

ABSTRACTS

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Postharvest for Wealth and Health

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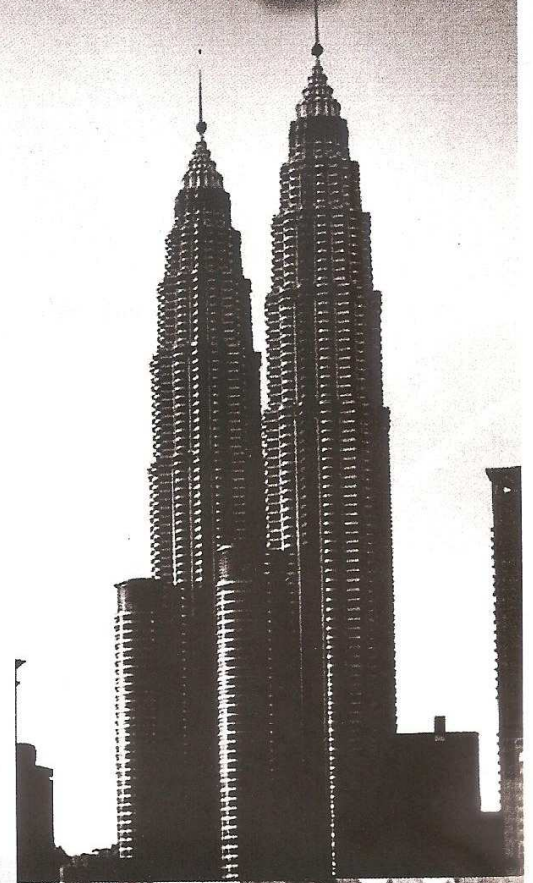
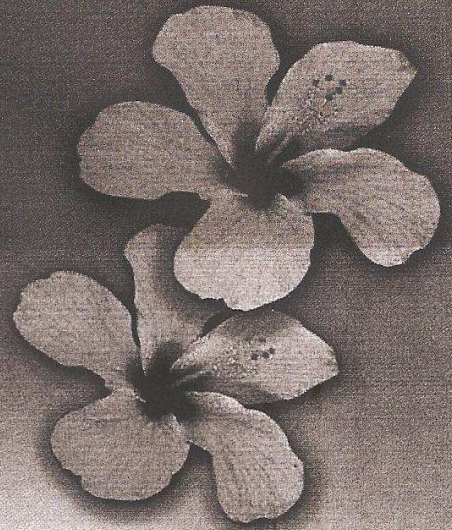
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P06-16

Determination of optimal ethylene concentration applied in postharvest mango fruit

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Keywords: *Mangifera indica* L, primary metabolism, climacteric fruit, tropical fruit.

Mango is a tropical evergreen tree that is suitable for areas with cool dry winters and hot wet summers. The interest in this culture is due to the excellent fruit, having exotic flavor, and is rich in vitamins and minerals. This research project aims to determine the optimal concentration of exogenous ethylene applied to mango fruits at post-harvest. The treatments were: T1 = fruits stored under uncontrolled conditions (25°C ± 5°C and 65% RH) without ethylene [control], T2 = fruit stored at 20°C ± 1°C and 90% RH with 10 ppm ethylene for 2 days, T3 = fruit stored at 20°C ± 1°C and 90% RH with 20 ppm ethylene for 2 days, T4 = fruit stored at 20°C ± 1°C and 90% RH with 40 ppm ethylene for 2 days, T5 = fruit stored at 20°C ± 1°C and 90% RH with 60 ppm ethylene for 2 days, T6 = fruit stored at 20°C ± 1°C and 90% RH with 80 ppm ethylene for 2 days and T7 = fruit stored at 20°C ± 1°C and 90% RH with 100 ppm ethylene for 2 days. After treatments, fruits were stored at 20°C ± 1°C and 90% RH (T2 to T7) and uncontrolled environmental conditions (25°C ± 5°C and 65% RH) for T1. Changes in firmness (N), total soluble solids (°Brix), skin browning and rot (%) were evaluated at day 0, day 7 and day 14 after treatment. The fruits from T3 (20 ppm ethylene at 20°C for 2 days), have the least skin browning and rots until 7th day of storage at 20°C, and only this fruits could be marketed until this evaluation day. In conclusion, the best treatment that could help in the adequate ripening of mango 'Tommy Atkins' fruit was T3 (20 ppm ethylene at 20°C for two days).

P06-17

Synergistic effects of MAP and irradiation on storability of achras sapota Cv Kalipati at low temperatures

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A set of two experiments on the effect of modified atmospheric packaging (MAP) and combination of MAP and irradiation on storability, shelf life at low temperature, of sapota cv Kalipatti was conducted at Fruit Research Station, Sangareddy. In the first experiment, sapota fruit cv. Kalipatti were packed in polypropylene bags of 100 and 150 gauge without and with perforation (0.1%) and stored at 15°C for 15 or 30 days and transferred to room temperature. Various physico-chemical parameters like PLW, spoilage, firmness, TSS, sugar, acidity and TSS/acid ratio were estimated at an interval of 3 days after transferred to room temperature. Fruits packed in polypropylene bags of 100 gauge with 0.1% perforation and stored for 15°C for 15 days recorded significantly lower PLW, higher firmness, lowest spoilage, higher TSS, sugar and TSS/Acid ratio even up to 6th day after transferred to room temperature. The maximum total storability of 21 days (15 days at 15°C and 6 days at room temperature) was recorded in fruits packed in 100 gauge polypropylene with 0.1% perforation. Further to increase the total shelf life, the fruit after packaging in polypropylene bags of 100 gauge with 0.1% perforation of experiment-1 were irradiated at different doses of 0.2, 0.4, 0.6, 0.8 kGy and stored at 15°C for 20 days in 2nd experiment. The fruits packed in MAP and irradiated with 0.2 kGy recorded significantly lower PLW, higher firmness and lower sugar when compared to other irradiation doses and control. Higher irradiation dose of above 0.6 kGy has damaged the fruits. The fruits packed in polypropylene 100 gauge with 0.1% perforation and irradiated at 0.2 kGy recorded significantly higher shelf life of 6 days after transferred to room temperature, increase the total storability to 26 days (20 days at low temperature and 6 days after room temperature).

skin peeler machine. The skin peeler machine was integrated with blade cutter which cut the flesh into two portions. Uniform semicircle cutting shape and size will be produced upon subjected the individual portion flesh slicer machine. Centrifugal drip dryer machine facilitates in removing the excess water after the cut pieces were subjected to pre-treatment solutions before undertaking the packing process.

P09-5

Is compression damage the principal mechanical injury in pineapple postharvest?

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Keywords: *ananas comosus* var. *comosus*, cv. Pérola, harvest and transport, storage, fruit quality

The pineapple, besides presenting numerous sensorial qualities, shows high dietary value. The purpose of this work was to evaluate some physicochemical changes of 'Pérola' pineapple submitted the fruits to different types of mechanical injuries to the following treatments: T1: non-injured fruit (control); T2: one 60cm free fall; T3: four longitudinal cuts (70mm long and 2mm deep); T4: eight perforations (3 x 2 mm) in the fruit base; and T5: compression for 30 minutes (equivalent force of 160 Newton). After the application of the treatments, fruit were stored during 15 days at 11°C and 85% RH. Evaluation of the samples were conducted on every five days by evaluating the following parameters: firmness (N), pulp translucency (in scale from 0 to 4, where 0 = opaque pulp and 4 = 100% of translucent pulp), juice percentage (%), ratio (soluble solids/tritatable acidity), ascorbic acid (mg ascorbic acid 100g⁻¹) and pulp color (L*, a* and b*). The compression treatment showed a significant firmness loss during storage, reaching loss of 48% after 15 days. Differences were not verified in the translucency of the fruit in function of the treatments. The juice percentage that initially was of 51.8% decreased for values between 41 and 45% after 15 days of storage. The ratio that initially was of 26.35 decreases to 18. The ascorbic acid contents increased in all treatments along the storage period. For the values of L*, a* and b* were not verified differences among the treatments. It was considered compression as the most important mechanical injury for 'Pérola' pineapple postharvest which usually, happens during transportation of the fruit.

P09-6

Influence of storage conditions on seed quality and longevity of four vegetable crops

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Keywords: storage, temperature, relative humidity, vegetable seeds, germination, longevity, quality

Seeds of four vegetable crops; carrot (*Daucus carota* L. cv Nantes 2-Tito), cucumber (*Cucumis sativus* L. cv Special), onion (*Allium cepa* L. cv Red Creole) and tomato (*Lycopersicon esculentum* Mill. cv Tanshet Star) were stored under a wide range of temperature (5, 15, 25 and 35°C) and relative humidity (RH) (11.3, 22.5, 32.5, 43.2, 58.4, 75.3, and 84.3 %) conditions for various storage periods (1, 3, 6, 9, and 12 months) respectively. The quality of stored seeds was tested by measuring seed germination percentage (SGP), mean germination time (MGT) and germination coefficient of velocity (GCV). Significant differences were found in (SGP), (MGT) and (GCV) in response to storage temperature, RH and among crops. Seeds stored at 5°C had the highest SGP and GCV but had the shortest MGT. However, seeds stored at 35°C had the lowest SGP and GCV and the longest MGT. RH up to 58.4% had no significant effect on SGP while higher levels of RH significantly lowered SGP and MGT. The highest RH levels (75 and 84%) showed an obvious decrease in seed quality by lowering SGP and increasing MGT. Tomato and cucumber SGP were significantly higher than that of onion and carrot seeds. Cucumber seeds had significantly the shortest MGT and highest GCV while carrot seeds had the longest MGT and lowest GCV than the other vegetable crops. These results emphasize the