Tropentag, September 17-19, 2018, Ghent

"Global food security and food safety:
The role of universities"

Postharvest Handling Factors Affecting Antioxidant Content of Horticultural Plants: A Review

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Abstract

Nutritional guidelines recommend high consumption of fruits and vegetables as protective against cardiovascular diseases, different types of cancer. Intended to reduce loss and maintain quality of fruits and vegetables till the consumption, postharvest techniques including storage (temperature, time and humidity), fresh cut, modified/controlled atmosphere packaging and chemical treatments perform differently, affecting the quality and antioxidant properties of fruits and vegetables during the postharvest handling. This review aimed to document and highlights the effect of some postharvest handling factors on the antioxidant content of horticultural plants. The review showed that low storage temperature is in favour with vitamin C retention. Temperature effect on antioxidant capacity varies according to fresh produce. Though fresh cut is a convenient practice, it negatively affects vitamin C content of fruit and vegetable except for pineapple. Carotenoids seem more stable though some mild reduction effect can be observed in selected fruit as induced by fresh-cut practices. Controlled/Modified atmosphere may be considered as a good way to monitor vitamin C content in fruit and vegetable. Total phenolic content tends to remain constant or increase with storage in modified atmosphere packaging (MAP). The review suggests that postharvest handling is performed in conditions that preserve maximum nutrients and antioxidants. There is a need to put research effort in investigating the effect of the postharvest techniques on antioxidants of typically local African food resources which have been given little attention in the past despite of their high nutritional advantages. This would help people of this region, especially those in rural areas who heavily depend on the local food resources to maintain an acceptable food diet during the lean seasons; hence contributing to the global goal of food security.

Keywords: Antioxidants, fruits and vegetables, post harvest handling

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