Carotenoid quantification in cocona (*Solanum sessiliflorum* Dunal) as a collection-time indicator

J.E.C. Cardona-Jaramillo, L.E. Cuca, J.A. Barrera, M.S. Hernández

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Abstract

Cocona is a traditional Amazon fruit that has been the subject of few studies that have sought to establish the chemical differences resulting from the domestication process of the species or its impact on aspects such as use in the agroindustrial sector. The present study evaluated, using chromatographic and spectrophotometric techniques, the carotenoid content of three morphotypes cultivated in the Guaviare department of Colombia: oval, small and large round in order to assess their importance as a source of functional compounds. This determination was made during fruit development. Carotenoid content was correlated with changes in fruit color during this period. The quantification of total carotenoids resulted in values between 27.30±2.73 and 42.82±2.73 mg/100 g of fresh fruit, depending on the morphotype, confirming the fact that the concentration and composition of the carotenoids are susceptible to different intrinsic and extrinsic factors of the fruit. Although analysis of variance showed that the level of carotenoids and color are indifferent to the morphotype, a behavior that was established as a characteristic for each morphotype over time, this analysis showed differences in the time after anthesis for the three evaluated cases. The fruit color analysis allowed for the delimitation of the stages of development and maturation due to significant changes and for the correlation with the carotenoid content, establishing a clear criterion for the three morphotype collections. It was possible to distinguish three stages of development and ripening: the first between day 35 and 49 DAF, consisting of fruit development; the second, around day 56, with the onset of ripening; the third and last between days 63 and 70, during which physiological and sensorial maturity of the fruit occur and, hence, the optimal harvest point.