

**DEVELOPMENT OF A TREACLE  
(*Caryota urens*) INCORPORATED  
BUFFALO CURD WITH IMPROVED  
PREFERABILITY AND SENSORY  
PROPERTIES**

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## ABSTRACT

Curd is an indigenous dairy product prepared by the fermentation of milk. It is believed that if someone consumes 250-600 g of curd daily from the childhood, he will have a healthy life upto the age 70-80 years. It also lowers the blood cholesterol level and therefore improves the functioning of the cardiovascular system. Today, it is identified that curd has therapeutic, prophylactic and nutritional properties. However, only few studies have been conducted on value addition to curd. This study was carried out on the utilization of treacle (*Caryota urens*) in nutritional enrichment, enhancement of sensory attributes of curd. The aim of this study was to develop a ready- to-serve value added curd product by incorporating treacle that could be packed in polystyrene cup.

The main ingredient, treacle was first heated up to  $40 \pm 2$  °C and filtered through a muslin cloth. Then, treacle was pasteurized at  $72 \pm 2$  °C for 15 seconds and slowly cold up to not less than  $30 \pm 2$  °C of temperature. 2 % of gelatin was dissolved in a small amount of hot water and mixed with treacle at 60 °C. Then 20 ml of treacle was poured into a pre-sterilized polystyrene cup as a layer and kept in a refrigerator for overnight.

Raw buffalo milk was first heated up to 70 °C for 20 minutes and passed through the homogenizer to reduce the size of fat globules. After that, milk was pasteurized at 100 °C for 30 minutes. Milk was then cooled to 43 °C at the cooling vat. In this step, thermophilic Lactic acid starter cultures are added in to the milk. The polystyrene cups with treacle were taken out from the refrigerator and kept in the ambient temperature for 20 minutes. Milk was then poured into the polystyrene cups and incubated at  $44 \pm 2$  °C for 3 ½-4 hours.

To analyze the shelf life of selected formula, Total Colony Count (TCC), yeast and mould count, pH of the product were determined. According to the results, the developed product has a shelf life of 15 days without addition of any preservative. The protein content and other nutrients of this novel product are far above than the products available in the market.

Sensory evaluation was carried out by 30 untrained panelists for appearance, flavor, color, texture, and overall acceptability using 6- point hedonic scale.

Data from sensory evaluation were analyzed by Friedman non-parametric statistical method. pH, *Coliform*, *E. coli*, yeast and mould, Total Colony Count (TCC) were analyzed by correlation using MINITAB-14 statistical software. Overall acceptability was highest ( $p < 0.05$ ) in 20% (w/w) kithul treacle. The curd sample prepared using 2% (w/w) gelatin showed highest ( $p < 0.05$ ) preference with respect to taste, appearance and texture. According to the results of the sensory evaluation curd incorporated with 20% (w/w) treacle and 2% (w/w) gelatin has been selected as the best combination for the treacle incorporated curd with highest sensory attributes. Furthermore, the developed product can be kept for 15 days at refrigeration condition ( $4^{\circ}\text{C}$ ) without any quality deterioration. Transparent polystyrene cups were superior to clay pots as a packing material for the developed curd product.

Key words: Treacle, Curd, Shelf life, Gelatin, polystyrene