

Ref: Submission ID 78e47592-c66b-41a0-a588-c51cc1b7a808

Dear Dr Meinita,

Your manuscript, "A concise review of the potential utilization, bioactivity and pharmacological properties of genus Gelidium (Gelidiales, Rhodophyta)", has now been assessed.

We invite you to revise your paper, taking into account the points raised and the general guidelines below. When your revision is ready, please submit it via:

<https://submission.springernature.com/submit-revision/78e47592-c66b-41a0-a588-c51cc1b7a808>

To support the continuity of the peer review process, we recommend returning your manuscript to us within 14 days. If you think you will need additional time, please let us know by replying to this email.

Kind regards,

Michael Borowitzka
Editor
Journal of Applied Phycology

SUBMISSION INSTRUCTIONS FOR REVISED PAPERS

Once you have revised your paper, the submitter Maria Dyah Nur Meinita can use the following link to submit it:

<https://submission.springernature.com/submit-revision/78e47592-c66b-41a0-a588-c51cc1b7a808>

In order to process your paper, we require:

- A point-by-point response to the comments, including a description of any additional experiments that were carried out and a detailed rebuttal of any criticisms or requested revisions that you disagreed with.

This must be uploaded as a 'Point-by-point response to reviewers' file. All changes to the manuscript must be highlighted or indicated by using tracked changes.

At this stage, please also ensure that you have replaced your initial-submission image files with production quality figures. These should be supplied at 300 dpi resolution for .jpeg and .tiff or as .eps files. Figures should not include Figure number labels in the image.

Please ensure you conform to our authorship policies, also outlined here: <https://www.springer.com/journal/10811/submission-guidelines>

If you have been asked to improve the language or presentation of your manuscript and would like the assistance of paid editing services, then our expert help at Springer Nature Author Services can help you improve your manuscript through services including English language editing, developmental comments, manuscript formatting, figure preparation, translation, and more.

To find out more and get 15% off your order then click the link below.

https://authorservices.springernature.com/go/sn/?utm_source=SNAPP&utm_medium=Revision+Email&utm_campaign=SNAS+Referrals+2022&utm_id=ref2022

Please note that use of an editing service is neither a requirement nor a guarantee of publication. Free assistance is available from our resources page: <https://www.springernature.com/gp/researchers/campaigns/english-language-forauthors>

Michael Borowitzka
Editor
Journal of Applied Psychology

Dear Editor:

We would like to re-submit the manuscript titled **“A concise review of the potential utilization based on bioactivity and pharmacological properties of genus *Gelidium* (Gelidiales, Rhodophyta)**

We thank you and the reviewers for your thoughtful suggestions and insights. The manuscript has benefited from these insightful suggestions. I look forward to working with you and the reviewers to move this manuscript closer to publication in the *Journal of Applied Phycology (JAP)*.

The author's revisions are indicated with track changes and highlighted using red color font. The responses to all comments have been prepared and attached herewith/given below. Please check the attachment below.

Thank you for your consideration. Looking forward to hearing from you.

Sincerely yours

Maria Dyah Nur Meinita

RESPONSE TO REVIEWER

Reviewer Comments:

Reviewer 1

A concise review of the potential utilization based on bioactivity and pharmacological properties of genus *Gelidium*

General comments

This review is a very comprehensive study about the bioactive compounds and properties of *Gelidium* species. The authors did collect an impressive list of publications regarding this subject. However, the presentation of the subject is very poor, regarding content and language. I inserted in the original text a big number of comments and corrections. All of them have to be considered before publication.

Response to reviewer: Thank you for your thoughtful and detailed comments and correction on our manuscript. We have checked all of comments and corrections. We did a significant revision of our manuscript including the content and language based on your comments and corrections. Hence, we hope the improvement that we made fulfill the quality and readability standard of Journal of Applied Phycology

Regarding the upscale problems of *Gelidium* supply, which are mentioned in the last chapter, an overall algal viewpoint should be considered. *Gelidium* is not the only seaweed genus with those specified bioactivities. It makes sense that a number of alternative fast-growing seaweed species, which are in the market, could supply all these bio-activities. Genetic engineering of the slow growing *Gelidium*, and turning it into a fast- growing seaweed, is a much longer and controversial challenge. Specific comments in the attached original text.

Response to reviewer: Thank you for criticizing this viewpoint. We have revised the last chapter by considering your suggestion on upscale problems due to supply and slow growth issue of *Gelidium*. We improved the content of the last chapter and whole part of the manuscript based on your suggestion.

Reviewer 2

The manuscript “A concise review of the potential utilization based on bioactivity and pharmacological properties of genus *Gelidium* (Gelidiales, Rhodophyta)” presents potential utilization of the genus *Gelidium* and its publication will enhance our knowledge of *Gelidium* use as a biomaterial. I respect authors’ idea to challenge the current utilization of *Gelidium* as a source of bioactive compounds using articles published during 2001-2021. In my point of view, besides minor issues in text, the major concern that should be considered is related to the conception of the source material. Authors show high production of *Gelidium* in Indonesia in Figure 1, but I understand that *Gelidium* species from Indonesia are mostly small (less than 5 cm in size) and may be not such productive along the coast of Indonesia. This concern reaches to Figure 2, in which authors illustrate *Gelidium* species along the coast of Java Island. However, to my experience, the left photo is a species of *Pterocladia* (the family Pterocladaceae), the middle *Gelidiella acerosa*, and the right *Gelidiella fanii* or a variant of

Gelidiella acerosa (the family Gelidiellaceae). So, the illustrated species from Java are different from *Gelidium* (the family Gelidiaceae) at the family level.

Response to reviewer: Thank you for insightful comment and correction on the photos. We have revised this part based on your suggestions. We revised Figure 1. We added the geographic distribution of *Gelidium* in the world based on (a) top producer of *Gelidium* and (b) global distribution of *Gelidium*

I recommend that the sections Distribution, Morphology, and Reproduction should be improved using recent articles published during the surveyed period, which have greatly increased our knowledge of *Gelidium*. From recent articles, the authors may know that *Gelidium elegans*, a species with the highest number of publication in Figure 4, was formerly known as *G. amansii* which is likely limited to Madagascar and/or the surrounding areas.

Response to reviewer: Thank you for criticizing this viewpoint. We have revised the section of Distribution, Morphology, and Reproduction. We have added some newest references in these sections.

Reviewer 3

The publication by "A concise review of the potential utilization based on bioactivity and pharmacological properties of genus *Gelidium* (Gelidiales, Rhodophyta)" by Meinita et al. is a welcome step, since such concise information is not available in the literature. However, it needs considerable amendments before it is formally accepted for publication in JAPH.

Response to reviewer: Thank you for your thoughtful comments and appreciation. We did our best to improve this manuscript thoroughly. We have incorporated all suggestions and corrections made by reviewers to improve this manuscript.

Major points:

1. This study was done systematically by collecting, identifying, screening, and analyzing scientific articles which have been published during 2001-2021. I think the scope for the study needs to be expanded to include critical and much relevant information on other aspects as well some the specific recommendations are given below to make this review more interesting and comprehensive. I also do not agree with the time line they have mentioned as there are several references and citations included prior to this e.g. Melo 1998.

Response to reviewer: Thank you for criticizing this viewpoint. We have revised this manuscript thoroughly. We corrected the timeline and included some review articles on *Gelidium* species conducted by McHugh (1991), Santelices (1991), Friedlander (2008), Porse and Rudolph (2017) and Santos and Melo (2018).

2. The information on cultivation is missing, a excellent review is available in JAPH by Dr. Michael Friedlander of Israel Oceanographic and Limnological Research Institute. There are also some recent efforts from India. Please include this information under separate heading Cultivation.

Response to reviewer: Thank you for criticizing this viewpoint. We have added the cultivation section and added article from Dr. Michael Friedlander and other researcher as well : Fei and Huang 1991; Melo et al. 1991; Titlyanov and Titlyanova 2006; Titlyanov et al. 2006; Boulus et al. 2007; Friedlander 2008; Otaiza et al. 2018, 2019; Alemañ et al. 2019

3. Seasonality and resource availability, global assessment of landings needs to be included. There is an excellent review by Rui Santos and Ricardo A. Melo in JAPH. Please provided this information.

Response to reviewer: Thank you for criticizing this viewpoint. We added information of the resource availability, global assessment and landing in the distribution section. We also added the map of global location where *Gelidium* were collected and landed as well as their total production

4. The resource is harvested for production of technical grade agar, unfortunately the review is silent on this. I strongly advice to include a table by doing detailed referencing providing, species, agar characteristics e.g. gel strength and yield, melting point, country etc.

Response to reviewer: Thank you for criticizing this viewpoint. We added one section entitled Agar characteristic. We also added one table regarding the characteristic of agar from *Gelidium* species which provide information about extraction method, gel strength, yield, melting point and country.

5. There is large body of literature based on taxonomic re-assessment of different species under this genus based on different molecular markers, please include this separate subsection under heading taxonomy.

Response to reviewer: Thank you for criticizing this viewpoint. We added a new section of taxonomy and included some newest references on taxonomic re-assessment of different species under this genus based on different molecular markers. (Freshwater et al. 2010; Kim et al. 2012; Iha et al. 2015; López et al. 2017; Boo et al. 2022).

6. Artificial sporeling and field cultivation of *Gelidium* in China has been attempted; Fragmentation of thalli and secondary attachment of fragments of the agarophyte *Gelidium lingulatum* has been successfully carried out in Chile; Obtaining plantlets from apical meristem of the red alga *Gelidium* sp. using freezing-thawing procedure in Russia, these important developments needs to be included.

Response to reviewer: Thank you for criticizing this viewpoint. We added this information under Cultivation section. We also included newest references on development of cultivation method of *Gelidium* (Fei and Huang 1991; Melo et al. 1991; Titlyanov and Titlyanova 2006; Titlyanov et al. 2006; Boulus et al. 2007; Friedlander 2008; Otaiza et al. 2018, 2019; Alemañ et al. 2019).

7. Application section is overwhelmingly described based on bioactivity and pharmacological properties but there are interesting studies on biohydrogen production from *Gelidium amansii*; production of polyhydroxyalkanoates *Gelidium amansii* etc. please include these developments as well.

Response to reviewer : Thank you for criticizing this viewpoint. We added some interesting studies on biohydrogen, bioethanol, biodiesel and platform chemical production from *Gelidium* under the section of utilization.

Minor points:

1. Authors stated that, "Nearly 252 species name of *Gelidium* has been recorded in the database (M.D. Guiry in Guiry and Guiry 2021)". Please include how many are taxonomically accepted.

Response to reviewer: Thank you for criticizing this viewpoint. We added this data in Taxonomy section. Nearly 146 *Gelidium* species names have been accepted in the database, consisted of 16 varieties and 1 subspecies of *Gelidium*

2. Fig. 1 Geographic distribution of *Gelidium* production; legends needs mention of units.

Response to reviewer: Thank you for your correction. We added the legend.

3. Table 1. is for The traditional and modern use of *Gelidium* has not very specific to convey, please relocate this table to supplementary material.

Response to reviewer: Thank you for your suggestion. We moved Table 1 to supplementary material

4. Is this review followed "Preferred Reporting Items for Systematic Reviews and Meta-Analyses" using standard database; e.g. Google Scholar, Scopus and Web of Science (I personally do not see such an attempt), if yes what were the key words ? Let this be general review.

Response to reviewer: It is a general review. Thank you for your suggestion

5. Conclusions need more focus and Future direction should be separated from conclusions. The subheading Future direction should come before conclusions.

Response to reviewer: Thank you for the suggestion. We have revised it based on your suggestion. We improved and separate the conclusion part. The Future direction section changed into Prospect and Challenges section.

Ref: Submission ID 78e47592-c66b-41a0-a588-c51cc1b7a808

Dear Dr Meinita,

Your manuscript, "A concise review of the potential utilization, bioactivity and pharmacological properties of genus Gelidium (Gelidiales, Rhodophyta)", has now been assessed.

We invite you to revise your paper, taking into account the points raised and the general guidelines below. When your revision is ready, please submit it via:

<https://submission.springernature.com/submit-revision/78e47592-c66b-41a0-a588-c51cc1b7a808>

To support the continuity of the peer review process, we recommend returning your manuscript to us within 14 days. If you think you will need additional time, please let us know by replying to this email.

Kind regards,

Alan Critchley
Editor
Journal of Applied Phycology

SUBMISSION INSTRUCTIONS FOR REVISED PAPERS

Once you have revised your paper, the submitter Maria Dyah Nur Meinita can use the following link to submit it:

<https://submission.springernature.com/submit-revision/78e47592-c66b-41a0-a588-c51cc1b7a808>

In order to process your paper, we require:

- A point-by-point response to the comments, including a description of any additional experiments that were carried out and a detailed rebuttal of any criticisms or requested revisions that you disagreed with.

This must be uploaded as a 'Point-by-point response to reviewers' file. All changes to the manuscript must be highlighted or indicated by using tracked changes.

At this stage, please also ensure that you have replaced your initial-submission image files with production quality figures. These should be supplied at 300 dpi resolution for .jpeg and .tiff or as .eps files. Figures should not include Figure number labels in the image.

Please ensure you conform to our authorship policies, also outlined here: <https://www.springer.com/journal/10811/submission-guidelines>

If you have been asked to improve the language or presentation of your manuscript and would like the assistance of paid editing services, then our expert help at Springer Nature Author Services can help you improve your manuscript through services including English language editing, developmental comments, manuscript formatting, figure preparation, translation, and more.

To find out more and get 15% off your order then click the link below.

https://authorservices.springernature.com/go/sn/?utm_source=SNAPP&utm_medium=Revisi

[on+Email&utm_campaign=SNAS+Referrals+2022&utm_id=ref2022](https://www.springernature.com/gp/researchers/campaigns/english-language-forauthors)

Please note that use of an editing service is neither a requirement nor a guarantee of publication. Free assistance is available from our resources page: <https://www.springernature.com/gp/researchers/campaigns/english-language-forauthors>

REVIEWER REPORTS

Reviewer Comments:

Reviewer 4

Dear authors, I enclose your manuscript with the necessary corrections in terms of the taxonomy of the mentioned algae.

It is essential that the names quoted are always valid names and not synonymous names. I attach your manuscript with the necessary corrections.

Attachments:

• <https://reviewer-feedback.springernature.com/download/attachment/25e02990-d374-4b9f-8b67-69da1168b1e7>

Author response

Thank

Date of submission: 12 March 2023

Michael Borowitzka
Editor
Journal of Applied Phycology

Dear Editor:

We would like to re-submit our second revision of the manuscript entitled “**A concise review of the potential utilization based on bioactivity and pharmacological properties of genus *Gelidium* (Gelidiales, Rhodophyta)**”

We thank you and the reviewers for your thoughtful suggestions and insights. The manuscript has benefited from these insightful suggestions. I look forward to working with you and the reviewers to move this manuscript closer to publication in the *Journal of Applied Phycology (JAP)*. We have revised the manuscript thoroughly based on reviewer suggestion.

Thank you for your consideration. Looking forward to hearing from you.

Sincerely yours,

Maria Dyah Nur Meinita

RESPONSE TO REVIEWER

Reviewer Comments:

Reviewer 4

Dear authors, I enclose your manuscript with the necessary corrections in terms of the taxonomy of the mentioned algae. It is essential that the names quoted are always valid names and not synonymous names. I attach your manuscript with the necessary corrections.

Attachments:

• <https://reviewer-feedback.springernature.com/download/attachment/25e02990-d374-4b9f-8b67-69da1168b1e7>

Response to reviewer:

Thank you for your thoughtful and detailed comments and correction on our manuscript. We have checked all of comments and corrections and also revised the manuscript thoroughly. Thank you for the necessary corrections in terms of the taxonomy of the mentioned algae. We have revised the name of algae based on their valid names and not synonymous names. We also have revised Figure 3, Tables and the manuscript thoroughly. Hence, we hope the improvement that we made fulfill the quality and readability standard of *Journal of Applied Phycology*.