

Title Compositional changes during development of the Passion fruit (*Passiflora edulis* Sims. form *flavicarpa*, Degener)

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Abstract

Yellow passion fruit is a relative novel and non-traditional fruit in some countries and only few studies depict its changes during fruit development. In Nayarit, Mexico, large scale production of passion fruit is under way. This situation demands the study and establishment of harvest indexes that can only be proposed through the determination of changes that occur during fruit development in the tree. The purpose of this work was to monitor compositional and physiological changes in yellow passion fruit during their growth and development. Yellow passion fruits were collected from an experimental facility of the School of Agriculture from Nayarit University. Fruits were labeled post-anthesis (2.02 ± 0.13 cm length). Ten samplings were made every 5 days and measurements of external color, size, weight, pericarp and mesocarp thickness and specific weight were performed. Additionally, determinations of total soluble solids, moisture content, acidity and pH values, as well as carbon dioxide and ethylene production were made. Basis statistics and estimation of 95% confidence intervals were calculated. A simple sigmoid curve was found for the dimension parameters and weight. Maximal growth was noted at day 20 post-anthesis. Specific weight was not useful to define the maturity index. Physiological maturity can be expected between days 60 and 65 post-anthesis. After 70 days fruit developed a full yellow color in the whole external area. Based on our observations, it can be proposed that under the production conditions of this experiment, yellow passion fruit may be harvested between 65 and 70 days post-anthesis.