B-74 Manufacture of cottage cheese using direct acid-set method

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Cottage cheese, commonly known as "Paneer" is an acid - heat coagulated milk product used in Indian culinary dishes. In terms of nutrition it retains all essential amino acids and appreciable amounts of minerals and vitamins present in milk. Introduction of this product, to Sri Lanka contributes in terms of (a) reducing losses due to spoilage of milk and (b) promoting indirect consumption of milk in the household.

The objective of this study was to standardize the process for manufacture of cottage cheese and investigate the effects of raw material composition, acid ratio/ concentration, salting technique and holding time on the product. The following steps are involved in the manufacturing process: heating, cooling, coagulation, draining, washing, salting and pressing, to obtain the final product.

Results revealed that, (a) The best product is obtained from pasteurized milk (standardized milk, containing 3.3% fat). Seasonal variations in the fresh milk composition, mainly fat (2.2 - 3.6%, on wet basis) had adverse effects on standardization of the product, when used as raw material. (b) The highest yields for cottage cheese (109.2 g/kg and 121.8 g/kg) were obtained when milk was precipitated at pH 4.7, using citric acid. (100 ml of 5% and 70 ml of 7% respectively), with holding time curd at 120 min. (c) The yield of the cottage cheese was found to decrease with increase in holding time.

A 20 min. and 120 min. holding time gave yields of 121.8 g/kg and 104.6 g/kg, respectively, using 70 ml of 7% citric acid. (d) The final product contained 2% NaCl when the curd was washed with 6% Nacl (5:1). (e) A consumer preference study conducted using 28 untrained panelists, preferred the product formulated using 70 ml of 7% citric acid/kg, compared to that formulated with 100 ml 5%/kg and 48 ml of 10%/kg citric acid. It ranked the highest in total acceptability, texture and taste, as statistically determined by ANOVA.

The composition of the consumer accepted cottage cheese was as follows: moisture 48.2%, fat 20.3% , protein 24.0% carbohydrates (by difference) -5.5% and salt 2.0%. The acidity of the product was 1.4% (expressed at lactic acid). The product had a shelf-life of 5 days at 8°C, without the additon of preservatives.

It could be concluded that the manufacture of cottage cheese by Direct acid set method could be introduced as a viable small industry in the rural sector.