

## ABSTRACT

Probiotic cultures were isolated from different yogurt samples and were identified as *Lactobacilli*, *Bifidobacteria* and *Pediococcus* after morphological and biochemical characterization. Heat tolerance of isolates was tested at 55°C and 65°C for 10 min to check the survival of isolates in conditions similar to cheese production. *Lactobacillus* spp. (S2) showed remarkable heat tolerance among all strains and was selected for further determination of probiotic potential. *Lactobacillus* spp. (S2) showed good survival at pH 2 and 3. Bile salt tolerance was more than 50% for *Lactobacillus* spp. (S2). *Lactobacillus* spp. (S2) exhibited antimicrobial activity against *Salmonella thyphimurium*, *Escherichia coli* and *S. aureus*. Hence, *Lactobacillus* spp. (S2) was found to be heat tolerant isolate with good probiotic potential, an ideal strain for incorporation in Mozzarella cheese as probiotic. Three types of cheese were made: cheese A with free cells of *Lactobacillus* spp. (S2), cheese B with encapsulated cells of *Lactobacillus* spp. (S2) and control cheese with no added probiotic. Microbiological analysis showed that less loss of *Lactobacillus* spp. (S2) in encapsulated form occurred ( $3.41 \times 10^8$  cfu/ml) as compared to free cells of *Lactobacillus* spp. (S2) ( $1.10 \times 10^7$  cfu/ml). Coliforms were observed in control cheese after 10 days of storage while no Coliforms were observed in cheese A and cheese B during 15 days of storage. Slightly high salt concentration was observed in cheese B. Organoleptical properties of cheese A and cheese B were almost same with acceptability score of  $2.7 \pm 0.1$  and  $2.65 \pm 0.1$  respectively. Control cheese got lowest scores during 15 days of storage. Hence, added probiotic *Lactobacillus* spp. (S2) enhanced the flavor and shelf life of cheese.