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.

The manuscript "*Valorization of palm oil wastes into oyster mushrooms (Pleurotus HK-37) and biogas production*" studied the value of palm oil waste through the joint production of oyster mushrooms and biogas. This manuscript explored different mixtures of palm oil waste and evaluated their impact on mushroom production and biogas production. The results indicated that mushroom and biogas production can effectively utilize palm oil waste, reduced its impact on the environment, and promoted circular economy. The manuscript can be published on "*Qeios*" after major revision. The comments are as follows:

1. It is recommended to conduct an economic or environmental assessment of the manuscript, providing potential advantages in cost savings, waste reduction, and greenhouse gas emissions, which can enhance the scientificity of the manuscript.

2. The manuscript lacks a comprehensive discussion of the research results and their impact, and the author can provide more insights into the factors that affect mushroom production and biogas production.

3. The introduction lacks comparison with other similar studies. Adding comparisons will enhance the value of the paper and provide a broader background for the research results.

4. Please add more explanation on the factors affecting mushroom and biogas production. For example, which substance in the waste mixture provides more favorable conditions for mushroom growth and substrate degradation.

5. The conclusion section of the manuscript needs to be strengthened by incorporating forward-looking perspectives.

6. In the Mushroom production part of the manuscript, it is mentioned that sorghum seeds are used to prepare the culture and in order to prevent clay particles, 5% (w/w) $CaSO_4$ is added.

7. In the discussion part of the manuscript, there are too many references to support the experimental results, which should be placed in the introduction part.

8. The notes of some drawings in the manuscript are not very clear, and it is suggested to redraw them, and the whole text does not have the first line indent.

9. In the manuscript on the effect of pretreatment on the methane yield of palm oil waste distillate, it is mentioned that all

substrate formulations except formulation No. 1 observed a 10.67-102.78% increase in the methane yield potential of mushroom culture, but no.7 did not increase these either.

10. In the introduction part of the manuscript, the introduction of palm oil and oyster mushroom is confused, and it is suggested to reorganize the language.