

## **Development of Cocoa and Coffee Based Set Yoghurt According to Sri Lankan Consumer Preference**

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### **Introduction**

Dairy products play a major role in human diet as milk is complete food. Yoghurt is one of the dairy products, popular as a desert which contains standardized full cream milk, sugar, gelatin, permitted stabilizer and colorings. Yoghurt market in Sri Lanka is still in growing stage compared with other countries. Consumer preference is due to increasing desire to take a more proactive role in optimizing personal health and wellbeing without relying on pharmaceuticals. The consumption of fermented yoghurt in which lactose has been converting to lactic acid has helped to reduce the risk of having pathogenic microorganism grow in the food (Baker and Miller, 1990).

Consumer preference is considered as one of the major critical parameters in food industry including dairy products. Vanilla, chocolate, banana, mango, strawberry are the different types of flavored yoghurts available in the market according to the consumer preference. Cocoa and coffee have lots of health benefits and can be used as flavors in yoghurt industry. Cocoa is rich source of antioxidant flavonoids, which may have beneficial cardiovascular effects on health and coffee contains caffeine, which acts as a stimulant. (Tamine and Robinsion, 1985). Therefore, the present study was carried out to produce cocoa and coffee based set yoghurt according to Sri Lankan consumer preference and as a new value added product for dairy industry.

### **Materials and methods**

Yoghurt mixtures were prepared under three different levels of cocoa and coffee concentrations. Each mixture were contained 3.25% fat, sterilized milk, skimmed milk, full cream milk powder, sucrose, gelatin, stabilizer, starter culture. Initially milk fat content and milk solid non fat were standardized by adding required amounts of sterilized milk and skimmed milk. For each experimental mixture, the same basic procedure was followed except the proper amounts of cocoa and coffee. Each treatment was replicated three times. Then the three mixtures were pasteurized at 95 °C for 15 s and homogenized. The yoghurt mix was cooled to 44 °C and culture was added in proper amount. After incubation at 44 °C for 2 hours and 30 minutes, the yoghurt mixtures were kept in refrigerator under 4 °C.

Preliminary trial and error tests were carried out to find out suitable cocoa and coffee mixture for set yoghurt and suitable flavor percentage. Chemical and microbiological analyses were performed for the selected best sample according to the results. Three samples were sensory evaluated using six point hedonic scale with the participation of 25 untrained panelists. Collected data were statistically analyzed using Friedman test.

## Results and discussion

Analysis of final product revealed that the incubation has not affected the fat content. Acidity of the final product has increased up to desired range due to incubation by rapid cooling after attaining the correct pH level.

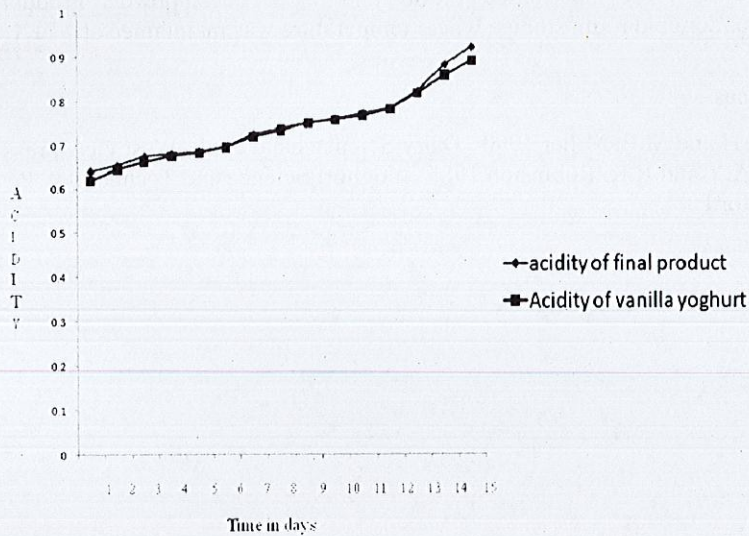


Figure 1: Changes of titratable acidity during the shelf life period

During the cold storage of 14 days at  $4^{\circ}\text{C} \pm 1$ , acidity has changed significantly ( $P < 0.05$ ); and were within the acceptable range of the yoghurt. According to the results, Titratable Acidity (TA) values for sample "B" ranged from 0.64-0.92%. The increase in TA values could be attributed to the activity of lactic acid bacteria which usually converts lactose to lactic acid. According to the SLS standard for yoghurt, recommended acidity level is 0.7% to 1.25 %.

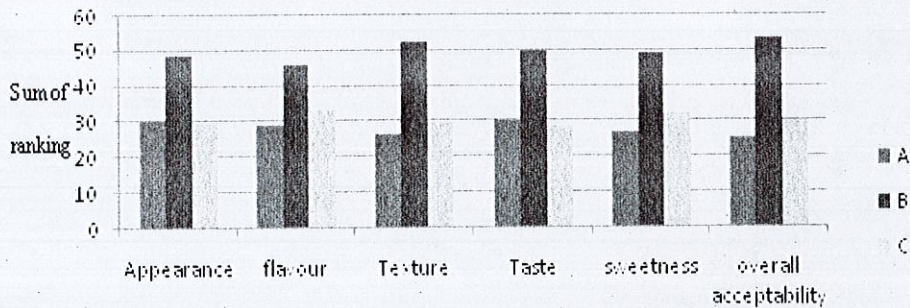


Figure 2: Sensory value according to sum of ranking

According to the results obtained, a significant difference was observed among three samples. Sample "B" was considered as the best formulation which contained (0.06%) cocoa flavor, (0.05%) permitted coloring and (0.1 %) cocoa powder and sample "A" was comparatively less in overall acceptability.

### **Conclusions**

Sample "B" was selected as the best ratio through sensory evaluation containing (0.06%) Cocoa flavor, (0.05%), permitted coloring and (0.1 %) cocoa powder. Product shelf life was 14 days under cold room storage where temperature was maintained at  $4 \pm 1$  °C.

### **References**

- Baker, F.H and M.E. Miller 1990 . Dairy Science hand book. West view press  
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