

Optimal Temperature and Time for Lactic Coagulation of Milk Containing Antibiotic: Evaluation of Yogurt Fermentation Parameters

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Abstract : The presence of antibiotics in milk is one of the problems of dairy production units, especially yogurt and cheese, which leads to a decrease in lactic coagulation. Here, to assess the incubation conditions for the fermentation of milk containing antibiotics, concentrations of 50, 75, 100, and 200 ppb of tetracycline were added to each liter of milk. Inoculation process with starter culture performed at three temperatures of 35°C, 45°C, and 50°C. Afterward, pH, acidity, oxidation-reduction potential, and lactic coagulation of yogurt were evaluated. The results showed the existence of antibiotics in milk affects the quality and physicochemical properties of yogurt. However, antibiotic concentration and change in incubation temperature play a crucial role in the lactic coagulation of yogurt, such that the best lactic coagulation was observed at 50°C and a concentration of 50ppb. Hence, for tetracycline concentrations less than 75ppb, a process temperature of 50°C and incubation time of ~10 h recommend for fermentation of milk containing antibiotics.

Keywords : antibiotics residues, yogurt, fermentation parameters, incubation temperature

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