

A study on post-harvest carotenogenesis of sweet potato

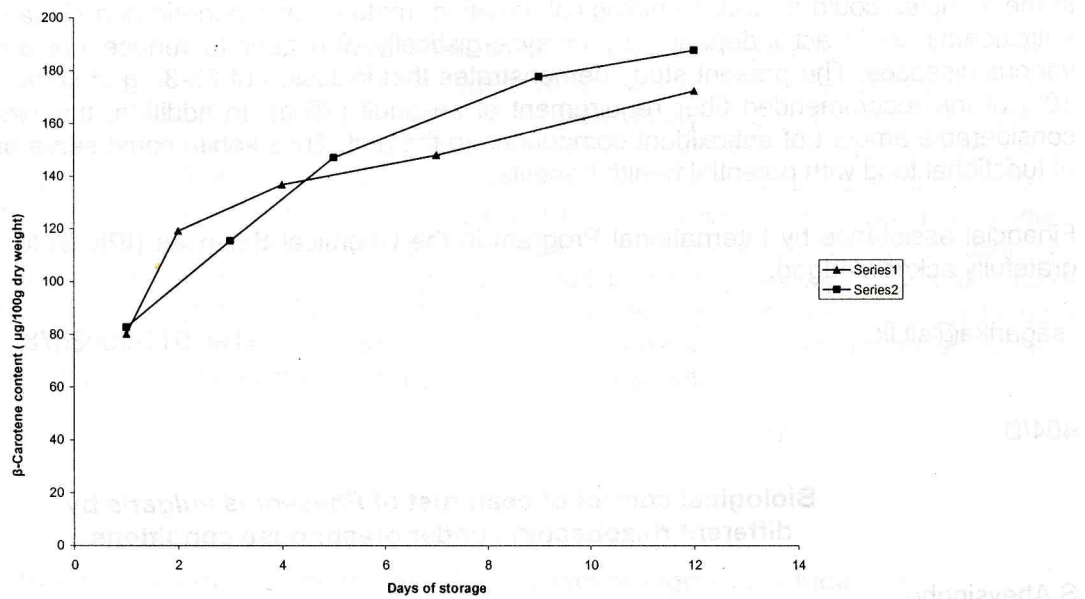
A M B Priyadarshani, E R Jansz* and H Peiris

Department of Biochemistry, University of Sri Jayewardenepura, Gangodawila, Nugegoda

In the context of alleviation of vitamin A deficiency, the importance of orange-yellow fleshed sweet potato has been demonstrated by many studies. Storing harvested intact tubers at room temperature can prolong the availability of sweet potato. In this study the effect of storage on post harvest carotenogenesis was studied. This is to find out if carotenoids are synthesised after harvest. The carotenoids content in orange-yellow fleshed sweet potato variety, "Gannoruwa white" during (a) the open and (b) Jute hessian (gunny) bag storage at ambient temperature for 12 days was determined on alternate days. Separation of the carotenoids was done by open column chromatography (OCC). Identification was based on scanning uv/visible spectrophotometry; comparison of visible absorption spectra with the published spectral information (λ_{\max} and spectral fine structure), HPLC retention time and order of elution in OCC. Quantification was done by HPLC. β -Carotene and another unidentified carotenoid were detected from the studied sweet potato variety. Carotenogenesis occurred in both storage conditions with no significant difference in β -carotene content between the two conditions after 12 days of storage. During open storage, the β -carotene content increased from 80.1 $\mu\text{g}/100\text{g}$ after day 1 of harvest to 172.5 $\mu\text{g}/100\text{g}$ at day 12 (2.2 fold) and in the Jute hessian bag storage, β -carotene content increased from 82.6 $\mu\text{g}/100\text{g}$ after day 1 of harvest to 188.0 $\mu\text{g}/100\text{g}$ at day 12 (2.3 fold). Both expressed on the basis of dry weight. The unidentified carotenoid showed the same trend

of carotenogenesis as β -carotene (2.4 and 3.0 fold for open and Jute hessian bag, respectively). As long as moisture content is sufficient the enzymes synthesising carotenoids appear to perform normally. During post harvest storage, there was no appreciable loss of moisture that is no significant drying.

Figure 1: Changes in β -carotene content during storage in open and Jute hessian bag at ambient temperature



*Series 1- Open storage

*Series 2- Bag storage

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* erjansz@sjp.ac.lk

Tel: 011-2803578