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| Journal Name: | [**Archives of Current Research I**](https://journalacri.com/index.php/ACRI)**nternational** |
| Manuscript Number: | **Ms\_ACRI\_140803** |
| Title of the Manuscript: | **Isolation, Characterization, Probiotic Potential and Safety Evaluation of Lactic Acid Bacteria from Curd** |
| Type of the Article | **Original Research Article** |

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| **PART 1: Comments** |
|  | **Reviewer’s comment****Artificial Intelligence (AI) generated or assisted review comments are strictly prohibited during peer review.** | **Author’s Feedback** (It is mandatory that authors should write his/her feedback here) |
| **Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part.** | This manuscript holds significant importance for the scientific community by contributing to the global understanding of indigenous microbial diversity as a vital source for novel, functionally superior probiotic strains. By rigorously validating these local isolates against established probiotic criteria, the research provides a strong foundation for their potential application in functional foods, pharmaceuticals, and cosmetics, thereby advancing both fundamental microbiology and applied biotechnology. Furthermore, this work underscores the critical need for regional bioprospecting to discover probiotics uniquely adapted to local dietary and environmental contexts, potentially offering more effective and sustainable health solutions. It serves as a compelling case study for the systematic characterization of indigenous microbial resources, adding validated*Lactobacillus* strains to the global probiotic repertoire and reinforcing the principle that local biodiversity holds immense potential for addressing global health and food security challenges |  |
| **Is the title of the article suitable?****(If not please suggest an alternative title)** | The current title, "The Scientific Importance of Novel Probiotic Lactic Acid Bacteria Strains Isolated from Indigenous Curd," effectively highlights the significance of the research.However, for a research paper, a more descriptive title that accurately reflects the scope of the study's methodology and findings would be more suitable.A highly suitable alternative title, which is also the original title of the manuscript, is:**"Isolation, Characterization, Probiotic Potential and Safety Evaluation of Lactic Acid Bacteria from Curd"**This title is more appropriate because it clearly outlines the key aspects of the research presented in the manuscript: the process of isolation and characterization, the assessment of probiotic potential, and the crucial safety evaluation of the Lactic Acid Bacteria strains derived from curd. It is comprehensive and directly informs the reader about the study's content. |  |

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| **Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.** | The abstract of the article "Isolation, Characterization, Probiotic Potential and Safety Evaluation of Lactic Acid Bacteria from Curd" is quite comprehensive, effectively summarizing the study's objectives, methods, key results, and conclusion.To enhance its robustness and provide even more specific detail, I suggest the following additions:* **Specify the Sample Source:** While the abstract mentions "diverse products collected in Chennai," it would be more precise to explicitly state that the LAB strains were isolated from "curd samples collected in Chennai." This aligns more closely with the manuscript's title and detailed methodology.
* **Highlight Identified Strains Earlier:** The abstract does list the identified strains later, but bringing them up earlier or more prominently would immediately convey a key finding. The specific strains identified are *Lactiplantibacillus plantarum*, *Lactobacillus acidophilus*, *Limosilactobacillus fermentum*, and *Lacticaseibacillus rhamnosus* (with *Lactobacillus acidophilus* appearing twice).
* **Reinforce Probiotic Criteria in Conclusion:** The abstract concludes that the strains "possess probiotic potential." It would be beneficial to briefly link this conclusion back to the specific probiotic properties tested, such as their "acid and bile tolerance, non- hemolytic activity, and antimicrobial properties," to reinforce the basis of the conclusion.

Here's how the revised abstract could incorporate these suggestions:"Lactic Acid Bacteria (LAB) are widely recognized as beneficial microorganisms that play a crucial role in the production of various fermented foods. They contribute to improving food flavor and inhibiting the growth of pathogenic and spoilage microorganisms in these products. This study focused on isolating, characterizing, and identifying LAB from **curd samples** collected in Chennai, followed by evaluating their in vitro antimicrobial activity against pathogenic bacteria. Five *Lactobacillus* strains were isolated from curd and identified through biochemical and physiological tests. Preliminary classification suggested these isolates belonged to the *Lactobacillus* genus, which was further confirmed by genus-specific PCR and 16S rDNA sequencing. **The identified strains included *Lactiplantibacillus plantarum*, *Lactobacillus acidophilus*, *Limosilactobacillus fermentum*, *Lacticaseibacillus rhamnosus* and *Lactobacillus acidophilus*.** The isolates’ survival was tested under simulated gastrointestinal conditions, including low pH and bile salt exposure. All strains demonstrated growth at pH 3 and in the presence of bile salts. Hemolytic activity assays on sheep blood agar revealed γ-hemolysis in all isolates, indicating non-hemolytic behavior. The antimicrobial activity of the strains was evaluated against *Escherichia coli* (ATCC 25922) and *Staphylococcus aureus* (ATCC 25923) using the agar well diffusion method, where all isolates showed clear zones of inhibition. In conclusion, these findings indicate that the isolated LAB strains possess probiotic potential, **demonstrated by their acid and bile tolerance, non-hemolytic activity, and antimicrobial properties.**" |  |

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| **Is the manuscript scientifically, correct? Please write here.** | The manuscript is largely scientifically correct. However, there are two key inaccuracies in the conclusion:1. It states that *Lactobacillus* strains were isolated from "both fermented and non- fermented foods," but the methodology only describes isolation from curd (a fermented food).
2. It claims the isolated strains showed "sensitivity to commonly used antibiotics," but no data or methods for antibiotic sensitivity testing are presented anywhere in the manuscript. This claim is unsupported.

Addressing these points would enhance the manuscript's scientific rigor. |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.** | The references are generally sufficient and recent, showing a good mix of foundational and up-to-date literature. However, the most critical suggestion for additional references is tied to a scientific inaccuracy: the manuscript's conclusion claims "sensitivity to commonly used antibiotics" , but no data or methods for this testing are presented. If this claim is to be retained, the authors must add the experimental data and relevant, current references to support it. |  |
| **Is the language/English quality of the article suitable for scholarly communications?** | Yes |  |
| **Optional/General** comments |  |  |

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| **PART 2:**  |
|  | **Reviewer’s comment** | **Author’s comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
| **Are there ethical issues in this manuscript?**  | *(If yes, Kindly please write down the ethical issues here in details)* |  |

**Reviewer details:**

**Shovit Dutta, Bangladesh**