EXTRACTION, ENCAPSULATION OF RED COLOUR FROM ROSELLE (*Hibiscus subdariffa*) AND UTILIZATION IN TO ICE CREAM

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ABSTRACT

There is a trend of increasing usage of natural colours due to the nutritional, pharmaceutical and antioxidant properties and adverse effect of synthetic colours. Roselle calyx is a rich source of red colour and can be formulated with ice cream as a substitution to synthetic colour. Therefore, the aim of this present study was to investigate the physico-chemical properties and storage of ice cream incorporated with Roselle red colour extract with the concentration percentage range from 0.1% to 0.25% and control sample with 0.015% of synthetic colour. Ice cream samples were analyzed for physico-chemical and sensory properties during freezing storage at -12°C. The physico-chemical (pH, titrable acidity, total soluble solid, colour parameters, melting rate, fat, ascorbic acid, ash) and sensory characteristics (colour, taste, texture, flavor and overall acceptability) were analyzed at day 1 and week 2, week 4, week 6 and week 8 during storage period.

The pH, titrable acidity, total soluble solid, colour parameters, melting rate, fat content, ascorbic acid and ash content were significantly difference ($p<0.05$) among the treatments at day one. The results of this study revealed that, the pH was significantly decreased with the increasing of Roselle colour concentration. Titrable acidity, total soluble solid, colour parameters, melting rate, fat content, ascorbic acid and ash content was increased significantly ($p<0.05$). According to sensory analysis the best three treatments were selected and they were T_1 (control sample with 0.015% synthetic colour), T_2 (ice cream formulated with 0.1% Roselle colour) and T_3 (ice cream

formulated with 0.15% Roselle colour). The treatments of T_1 and T_2 had insignificant scores according to the sensorial properties namely, colour, taste, texture, flavor and overall acceptability.

During storage the pH, ascorbic acid content of stored samples (T_1, T_2 and T_3) had a significant decrease while titrable acidity had increased significantly. The value of total soluble solid, colour parameters, melting rate and ash content had insignificantly changed during two months storage.

According to the sensory analysis and physico-chemical analysis finally, it could be concluded that the 0.10% of Roselle red colour concentration can be used as a substitute to synthetic colour while preventing adverse effect of synthetic colour and increasing nutritional value in ice cream.

TABLE OF CONTENTS