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# Indigenous Probiotic *Lactobacillus* Isolates Presenting Antibiotic like Activity against Human Pathogenic Bacteria

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**Background:** Indigenous lactic acid bacteria are well known probiotics having antibacterialactivity against potentially pathogenic bacteria. This study aims to characterize the curd lactobacilli for their probiotic potentiality and antagonistic activity against clinical bacteria.

**Methods:** Four curd samples were processed microbiologically for the isolation of lactic acid bacteria (LAB). The LAB strains obtained were identified by conventional methods: cultural aspect, gram-staining, biochemical and sugar fermentation tests. The probiotic properties were justified with tolerance to low-pH, bile salt and sodium chloride, and the antagonistic activity of the lactobacilli against human pathogenic bacteria (*Escherichia coli, Proteus vulgaris, Acinetobacterbaumannii and Salmonella entericaserovar*Typhi) was assessed. Hemolytic activity and antibiotic susceptibility were determined for the lactobacilli isolates, and the cumulative probiotic potential (CPP) values were recorded.

**Result:** Four lactobacilli isolates, *L. animalis*LMEM6, *L. plantarum*LMEM7, *L. acidophilus*LMEM8 and *L. rhamnosus*LMEM9, procured from the curd samples, survived in low-pH and high bile salt conditions, and showed growth inhibitory activity against the indicator bacteria by agar-well (zone diameter of inhibition; ZDIs: 13.67 ±0.58–29.50 ±2.10 mm) and agar overlay (ZDIs: 11.33 ±0.58–35.67 ±2.52 mm) methods; the average growth inhibitory activity of lactobacilli ranged 233.34 ±45.54–280.56 ±83.67 AU/mL, against the test bacterial pathogens. All the lactobacilli were non-hemolytic and sensitive to most of the test antibiotics. The CPP values of the isolated LAB were recorded as 80–100%.

**Conclusion:** The curd lactobacilli procured might be used as the valid candidates of probiotics, and bio-therapeutics against bacterial infection to humans.

**Keywords:** lactobacilli; probiotics; antagonistic activity; indicator bacterial pathogens; antibioticsusceptibility; γ-hemolytic activity; cumulative probiotic potential

**Biography:**

Debashis Halder is involved in Ph.D Research since last three years, under the supervision of Prof. Shyamapada Mandal, Laboratory of Microbiology and Experimental Medicine, Department of Zoology, University of GourBanga, India. He has worked on three projects and published five research articles in four reputed international journals. He is passionate to pursue a career in Medical Microbiology and truly attracted by Molecular Immunology and Phytomedicine. He wishes to continue as a scientist with a dynamic team of sincere researchers along with continuous research in his fields and extend his valuable service towards the scientific community with extensive research work.