

Growth, Yield, and Postharvest Characteristics of Grafted Bitter Gourd using Different Sponge Gourd Rootstocks

Michael Adonis M. Sudaria* and Rosario A. Salas

Visayas State University, Philippines

*Correspondence

Postharvest Technology Division,
Department of Horticulture,
College of Agriculture
and Food Science,
Visayas State University,
Visca, Baybay, Leyte 6521-A,
Philippines

E michaelsudaria@gmail.com

Keywords

- bitter gourd (*Momordica charantia*)
- cucurbit grafting
- sponge gourd (*Luffa cylindrica*)

Abstract

Grafting is an emerging technology that addresses adverse agricultural problems in both soil and climatic conditions. The study was conducted to evaluate the growth, yield, and fruit quality of bitter gourd or *ampalaya* (*Momordica charantia* L.) grafted with different sponge gourd or patola (*Luffa cylindrica* L.) rootstocks. The experiment was laid out in randomized complete block design with four treatments replicated thrice. The treatments were as follows: T0–Control (ungrafted), T1–Hybrid patola (var. Mutya), T2–Open-pollinated variety (var. Esmeralda), and T3–Bureau of Plant Industry bacterial wilt-resistant variety *patola* rootstock (BPI BW resistant var.). Results revealed that grafted *ampalaya* plants markedly produced female flowers first rather than male. Generally, nongrafted plants produced more laterals, longer vines on the early weeks from transplanting, more marketable fruits per plant, as well as higher total soluble solids (TSS) and electrical conductivity (EC). Nevertheless, nongrafted plants also exhibited more non-marketable fruits, greatest disease incidence, and lower percent free-radical scavenging activity (%FRSA). On the other hand, grafted *ampalaya* plants have lesser disease incidence, minimal percent weightloss, delayed color changes, firmness, and initial pH readings after the eighth harvest. Postharvest life or shelf life and visual quality rating of grafted *ampalaya* were extended but were not statistically different with the nongrafted fruits. However, grafted *ampalaya* fruits have higher chlorophyll a and b and carotenoid content and significantly had the highest %FRSA. These findings imply that improvement of *ampalaya* plant through grafting, specifically into different *patola* rootstocks, were compatible, reduced disease incidence, and have more nutritious fruits compared to nongrafted *ampalaya* plants.