



Hibiscus Ready to Drink Storage Study

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ABSTRACT

There is little data currently available for the stability of ready to drink (RTD) hibiscus beverages. In order to determine the estimated shelf life of a hibiscus beverage, a model RTD beverage with hibiscus concentrate, sugar, and ascorbic acid was made and stored at room temperature in the light and at refrigerated conditions without light. After 4 months, both conditions showed exceptional color retention with the refrigerated beverage having good color retention even after 8 months.

INTRODUCTION

Hibiscus is a flowering plant with many varieties used for ornamental decoration with one variety (*Hibiscus sabdariffa*) being used to make an herbal tea. This is a very popular drink in some parts of the world, especially Mexico, Caribbean, and Africa. Hibiscus as a drink is becoming more popular in the United States, partially due to immigration and also from scientific evidence of the health benefits of the hibiscus flower. Due to this new and emerging market, some basic information is needed for customers who want to work with this product. To this end, a simple storage study was performed of a model hibiscus drink stored at room temperature in the light and refrigerated in the dark. These two conditions were chosen as "bookends" for best and worst case scenarios of typical storage of RTD beverages.

MATERIALS AND METHODS

Ready to drink model beverages were created by combining 1.5% of Sensus Hibiscus concentrate with 8% sugar, and 0.05% ascorbic acid. Approximately 300ml were placed in Sensus application bottles and pasteurized by heating in a microwave for 2.5min, inverting for 30s, and cooled to room temperature. Two samples were stored, one in the applications lab at room temperature and exposed to light and the second in the ~40°F walk-in cooler protected from the light. Photos were taken at various intervals to observe the color change over time.

RESULTS AND DISCUSSION

The photo results of this storage study vary somewhat as the photo conditions have changed over time trying to improve the quality. At day 7, the room temperature sample was photographed and one can see the initial dark red color of the hibiscus.



At day 20, the products still retain the dark red seen in the initial beverage. The lighting and background make comparisons slightly more difficult, but appears that the ambient sample (on the left) is less dark than the refrigerated sample (right).



Day 60, 2 months, has better lighting conditions and one can see an obvious difference between the ambient stored sample (left) and the refrigerated sample (right). Some of the difference might be due to shadows cast during photography, but certainly not all. However, the ambient sample still retains a dark red color.



Day 120, 4 months, is similar to what was observed at 2 months. Namely that the ambient sample (left) is different than the refrigerated sample (right). The color difference appears to be less than at day 60. Both samples show excellent color retention after 4 months.



Day 240, 8 months, shows a marked decrease in the color of the ambient sample and a greater difference between ambient (left) and refrigerated (right). Clearly the sample stored at ambient temperature and exposed to light is no longer a viable product, however the sample stored refrigerated temperatures and protected from light shows excellent color retention. The color appears to have lightened some, but still is vibrant and bright. It appears that the refrigerated sample at day 240 is similar in appearance as the sample stored at room temperature at day 60 or 120.

