



IHC Lisboa 2010

25th INTERNATIONAL HORTICULTURAL CONGRESS

Science and Horticulture for People

**PROGRAMME &
BOOK OF ABSTRACTS**

FOOD RESEARCH INSTITUTE, ZHEJIANG ACADEMY OF AGRICULTURAL SCIENCE, NO.198 SHIQUAO ROAD, 310021-HANGZHOU, ZHEJIANG, CHINA

Walnut (*Carya cathayensis* Sarg.) were stored at 25±1 °C and 10±1 °C for 6 months and the effect of temperature on quality and physiological changes in the antioxidant system of walnut was investigated. The acid value and peroxide value of the oil extracted from the walnuts stored at 25±1 °C. were higher than the walnuts stored at 10±1 °C. Temperatures of 25±1 °C also increased MDA levels and superoxide anion generation in the walnuts. In contrast, activities of SOD, CAT and POD were higher in the walnuts stored at 10±1 °C during the storage. The results showed that the cold storage delayed lipid oxidation and kept the higher enzymatic antioxidant system of the walnuts.

502.329

Mechanical Injury Size as a Determinant of the Tomato Fruit Respiration

Paiva, A. S. de; Pessoa, J. D. C.; Calbo, A. G.; Carneiro, M. C. M.; Albino, A. L. S.

EMBRAPA AGRICULTURAL INSTRUMENTATION, RUA XV DE NOVEMBRO, 1452, P.O. BOX 741, 13560-970, SÃO CARLOS, SÃO PAULO, BRAZIL

The agricultural losses can be defined as a reduction in the nutritional value of the product, quality or commercial value. Among the variables involved in mechanical losses, one that deserves study is the size of mechanical injury. To study the effect of the injury size were evaluated tomatoes healthy variety "Pizzadoro" (*Lycopersicon esculentum* Mill.) harvested mature, over 90% of the red. The selected fruits were sanitized, and divided into lots (six treatments and control). Each tomato was subjected to an injury in the equatorial region, with a pointed stainless rod to a depth of 5mm. The lesions had the following diameters: 0.4 mm, 0.8 mm, 1.5 mm, 3.5 mm, 6.5 mm and 12.2 mm. The respiration during storage at 25 ± 3 °C was measured with an infrared gas analyzer open circuit during eight days. Samples of 3 mL of air were injected to measure respiration in accordance with the increase in CO₂ concentration inside a glass of 900 mL, where the fruits remained closed for 60 minutes during the measurement period. Was used a randomized split plot design with five replications and subjected to analysis of variance. The treatment means were submitted to regression analysis and the comparisons were made by Tukey test (** <0.01). Respiration decreased gradually in all fruits, except in those with lesions larger than 3.5 mm. The typical decline in post-climacteric respiration was clearly interrupted in the fruits that received strong mechanical injuries. With this there was a second respiratory peak, starting three days after 12,2 mm injuries and five days after injury to the fruits of injured 6.5mm. Smaller injuries caused barely significant increase in the respiration rate and were not strong enough to modify the tail typical climacteric ripening.

502.330

Preventing Pericarp Browning of Lychee with Hydrochloric Acid

Salomão, L. C. C.; Silva, D. F. P.; Struiving, T. B.

UNIVERSIDADE FEDERAL DE VIÇOSA, CAMPUS UNIVERSITÁRIO - AV. P. H. ROLFS, S/N, DEPARTAMENTO DE FITOTECNIA, 36570000, VIÇOSA, MINAS GERAIS, BRAZIL

Lychee fruits (*Litchi chinensis* Sonn.) deteriorate rapidly once harvested, with pericarp browning being the most visible symptom. This study assessed the effects of immersion in different concentrations of hydrochloric acid (HCl) on pericarp color retention and postharvest conservation of lychees. 'Bengal' lychees were harvested with pericarp completely red and immersed for two minutes in HCl at concentrations of 0, 0.25, 0.5, 1 and 2 N. After the treatments, fruits were packed in polystyrene trays and covered with polyvinyl chloride film (PVC). The trays were stored in cold chamber at 10 ± 0.9 °C and 90 ± 5% RH. The fruits were assessed every 4 days over a period of 24 days. After 24 days of storage, fruits of all treatments showed weight loss of around 4.5%. Titratable acidity and soluble solids were reduced similarly in HCl-treated and untreated fruits. By the 16th day of storage, fruits treated with 2 N HCl showed non-significant changes in pericarp color (Hue angle and ΔE) in comparison with the harvest day. These fruits remained without visually perceptible change in color up to 24 days of

storage. Pericarp darkening began on the 4th day of storage in fruits untreated and treated with 0.25 and 0.5 N of HCl. At 24 days of storage, the mean loss of ascorbic acid in the pulp was 38% in fruits treated with 1 and 2 N HCl and 70% in fruits untreated or treated with 0.5 and 0.25 N HCl. The concentration of 1 N HCl kept the fruits in conditions for consumption for 12 days, and 2 N HCl for 24 days.

502.331

Ripening of 'Ubá' Mango Using Ethylene and Calcium Carbide

Salomão, L. C. C.¹; Silva, D. F. P.¹; Siqueira, D. L.¹; Cecon, P. R.²; Struiving, T. B.¹

¹UNIVERSIDADE FEDERAL DE VIÇOSA, CAMPUS UNIVERSITÁRIO, AV. P. H. ROLFS, S/N, DEPARTAMENTO DE FITOTECNIA, 36570000, VIÇOSA, MINAS GERAIS, BRAZIL

²UNIVERSIDADE FEDERAL DE VIÇOSA, DEPARTAMENTO DE ESTATÍSTICA, VIÇOSA, MG, 36570000, BRAZIL

'Ubá' mango fruit is very appreciated in Brazil for juice production. Physiologically mature 'Ubá' mangoes were treated with ethylene or calcium carbide (CaC₂) aiming at accelerating and uniformizing fruit ripening. Fruits with mean weight of 133.8 ± 1.9 g were treated with concentrations of 0, 20, 40, 80 and 160 g CaC₂/chamber m³ and 0, 50, 100, 200 and 400 mL of ethylene/chamber m³, in chambers at 18.1 ± 0.7 °C and 90 ± 3% RH, for 24 h. After the treatment, the fruits were kept under the same conditions of temperature and RH, and were evaluated at 0, 1, 3, 6, 9, 12 and 15 days of storage. Ethylene and CaC₂ increased mass loss of the fruits. Mangoes treated with CaC₂ showed the respiratory climacteric peak at 3, 6, 9, 9 and 12 days of storage for the concentrations 160, 80, 40, 20 and 0 g/m³, respectively. Fruits treated with ethylene showed the peak at 3, 3, 6, 6 and 12 days of storage for the concentrations 400, 200, 100, 50 and 0 mL/m³, respectively. All concentrations of CaC₂ and ethylene accelerated the loss of firmness, the increase of soluble solids and carotenoids, the reduction of acidity and the change in color of skin and pulp. However, these products also increased electrolyte leakage and decreased ascorbic acid content. Fruits treated with ethylene showed sharper firmness loss compared with fruits treated with CaC₂. On the other hand, solute leakage was higher in fruits treated with CaC₂. Soluble solids content increased with increasing concentrations of CaC₂ and ethylene. The concentrations of 20 g of CaC₂ and 50 mL of ethylene per chamber m³ were sufficient to accelerate and uniformize ripening of 'Ubá' mango.

502.332

The Study on the Use of Natural Compound, Gama, UV-C Radiation and Microwave Treatment on the Extending the Shelf Life of Mushrooms.(*Agaricus bisporus*)

Mozafari, S.¹; Azizi, M.²

¹UNIVERSITY, IRAN-MASHHAD-YAKIL ABAD 44- 84, 9179696718, MASHHAD, KHORASAN, ISLAMIC REPUBLIC OF IRAN

²FERDOWSI UNIVERSITY OF MASHHAD, ISLAMIC REPUBLIC OF IRAN

In this experiment the effect of different treatments that contain mucilage of two medicinal plants include: *Malva sylvestris* (1%, 2% and 5%W/W), *Plantago psyllium* (0.5%,1%,2% W/W). Also the use of Gama radiation, contain 2 treatment ways, face to face to the source of Gama radiation with intensity of 15 microcuri during 1 hour and 2 hours, U.V-C radiation (5, 10, 15 Seconds) and microwave treatment (with power of 1000 W and 2450MHz) during 5 Seconds has been done and stored in refrigerator at 4 °C. This experiment was done on complete blocks design with 14 treatments and 3 repetitions. After 36 days, change in weight, shriving percent, color change, cap and stem disease percent, the percent of the cap opening and cap texture were measured. Then the consumer acceptance tested with 10 panelists. Result demonstrated that the highest shriving percent was detected in *Psyllium* mucilage (1%) and the lowest one in Gama radiation (1h). About color change the highest browning Was detected in Marshmallow mucilage (1%) and the lowest change in color was observed in U.V-C 15s. The lowest cap disease observed in U.V-C treatment at 15s and the highest one in Marshmallow mucilage (1%). with concentration in stem disease in section, the highest stem disease detected in