

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

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**Potential competing interests:** No potential competing interests to declare.

A possibly impactful manuscript on the utilization of palm waste in growing mushrooms as well as biogas production. While the results presented in this paper are undeniably significant and impactful, it is regrettable to note that the overall quality of the paper appears to fall short of the expected standard. The content of the paper is of great importance; however, the presentation and writing style have not met the level of rigor and clarity that would do justice to the research findings. It is essential for the author to consider revising and improving the paper to match the significance of the results and enhance the readability and overall impact of the research. Therefore, the manuscript needs to be reviewed again and re-considered for publication only upon incorporating the suggestions below.

- 1) Abstract: Biogas production .....waste fractions. In this statement, the (SMS) is confusing. Please reword.
- 2) Introduction: While the potency of the palm waste in improving mushroom growth and biogas production is well understood, can author describe the reason of selecting various fractions in terms of solid, semi-solid and liquid waste?
- 3) Materials and method: In professional academic and scientific writing, it is generally recommended to avoid the use of the first-person pronoun "we". Please revise.

Sample collection section: We collected 5094 g palm mesocarp fiber (PMF)....

- 4) Certain terms appear very verbose, such as chopping etc. Consider using dicing or any appropriate terms.
- 5) Methodology for the entire subtopic of mushroom production was not cited. Is this an established method or a novel development by the author? If it is an established method, please kindly cite. If it is a novel development, the author should justify it accordingly.
- 6) Substrate characterization: the TS and VS formula is not equipped with unit. Please follow the same for the other equations/formula in the manuscript.
- 7) As for substrate preparation, the statement No water dripping between palm fingers confirmed that moisture in the substrate was at the correct level to sustain mushroom cultivation does not imply a credible analysis of moisture determination. Please kindly confirm the minimum moisture percentage that was anticipated in this case.
- 8) Please add a sentence or two on how the percentages of palm oil waste fraction blends in Table 1 were selected for this study.
- 9) Spawning section: 70% alcohol. Specify the scientific name instead of using alcohol.
- 10) Was the experiment run under few replicates? The values given as results are without mean  $\pm$  standard dev value. Please look into this and state the standard deviation values to ease reproducibility later on.
- 11) Three aspects of mushroom crop yield and productivity can be written in the paragraph without having to segregate

by numbering. Try to convert the point ii) and iii) into a formula for better understanding.

- 12) Display the methane yield as formula instead of the long explanation.
- 13) For results, using substrate formulation no.1 is not recommended. Instead, use SF1, SF2.....SF9. It makes discussions easier and understandable.
- 14) Make sure to use abbreviations throughout the manuscript (Eg.Refer to Mushroom cultivation section-Palm press cake and palm kernel shells)
- 15) Figure 2 is not of similar dimension. Please standardize the dimension.
- 16) Table 2 looks like a heat map diagram. Author may want to redo the table according to the publication specification.
- 17) Please kindly ensure the full form appears only once in the manuscript. Kindly use the abbreviated form after that. Author needs to be careful while making this mistake as it may portray lack of commitment while writing the paper.
- 18) Author is advised to proofread the paper to improve the readability.
- 19) The format of Figure is not consistent. First, graph from Figure 2 and Figure 3 differs in terms of legend placement, background grids, font size, background shading, as well as shape line. Please ensure the format is standardized before submission.
- 20) Figure 4: y axis wrong spelling. Formatting needed
- 21) Discussion section is mainly to discuss the results. However, author repeated the observations again. Expand the substrate characterization section. Explain why the biomass were suitable as feedstock.
- 22) Further, cap diameter and average stipe length correlated with mushroom yield; the higher the mushroom yield, the larger the average cap diameter and the longer the average stipe length, indicating the quality of substrates and their utilization. This sentence is confusing. Avoid lengthy sentence.
- 23) Please tabulate and compare the findings of this study in terms of mushroom production and biogas yield with other established literature data. How does this study outperform other studies ? Justify.
- 24) The conclusion need to be amended based on the objective of research. Do not use 'we'. Replace the formulation no 4 to SF4 etc.