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

Aqueel Ahmad

Potential competing interests: No potential competing interests to declare.

The title of the manuscript, "Valorization of palm oil wastes into oyster mushrooms (Pleurotus HK-37) and biogas production," effectively conveys the main focus and methodology of the study. It clearly indicates that the research explores the current and future outlook of biogas production. The title provides a concise summary of the research objectives and methods, making it informative and relevant to the field of renewable energy and sustainable buildings. However, there are some minor and major comments that need to be considered.

1. How does the co-production of oyster mushrooms and biogas add economic value to palm oil waste fractions?

2. What further studies or analyses should be conducted to ascertain the economic value of mushroom and biogas production from palm oil processing waste fractions?

3.How does this study contribute to the existing literature on the utilization of palm oil processing waste fractions for the co-production of mushrooms and biogas, and what makes it unique compared to previous studies conducted in Tanzania?

4.Based on the results presented in Table 3, which substrate formulation (fresh or pretreated) exhibited the highest biogas volume and methane content? Additionally, which substrate formulation showed the lowest biogas volume and methane content?

5.Could you please provide an explanation of the factors that influence biogas production, such as pH, retention time, digester temperature, and co-digestion? Additionally, discuss how each of these factors impacts the efficiency and yield of biogas production in anaerobic digestion processes.

6.It is suggested to incorporate quantitative data in the abstract section to provide a more precise and informative overview of the study.

7.The language proficiency in the introduction section is very poor; it is recommended to have a thorough check for tenses, articles, and prepositions throughout the manuscript.

8.The introduction section needs to be improved by incorporating recent research from 2022–2023 and updating the reference section with the latest published articles. https://doi.org/10.1016/j.energy.2023.129077 https://doi.org/10.1177/09544089231159832, https://doi.org/10.1007/s13762-023-04948-z, **https://doi.org/10.1002/ep.14163**, https://doi.org/10.1007/s11814-023-1489-9 https://doi.org/10.1080/15435075.2023.2253870 , https://doi.org/10.1080/01430750.2023.2169758

9.Table 2 does not adhere to the appropriate format. It should be redesigned to ensure a proper and logical sequence.

10.In the conclusion, it is mentioned that further studies could optimize oyster mushroom and biogas production by adding other supplements like sources of nitrogen. Could you elaborate on the potential benefits and implications of incorporating nitrogen sources into the substrate formulations for mushroom and biogas production? Additionally, what are the potential advantages of exploring the use of waste blends on other types of mushrooms in future studies?

11.The conclusion section requires a redesign to improve its structure and coherence.