

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

Juan Carlos Quintero Díaz¹

¹ Universidad de Antioquia

Potential competing interests: No potential competing interests to declare.

The document is relevant in terms of the importance of lactic acid in the global market. It provides details on various lactic acid production technologies. To enhance the document, I recommend taking into consideration the following observations:

1. In the abstract, it is stated that lactic acid (LA) production through fermentation has exceptional optical purity; however, it is subsequently mentioned that one of its challenges is low optical purity. (Resolve this contradiction).
2. The meaning of acronyms such as SCB, LCB, DES, SSCF, FBH, HSES, MICF, and others should be indicated the first time they are mentioned.
3. Figure 2 does not adequately represent a process, which should include Raw Material Pretreatment, Fermentation, and Downstream stages.
4. In section 6.1, it is stated: "2G ethanol is a promising alternative to increase biofuel production and aligns with global goals to expand renewable energy. Bioethanol production from sugarcane bagasse is shown in Figure 3." This paragraph, along with Figure 3, does not fit appropriately in the text as it is discussing lactic acid production. The mentioned lines and Figure 3 should be removed from the document.
5. In section 6.3, it is mentioned: "A study on lactic acid fermentation from *Chlorella vulgaris* biomass, using sugarcane bagasse and microalgal biomass, achieved a 72% yield using a fed-batch process combined with ion exchange" based on citation 49. However, upon reviewing the reference, this document does not address the use of the microalga *Chlorella*. Additionally, this section discusses immobilized cells, while this paragraph mentions fed-batch systems. The first reference number 49 in Table 3 should also be reviewed.
6. In section 6.3, the intention is to discuss processes with immobilized enzymes, but most of the presented studies do not correspond to this type of fermentation system. (Adjust this section 6.3 to its subtitle.)
7. In item 6.3, it is stated: "The maximum LA production from the recombinant strain was 25.34 3.25 g L⁻¹ L (+), ..." Which concentration value is intended to be included, 25.34, or 3.25?
8. Verify that all citations accurately correspond to the information provided in the respective bibliographic references.