

**Title** Non-destructive monitoring of flesh softening in the black-skinned Japanese plums ‘Angeleno’ and ‘Autumn beaut’ on-tree and postharvest

**Author** R. Infante, L. Contador, P. Rubio, K. Mesa and C. Meneses

**Citation** Postharvest Biology and Technology, Volume 61, Issue 1, July 2011, Pages 35-40

**Keywords** Flesh softening; Plum pulp; Maturation; On-tree ripening; Flesh texture; Stonefruit

### Abstract

There is a need to develop alternative harvest indexes for black skinned plums. The aim of this research was to analyze and compare the most commonly used indexes for deciding the harvest date for Japanese plum, and evaluate the effectiveness of new approaches for studying maturation. The ripening process was monitored on-tree and during postharvest in a non-destructive way, through the absorbance of chlorophyll ( $I_{AD}$ ), the compression strength of the intact fruit, and the traditional parameters associated with ripening. Fruit were harvested at commercial ripeness and “tree-ripe”, and were stored for 10 d at 22 °C and 75–80% RH. The  $I_{AD}$  decreased during the last phase of development of the fruit on-tree, and it was related to the common indexes used for plums. ‘Angeleno’ showed a decrease of the  $I_{AD}$  24% lower than that observed for ‘Autumn beaut’. The  $I_{AD}$  versus time showed the highest coefficients of determination when compared with the soluble solids concentration (SSC), flesh firmness, hue ( $H^\circ$ ) and chroma ( $C^*$ ) of the skin. The compression strength of the intact fruit was associated with flesh firmness, and to a lesser extent with the SSC for ‘Angeleno’, whereas for ‘Autumn beaut’ higher correlations for both the SSC and flesh firmness were observed. The  $C^*$  of the skin on ‘Autumn beaut’ showed an erratic change during ripening; by contrast, for ‘Angeleno’, this index showed a clear trend. During postharvest it was observed that for ‘Angeleno’ fruit picked at commercial ripeness, the rate of change of the  $I_{AD}$  was practically the same as observed on-tree, while for ‘Autumn beaut’ the rates of change on-tree and at postharvest were  $0.075 I_{AD} d^{-1}$  and  $0.024 I_{AD} d^{-1}$ , respectively. For the “tree-ripe” fruit, the rate of change was practically the same for both cultivars. Similar trends were observed for the compression strength.