

Title Impacts of different maturity stages and storage on nutritional changes in raw and cooked tubers of orange-fleshed sweet potato (*Ipomoea batatas*) cultivars

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Abstract

Sweet potato (*Ipomoea batatas*), the seventh most important food crop of the world is rich in β -carotene, a precursor of vitamin A. Orange-fleshed sweet potatoes have emerged as an important biofortified crop in many developing countries to alleviate vitamin A malnutrition and thereby combating night blindness. But the stage of harvest maturity with optimum yield and nutritive value differs among cultivars. In addition, consumer acceptability, cooking quality and storability of the tubers should be taken into account for selecting new cultivars of orange-fleshed sweet potato. The present study evaluated fifteen orange-fleshed sweet potato cultivars harvested at 90, 105 and 120 d after planting (DAP). Dry matter (17.21-26.52%), starch (4.97-17.38%) and total sugar content (1.74-2.79%) of tubers of different cultivars linearly increased throughout the harvesting period, while β -carotene content tended to increase (2.75-11.57 mg 100 g⁻¹) only up to 105 DAP. Ascorbic acid content tended to decline (32.34-13.75 mg 100 g⁻¹) with tuber maturation. Although some of the cultivars were early maturing, it is worthwhile to harvest the tubers of most cultivars at around 105 DAP considering productivity, nutritional quality and consumer acceptability. During cooking β -carotene content of tubers slightly declined along with significant cultivar-specific differences in nutrient composition of cooked tubers. Consumption of some of the orange-fleshed cultivars with high retinol equivalents can make a significant contribution in alleviating vitamin A malnutrition.