

Fruit Quality of Grafted Bitter Melon with Different Sponge Gourd Rootstocks Stored Under Evaporative Cooling Conditions

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- sponge gourd (*Luffa cylindrica*)

Abstract

Evaporative cooling helps maintain quality of produce over a longer period of time. This condition slows metabolic processes and inhibits undesirable changes in quality due to biotic and abiotic factors. The study determined the fruit quality of bitter melon (*Momordica charantia* L.) grafted with sponge gourd (*Luffa cylindrica* L.) held at evaporative cooling condition (25–27 °C) with a relative humidity ranging from 85% to 96%. Bitter melon var. Galaxy was grafted to different sponge gourd rootstocks before establishment and regular maintenance in the field. Hybrid sponge gourd var. Mutya, open-pollinated variety (var. Esmeralda), and Bureau of Plant Industry bacterial wilt-resistant sponge gourd (BPI BW-resistant var.) were utilized as rootstocks. Nongrafted bitter melon served as the control. Commercially mature fruit samples were then harvested and brought to the laboratory for quality assessment and monitoring. A completely randomized design was used and treatments were replicated thrice. Results revealed that nongrafted bitter melon samples had higher weight loss and lower visual quality rating compared to the grafted sample fruits. Disease incidence and color change were also higher for the nongrafted bitter melon compared to the grafted bitter melon sample fruits suggesting reduced bacterial wilt activity resulting to better quality after storage. Bitter melon grafted into hybrid sponge gourd rootstock (var. Mutya) revealed the longest shelf life of 6 days. The shelf lives of OPV var. Esmeralda (5.57 days) and BPI BW-resistant var. (5.43 days) were comparable with hybrid sponge gourd var. Mutya. However, hybrid sponge gourd var. Mutya had significantly longer shelf life compared to the nongrafted bitter melon (4.33 days). The results could greatly contribute to addressing food security issues, which are often encountered during production.