



**Impact of gamma irradiation on postharvest shelf life extension of coated giant guava
(*Psidium guajava* L.)**

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Giant guava (*Psidium guajava* L.) has high demand in both local and international markets, and has a limited shelf life of 4 days under normal room conditions. This research was aimed at extending the shelf life by edible coating followed by irradiation at 0 Gy, 100 Gy, 200 Gy, 300 Gy, and 400 Gy doses. A water emulsion with 1% bee's wax, 5.5% sunflower oil, 0.5% Tween 80, and 0.05% of tamarind (*Tamarindus indica*) seed powder was used as a coating. Tamarind seed powder contained 132.06±0.95ppm total polyphenol content, 1.00±0.00% saponin and 3.37±0.00 % alkaloid content, which confirmed its good antioxidative and antimicrobial properties. The shelf life of guava samples was determined by measuring weight loss, color (E value based on L*, a*, b* on the Hunter color scale), breaking point, titrable acidity (TA), pH, total soluble solids (TSS), moisture content and by evaluation for sensory properties. Among the treatments, both coated and non-coated samples irradiated at 100Gy and 200Gy remained acceptable for 16 days. Coated guava samples irradiated at 100 Gy showed 15.66± 0.58% weight loss, 197.4 ±29.0 breaking point, 10.00±0.00 ΔE value, 4.96 ±0.04 pH and, 0.31±0.00% TA on the 16th day, and were significantly better (p<0.05) than other treatments. Coating of guava decreased the moisture loss and shriveling effect while irradiation treatment reduced the respiration process, as the green color of samples existed for 16 days at normal room temperature (29±2°C). The results show that the coated, 100Gy gamma irradiated, giant guava can be kept for more than two weeks with the acceptable freshness at room temperature.

Key words: Giant guava, edible coating, Gamma irradiation, postharvest shelf life extension

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