

Review of: "Valorization of palm oil wastes into oyster mushrooms (Pleurotus HK-37) and biogas production"

Show Pau Loke

Potential competing interests: No potential competing interests to declare.

Reviewer Comments:

Graphical Abstract: Not provided, suggestion to provide graphical abstract with 3D style so that it is more attractive.

Figures: If possible, try to use higher definition images.

Highlight: If possible, try to include 3-5 sentences of highlight points with each sentence do not exceed 85 characters limit (including spaces).

Line numbering: It is suggested that line numbers can be added align to the main text.

General comment:

This paper focused on investigating the potential of various waste fractions resulting from palm oil processing for the production of food and biofuel. Also, authors need to perform critical analysis and interpret all these studies and come up with a conclusion for each section. It's good that you had this finding written but readers would preferable want to know what had you concluded from all these studies, instead of what the author of the literature studies had concluded. To conclude, this paper needs to revise it carefully before it can be considered in high impact journal. Hope below comments will be able to help to further improve the paper.

Specific comment:

Abstract:

- Suggest modifying the title to be more attractive and related to the current trends.
- Needs major revision prior to the amendment of the main content.
- An abstract is often presented separately from the article, so it must be able to stand alone. Hence the problem statement, aim, novelty and results of the study, all should be included into the one paragraph of abstract.
- Please try to merge all information into a paragraph with some attractive and new findings.

Keywords:

- Kindly modify the keywords are not the same as the title, because 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.

Introduction:

- Introduction should be covered the gap of the research. However, it is not well covered in this section, it needs to be more specific instead of using only one sentence to cover that.

- Also, please mention the important of this study to society as well as industry.
- It is suggested that there is no need of subsection (i.e. The palm oil industry worldwide) in introduction.
- Page 2-3; “The African oil palm.....the Mbeya region.” and “Tanzania has suitable.....fast track the process.”, the elaboration on the background of palm oil in Africa and Tanzania it too lengthy, kindly combine both paragraphs and shorten it into 3-5 sentences only. Main focus of the study should be on how to valorize palm oil wastes into oyster mushrooms (*Pleurotus HK-37*) and biogas production.
- Page 3; “The growth and expansion.....high BOD of liquid wastes.”, it is suggested that author could focus on what is current remediation on palm oil waste and the proposed methods along with why it may be better than existing remediation. Comparing between different methods in different countries is not advisable.
- Current introduction is a bit too lengthy, kindly simplify it.
- Please revised the Introduction section based on the structure below that can make it more clearly:
1st paragraph: Problem statement
2nd paragraph: Current ongoing solution
3rd paragraph: Proposed solution in this work.
4th paragraph: Summarized the current research novelty and objective of this work.
- Problem statement of your introduction is not strong, need to discuss more about it.
- The objective and purpose of the study is not clear.
- A good introduction should conclude the introduction by mentioning the specific objectives of the research.
- Kindly refer to those additional materials to revise this section: (1) A review on valorization of oyster mushroom and waste generated in the mushroom cultivation industry; (2) Circular bioeconomy in palm oil industry: Current practices and future perspectives; (3) A review on valorization of oyster mushroom and waste generated in the mushroom cultivation industry; (4) Waste to energy: the effects of *Pseudomonas* sp. on *Chlorella sorokiniana* biomass and lipid productions in palm oil mill effluent
- The earlier paragraphs should lead logically to specific objectives of the study.
- Note that this part of the Introduction gives specific details: for instance, the earlier part of the Introduction may mention the importance of this study whereas the concluding part will specify what methods of control were used and how they were evaluated.

Materials and methods:

- Authors need to specify the source of materials were used.
- Also, authors are encouraged state the location of the equipment in this report.
- Please elaborate more on the methodology as current description of method is not easy to understand and readers hard to repeat the analysis.
- Page 4; “ We collected 5094 g...”, please do use third person language only.
- Page 5-6; for Table 1, if the full term for the abbreviation is mentioned in the previous text, it is suggested that a separate legends for the abbreviation is not required, unless if a table of abbreviation is wanted to be added, please do include the table of all abbreviations and place it after the references.
-

- Please do provide units for the parameters in the equations and add numbering to each equation (i.e. Eqn 1).
- Please provide an additional figure to illustrate the process of the whole methodology.
- Try to include statistical analysis if possible.

Results and discussion sections

- The overall structure needs to be improved.
- If possible, it is advised that both results and discussion section can be combined to allow better elaboration of data based on each analysis conducted and results obtained.
- Kindly improve on the discussion. What is the significance of the results of the work?
- Page 15; "...indicating that some nutrients were used...", is there any further evidence that can confirm this statement?
- Page 16-17; for the section "Enhancement of methane yield from palm oil waste fractions", this section is a bit clumpy and the elaboration are messy, kindly revise this section and further breaking down it into multiple smaller sections according to the sections in results sections.
- Current explanation on the result obtained is insufficient, more details and comprehensive elaboration are required.
- There are some important information from this paper that authors are recommended to refer: (1) Biological efficiency and nutritional value of *Pleurotus ostreatus* cultivated in agroindustrial wastes of palm oil fruits and cocoa almonds; (2) Prospects of palm fruit extraction technology: Palm oil recovery processes and quality enhancement; (3) Production of oyster mushroom (*Pleurotus ostreatus*) from some waste lignocellulosic materials and FTIR characterization of structural changes; (4) Biogas production enhancement by co-digestion of empty fruit bunch (EFB) with palm oil mill effluent (POME): Performance and kinetic evaluation
- It is quite doubt on some figures. Please recheck.

Conclusions

- It is suggested that a challenged faced and future directions section can be added.
- It is suggested to include additional information or clarifications to the methods and results sections to evaluate the manuscript's novelty and its significance to the field.
- Kindly improve to more concise with significant results.

References

- Kindly revise reference format according to the author guideline.
- It is suggested to cite references within 5 years of research to maintain the reliability of results obtained.
- Please do use uniform line spacing throughout the manuscript.
- There are references found to be outdated.