

SHELF-LIFE EXTENSION OF MINIMALLY PROCESSED RIPE JACKFRUIT (*Artocarpus heterophyllus* Lam.) BULB USING COATING OR WRAPPING

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Waraka (*Artocarpus heterophyllus* Lam.) is a tropical fruit that is highly perishable and has rapid quality degradation. It is a delicacy yet with a very short shelf life. Cold storage typically used to delay ripening-related changes, is inadequate to maintain the quality of ripe *Waraka* bulbs often leads to severe symptoms of chilling injury. This experiment was conducted to extend the shelf life of minimally processed *waraka* bulbs under cooling conditions while preserving their shiny appearance. The variety of *fartherlong waraka* samples were subjected to three treatments: an edible coating (C1) using sodium alginate, non-edible shrink wrapping (C2), and cellophane film wrapping (C3). A control group with no coating or wrapping was also included. The edible coating was prepared using 2% (w/v) sodium alginate, 2% (v/v) glycerol, 1% (w/w) tween 80, and 1% (v/v) sunflower oil. All samples were packaged in Nylon/PE pouches and stored under refrigerated conditions at 4°C. Physicochemical parameters and microbial quality were analyzed over eight days of the period. The C1 exhibited low significant changes in pH (4.78 ± 0.09), firmness (4.30 ± 0.64), and total soluble solids (12.98 ± 0.53). The C1 and C2 samples appeared more effective in maintaining the L* values, 75.22 ± 2.91 and 72.18 ± 3.98 , respectively. C1 and C3 exhibited low significant changes in a* value (-3.99 ± 0.03 and -3.99 ± 0.37) and b* value (36.40 ± 0.94 and 36.40 ± 0.94). Compared to other treatments the C1 exhibited a lower total plate count (9.510^7 CFU g⁻¹) and yeast and mold count (5.810^4 CFU g⁻¹). The findings conclude that sodium alginate-based edible coating and shrink wrapping are equally effective in extending the shelf life and preserving the quality of *waraka* for eight days under refrigerated conditions with minimal changes in physicochemical properties.

Keywords: Edible coating, Minimal processing, Shrink wrapping, Sodium alginate, *Waraka*