

Isolation of Lactic Acid Bacteria from *Idli* Batter and Assessing their Antibacterial Potential

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Idli is one of the flour-based fermented foods that can potentially contain probiotic lactic acid bacteria. This study was designed to isolate and determine antibacterial activity of lactic acid bacteria from *Idli* batter, identify the acidity changes of *Idli* batter and sensory quality changes of *Idli* with fermentation time up to 32 h. Lactic acid bacteria were isolated from *Idli* batter and characterized to genus level by biochemical tests. Agar well diffusion assay was carried out to determine the antibacterial activity of isolates against food borne pathogens; *Salmonella enterica*, *Escherichia coli* and *Staphylococcus aureus*. With fermentation, changes of pH, Lactic acid bacterial count, titratable acidity and sensory quality of final product were measured. In overall, ten isolates were recognized from *Idli* batter, of which, six were rod shaped, Gram positive, non-motile, non-spore formers and negative to catalase activity, belonging to *Lactobacillus* spp. Other 4 isolates were cocci shaped, Gram positive, non-motile, non-spore formers and negative to catalase activity, belonging to *Lactococcus* spp. On the basis of zone of inhibition, among ten isolates, isolate I-6 was considered as the highest potential bacteriocinogenic isolate against all test organisms. The overall zone of inhibition diameter of isolates fell within range from 7.3±1.53 to 16.3±0.58 mm. The pH dropped steadily from 6.28 to 3.72, while titratable, acidity increased from 0.24% to 0.92% during the period of 0 to 32 h. With fermentation time, the lactic acid bacterial count was increased and higher lactic acid bacterial count of 9.88 log₁₀ cfu/g was observed after 12h of fermentation and the count was reduced with increasing acidity. *Idli* prepared from *idli* batter after 8-12 h of fermentation scored maximum for the sensory quality. *Lactobacilli* spp are the predominant Lactic acid microbial group involved in natural *Idli* batter fermentation which have anti-microbial activity against food pathogens.

Keywords: Anti-microbial activity, Biochemicals, *Idli* batter, Lactic acid bacteria, Sensory quality