

Title Comparison on postharvest physiological changes between mid-season and late-season maturing peaches

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Abstract

Two varieties of peach (*Prunus persica*), Okuba (mid-season maturing) and Bayuecui (late season maturing) were used to investigate differences in postharvest physiological changes at initial at-harvest ambient (22°C) and low (0-2°C) temperatures. At the initial temperature, both varieties, Okuba and Bayuecui, showed typical climacteric peaks of respiration rate ethylene production. Okuba reached a peak of respiration and ethylene production peak at the 7th and 4th day at 22°C, while Bayuecui reached respiration and ethylene production peaks on the 8th day. In late season maturing fruit respiration and ethylene peaks were delayed 1-4 compared to the mid-season maturing cultivar. There were similar tendencies in changes of superoxide anion production rate (O_2^-), H_2O_2 content and superoxide dismutase activity in harvested fruit of both varieties, with values in Okuba significantly higher than those in Bayuecui. The results might account for the storage advantage of late-season maturing fruit over mid-season fruit. At the low temperature, respiration rate in both of fruits showed a similar trend and obvious higher at first 16 days or lower after 17 days in Bayuecui. There was a big difference on ethylene production in the fruit, and a slight decrease was observed in Bayuecui. Okuba and Bayuecui cultivars could be distinguished by different of superoxide anion production rate (O_2^-), H_2O_2 content and superoxide dismutase activity. There results indicate an avenue for exploring the mechanism of senescence of fruits.