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# Postharvest Management in Agriculture

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

*A S Chandel and R M Kamal*



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**891** GUPTA, AK; PATHAK, VN. 1988. **Some new fungi associated with papaya fruits.** *Indian Phytopathology*, 41: 3, 479-480.

During 1975-78, 22 fungi were detected on pawpaw fruits from markets in Jaipur, India. These were *Alternaria alternata*, *Ascochyta caricae*, *Aspergillus flavus*, *A. fumigatus*, *A. nidulans*, *A. niger*, *A. tamarii*, *A. terreus*, *Botryodiplodia theobromae*, *Cochliobolus spicifer*, *Colletotrichum gloeosporioides* [*Glomerella cingulata*], *Curvularia lunata* [*Cochliobolus lunatus*], *Cylindrocarpon sp.*, *Fusarium equiseti*, *F. moniliforme* [*Gibberella fujikuroi*], *F. oxysporum*, *F. scirpi*, *F. semitectum* [*F. pallidoroseum*], *F. [Microdochium] tabacinum*, *Penicillium islandicum*, *Phoma jolyana*, *Rhizopus oryzae* and *R. stolonifer*. Of these *F. scirpi* and *M. tabacinum* are reported from India for the first time and their taxonomy is described.

**892** GUPTA, AK; PATHAK, VN. 1986. **Survey of fruit markets for papaya fruit rots by fungal pathogens.** *Indian Journal of Mycology and Plant Pathology*, 16: 2, 152-154; 4 ref.

Of fungal storage rots detected in markets in Jaipur during 1975-78, 5 were of major importance, particularly those caused by *Aspergillus flavus*, *Rhizopus oryzae* and *Fusarium equiseti*.

**893** KANNAN, M; MUTHUSWAMI, S. 1989. **Proteolytic activity of papain from eight papaya genotypes.** *South Indian Hort.*, 37: 1, 6-9; 4 ref.

An assay method which measures the amount of tyrosine released by papain from a standard casein solution was evaluated. Latex was collected from selected fruits of 8 *Carica papaya* genotypes at 5 different stages. After drying, the latex was subjected to analysis of papain activity through tyrosine release. In all genotypes the activity increased with time after fruit set up to 90 days; of the 5 stages, papain extracted during the 4th stage (75-90 d after fruit set) showed the highest activity. Results indicate the greater reliability of the tyrosine release assay method, (seen to be more accurate), less time consuming and more efficient than the conventional milk clotting assay. Papain activity was highest in CP15/2 (Co5).

**894** MEHTA, PM; RAJ, SS; RAJU, PS, JR. 1986. **Influence of fruit ripening retardants on succinate and malate dehydrogenases in papaya fruit with emphasis on preservation.** *Indian Journal of Horticulture*, 43: 3/4, 169-173; 16 ref.

Postharvest treatment of pawpaw fruits with GA<sub>3</sub>, vitamin K, silver nitrate, kinetin or cobalt chloride

extended the shelf-life appreciably without any adverse effect on palatability. The suppressed levels of succinate and malate dehydrogenase activity during the post-harvest ripening of the treated fruits indicated lower levels of mitochondrial respiratory activity and retardation of ripening.

**895** SAXENA, RM; SHARMA, KD. 1981. **Deterioration of papaya fruits by fungi.** *Agricultural Science Digest, India*, 1: 2, 140-142; 7 ref., tab.

Twenty-four fungi were isolated from the external and internal surface of pawpaw fruit tissues in storage and during artificial ripening. *Aspergillus flavus*, *A. niger*, *Penicillium funiculosum*, *Penicillium citrinum*, *Paecilomyces varioti*, *Alternaria alternata*, *Drechslera papendorffii*, *Fusarium moniliforme* [*Gibberella fujikuroi*], *F. solani* and *Rhizopus arrhizus* were most virulent and actively decayed fruit at 28-35°C by rotting and by hydrolysing the reserve carbohydrates.

## JACKFRUITS

**896** GUPTA, PN; SINGH, B. 1987. **Effect of pre-harvest chemical sprays on postharvest shelf-life of jack fruit.** *Symposium on Himalayan horticulture in the context of defence supplies.* p. 76-77.

Fruits [of *Artocarpus spp.*] do not ripen uniformly on the tree or in storage. The effects of 1.0-2.5% CaNO<sub>3</sub>, 1.0-2.5% CaCl<sub>2</sub> or 1.0-4.0% Na<sub>2</sub>CO<sub>3</sub>, sprayed before harvest on post-harvest shelf life were recorded. Weight losses were reduced most by 2.0% CaNO<sub>3</sub> followed by 2.0% CaCl<sub>2</sub> and 2.5% CaNO<sub>3</sub> sprayed 15 days before harvest; the 2.0% CaNO<sub>3</sub> treatment maintained shelf life for 19 days at room temperature and resulted in the best fruit flavour and firmness. Spraying fruits 30 days before harvest was in no case beneficial.

**897** JOHN, PJ; BALASUBRAMANYAM, N; NARASIMHAM, P. 1993. **Effect of packaging, processing and storage conditions on the quality of raw jack fruit curry in flexible pouches.** *Journal of Food Processing and Preservation*, 17: 2, 109-118.

"Ready to eat" raw jack fruit (*Artocarpus heterophyllus* Lam.) curry (pH 4.2), having acidic tomato gravy, packed in a flexible pouch with/without vacuum and heat processed in boiling water for 30 min, was stored at 3 different conditions, room temperature (28C), refrigerated low temperature (4C) and frozen state (-18C). The vacuum packed product, placed in a secondary pack of polyester/foil/polyethylene laminate had a storage life of 120, 270 and more than 360 days at 28, 4 and at -18C, respectively. The stored product was safe

microbiologically and had an acceptable sensory quality.

**898** JOHN, PJ; NARASIMHAM, P. 1993. **Processing and evaluation of carbonated beverage from jackfruit waste (*Artocarpus heterophyllus*)**. *Jrl. of Food Process. and Pres.*, 16: 6, 373-380.

Edible bulbs of ripe jackfruit (*Artocarpus heterophyllus* Lam.) are consumed for their fine taste and pleasant aroma. The edible portion is about 30% by weight. About 50% of fruit, composed of rind and unfertilized floral parts, which are also rich in jackfruit flavor, are usually discarded as waste, because they are fibrous. A process for the preparation of clarified juice has been developed and involves treatment of the jackfruit waste with pectic enzyme at 0.3% concentration (vw), incubation for 2 h at 40C and subsequent filtration, giving about 60% yield of clarified juice having 23° Brix and 0.15-0.20% acidity. Sensory evaluation of ready-to-serve (RTS) beverages (12% juice, 15° Brix sugars and 0.3% acidity) without and with carbonation at 3 levels (CO<sub>2</sub> gas pressures 0.775, 2.092 and 3.685 kg/cm<sup>2</sup>) by a 15-member trained panel revealed that the product was highly acceptable either without or with carbonation at 0.775 kg/cm<sup>2</sup>, compared to higher levels of carbonation. It is concluded that preparation of beverage from jackfruit waste as a byproduct, besides processing of bulbs and seeds, brings about the effective utilization of jackfruit to over 80%.

### **AEGLE MARMELOS (BAEL)**

**899** KUMAR, KR; SUBRAMANIAN, BG; INDIRAMMA, AR. 1993. **Studies on the storage characteristics of kodbale - a popular Indian spicy savoury**. *Journal of Food Science and Technology - Mysore*, 30: 4, 269-274.

Moisture sorption isotherm of Kodbale, a popular Indian spicy savoury was found to be sigmoidal in shape; typical of a starchy food. The equilibrium moisture content at 56% RH was found to be 10.01% (dry basis), which was critical from the point of view of crispness and acceptability. The Brunnauer-Emmett-Teller (BET) and Guggenheim-Anderson-de Boer (GAB) - monolayer moisture content was 4.60%. The product packed in polyamide, based coextruded film and metallized polyester-polyethylene laminate with ambient air and nitrogen gas flushing indicated shelf-life of 60 to 80 days, when stored at 38°C and 90% RH. At 27°C and 65% RH storage condition, the shelf-life was about 120 days. Gas flushing and polyamide based material gave added protection against deteriorative changes.

**900** ROY, SK. 1985. **Bael (*Aegle marmelos*)**. (Fruits of Indian Tropical and Subtropical: /edited by TK Bose. Calcutta: Naya Prakash.

**901** ROY, SK. 1992. **Bael fruit (*Aegle marmelos* Correa)**. *Tropical and Subtropical Fruits*/edited by ES Philip; TC Harvey; N Steven. Florida: Ag. Science Inc.

**902** ROY, SK; SINGH, RN. 1979. **Bael fruit (*Aegle marmelos*) - a potential fruit for processing**. *Economic Botany*, 33: 2, 208-212.

**903** ROY, SK; SINGH, RN. 1979. **Preliminary studies on storage of bael fruit (*Aegle marmelos*)**. *Progressive Horticulture*, 2: 31.

**904** ROY, SK; PANDEY, RM; SINGH, RN. 1973. **Preliminary studies on the availability of ripe bael fruits (*Aegle marmelos*) in off-season**. *Ind. J. Hort.*, 29: 3&4.

**905** ROY, SK; SINGH, RN. 1972. **Process bael for sure market**. *Indian Hort.*, 17: 3, 7.

**906** ROY, SK; SINGH, RN. 1979. **Studies on changes during development and ripening of bael fruit (*Aegle marmelos*)**. *Punjab Hort. J.*, 20: 3&4, 190-197.

**907** ROY, SK; SINGH, RN. 1979. **Studies on the induced ripening of bael fruit (*Aegle marmelos*)**. *Punjab. Hort. J.*, 20: 1&2, 74-82.

**908** ROY, SK; SINGH, RN. 1977. **Studies on utilization of bael fruit (*Aegle marmelos* Correa) for processing-I. Physico-chemical characteristics of different cultivars**. *Indian Food Pack.*, 32: 6,3-8.

**909** ROY, SK; SINGH, RN. 1978. **Studies on utilization of bael fruit (*Aegle marmelos* Correa) for processing II. Extraction of bael fruit pulp**. *Indian Food Packer*, 33: 1, 5-9.

**910** ROY, SK; SINGH, RN. 1978. **Studies on utilization of bael fruit (*Aegle marmelos* Correa) for processing III. Preparation and preservation of bael fruit products**. *Indian Food Packer*, 33: 5, 9-14.

**911** ROY, SK; SINGH, RN. 1978. **Studies on utilization of bael fruit (*Aegle marmelos* Correa) for processing IV. Storage studies of bael fruit products**. *Indian Food Packer*, 33: 6, 3-9.