics Sonochemistry publishes excellent quality papers in a number of areas involving **ultrasonics** and **sonochemistry**. Since its establishment in 1994, the journal's ranking has been consistently high and currently the top ranked journal in the "**Acoustics**" category. Papers published in ***Ultrasonics Sonochemistry*** are highly relevant to academics and the industry sector.

Ultrasonics Sonochemistry considers high quality manuscripts for publication under the following categories: Full length research articles, Reviews and Short Communications in the research topics/areas listed below. Manuscripts reporting routine/incremental work will not be

Please review this information carefully to ensure your article is appropriate for this journal, and this justification should be included in your **Cover Letter**.

In the Cover Letter, it should be clearly stated which section in the journal our article fits into.

One of the main reasons for rejecting a publication from a journal (and not sending it for review) is its non-compliance with the aim and scope of the Journal **(out of scope)**.

Common reasons for rejection

Your manuscript can be rejected for many reasons but these can generally be divided into technical and editorial reasons.

Technical reasons usually require more work such as further experiments or analysis before your work can be published.

Technical reasons for rejection include:

- Incomplete data such as too small a sample size or missing or poor controls
- Poor analysis such as using inappropriate statistical tests or a lack of statistics altogether
- Inappropriate methodology for answering your hypothesis or using old methodology that has been surpassed by newer, more powerful methods that provide more robust results
- Weak research motive where your hypothesis is not clear or scientifically valid, or your data does not answer the question posed
- Inaccurate conclusions on assumptions that are not supported by your data

https://www.springer.com/gp/authors-editors/authorandreviewertutorials/submitting-to-a-journal-and-peer-review/what-is-open-access/10285582

Common reasons for rejection

Editorial reasons for rejection include:

- Out of scope for the journal
- Not enough of an advance or of enough impact for the journal
- Research ethics ignored such as consent from patients or approval from an ethics committee for animal research
- Lack of proper structure or not following journal formatting requirements
- Lack of the necessary detail for readers to fully understand and repeat the authors' analysis and experiments
- Lack of up-to-date references or references containing a high proportion of self-citations
- Has poor language quality such that it cannot be understood by readers
- Difficult to follow logic or poorly presented data
- Violation of publication ethics

https://www.springer.com/gp/authors-editors/authorandreviewertutorials/submitting-to-a-journal-and-peer-review/what-is-open-access/10285582

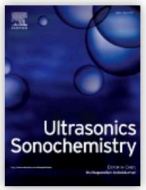
Journal – Guide for Authors

elsevier.com/journals/ultrasonics-sonochemistry/1350-4177/guide-for-authors

ULUBIONE

ELSEVIER

About Elsevier | Products & Solutions | Services | Shop & Discover | Search



Visit journal homepage >

Submit your paper >

Open access information >

Track your paper >

View articles >

Abstracting >

Editorial board >

Browse journals > Ultrasonics Sonochemistry > Guide for authors

Guide for Authors

Download Guide for Authors in PDF

Aims and scope +

- Your Paper Your Way

BEFORE YOU BEGIN

- Ethics in publishing
- Declaration of competing interest
- Submission declaration and verification
- Preprint posting on SSRN
- Use of inclusive language
- Author contributions
- Changes to authorship
- Copyright
- Role of the funding source
- Open access

- Submission

PREPARATION

- Queries

NEW SUBMISSIONS

- Peer review
- Article structure
- Essential title page information
- Highlights
- Abstract
- Keywords
- Artwork
- Tables
- References
- Video
- Data visualization
- Supplementary material
- Research data

AFTER ACCEPTANCE

- Online proof correction
- Offprints

AUTHOR INQUIRIES

Before publication submission – preparing a Cover Letter

- A good Cover Letter can **help to "sell" your manuscript** to the journal editor
- As well as introducing your work to the editor you can also take this opportunity to **explain why the manuscript will be of interest to a journal's readers**, something which is always as the forefront editors' mind
- As such it is worth spending time writing a coherent and persuasive Cover Letter !!!

https://www.springer.com/gp/authors-editors/authorandreviewertutorials/submitting-to-a-journal-and-peer-review/cover-letters/10285574?srsltid=AfmBOopUAwt3dnlTZCz6Vj9Z0P8Kj2iV4C06ybRGPu0SveSLuT1IZGMf

Before publication submission – preparing a Cover Letter

- If known, **address the editor** who will be assessing your manuscript by their name. Include the date of submission and the journal you are submitting to.
- **First paragraph:** include the title of your manuscript and the type of manuscript it is (e.g. review, research, case study). Then briefly explain the background to your study, the question you sought out to answer and why
- **Second paragraph:** you should concisely explain what was done, the main findings and why they are significant
- **Third paragraph:** here you should indicate why the readers of the journal would be interested in the work. Take your cues from the journal's aims and scope. For example if the journal requires that all work published has broad implications explain how your study fulfils this. It is also a good idea to include a sentence on the importance of the results to the field
- **To conclude** state the **corresponding author** and any journal specific requirements that need to be complied with (e.g. ethical standards)

---

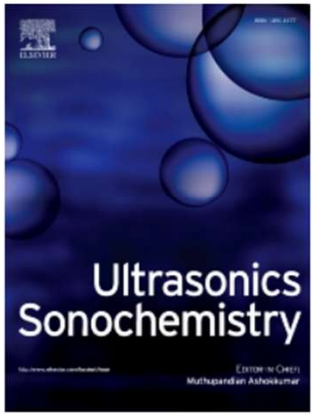
https://www.springer.com/gp/authors-editors/authorandreviewertutorials/submitting-to-a-journal-and-peer-review/cover-letters/10285574?srsltid=AfmBOopUAwt3dnlTZCz6Vj9Z0P8Kj2iV4C06ybRGPu0SveSLuT1IZGMf

Discussing the publication submission system

em Ultrasonics Sonochemistry

Home | Submit a Manuscript | About | Help

Welcome to Editorial Manager® for
Ultrasonics Sonochemistry



Insert Special Character

Please Enter the Following

Username:

Password:

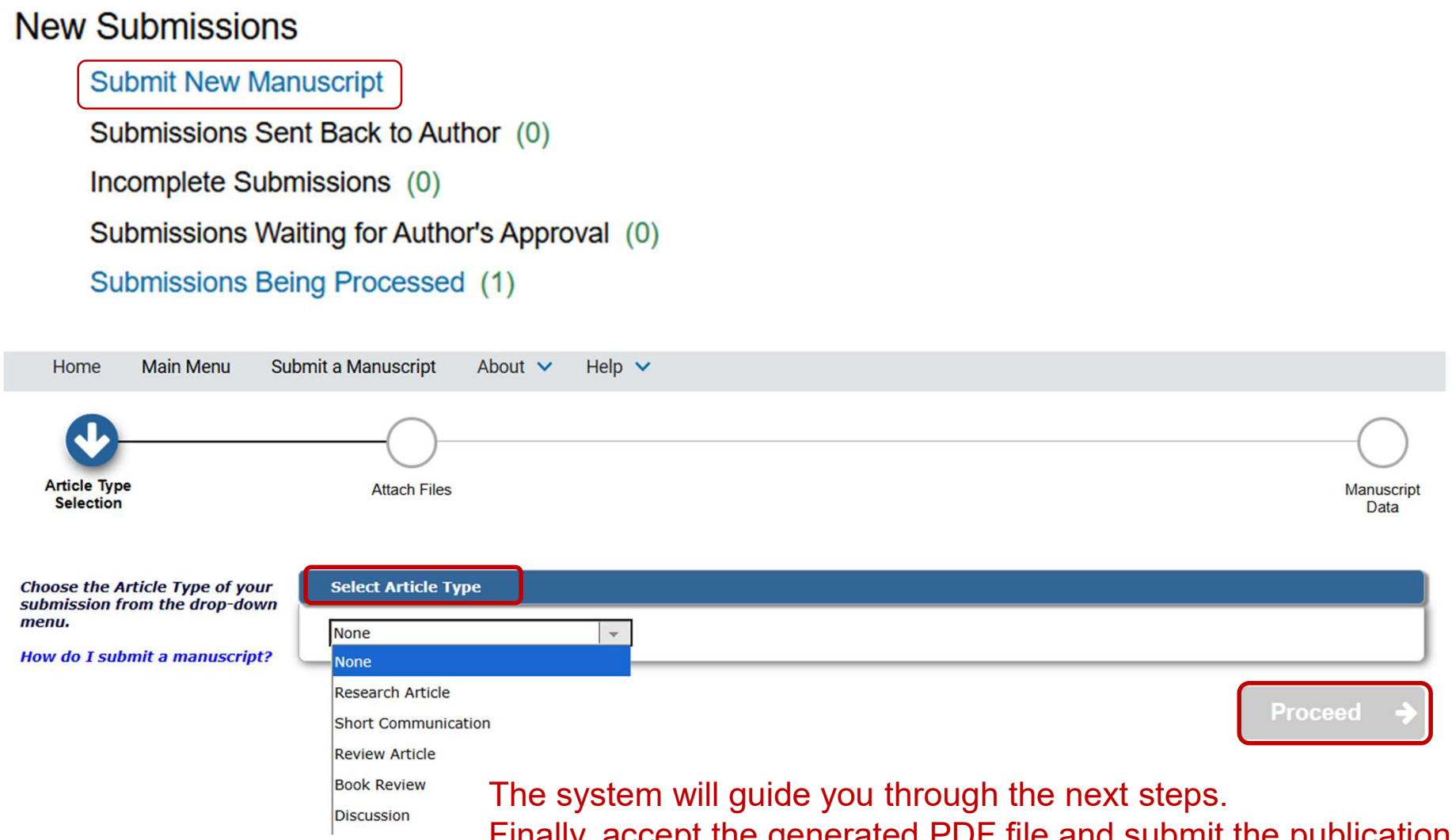
Author Login | Reviewer Login | Editor Login | Publisher Login

Or Login via: What is ORCID?

Send Login Details | Register Now | Login Help

NEW: Login via ORCID
Please note that in addition to logging in via your EM username and password, you can now also log into this journal **using your ORCID username and password.** Visit our Support Hub page for further support.

The publication submission system



The system will guide you through the next steps.
Finally, accept the generated PDF file and submit the publication.

Revising and responding

- Once you manuscript has come back from reviewers you may be given the **opportunity to revise it in accordance with the reviewer comments**
- You will usually receive a letter from the editor who handled your manuscript outlining the changes they would like you to make and links to the reviewer reports
- This letter usually contains information on how to return your revised manuscript including instructions on how to highlight the changes made and when you need to return the revised version

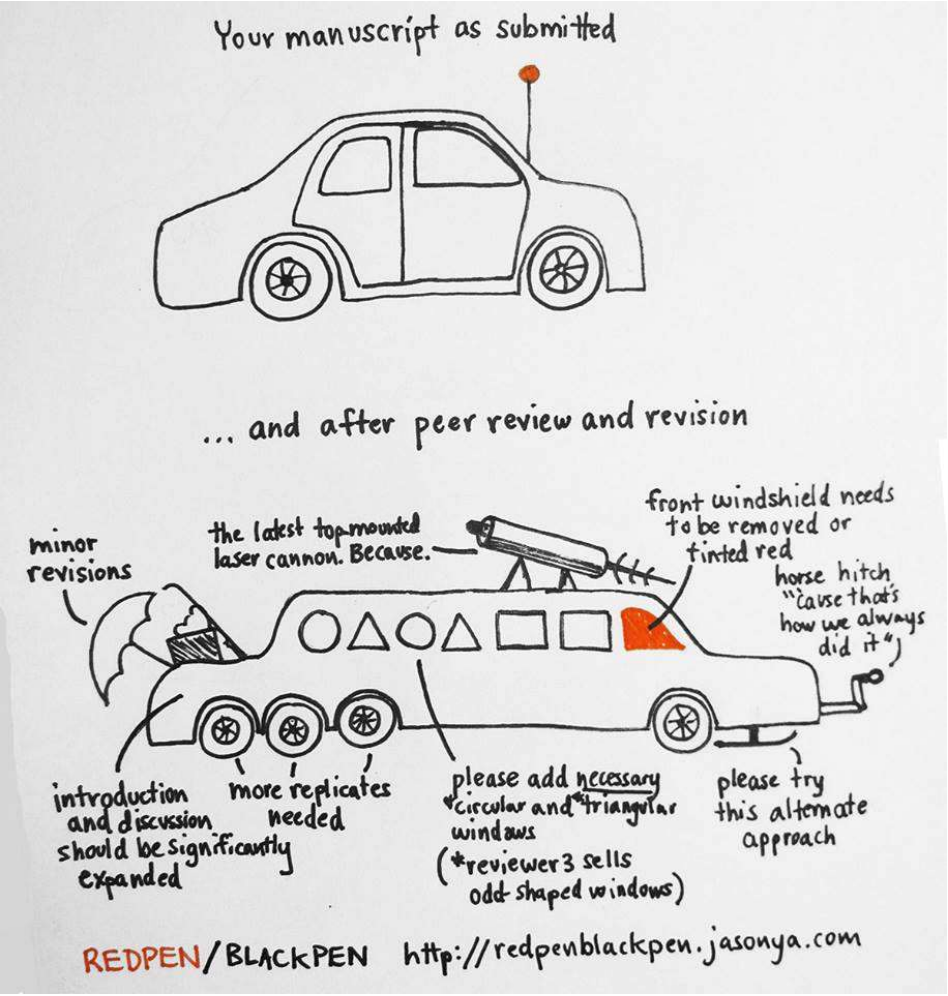
TIP:

- Journals have different revision deadlines which vary from as little as a few weeks to three months depending on the revisions that need to be made
- If you do not think you will be able to return a revised manuscript in the allotted time tell the editor immediately
- They should be able to offer you an extension but it is best to discuss this with them as early as possible

https://www.springer.com/gp/authors-editors/authorandreviewertutorials/submitting-to-a-journal-and-peer-review/revising-and-responding/10285584

Revision – response to Reviewers

- The reviewer is (**almost** ☺) always right
- Carefully analyze all comments in the reviews
- Include all comments in the revised version of the work
- In the revised paper, highlight the changed and new fragments with a color
- In response to reviews, refer to each critical remark contained in the review:
  - Describe realized changes in work
  - If the comment was not taken into account (we do not agree with it) justify why we do not agree, including citing other works



https://getalifephd.blogspot.com/2011/03/how-to-respond-to-revise-and-resubmit.html

Revision

Options:

The manuscript can be accepted in the present form

The manuscript can be accepted after minor revision

The manuscript can be accepted after major revision.

The manuscript should be rejected

Wroclaw, 3rd September, 2025

Prof. Izabela Michalak
Wrocław University of Science and Technology
Faculty of Chemistry
Department of Advanced Material Technologies
Smoluchowskiego 25
50-372 Wrocław, Poland
e-mail: izabela.michalak@pwr.edu.pl

Dear Editor-in-Chief of …
Professor …

We would like to give answers to remarks of Reviewers. Reviewers have read this paper very thoroughly and their remarks were very helpful to significantly improve this manuscript. Many new texts have been added that better explain the assumptions of the article and the results obtained. We included all the changes according to the suggestions of Reviewers. The corrections in the revised manuscript were made in red colour.

Reviewer: 1
Recommendation: Publish after minor revisions.

Comments:
It is recommended to conduct a bibliographic review of studies published in the last 10 years and update the references in the text. Many references are more than 10 years old.

Thank you for this remark. This section has been significantly revised and expanded. New texts and current citations have been added. New references:

Adegoke, K.A.; Adesina, O.O.; Okon-Akan, O.A.; Adegoke, O.R.; Olabintan, A.B.; Ajala, O.A.; Olagoke, H.; Maxakato, N.W.; Bello, O.S. Sawdust-biomass based materials for sequestration of organic and inorganic pollutants and potential for engineering applications. Cur. Res. Green Sustain. Chem. **2022**, *5*, 100274. https://doi.org/10.1016/j.crgsc.2022.100274

It's worth checking out Journals websites

ScienceDirect

Conference proposals on a given topic

More from Ultrasonics Sonochemistry

News | Announcements

27 July 2025

6th Meeting of the Asia-Oceania Sonochemical Society (AOSS-6, 2025) in conjunction with 34th Annual Meeting of the Japan Society of Sonochemistry (2nd Circular)

Reliable and reputable conferences

Conference proceedings – Special Issues for participants of scientific conferences

https://www.sciencedirect.com/journal/algal-research

Thank You for Your Attention

Prof. Izabela Michalak
Department of Advanced Material Technologies
Faculty of Chemistry
Building B-1/401; Smoluchowskiego 25

Wrocław University of Science and Technology

izabela.michalak@pwr.edu.pl
+48 71 3202434