

**STUDY OF READY TO SERVE BEVERAGE PREPARED
FROM FERMENTED AND UNFERMENTED CARROT
WITH SOUR-ORANGE JUICES**



BY

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ABSTRACT

A study was designed to prepare RTS beverage by blending juices of Carrot with Sour-Orange juices. Ready to serve beverage was prepared using Fermented Carrot juices and Unfermented Carrot juices with different combinations of Sour- Orange juices with sugar, citric acid, distilled water and Sodium metabisulphite, considering the recommendations of Sri Lanka standards for RTS beverages. Carrot was fermented by using culture. Eight formulations of the blends of Fermented Carrot juice with Sour-Orange juices and Unfermented Carrot juice with Sour- Orange juices at the ratios of (100:0, 60:40, 50:50 and 40:60) were prepared in the preliminary trial. Juice blends were preserved by pasteurization (85°C, 20 min).The preservative was added into blended Unfermented Carrot juice with Sour- Orange juice RTS beverage only because, preparation of RTS using fermentation is a method of Preservation without the addition of chemical preservatives.

All freshly prepared RTS beverages were analyzed for sensory, chemical and microbiological evaluations. Chemical analysis showed that there was a decline in pH, and increase in titrable acidity, ascorbic acid, total sugar and Total Soluble Solids (TSS) with the increase in the concentration of Sour-Orange juice in RTS beverages. In sensory evaluation, there were significant differences between some treatments and some were not different significantly with respects to colour, aroma, taste, consistency and overall acceptability at 5% level of significance ($p < 0.05$) differences. According to Tukey's test, the uppermost overall acceptability was observed in the RTS beverage with 50% Carrot juice and 50% Sour-Orange juice in both Fermented and Unfermented combination. Microbial analysis indicated that there were no microbial populations in all

freshly prepared RTS beverages. From the eight formulations; two combinations which are most acceptable (50:50) were selected. A total of two best formulations and their controls belonging to the two groups were selected and stored at refrigerated Temperature for storage study. Changes in chemical qualities, organoleptic characteristics and microbial safety of RTS formulations were studied during storage.

Chemical parameters like titrable acidity, pH, Total Sugar, total soluble solids and ascorbic acid content were evaluated for two months of storage at two weeks interval. The results of the physico- chemical properties showed that ascorbic acid, pH, TSS and total sugar were decreased and titrable acidity was increased in the samples during storage. Sensory evaluation was completed after two months of storage indicated a gradual decrease in all sensory parameters in all RTS beverage formulations. However the organoleptic properties of the formulations which were blended in the ratio of 50:50 of Unfermented Carrot juice with Sour-Orange juice and ratio of 50:50 Fermented Carrot juice with Sour-Orange juice were found to have higher scores than the control. Findings of microbial study performed at monthly interval revealed there was no microbial growth up to two months of storage in all beverage formulations.

From the results of quality assessments, the formulated RTS beverage blended in the combination of 50 % Unfermented Carrot juice with 50 % Sour-Orange juice and 50 % Fermented Carrot juice with 50% Sour-Orange juice were found to be superior in quality and could be stored at Refrigerator for a minimum period of two months with minimum changes in quality. The blend had good sensory attributes and shelf life. Therefore, it is safe for consumption up to 60 days of storage.

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