

Process Standardization for the Manufacture of *Kalakand* Using *Amla* Powder as Acidulant

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Introduction

Kalakand is one of the most popular traditional dairy products of the Northern region of India.

Methodology

The objective of the present experiment was to arrive at a method of manufacture for *Kalakand* on the basis of standardization for the process parameters such as fat percent of milk, *Amla* powder and sugar addition. These rates were decided by using the Central Composite Rotatable Design (CCRD) of Response Surface Methodology (RSM).

In this study, the per cent fat of milk, rate of *Amla* powder addition and per cent sugar addition were chosen at 5 levels within a specified range of 4 to 8 per cent, 0.75 to 2.5 g/l and 4 to 8 per cent respectively. These ranges of parameters were fed into the statistical software programme and the software suggested 20 trials of different combinations of these parameters.

Result and Discussion

When varying levels of milk fat content, *Amla* powder and sugar addition are studied for their effect on compositional and textural properties such as Vitamin C (mg/100g) content and hardness (N) of *Kalakand* manufactured, it was observed that Vitamin C (mg/100g) can be retained in the heat desiccated product like *Kalakand* which otherwise is devoid of Vitamin C. A significant ($p < 0.01$) positive effect on retention of Vitamin C (mg/100 g) of *Kalakand* was observed with the increasing rate of *Amla* powder addition. Crude fiber content was also analyzed but retention of crude fiber content was not found in the final product due to very less amount of added *Amla* powder. All the samples manufactured with this formulation were subjected to compositional, physico-chemical, textural, microbiological and sensory attributes evaluation. The results so obtained were compared statistically with the one suggested by the software and as it gave a non-significant difference between the two, the process was accepted. However, more importance was given to the sensory quality of the product so prepared throughout the study.

Conclusion

Based on the minimum and maximum values observed from these 20 trials, a optimized process was arrived at. The optimized process consisted of 5.90 per cent fat of milk, *Amla* powder addition @ 1.92 g/l milk and sugar addition @ 6.19 per cent of milk. The mean compositional attributes of the standardized product were having 22.07 ± 0.77 per cent moisture, 21.89 ± 0.35 per cent fat, 14.47 ± 1.036 , per cent total protein, 17.04 ± 0.196 per cent lactose, 21.92 ± 0.634 per cent sucrose, 13.34 ± 0.942 mg/100g Vitamin C and 2.63 ± 0.073 per cent ash content.

ABSTRACT



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