 DOI : http://doi.org/10.4038/sljid.v11i0.8372

Isolation and biochemical characterization of lactic acid bacteria from *idli* batter

D Bernard[1], N Jeyagowri[2], T Madhujith[3]

Introduction

Fermentation is considered the oldest food preservation method, yet fermented foods are popular even today across the world. In fact, fermented foods are gaining an ever-increasing momentum due to their health benefits. *Idli* is a common flour based fermented food fermented by lactic acid bacteria which have probiotic properties and is consumed in Sri Lanka and some parts of India. Therefore, this study aimed at isolating and characterizing the lactic acid bacteria from *idli* batter and identifying the biochemical changes of *idli* batter during fermentation.

Methods

The *idli* batter was used as the source material for the isolation of probiotic *Lactobacillus sp*. The samples were serially diluted, plated on Man Rogosa Sharpe (MRS) agar medium and incubated at 37 ^{0}C for 24 hours under anaerobic condition. The *Lactobacillus* sp were isolated and characterized up to genus level using biochemical methods: Gram staining, catalase activity, motility test and spore forming ability. Changes of pH, *Lactobacillus sp.* bacterial count and titratable acidity of the *Idli* batter were measured with the fermentation time.

Results

In total, 10 isolates were identified from *idli* batter, in which 6 isolates were rod shaped and the other 4 were cocci. All isolates were Gram positive, non-motile, non-spore formers and catalase negative. According to the above tests, it was confirmed up to the genus level that all strains were *Lactobacillus sp.*. The pH dropped steadily from 6.11 to 3.72 while titratable acidity increased from 0.24 to 0.92% during 0 to 32 hours of fermentation. A high *Lactobacillus sp* bacterial count was observed after 12 hours (Log_{10} CFU/ g - 7.55) and the count decreased with increasing acidity. A bacterial count of 5.91 Log_{10} CFU/ g was recorded at the end of 32 hours of fermentation.

Conclusion

Lactobacilli sp are the predominant microbial group involved in *idli* batter fermentation.

Keywords: *Idli batter, Lactobacillus sp., Fermentation, Biochemicals*

[1]*Postgradaute Institute of Agriculture, University of Peradeniya, Sri Lanka*
[2] *Department of Bioscience, Faculty of Applied Science, Vavuniya Campus of the University of Jaffna, Sri Lanka*
[3]*Department of Food Science and technology, Faculty of Agriculture, University of Peradeniya, Sri Lanka*

Address for correspondence: Prof. *T Madhujith . +940812395074 Email: tmadhujith@agri.pdn.ac.lk*
https://orcid.org/0000-0002-1649-0900