Title Influence of postharvest storage temperature on firmness and bioactive compounds of Japanese plums *(Prunus Salicina* Lindl.)

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Abstract

The aim of this work was to evaluate the effect of storage temperature on flesh firmness and bioactive compounds of six Japanese plum cultivars (two red, one yellow and three dark-purple). Flesh firmness, total phenolics, anthocyanin pigments, total carotenoid content and the total antioxidant activity were evaluated in all fruits at harvest and after storage at 0 or 5°C plus shelf-life. Fruit harvested at commercial maturity were stored at least 42 days at 0 or 5°C and this period increased depending on the storage capacity of each cultivar. After storage, fruit was kept for 3-6 days at 20°C, according to the cultivar. Storage at O°C maintained flesh firmness of all the studied plum cultivars in values "ready to buy", except 'Crimson Globe' and 'Golden Globe', which were not suitable for prolonged postharvest storage. In contrast, all cultivars exhibited excessive pulp firmness loss during storage at 5°C. With regard of the bioactive compounds evolution during storage, total phenolics and carotenoid content correlated with cultivar. However, a significant improvement in total anthocyanins of red and dark-purple plum cultivars was observed in fruit stored at see. Total antioxidant capacity was also significantly higher in fruit stored under these conditions. In conclusion, the cultivars 'Black Diamond', 'Fortune', 'Larry Ann' and 'Angeleno' had commercial firmness values at the end of the long cool storage at 0°C. Moreover, they reached functional values higher than those recorded in fruits at the harvest time. On the other hand, the long postharvest storage at 5°C reduced pulp firmness of the fruits and had a negative influence on their fresh consumption; however, the amount of bioactive compounds found in the fruit stored under these conditions (5°C) was significantly higher. For this reason, these fruit could be suitable to elaborate manufactured products with high functional value.