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# Postharvest Management in Agriculture

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**SAARC Agricultural Information Centre (SAIC)**

SAARC Agricultural Information Centre (SAIC)  
BARC Complex, Farmgate, Dhaka 1215, Bangladesh

**Published : 1995**

**Cover design : Mafruha Begum**

**Price :** US\$ 5.00 for SAARC countries  
US\$ 8.00 for other countries

Chandel, A S and Kamal, R M

Postharvest Management in Agriculture: SAARC bibliographical database.

Dhaka: SAARC Agricultural Information Centre, 1995.

ii, 231, xxxv p.

1. Postharvest technology, bibliography. 2. SAARC Agricultural Information Centre. i. Jt. Author.  
ii. Title.

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**Published by :** Director, SAARC Agricultural Information Centre (SAIC)

**Printed at :** Panir Printers, 9 Nilkhet, Dhaka 1205

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*Term Index*

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tural University, 20: 2, 226-227; 3 ref.

Total soluble ascorbic acid, acidity, total phenols, sucrose, glucose and fructose, and several amino acids decreased considerably in infected fruit in storage, while cysteine and leucine increased. Alanine was not detected in healthy fruit but appeared in traces in infected fruit.

**728 SURENDER, SINGH.** 1991. **Studies on the effect of pre and post harvest factors on the storage life of lemon (*Citrus limon burm*) cv. *Baramasi* (Ph.D : thesis).** Haryana Agricultural University, Hisar.

The fruit harvested at mature green stage was found the best in terms of physiological loss in weight, decay loss, organoleptic acceptance, qualitative and biochemical parameters. Winter season fruits were found the best in respect of all the above parameters. Post-harvest treatments maintained supremacy over preharvest spray in extending the storage life of *Baramasi* lemon and maintained quality of fruits in better way. Zero energy chambers were found very effective in reducing the physiological loss in weight and decay loss, and extended the shelf-life of the fruits upto 56 days. Physiological loss in weight, decay loss, total soluble solids, carbohydrates, amino acids, colour development and shrinkage increased with increasing period of storage, while respiration rate of the fruits decreased with increasing period of storage. Ascorbic acid, acidity and organic acids increased at the initial stage of storage and then decreased upto end of the storage at room temperature. Fruits stored under modified storage condition showed less physiological loss in weight due to more relative humidity. Diphenyl impregnated paper as a cushioning material was found very effective in reducing the decay loss in zero energy chambers. Among the pre-harvest sprays, GA2 and topsin-M were found effective in reducing the decay loss and physiological loss in weight. But among the various post harvest treatments, GA2 in combination with topsin-M and captan was found effective in reducing the physiological loss in weight and decay loss.

## ORANGES

### Storage and storage decay

**729 BABU, KJ; REDDY, SM.** 1987. **Some new post-harvest diseases of mosambi (*Citrus sinensis* L. *Osbeck*).** *Indian Journal of Mycology and Plant Pathology*, 17: 1, 44-45.

Brief notes are given of the symptoms on sweet orange caused by *Cladosporium cladosporioides*, *Curvularia* [*Cochliobolus*] *pallescens*, *Cochliobolus spicifer*, *Fusari-*

*um oxysporum*, *Macrophoma* sp., *Nigrospora* [*Khuskia*] *oryzae*, *Phoma sorghina* and *Syncephalastrum racemosum*.

**730 CHATTOPADHYAY, N; HORE, JK; SEN, SK.** 1992. **Extension of storage life of sweet orange (*Citrus sinensis osbeck*) CV. *Jaffa*.** *Indian Journal of Plant Physiology*, 35: 3, 245-251.

**731 DASHORA, LK; SHAFAT MOHAMMED; MOHAMMED, S.** 1988. **Effect of 2,4-D, wax emulsion and their combination on the shelf life of sweet orange (*Citrus sinensis Osbeck*) cv. *Mosambi*.** *South Indian Horticulture*, 36: 4, 172-176; 7 ref.

Fully ripe fruits were dipped for 2 minutes in solutions of 2,4-D at 100 or 250 p.p.m. or in 4 or 8% W-12 wax emulsion or in a combination of the 2 substances. The fruits were then held for 40 days in polyethylene bags with 3% of the surface perforated. No fruit decay, the least physiological weight loss and good fruit quality were obtained in batches treated with 100 p.p.m. 2,4-D + 8% W-12.

**732 PETHE, P.S.** 1988. **Studies on effect of levels of nitrogen, phosphorus and potassium on quality and storage behaviour of Nagpur santra (M.Sc: thesis).** Punjabrao Krishi Vidyapeeth, Akola, 81 Pages.

To evaluate the effect of varying levels of fertilizers on quality and storage behavior of Mrig Bahar fruits of Nagpur mandarin, the present investigation was undertaken during 1986-87. The design adopted was 3-3 factorial partial confounding with three replications. The 27 treatments included in the experiment were : three levels each of N, P and K i.e. 200, 400 and 600 g/tree, 0, 100 and 200 g/tree and 0, 200 and 400 g/tree, respectively. The fruits were stored at room temperature, and storage behaviour was studied for 15 days. Average weight and size, juice content, TSS, acidity, ascorbic acid content of Santra fruit was not significantly influenced by any of the fertilizer levels or their interaction. Average fruit weight was in the range of 143 to 157 g, while fruit shape was nearly round in different treatments. Juice content was between 45 and 46.26 per cent. Ascorbic acid content was in the range of 45.50 to 50.47 mg/100 ml of juice. There was no clear trend in these quality attributes due to levels of fertilizers, except in acidity and ascorbic acid content. Increase in acidity from 0.613% in No to 50.03 mg/100 ml of juice in N2 treatment. Similarly, there was no significant effect of these fertilizer treatments on storage behaviour of fruit. However, in all the treatments, decrease in fruit weight and acidity and peel thickness, and increase in juice per

cent and TSS was noted with the increase in storage period. Loss in weight of fruits in different fertilizer treatments was in the range of 7.93 to 8.94% and 27.97 to 32.21% at the end of 7 and 15 days of storage, respectively.

**733 RAMANJULU, V; REDDY, MRS. 1989. Post-infection changes in Sathgudi sweet orange fruits caused by *Gloeosporium limeticola*. *Indian Phytopathology*, 42: 1, 191-192; 6 ref.**

Freshly harvested, apparently healthy Sathgudi oranges of uniform wt and maturity were inoculated with *G. limeticola* and incubated at 28-32°C. After 4-12 d, fruit juice was extracted and analysed. The decrease in titratable acidity (citric acid) during incubation was more in infected fruits (21.4%) than healthy fruits (1.1%). There was a slight increase in total soluble solids (8.6%) in infected fruits (possibly due to a rapid fall in citric and ascorbic acid contents) compared with a slight increase (5.2%) in healthy fruits (attributed to a gradual loss of moisture content during storage). Inoculated fruits had a greater wt loss (8.1%) compared with healthy fruits (3.8%).

**734 RANA, GAJENDER SINGH. 1989. Effect of fungicides, packages and storage conditions on the shelf life of sweet orange (*Citrus sinensis* Osbeck) (M.Sc: thesis). Haryana Agricultural University, Hisar.**

Total soluble solids and sugars increased, while ascorbic acid, acidity and juice content decreased during storage of sweet orange. Losses due to physiological processes and decay increased with the subsequent increase in storage period. Fruits stored in wooden box with polythene bag had lost less weight due to more relative humidity. Benlate, topsin-M and oil emulsion were effective in reducing the post-harvest losses. The treatments which were effective in increasing the shelf life were also effective in reducing fruit rot, loss in weight and maintaining edible quality for 50 days at room temperature and 80 days in zero energy cooling chamber storage.

**735 SAMS-UD-DIN, M; LINDSAY, D. 1988. Comparative effectiveness of three commercial fungicides in controlling mould wastage in Valencia oranges. *Bangladesh Horticulture*, 16: 2, 1-6; 16 ref.**

Valencia oranges were artificially damaged and inoculated with a mould-coated (*Penicillium digitatum*, *P. italicum* and *Geotrichum candidum*) puncturing device. The infected fruits were treated in (a) 2% sodium o-phenylphenate [sodium orthophenylphenoxide] (SOPP), (b) 0.05% benomyl, (c) wrapping in diphenyl [biphenyl]

impregnated tissue paper (DITP) or (d) rinsing in water. The treated oranges were stored at  $21 \pm 2^\circ\text{C}$ , assessed for mould wastage and fungicidal effect on *P. digitatum*, *P. italicum* and *G. candidum*. SOPP treatment was found to be most effective (50% rot after 26.94 d) which were significantly different from DITP wraps (5.23 d), benomyl immersion (2.81 d) and water rinse (2.56 d), respectively. SOPP and benomyl effectively controlled *P. digitatum*, while DITP was effective against both *P. digitatum* and *P. italicum*. All the treatments were least effective against *G. candidum*.

## KINNOWS

### Postharvest handling

**736 JAIN, PK. 1989. Studies on the packages, Transportation and storage behaviour of kinnow mandarin (Ph.D : thesis). Haryana Agricultural University, Hisar.**

The present studies were undertaken during 1986-87. The studies revealed that fruits packed in corrugated paper box were best in terms of organoleptic acceptance and majority of other qualitative and biochemical parameters. Transportation by road was found comparatively better, whereas transportation by railway was cheaper. During storage corrugated paper box again maintained supremacy over other packages, while taking various factors, viz. quality, bio-chemical and physiological into consideration. Total soluble sugars of the fruits increased during storage while ascorbic acid, acidity and juice content decreased. Losses due to physiological processes and decay increased with the subsequent increase in storage period. Fruits stored under modified condition lost less weight due to more relative humidity. Among the post-harvest dip treatments, TBZ and benomyl were effective in reducing the post-harvest losses. The treatments which were effective in increasing the shelf life were also effective in reducing fruit rot, loss in weight, and maintained the edible quality for 56 days at room temperature and 77 days in zero energy cooling chamber storage. This extension in shelf life would be sufficient to allow the produce to be transported to distant market and allow greater flexibility in marketing by avoiding glut.

**737 JAIN, PK; CHAUHAN, KS. 1993. Evaluation of various packages for transportation of kinnow mandarin fruits by rail. *Haryana Jr. Hort. Sci.***

**738 JAIN, PK; CHAUHAN, KS. 1990. Post-harvest studies on kinnow mandarin. *Int. Seminar on New***