

EFFECT OF PRE AND POSTHARVEST TREATMENTS ON THE
KEEPING QUALITY OF THREE VARIETIES OF
MANGO (Mangifera indica L.)

By

KRISHNAPILLAI NAMAGAL

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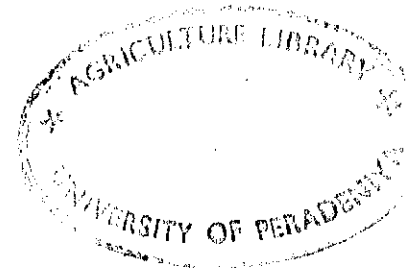
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ABSTRACT

The present postharvest losses of mangoes in Sri Lanka are estimated at 40-60% of the total harvest. This study was carried out to recommend measures to minimize the postharvest losses and to extend the storage life of three popular varieties of mangoes namely *Karthacolomban* (KC), *Vellaicolomban* (VC) and *Willard*.

Preharvest spraying of fruits and leaves close to the fruit bunches with 10,000 ppm CaCl_2 with 0.1% Teepol extended the storage life of VC by 3 days and KC by 4 days without affecting acceptability. There was no storage life extension in VC and KC fruits by preharvest newspaper and polythene bagging treatments and postharvest newsprint and tissue paper wrapping. Both hot and cold water and hot benlate treatments on KC resulted in blemish and disease free, attractive coloured fruits without storage life extension at ambient temperature. The storage life of perforated polythene (PP) packed fruits stored at ambient condition increased by 4 days in *Willard* with 60% acceptability. However, storage life extension in case of VC and KC fruits with or without vermiculite impregnated with KMnO_4 was 2 days. Acceptability of these fruits was 50% in VC and 60% in KC respectively.

Low temperature storage (both refrigerated storage 12-14°C, 70-75% RH & cold storage 10°C, 85-90% RH) significantly ($p=0.01$) reduced the weight loss and volume loss in VC, KC and *Willard* varieties. Furthermore, low temperature stored fruits had slightly higher titratable acidity, lower pH and lower total soluble solids than the control. This leads to slight sour taste in VC, KC and *Willard* varieties except cold stored *Willard* mangoes as there was no taste difference in cold stored *Willard* mangoes compared to the control, but taste of all low temperature stored fruits was acceptable. Acceptability of PP packed refrigerated stored *Willard*, VC and KC was 60%, 50% and 60% respectively. Storage life extension of these fruits was 12 days in *Willard* and 10 days in VC and KC. Vermiculite impregnated with KMnO_4 insertion in PP bags further improved the acceptability by 10% and storage life by 2 days in VC and KC fruits compared to PP packed refrigerated stored fruits without KMnO_4 .

There was no chilling injury in refrigerated stored fruits with polythene wrappers in VC, KC and *Willard* varieties. Acceptability of PP packed cold stored fruits was similar to the PP packed refrigerated stored fruits, but storage life extension was 26 days in *Willard*, 20 days in VC and 26 days in KC.

Cold stored PP packed *Willard*, VC and KC fruits showed 1-5% chilling injury. This chilling injury problem could be overcome by inserting vermiculite impregnated with KMnO_4 . Furthermore, it improved the storage life and acceptability. Acceptability was increased by 10% in VC and KC mangoes and 20% in *Willard*. Storage life of PP packed cold stored *Willard*, VC and KC fruits with KMnO_4 was 33, 33 and 39 days respectively. PP packed cold stored fruits with KMnO_4 showed maximum storage life in VC, KC and *Willard* varieties.

Key words:- Mango, Postharvest losses, Pre and Postharvest treatments, Storage life and Acceptability.