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Postharvest treatments to improve functional plant compounds and storability of Vegetable amaranth (*Amaranthus cruentus* L.)

Elisha O. Gogo^{1,2*}, Arnold M. Opiyo¹, Christian Ulrichs² and Susanne Huyskens-Keil²

¹Egerton University, Department of Crops, Horticulture and Soils, PO Box 536, 20115 Egerton, Kenya;

²Humboldt-Universität zu Berlin, Faculty of Life Sciences, Division Urban Plant Ecophysiology, Research Group Quality Dynamics/Postharvest Physiol., Lentzeallee 55-57, 14195 Berlin, Germany
Email*: elishag6@gmail.com

The diet of many African rural and urban/peri-urban inhabitants is made up largely of indigenous leafy vegetables (ALV) whose nutritional and medicinal value is well appreciated. Leafy amaranth is one of the most commonly eaten vegetables in Africa and Asia and contributes to improve food supply with essential proteins, minerals and antioxidative health promoting compounds [2]. However currently, the magnitude of postharvest losses of ALVs in Kenya can reach up to 50%. Applications of postharvest chemical (e.g. hydrogen peroxide) and physical (e.g. heat treatment, UV-C irradiation, MAP) treatments that retard ripening processes or inhibit microorganism decay has increased worldwide. So far, only limited studies have been conducted on African leafy vegetables [1]. UV-C has been used as a germicidal agent for water and surface disinfection including postharvest management of pathogens in fruits and vegetables due to its capacity to affect DNA of microorganisms. Low dosages of UV-C irradiation can trigger favourable physiological reactions in fruits and vegetables, which can lead to the improvement of shelf life and storability as well as increase of functional and health promoting components of ALV. Furthermore, product physiological adopted film packaging materials (MAP) have been developed to contribute to a prolonged shelf life and improved nutritional composition in various horticultural products.

The objective of the present study was to evaluate the impact of different postharvest treatments, such as UV-C irradiation (254 nm) and film packaging on weight loss, color and functional antioxidative plant compounds (i.e. β -carotene, lutein, lycopene, chlorophylls), and protein content of vegetable amaranth (*Amaranthus cruentus* L.) during storage at 5 °C for 14 days and at 20 °C for up to 6 days simulating retail conditions. Results revealed that both postharvest treatments are promising tools for indigenous African leafy vegetables such as vegetable amaranth to improve nutritional and health status of developing countries such as Kenya.

Literature

- [1] Gogo, E.O., Opiyo, A., Ulrichs, C. and S. Huyskens-Keil 2015: Postharvest treatments of African leafy vegetables for food security in Kenya: A review. African Journal of Horticultural Sciences: in press
- [2] Rastogi, A., and S. Shukla 2013: Amaranth: A new millennium crop of nutraceutical values. Critical Reviews in Food Science and Nutrition 53:109–125.

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