

## Effects of Incubation Temperatures on Biochemical and Microbiological Characteristics in Doogh Inoculated with Iranian Probiotic *Lactobacillus* Species During Fermentation and Refrigerated Storage

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**Background & Objectives:** In this study, biochemical and microbiological characteristics of Doogh inoculated with Iranian probiotic *Lactobacillus* species during fermentation and refrigerated storage were investigated.

**Methods:** Traditional yoghurt starter culture and a single probiotic culture (6.28 log cfu/ml of *Lactobacillus paracasei* or 6.32 log cfu/ml of *Lactobacillus fermentum* supplied from probiotic research laboratory of University of Tehran) were inoculated to reconstituted milk with 6% of dry matter. Inoculated milk was incubated at different temperatures (38°C and 42°C) till pH 4.4 was reached and stored at refrigerated temperature (5°C) for 21 days. Enumeration of probiotics (according to Iranian national standard No. 11325) and biochemical properties were measured during fermentation (per 0.5 hours) and storage (per 7 days).

**Results:** The fermentation times at 38°C were 330 and 360 min in Dooghs containing *L. fermentum* and *L. paracasei*, respectively. These amounts at the incubation temperature of 42°C were 300 and 330 min, respectively. Viability of probiotics increased by 1 log cfu/ml in all treatments during fermentation. Viability of *L. fermentum* and *L. paracasei* were 7.12 and 6.92 log cfu/ml after 28 days of refrigerated storage in Dooghs incubated at 38°C, respectively. Meanwhile these amounts were 7.00 and 6.78 log cfu/ml in Dooghs incubated at 42°C. The mean of pH decrease rate in Doogh containing *L. fermentum* was higher than those containing *L. paracasei*, at both incubation temperatures.

**Conclusion:** *L. fermentum* had better viability than *L. paracasei* at the end of fermentation. However, both Iranian probiotic species showed good resistance against unfavorable conditions during fermentation and storage.

**Keywords:** Incubation Temperature; Doogh; Probiotic; *Lactobacillus*