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Lengthening Storage and Shelf Life of *Uapaca kirkiana* (Muell. Arg.), an Indigenous Fruit to Parts of Africa

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Abstract

Uapaca kirkiana (MUELL. Arg.) a highly valued wild indigenous fruit species in parts of Africa, is being domesticated to widen its utilisation. Fruit are gathered from the ground when ripe or dislodged when unripe from trees and incubated to ripen them. While the fruit are widely marketed (mostly in informal markets), household utilisation and marketing are limited by a short shelf life of about 3 days for ripe fruit. To investigate ways to increase the storage life of the fruit, we evaluated the influence of storing unripe fruit in a cold room (5 °C), at ambient room temperature (30 °C), or in clay pots (31 °C), on the subsequent softening of the fruit after removal from storage. We also evaluated the effect of keeping ripe fruit on open plates, in polyethylene bags and clay pots, all at ambient room temperature, on weight loss, skin and pulp colour, and soluble solids concentration (SSC). Overall, unripe fruit under cold storage lost less weight and their softening was delayed, thus extending their storage life. In contrast, storing fruit in clay pots advanced and enhanced their softening and subsequent deterioration. Ripe fruit kept in polyethylene bags lost the least weight (10%) over a 6 day storage period after ripening compared with those on open plates (29%) and clay pots (22%). Storing ripe fruit in polyethylene bags maintained a higher proportion (78%) of fruit with a skin colour rating of fair and good (combined) compared with only 28% and 35% of the fruit from plates and clay pots, respectively. The remaining fruit developed a darkened dull skin colour. In addition, 34% of the fruit from polyethylene bags still had the ideal orange pulp colour on day 6, compared with only 4% and 0% for plates and clay pots respectively. The SSC were lowest in ripe fruit kept in the polyethylene bags, this probably being a result of the concentration effects of SSC by greater water loss from fruit on plates and in clay pots. The study has demonstrated the potential for low temperature storage and using polyethylene packaging to lengthen storage and shelf life of fresh *U. kirkiana* fruit, but the possible risk of chilling injury at these low storage temperatures needs to be evaluated.

Keywords: Fruit colour, indigenous fruit, shelf life, soluble solids concentration, storage temperature, *Uapaca kirkiana*