

**Effects of sweetener on the acceptability and sensory profile of Brazilian native fruit juices**

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Resumo

The umbu (*Spondias tuberosa* Arruda) and Caatinga passion fruit (*Passiflora cincinnata* Mast.) are emblematic native species of the Brazilian Caatinga biome, particularly valued for their adaptability to harsh climatic conditions and their socio-economic relevance. Both fruits are strategic resources for family farming, as they require low cultural practice costs, contribute to food security, and provide income diversification opportunities. The valorization of these native species strengthens the bioeconomy of the Brazilian semi-arid, promotes regional development, and fosters environmental conservation through the sustainable use of biodiversity. However, both fruits are naturally acidic, and large amounts of sucrose are commonly added during agro-industrial processing to improve the products acceptability. This study aimed to evaluate the impact of the use of different sweeteners on the consumer acceptance and sensory profile of umbu and Caatinga passion fruit juices. The sweeteners tested were xylitol, erythritol, sucralose, organic sucrose, and conventional sucrose (control). Sweetening levels were standardized based on conventional sucrose equivalence according to the manufacturer's recommendations indicated on the product label. The sucrose concentration was determined in a preliminary preference-ranking sensory test. Eighty consumers evaluated the acceptance of appearance, aroma, flavor, and overall impression using a 9-point hybrid hedonic scale (1 = dislike extremely; 5 = neither like nor dislike; 9 = like extremely). In the same session, participants also evaluated the intensity of fruit aroma, acidity, sweetness, and aftertaste using a 9-cm unstructured line scale anchored at both ends with the terms "weak" and "strong." The juices were evaluated on different days to avoid sensory fatigue. For Caatinga passion fruit juice, none of the alternative sweeteners showed higher acceptance than sucrose (control). The control sample achieved the highest scores for appearance (7.1), aroma (6.9), flavor (7.3), and overall impression (7.3). Sucralose obtained the higher acceptance juice among the alternative sweeteners (xylitol and erythritol), with scores above 6.5 and close to "like moderately," likely due to lower acidity perception and higher sweetness intensity. For umbu juice, the erythritol-sweetened

sample stood out in terms of appearance, aroma, flavor, and overall acceptability, not differing significantly ( $p \leq 0.05$ ) from sucrose-sweetened samples, with scores around 7.0. This sample also exhibited the lowest acidity and intermediate intensities of umbu aroma, sweetness, and aftertaste. These findings suggest that alternative sweeteners, particularly sucralose and erythritol, represent promising options to formulate regional fruit juices with reduced sucrose content, adding value to local socio-biodiversity chains of the Caatinga biome and expanding their market potential.