

FORMULATION, PRESERVATION AND QUALITY EVALUATION OF STAR FRUIT BEVERAGES

BY

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FACULTY OF AGRICULTURE

EASTERN UNIVERSITY

SRI LANKA

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ABSTRACT

Star fruit (*Averrhoa carambola*) is one of the tropical fruit that has received less attention from the food industry. A large number of ripened star fruits are wasted during the fruiting-season. Only a few value added products of star fruit are available in the market of Sri Lanka. There is a need for the development of more value added products using this fruits *vz: fruit beverages*. Therefore, this study was carried out to develop different beverages using star fruit juice.

Star fruit RTS, squash and cordial were prepared with sugar, citric acid and 70ppm of sodium metabisulphite (SMS) and these beverages were assessed by organoleptically test to evaluate the quality characters. According to Seven points hedonic scales were used to evaluate organoleptic characters. the Tukey's test, star fruit cordial was selected as the best beverage made from star fruit.

Three recipes of mixed cordial of star fruit juice with sweet orange juice (cordial with 60, 70 and 80% of star fruit juice and 40, 30 and 20% of sweet orange juice) were prepared with sugar, citric acid and 70ppm of sodium metabisulphite (SMS). These beverages were subjected for Chemical test, Organoleptic test and Microbial test for finding nutritional quality and sensory quality.

The Chemical (titrable acidity, ascorbic acid, pH and total sugars) and organoleptic (colour, aroma, taste, consistency, absence of off flavour and overall acceptability) qualities and total plate count were analyzed during storage. The titrable acidity, ascorbic acid and total sugars of freshly made mixed cordial of star fruit juice with orange juice was increased while pH decreased with the increased concentration of orange juice from 20-40%. According to Tukey's test, the mean scores for all assessed sensory characters varied significantly ($p < 0.05$) in the freshly made mixed cordial star fruit juice with sweet orange juice. Based on the quality characters, the most preferred

mixed cordial star fruit juice with sweet orange juice was 70% star fruit juice and 30% sweet orange juice.

Three recipes of mixed cordials of star fruit juice with sweet orange juice were subjected to storage studies at ambient temperature 30°C. Chemical and Organoleptic analyses were carried out in 2 weeks interval throughout the experiment periods. The findings of the storage study revealed that, the decline trend was observed in the ascorbic acid, pH and total sugars and an increasing trend was observed in titrable acidity with storage periods for all the treatments. Therefore, the results of chemical analysis revealed that, there were significant differences ($p < 0.05$) between the treatments and the period of storage; The organoleptic analysis also showed that there were significant differences ($p < 0.05$) in the organoleptic characters between the treatments. The highest overall acceptability was observed in the mixed cordial of 70% star fruit juice with 30% sweet orange juice concentrations.

Based on the results of Chemical characters and Organoleptic qualities and Microbial tests during the storage study, the mixed cordial of 70% star fruit juice with 30% sweet orange juice concentrations was selected as best mixed cordial of star fruit juice with sweet orange juice.

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