

**Title** Gas diffusion in 'Golden' papaya fruit at different maturity stages

**Author** Talita Pereira, Paulo Sergio Gomes de Almeida, Inga Gonçalves de Azevedo, Maura da Cunha, Jurandi Gonçalves de Oliveira, Marcelo Gomes da Silva and Helion Vargas

**Citation** Postharvest Biology and Technology, Volume 54, Issue 3, December 2009, Pages 123-130

**Keywords** *Carica papaya* L.; Intercellular space; Microscopy; Ripening

#### **Abstract**

In this work the gas diffusion of 'Golden' papaya fruit (*Carica papaya* L.) was evaluated as a function of different maturity stages, by using a photoacoustic spectrometer. The maturity stages were characterized by the anatomical changes, membrane integrity, pulp firmness, and skin color. Microstructural analysis was performed by means of light and scanning electron microscopy. A significant decrease in the diffusion rate with ripening was observed. Under the experimental conditions it was found that fruit in maturity stage 0 (less mature) had turgid, regular shape parenchyma cells, and relatively little intercellular spaces. However, fruit in maturation stage 5 (more mature) showed separation of cell walls and pectic substance accumulation into the intercellular spaces. The skin color showed a reduction in hue angle values and an increase in chromaticity parameters  $a^*$  and  $b^*$ , characterizing the loss of green color during ripening. A loss of firmness of the pulp was also observed during fruit ripening.