Review of: "Techno-Economic Fermentative Microbe-Based Industrial Production of Lactic Acid (LA): Potential Future Prospects and Constraints"

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Potential competing interests: No potential competing interests to declare.

Overall

1. The ideas and facts are not written harmonically, they are jumpy here and there.
2. Lacking of citations (detailed in comments below).
3. Lack of “economic” content. This part should be discussed in detail as it is the title.
4. Requires proofreading and sentence restructuring.
5. Important contents in the tables are not highlighted in text.

Title

1. Missing comma after words potential and future propects.

Abstract

1. The link between bagasse and lactic acid production is not clear, except one sentence “The current analysis highlights biochemical advances….”.
2. The whole abstract should be restructured to highlight the importance of this review.

Introduction

1. What does this phrase “employs 1 million farmers, 1,200 employees, and 1 million individuals,” means? Clarify the sentence.
2. Repetitive facts “with an annual yield of 67 million tons”. Rephrase accordingly.
3. “Lignin is a major constituent, accounting for 60%.” However, the sentence right before this one explained that the percentages range between 20-30%. Which one is correct?
4. Why is co-gen and depolymerization not being utilized to the maximum for SCB? Instead, bio-based chemical (requiring high investment and operational cost) is expected to profitable?
5. How does LA is directly produced from SCB?
6. What are the four main modules in this sentence “Four main modules ensure SCB valorization to lactic acid, resulting in economic, technologically competitive, ecologically safe, and long-lasting business success”.

7. The whole introduction section requires rewriting, as the facts are “jumpy” and not harmonized.
8. Table 1 contents should be highlighted in text.

Biomass Recalcitrance and Carbohydrate Recovery

1. Paragraph 1 only explained 1 study? Why is this study singled out? What does it mean by “using high-solids preprocessed techniques for ten years”?
2. Lack of citations in the text.
3. Table 2 contents should be highlighted.

Biodetoxicification and pretreatment with dry acid

1. Which part in the paragraphs talk about biodetoxification?
2. Table 2 contents in relation to this topic should be highlighted.

Valorization of Bagasse

1. What does MF and NF represents in Figure 2
2. Table 3 contents should be highlighted.

Microbes-based LA Production

1. Lack of citation in text. There a lot of methods listed, but none of them cited in detail.
2. Explain more detail on the pathways and highlight their importance to LA production.
3. The last sentence does not jive with the previous sentence. Harmonize.

Methods for producing high-performing LA-Microb Strains

1. Why is this topic highlighted? Is this method superior to the others? There is such indication in the previous topics/paragraphs leading to this topic.

CRISPR/CAS9 Mediated Engineered MO for LA Production

1. Requires harmonization of the sentences and paragraphs.
2. Most of the paragraphs come from 1-2 citations only
3. Does all the MO discussed in this subtopic engineered? If they are, are they all mediated using CRISPR/CAS9? If not, they need to move elsewhere/remove.
4. It is not clear how these engineered MO increase production. A paragraph should be discussing on this matter. If their action mechanisms are different, then, they should be explained within its separate paragraphs.
5. Figure 3 only shows flow of the process, rather than highlighting the engineered MO.
6. Are all the study cited done based on industrial production or they are laboratory scale?

Fermentation of Microbs Strains and High Production Yield

1. Some of the examples use not lignocellulosic materials as a substrate, rather starches which are know to be easier to digest. As the title revolves around this, it should be the highlight of the SLR, not just anything that can product LA.

Fermentation of immobilized microbial strains

1. Highlight the importance of Figure 4 with respect to lignocellulosic fermentation to produce LA
2. How does this immobilized system compares to non-immobilized ones? This is not clearly reviewed in the subtopic.

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English Language, Presentation, and Formatting

1. Requires proof reading, as colloquial English are used, spelling, and grammatical mistakes.
2. Requires sentence restructuring as there are repetition, sentences/paragraphs are not harmonized, facts jumping here and there.
3. Acronyms should be defined in the text as well, not just nomenclature/abbreviation lists. The reading is disrupted so many times to check what they means in the list.
4. Chemicals name should be provided in the text, not just their chemical formula.
5. Mix at least two methods of citation in the text.