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Hedonic Data Analysis of the Shelf-Life of Ready-To-Drink Mango Nectar with Sweeteners and Frutooligossacharide

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INTRODUCTION

Low-calorie products are developed particularly for people with specific dietary restrictions. The purposes of this study were 1) to determine the acceptability of mango juice, which contained one of five high-intensity sweeteners in lieu of sucrose and 3.0% fructooligosaccharide, in a 100-ml aseptic pouch and 2) to determine the shelf-life of these products using two multivariate statistical analyses: principal component analysis (PCA) and hierarchical cluster analysis (HCA).

MATERIAL AND METHODS

Six samples of mango juice were formulated in a sweetness equivalent to that obtained with 7% sucrose, and all of the samples contained 3.0% FOS

Sweeteners applied:

1.100:50:1 acesulfame-K:sucralose:neotame blend
2.Stevia with 97% rebaudioside A
3.Neotame
4.Sucralose
5.1:1 thaumatin/sucralose blend
6.Sucrose

- The samples were presented in balanced block design (sequential monadic).
- The acceptance tests were carried out in individual air-conditioned booths with white light using 150 mango juice consumers. The samples were stored at a temperature of 20 C degrees and analyzed after 0, 60, and 120 days.
- The consumer data were analyzed by multivariate PCA to show the internal preference map and HCA to group the consumers by preference dissimilarities.

RESULTS

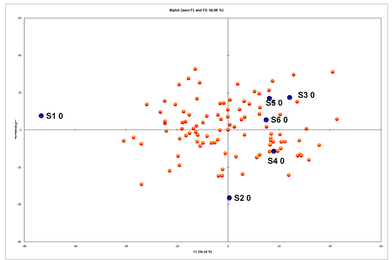

Figure 1—Internal preference map of consumers of mango néctar analyzed in initial time (0 days)

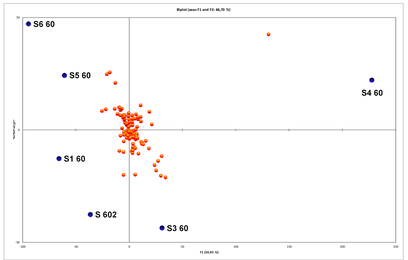

Figure 2—Internal preference map of consumers of mango néctar analyzed after 60 days of storage

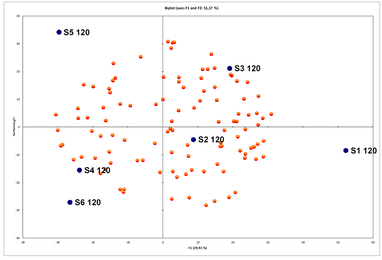

Figure 3—Internal preference map of consumers of mango néctar analyzed after 120 days of storage

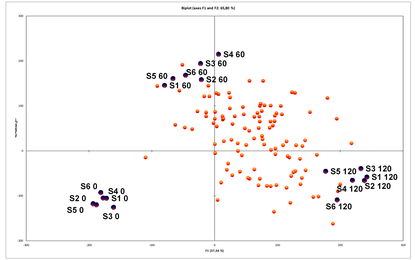

Figure 4—Internal preference map of consumers of mango nectar analyzed during the storage time

Figure 5—Hierarchical Cluster Analysis of consumers of mango néctar analyzed during the storage time

CONCLUSION

- After 120 days of storage, all of the samples presented preservation of acceptance with an increase in sweetness
- The aseptic pouch system was found to be a good way to preserve the acceptance of ready-to-drink mango juice with sweeteners and FOS during 120 days of storage
- The HCA and PCA were important and, in this case, complementary because the

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