

Title Determination of the harvesting time for camu-camu fruit based on its nutraceutical content and postharvest behavior

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Abstract

Traditionally, the harvesting time for fruits is determined based on their sensory and physicochemical characteristics. Although sensory and physicochemical characteristics are critical for the acceptance of the product by consumers, in some instances where fruits are highly nutraceuticals, their content of bioactive molecules at the harvesting time and during postharvest must be the most important criteria to determine the harvesting point. The present project objective was to determine the ideal time of harvest for camu-camu fruit, based on physicochemical and nutraceutical characteristics of the fruit at the harvesting point and during postharvest. Camu-camu fruits were collected on the shores of "Cauame River" (Roraima, Brazil). The harvesting points were: 74, 81, 88, 102 and 116 days after anthesis (DAA). After each harvesting point, the fruits were freeze-dried and kept at -20°C for the further analysis of their nutraceutical content [ORAC value, DPPH assay, total phenolics (TP), and ascorbic acid (AA)] and other physicochemical characteristics (sugars, pectin, and starch). Likewise, a portion of the fruits was stored at 15±1°C and 95±3% of R.H. and used to analyze their postharvest behavior. Results indicate that the fruits harvested at 88 DAA exhibited the highest TP, AA, ORAC and DPPH values when compared with fruits obtained at other harvesting points. Likewise, the fruits harvested at 88 DAA showed adequate values for total and reducing sugars, total and soluble pectin and starch, and exhibited the longest shelf-life. Interestingly, fruits harvested at 116 DAA presented the best values for reducing sugars, total and soluble pectin, but the fruits showed the shorter shelf-life. Based on the results, two harvesting points are proposed, at 88 DAA, for the best nutraceutical quality, and at 102 DAA where the sensory and physicochemical characteristics of the fruits were similar to 116 DAA fruits, but fruits showed an adequate shelf-life.