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

Saroj Baral[1]

1 BITS Pilani, K K Birla Goa

Potential competing interests: No potential competing interests to declare.

The manuscript presents a comprehensive study on the co-production of oyster mushrooms (Pleurotus HK-37) and biogas using various blends of palm oil processing waste fractions. The research investigates the potential of this approach in adding value to palm oil waste, reducing environmental impact, and promoting a circular economy. The study is well-structured and meticulously conducted, providing valuable insights into waste management and sustainable resource utilization. Here is a detailed review of the manuscript:

Strengths:

1. **Originality and Significance:** The study addresses an important environmental concern - the management of palm oil processing waste. By exploring the co-production of mushrooms and biogas, the manuscript offers an innovative solution to convert waste into valuable products, highlighting its significance for sustainable agriculture and waste management practices.
2. **Methodological Rigor:** The manuscript demonstrates a thorough understanding of the experimental procedures. The methods are clearly described, allowing for reproducibility. The incorporation of detailed explanations regarding substrate characterization, mushroom production, and biogas generation enhances the scientific rigor of the study.
3. **Comprehensive Data Analysis:** The data analysis is extensive, encompassing various parameters such as mushroom yield, biological efficiency, methane content, and methane yield. The detailed comparison between different substrate formulations provides a clear understanding of their effectiveness, enabling readers to grasp the nuances of the results.
4. **Clear Presentation:** The manuscript is well-organized and effectively presents the research findings. Figures, tables, and graphs are appropriately used to illustrate the results, enhancing the clarity of the presentation.

Areas for Improvement:

1. **Discussion of Results:** While the results are presented comprehensively, the discussion section could be further elaborated. Specifically, the authors could delve deeper into the implications of their findings. Explaining the potential reasons behind certain outcomes and comparing their results with previous studies in the field would provide valuable context and insights.
2. **Limitations and Future Directions:** It would be beneficial to include a section discussing the limitations of the study. Acknowledging potential constraints and suggesting avenues for future research would enhance the manuscript's

completeness and provide guidance for researchers interested in building upon this work.

3. **Language and Clarity:** Some sentences in the manuscript could be refined for clarity. Additionally, thorough proofreading is essential to ensure the manuscript is free from grammatical errors and typographical mistakes, enhancing the overall readability and professionalism of the document.
4. **Techno-economic Analysis:** As mentioned in the abstract, conducting a techno-economic analysis is suggested for future studies. It would be advantageous to briefly discuss the importance of such an analysis, even if not conducted in this study, to underscore the practical implications of the research findings.

In summary, the manuscript presents an intriguing study with valuable insights into waste utilization and sustainable agricultural practices. Addressing the suggested areas for improvement would enhance the manuscript's overall quality and impact, making it a more significant contribution to the field.