A STUDY ON THE STABILITY OF ARTIFICIAL SWEETENERS IN CORDIAL AT DIFFERENT pH

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2004

ACKNOWLEDGEMENTS

In the name of Allah, The most Gracious and The Most Merciful Lord.

For the completion of this thesis gladly to say that a lot of commitments have been achieved. It is not easy to forget people who have given great supports, guidance and help to make this thesis a success.

First of all, syukur alhamdulilah to Allah Al-Mighty for this consent to make it happen successfully. I would like to express my sincere gratitude and a thousand thanks to my supervisor, Mr. Woon Kon Sung, Dr. Zainal Samicho, the Head of Programme and to all lecturers of Bachelor Science (Hons.) of Food Quality Management Programme. A special thank also goes to Puan Norahiza binti Mohammad Soheh, Mr. Osman Abdul Rahman, Mr Omar Yunos and Mr. Azli Munjat for their help and advice during the period of my study.

Finally, success to be shared my parents and my friends, for their encouragement, understanding, loves and to care given in all these years. Once again thank you to all.

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ABSTRACT

A STUDY OF THE STABILITY OF ARTIFICIAL SWEETENERS IN CORDIAL AT DIFFERENT pH

Sample of cordials with different pH levels 4.0, 3.5, 3.0, 2.5 and 2.0 were prepared by using artificial sweeteners. Two different types of artificial sweeteners used were Aspartame and Acesulfame-K. 10 samples were prepared accordingly to different levels of pH. All of the samples were stored at room temperature for 1 month of storage. The concentration of the sweetener's stability in the sample was determined by using high performance liquid chromatography. This instrument analysis was repeated 3 times during the storage period. It was carried out on the 1st, 15th and 30th day of storage. The results obtained from this instrument analysis were expressed as the concentration of sweeteners in mg/L (ppm). The sweeteners' concentration showed the level of the sweetener's stability. The increased in the pH level of the cordial samples, showed a decreased effect on the sweetener stability. The total percentage of losses for Aspartame concentration in the sample for the lowest pH level of 2.0 was 12.51 percent. For Acesulfame-K, the total percentage of losses for the sample with the same value of pH was 5.09 percent. Aspartame undergone a greater sweetener decline in the cordials samples stored at room temperature for 1 month of storage. In sensory evaluation analysis most panelists rated sample at pH 3.5 as the most accepted sample for both Aspartame and Acesulfame-K.

CHAPTER 1

INTRODUCTION

For nearly a century, low calorie products were almost entirely dependent on saccharin, the oldest intense sweetener. Now with additional sweeteners available, a multiple sweetener approach can be used, such as Aspartame, Acesulfame-K, Sucralose, Cyclamate, Alitame, Saccharin and etc. Availability of a variety of sweeteners is important because no sweeteners are perfect for all uses. With several available, each sweetener can be used in the application for which is best suited.

Sweetness is subjective and dependent upon a number of factors. The concentration of the sweetener, the temperature at which the product is consumed, pH, the other ingredients in the product and the sensitivity of the taster are all-important. The ideal sweetener should be at least as sweet as Sucrose, colorless, odorless, water soluble, stable in both acidic and basic conditions of over a wide range of temperatures. The safety of an alternative sweetener is essential. The sweetener must be nontoxic and metabolized normally or excreted unchanged. The sweetness should be at least as sweet as sucrose. It should have a clean, pleasant, untrained taste with immediate onset and without lingering. The more a sweeter tastes, the greater its facility for use in foods and beverages (Franta and Beck, 1986).