Abstract

BACKGROUND

A viable possibility for the best use of bioactive compounds present in camu-camu, fruit native to the Amazonian rainforest, is the preparation of microcapsules using different biopolymers by the spray-drying technique, which would increase the possibilities for innovation in the food industry, as well as facilitate the application in different food matrices. In this context, the chemical, physicochemical, and morphological properties and stability of camu-camu extract (peel and pulp) spray dried using maltodextrin (MD), inulin (IN) and oligofructose (OL) as encapsulating agents were investigated, as well as camu-camu extract lyophilized (CEL). Different relative humidities (22%, 51%, and 75%) and temperatures (25°C and 45°C) were evaluated.

RESULTS

The moisture, water activity, and solubility values varied from 18.4-107.9 (g water.kg⁻¹ dry powder), 0.06-0.27, and 950.80 to 920.28 (g microparticles.kg⁻¹ of water), respectively. Retention of the bioactive compounds varied in the ranges of 5.5-7.1 g ascorbic acid.kg⁻¹ fresh weight and 7.2-9.0 g anthocyanins.kg⁻¹ fresh weight. The increase in temperature and relative humidity during storage provided a significant decrease in the stability of the bioactive compounds for all treatments. However, the CEL presented higher water adsorption kinetic and degradation under all storage conditions, indicating the importance of the use of encapsulating agents.

CONCLUSION

In general, the prebiotic biopolymers used as encapsulating agents in the microencapsulation of extracts of camu-camu by the spray-drying presented satisfactory
results, suggesting that this technique is an effective strategy to increase the stability of bioactive compounds contained in fruits and vegetables.

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Supporting Information

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Stability of Camu-Camu Encapsulated With Different Prebiotic Biopolymers - Figueiredo - Journal of the Science of Food and Agriculture