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Chapter - 5

Comparison of Viable Cell Count of *Lactobacillus* Strains Incorporated into Skim Milk during Refrigerated Storage

Harshada Joshi and Preeti Upadhyay

Abstract

Probiotic microbes have been linked with a range of beneficial effects on host health. Viability of probiotics is often considered to be a prerequisite for the health benefits. It is important because probiotic organisms must be alive at the site of action in order to provide beneficial effects. Therefore analysis enumeration of probiotic bacteria in fermented preparations is essential. The main goal of this study was to compare the viable count of three *Lactobacillus* strains namely *Lactobacillus fermentum* CM36, *Lactobacillus plantarum* CM114 and *Lactobacillus rhamnosus* CW40 incorporated into skim milk during refrigeration. All the lactobacilli strains were grown in skim milk at 37 °C for 24 h. Fermented skim milk was stored at 4 °C upto 20 days. Viable cell count was determined in skim milk before storage and at an interval of 5 days during the total refrigerated storage period of 20 days using standard pour plate method. Viable cell count of *L. fermentum* CM36, *L. plantarum* CM114, *L. rhamnosus* CW40 was 10.71, 10.68 and 10.94log CFU/ml respectively in skim milk before storage. There was gradual decrease in cell viable count was observed as the storage duration was increased. Viable count for *L. fermentum* CM36 was retained in the range of 10⁹ CFU/ml throughout the storage duration at 4 °C while *L. plantarum* CM114 and *L. rhamnosus* CW40 retained their viability (10⁹ CFU/ml) upto 15 days of refrigerated storage. After 15 days cell viability was completely lost. The data obtained from this study opens a promising way to design fermented foods of better choice using these potential strains. Further investigations are required to study the effect of these strains on the sensory scores in food preparations.

Keywords: *Lactobacillus* strains, skim milk, viable cell count, refrigerated storage etc.