

#### Abstract:

“Okitsu” satsumas were stored at 20°C under high relative humidity (HH) (RH95%) or low relative humidity (LH) (RH65%) for 4 weeks. Respiratory activity decreased over the storage period in both treatments, but in LH fruit at a higher rate than in HH fruit. Conversely, while a progressive increase of endogenous CO<sub>2</sub> was detected in LH fruit, in HH fruit endogenous CO<sub>2</sub> decreased over the storage period. Endogenous O<sub>2</sub> partial pressure was lower in LH fruit than in HH. Resistance to CO<sub>2</sub> diffusion of the peel increased dramatically in LH fruit, while increased slightly in HH fruit. No significant differences were observed in titratable acidity and vitamin C content between LH and HH fruit, while TSS were significantly higher in LH fruit probably for a concentration effect due to weight loss, which in LH fruit reached 27% at the end of storage compared to 3.2% of HH fruit. Little variations occurred in freshness of HH fruit over the storage period while LH fruit underwent a dramatic and rapid alteration. Important correlations were found between weight loss and different qualitative and physiological parameters, including respiratory activity and endogenous CO<sub>2</sub> partial pressure. Storing the fruit under elevated hygrometric conditions is an important means to reduce senescence and maintain marketability and chemical and eating quality of “Okitsu” satsumas even at 20°C for 4 weeks.