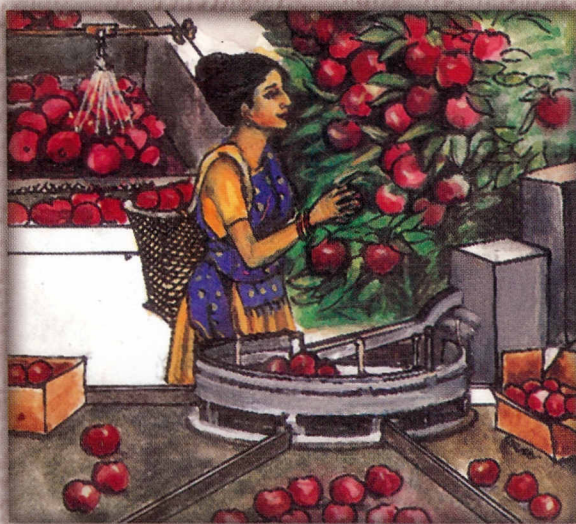




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# Postharvest Management in Agriculture

## SAARC Bibliographical Database



**SAARC Agricultural Information Centre**

# **Postharvest Management in Agriculture** **SAARC Bibliographical Database**

*A S Chandel and R M Kamal*



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fruit infected by *B. theobromae*.

**948** VED RAM; DHARAM VIR. 1986. Efficacy of fungicides XXXVI. Relative evaluation of various post-harvest chemical treatments against spoilage of banana fruits caused by *Curvularia lunata*. *Indian Phytopathology*, 39: 4, 594-595; 6 ref.

A new post-harvest disease of banana in Delhi markets is caused by *C. lunata* [*Cochliobolus lunatus*]. Propionic acid, salicylic acid and sodium metabisulphite kept inoculated fruits free from infection for up to 8 d but systemic fungicides had only very limited effects.

**949** VIR, D; SHARMA, RK. 1985. Efficacy of fungicides XXVI. Evaluation of triforine against post-harvest spoilage of banana fruits. *International Journal of Tropical Plant Diseases*, 3: 1, 89-90; 10 ref.

Dipping the fruit in triforine (2500 p.p.m.) for 5 min gave good protection against rot and deterioration caused by *Colletotrichum musae* and enhanced the shelf life.

## PINEAPPLES

### Postharvest handling

**950** AHMED, F; BORA, PC. 1989. Changes in quality of Kew pineapple fruit at different times. *Journal of Food Science and Technology Mysore*, 26: 1, 51-52; 6 ref.

Fruits harvested during different months of the year showed variation in the time taken to attain maturity, % juice content, TSS and acidity of the juice. Fruits harvested from July to Nov. matured early and were very juicy and sweet, while those harvested from Dec. to Feb. were sour, and those harvested from Jan. to May were late maturing and less juicy.

**951** DAMAYANTI, M; SHARMA, GJ; KUNDU, SC. 1990. Effect of gamma radiation on pineapple fruit rotting fungus, *Ceratocystis paradoxa*, at different temperatures. *Microbios Letters*, 45: 179-180, 145-150; 14 ref.

Gamma-rays reduce radial growth and conidial germination and decrease germ tube length of *C. paradoxa* in vitro. Irradiation also decreases the percentage of spore germination. The inactivation is directly correlated with the radiation doses applied. The synergistic effect of radiation and temp. was more pronounced at lower temp. ( $12 \pm 1^\circ\text{C}$ ) than at higher temp. ( $25 \pm 1^\circ$ ). At  $8^\circ$ , the non-irradiated and irradiated cultures were

unable to grow even after prolonged incubation (12 d).

**952** HEENKENDA, HMS; BANDARANAYAKE, M. 1990. Effect of postharvest wax treatment on weight loss and shelf-life of five tropical fruits. *Tropical Agriculturist (Sri Lanka)*, 146 p. 37-44.

**953** NANAYAKKARA, KPGA. 1990. A preliminary survey on pineapple cultivation and export from Sri Lanka. *Krusha (Sri Lanka)*, 12: 2,3,4, 35-41.

## ZIZIPHUS MAURITIANA (BER)

### Storage

**954** BANIK, D; HORE, JK; SEN, SK. 1988. Studies on storage life of ber (*Ziziphus mauritiana* Lamk). *Haryana Journal of Horticultural Sciences*, 17: 1-2, 49-55; 7 ref.

An experiment was conducted to assess the efficacy of wax emulsion coating, some growth regulators and low temperature storage in prolonging the storage life of ber. Fruits kept at  $10-12^\circ\text{C}$  and 85-90% RH, and fruits coated with paraffin wax and kept at  $10-12^\circ$  stored well for up to 18 days with minimum spoilage and physiological weight loss when 100% spoilage occurred in untreated fruits (held at  $28-32^\circ$  and 70-75% RH) on the 9th day of storage. Fruits coated with paraffin wax emulsion (2%) and fruits treated with NAA at 100 p.p.m. or ascorbic acid at 100 p.p.m. could be retained for up to 12 days at room temperature ( $28-30^\circ$ ) with minimum spoilage. Contents of TSS, total sugar, and reducing sugar increased as the period of storage increased. Titratable acidity and ascorbic acid content decreased with increasing length of storage.

**955** GUPTA, OP; SIDDIQUI, S; GUPTA, AK. 1989. Effect of preharvest sprays of various chemicals on the storage of ber fruit (*Zizyphus mauritiana* Lamk.). *Research and Development Reporter*, 6: 1, 35-40; 17 ref.

Preharvest spraying with captafol or thiabendazole (TBZ), each at 500 p.p.m. or with 1% calcium nitrate solution improved the shelf life of [*Ziziphus mauritiana*] cv. Kaithli fruits. On the 12th day of storage, the highest reduction in weight loss was observed with captafol; decay loss was reduced most by TBZ. The treated fruits retained high ascorbic acid with low acid contents during storage.

**956** GUPTA, OP; NEENA MEHTA. 1988. Effect of pre-harvest applications on the shelf life of ber

(*Zizyphus mauritiana Lamk.*) fruits cv. Gola. *Haryana Journal of Horticultural Sciences*, 17: 3-4, 183-189; 8 ref.

Fruits of this cultivar, sprayed with 3 different fungicides or CaNO<sub>3</sub> 10 days before harvest, were picked at the colour-turning stage, packed in crates with paper cuttings and held at room temperature for 15 days. Spraying with CaNO<sub>3</sub> at 1% was the most effective treatment for increasing fruit shelf life and quality.

**957** RAJENDER SINGH. 1987. **Evaluation of packages of storage and transportation of ber (*Zizyphus mauritiana Lamk*)** (M.Sc: thesis). Haryana Agricultural University.

Fruits of *ber* cv. Gola were harvested at colour turning stage of maturity, packed in wooden boxes or bamboo baskets, stored at room temperature, in zero-energy cooling chamber with or without diphenyl fumigation. Fruits packed in bamboo baskets were found comparatively better than those packed in wooden crates under all storage conditions. Fruits kept in zero-energy cooling chamber without fumigation retained fruits kept in zero-energy cooling chamber without fumigation retained significantly higher TSS, sugars, vitamin C and phenols than at room temperature and zero-energy cooling chamber fumigated with diphenyl. Total soluble solids, sugars and acidity of fruits increased during storage while vitamin C and phenols decreased. Losses due to physiological processes and decay increased with the subsequent increase in storage period. Fruits packed in wooden crate lost less weight due to both type of factors but were qualitatively poorer than those packed in bamboo basket. Ethylene evolution showed an increase with prolonged storage and fruits packed in wooden create showed a sharp rise. It was at a very slow rate in zero-energy cooling chamber irrespective of package type. Under cold storage conditions, it was economical to store fruits for 13 days only. Fruits followed the same trend with respect of various quality, biochemical factors as in zero-energy cooling chamber without diphenyl fumigation. Diphenyl helped reducing decay losses. in transportation of fruits of *ber* cv. Umran (harvested at a little earlier stage of maturity than colour turning stage) by railway or bus, fruits packed in corrugated hard board cartons were found best in terms of organoleptic acceptance and majority of other qualitative and biochemical parameters. Transportation by railway was found comparatively better and cheaper. During storage of railway transported fruits again corrugated hard board cartons maintained supremacy over other packages while taking various factors, viz.

quality, biochemical and physiological into consideration.

**958** SIDDIQUI, S; GUPTA, OP; YAMDAGNI, R. 1989. **Effect of pre-harvest sprays of chemicals on the shelf life of ber (*Zizyphus mauritiana Lamk*) fruits cv. Umran.** *Haryana Journal of Horticultural Sciences*, 18: 3-4, 177-183; 17 ref.

Ten days before harvest trees of this cultivar were sprayed with solutions of calcium chloride or calcium nitrate, each at 0.5-1.5%, zinc sulphate (0.2-0.6%) or borax (0.05-0.15%). The fruits (5 kg) packed in boxes with cushioning material were held at room temperature ( $32 \pm 5^\circ\text{C}$ ) for up to 8 days. There were no appreciable differences in physiological weight loss; over-ripening and decay losses were reduced most by 0.2% ZnSO<sub>4</sub> but no marked differences in fruit chemical composition were noted.

**959** SIDDIQUI, S; GUPTA, OP. 1989. **Effect of preharvest spray of calcium on shelf life of ber (*Zizyphus mauritiana Lamk.*) fruit.** *Research and Development Reporter*, 6: 1, 172-176; 5 ref.

Ten days before harvest, fruits of the cultivar Kaithli were sprayed with calcium nitrate at 10.3 g/litre or calcium chloride at 6.4 g/litre, to give 1.7g Ca from each compound. The fruits were harvested at the colour-turning stage, packed in 4-kg wooden boxes and held at room temperature for up to 9 days. Data are tabulated on fruit weight loss, decay loss, ripening %, organoleptic rating, ethylene evolution, acidity, and ascorbic acid content. Weight loss on the 9th day was 24.3-27% in treated fruits and 14.3% in the control; the corresponding figures for decay loss were 2.12-2.29% and zero control. Organoleptic rating was similar for calcium nitrate-treated and control fruits and low for calcium chloride-treated fruits.

### Storage decay

**960** GUPTA, OP; NEENA MEHTA. 1987. **Effect of post harvest application of fungicides, chemicals and pre-cooling treatments on the shelf-life of Gola ber (*Zizyphus mauritiana Lamk.*) fruits.** *Haryana Agricultural Uni. Journal of Research*, 17: 2, 146-152; 4 ref.

Studies on the effect of the post-harvest application of chemicals, fungicides and pre-cooling in air and water on the storage behaviour of Gola *ber* [*Zizyphus mauritiana*] fruits revealed that the application of calcium chloride and diphenyl increased the shelf-life and reduced decay. Air pre-cooling proved better than pre-

cooling with cold water. The quality in terms of TSS, acidity and ascorbic acid was retained for longer periods. These treatments also reduced the ethylene production.

**961** SINGH, JP; GUPTA, OP. 1983. Evaluation of various packings of *ber* fruit in relation to decay loss caused by various microbes. *Haryana Agricultural Univ. Jrl. of Res.*, 13: 4, 593-595.

Four types of packaging and 2 cushioning materials were evaluated for their effect on microbial decay during storage of Umran and Kaithli cultivars of *ber* (*Ziziphus mauritiana*) at room temp. Gunny bags and wooden boxes were better at reducing spoilage than packing made of bamboo basket or cardboard. Paper cuttings were the best cushioning material for reduction of decay losses due to *Ulocladium chartarum*, *Phoma hissarensis* and *Botryodiplodia theobromae*.

**962** ULLASA, BA; RAWAL, RD. 1986. Some new post-harvest diseases of *ber* (*Ziziphus mauritiana* L.) from Karnataka. *Indian Journal of Plant Pathology*, 4: 2, 162-164; 9 ref.

Post harvest decay caused by *Phytophthora nicotianae*, *Sclerotium rolfsii* and *Botryodiplodia theobromae* is described.

## GRAPES

### Postharvest handling

**963** ANAND, JC. 1985. Postharvest management of Indian grapes. *Maharashtra Journal of Horticulture*, 2: 1, 1-13; 21 ref.

A review and discussion on: area and production, maturity, harvesting, packing and containers, fumigation, storage, transportation, marketing, processing, and research and development.

**964** CHADHA, KL. 1984. Grape research in India - priorities and suggested approach for future. *Indian Jrl. of Hort.*, 41: 3/4, 145-159; 32 ref.

A review and dicussion under the following headings: grape improvement; propagation and rootstocks; training; pruning; nutrition; fertilizer use efficiency; water management; diseases, insect pests and nematodes; post harvest technology; and specific problems (flower and flower bud drop, cluster tip wilting, pink berry formation, poor bud burst, premature defoliation, poor cane maturity, and dead arm and trunk splitting).

**965** MAINI, SB; ARVE, SD; SAGAR, VR; RAJESH, K. 1994. Effect of pre-treatment on the quality of dehydrated grapes. *Drakshavritta Souvenir*, 14: 6, 179-180.

**966** MAINI, SB. 1985. Precooling of grapes by evaporative cooling system. *Proc. Nat. Work. on Postharvest Management of Grapes*. (Pune: 1985: 4-6 Feb). Division of Fruit & Hort. Technology, IARI, New Delhi. p. 113-116.

**967** RAVI KUMAR; CHAUHAN, KS; SUNEEL SHARMA. 1988. A note on the effect of zinc sulphate on berry set, panicle drying and quality of grapes cv. Gold. *Haryana Journal of Horticultural Sciences*, 17: 3-4, 213-215; 3 ref.

In trials with 15-year-old vines trained on the Kniffin system, ZnSO<sub>4</sub> at 0.2, 0.3 or 0.4% was sprayed at full bloom. The highest berry set (45.1%), the least panicle drying (31.98%) and the best grape quality were obtained with ZnSO<sub>4</sub> at 0.2%. In the control, berry set was 35.76% and panicle drying was 59.2%

**968** ROY, SK. 1985. Development of packing for export of grapes. *Proceedings of First National Workshop on Post-Harvest Management of grapes*. (Pune: 1985: 4-6 Feb). Division of Fruit & Hort. Technology, IARI, New Delhi.

**969** SHANKARIAH, V; ROY, SK; PAL, RK. 1992. Post harvest handling of grapes. *Acta. Hort.*

**970** SHARMA, KD; SHARMA, PC; THAKUR, KS. 1993. Evaluation of some grape cultivar for processing growth under dry climatic condition of Himachal Pradesh. *Indian Fd. Packer*, 47: 5, 5-8.

**971** VIRENDER, SINGH. 1991. Production and marketing of grapes (*Vitis vinifera* L.) in Hisar District of Haryana (M.Sc: thesis). CCS Haryana Agricultural University, Hisar.

The requisite data for the present study were collected from 72 grape growers selected randomly from three selected blocks of Hisar district as well as other related agencies. The study revealed that grape growers incurred losses during the initial three years of installation of grape orchard. The profit earned increased from fourth (Rs. 187.17) to seventh year (Rs. 27767.05) and thereafter it became almost stagnant throughout the expected life of 30 years. The net present value calculated at 13% discount rate for one hectare came to be Rs. 61734.53 for the entire expected life. Further, on the