Review of: "The Effect of Fermentation on the Physicochemical Quality and the Presence and Levels of Pesticide Residue in Cow Milk"

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Potential competing interests: No potential competing interests to declare.

The study entitled "*The Effect of Fermentation on the Physicochemical Quality and the Presence and Levels of Pesticide Residue in Cow Milk"* investigates how spontaneous fermentation impacts both the physicochemical properties and pesticide residues in cow milk. The study monitored parameters like pH, titratable acidity, total soluble solids (TSS), and color at 0, 12, and 24 hours of fermentation.

Firstly, in the introduction, please try to replace milk products with "dairy products." It is more widely used and accepted in scientific style. Also, please try to include recent global or regional statistics and research information on pesticide contamination in dairy products, linking this issue to growing public health concerns.

In the "Methodology" section, I appreciate that you discuss each step for the collection of milk samples and other information, but you did not follow a standardized protocol. Please try to remake this section and include in it each step and stage that you followed. For scientific style, it would be more suggestive and comprehensive if you included the protocol and International Standards (ISO) according to which the present study has been conducted.

The "Results" section should be improved too. The results could be contextualized more effectively by comparing them with findings from other studies. For example, is the 85% rate of no detectable pesticide residues consistent with other research? If not, suggest reasons for the discrepancy (e.g., variations in detection methods or regional pesticide usage).

The article discusses the relationship between fermentation and pesticide degradation but lacks a detailed explanation of how microorganisms, like lactic acid bacteria, contribute to pesticide breakdown. Expanding on the microbial detoxification mechanisms would enhance clarity for readers unfamiliar with this process.

Tables and figures are used effectively but could be supplemented with more visual aids, such as before-and-after comparisons or graphical summaries that depict the reduction in pesticide levels over time. A diagram showing the chemical breakdown of chlorpyrifos during fermentation would also be beneficial.

The authors should consider including a discussion on how their findings might influence guidelines for safe milk processing and potential applications for reducing pesticide residues in other dairy products. The authors are advised to discuss the results from a One Health perspective.

In the reviewer's opinion, the present study lacks a discussion on limitations. For example, acknowledging the constraints of using spontaneous fermentation and suggesting future research to explore controlled fermentation with specific bacterial strains would give the study more depth. Please mention and highlight the limitations of the present study in the “Conclusion” section too.

In the end, the article mentions that 13 milk samples were used, but I am wondering: is the sample number representative? How did you calculate the sample number? Do you think that a larger sample across different regions or seasons would change or influence the results?

In my opinion, even if the present article presents interesting findings about milk, dairy products, and a few correlations with pesticides, I suggest processing it further only after the authors have answered the questions raised and improved the original manuscript.