

ABSTRACT

Consumer awareness of health concerns has prompted a growing trend in the food and beverage industry for the development of low-calorie products. Stevia, a natural, intense sweetener with zero-calorie properties, is a suitable alternative for producing healthier carbonated soft drinks (CSD). The study aimed to develop a stevia-sweetened honey-apple carbonated soft drink with two different formulations: stevia-based and stevia-sucrose-based with an equivalent sucrose sweetness. Physicochemical properties were assessed on the pH, Brix, and CO₂. Sensory properties of color, odor, fruity taste, sweetness, and aftertaste were evaluated by a 9-point hedonic scale and paired preference test. Results showed a significant difference ($p < 0.05$) in Brix, with stevia-based sample lowering the Brix values due to the more sucrose replacement. The pH value ($p < 0.05$) was correlated with CO₂ ($p > 0.05$), showing an inverse relationship, with the stevia-sucrose sample having a lower pH with increased CO₂ content. Consumers revealed that bitterness was significantly detectable on stevia-based samples, affecting the odor, fruity taste, sweetness, and aftertaste attributes ($p < 0.05$). A similar dark brown color was observed in both stevia-based and stevia-sucrose samples ($p > 0.05$). To conclude, consumer preference proved that stevia-sucrose-based was the best formulation for the development of honey-apple carbonated soft drinks.

Keywords: Carbonated soft drink, honey, low-calories, sucrose, stevia