

## Antioxidant bioactive compounds and spoilage microorganisms of wax apple (*Syzygium samarangense*) during room temperature storage

### ABSTRACT

Postharvest deterioration of wax apple leads to unacceptable appearances, physical and quality losses that raise serious concerns commercially. Bioactive compounds of wax apple and spoilage microorganisms were studied at room temperature storage ( $23 \pm 1$  °C). Antioxidant activity and total phenolic content increased up to a maximum of 1.56 mg AAE/100 g and 88.37 mg GAE/100 g, while prolonged storage resulted in 70.0% and 33.6% loss, respectively. Further, 80% loss in vitamin C content was observed from an initial value of 21.63 mg AAE/100 g during storage. Bacterial isolates of *Enterobacter sakazakii*, *Klebsiella pneumoniae*, *Klebsiella planticola*, *Pantoea agglomerans*, *Chromobacterium violaceum*, and *Streptomyces roseochromogenus* with microbial load of  $1.19 \times 10^8$  CFU/g fresh weight, and fungal isolates of *Penicillium purpurogenum*, *Mucor hiemalis*, *Aspergillus niger*, *Aspergillus fumigatus*, and *Candida tropicalis* with a total load of  $5.64 \times 10^7$  CFU/g fresh weight were identified as spoilage organisms. Bacterial isolates of *Klebsiella pneumoniae* was the most prevalent at 47.78%, occurring 21 times, while *Penicillium purpurogenum* was the most prevalent fungi, occurring 5 times at 38.46%. Results have significant implications on measures to preserve quality of wax apples during storage by adoption of advanced postharvest handling and processing approaches.

**Keyword:** Total phenols; Bacteria; Fungi; Postharvest; Antioxidant activity; Vitamin C