Title Postharvest changes in the activities of sugar-metabolizing enzymes in cucumber fruit stored at different temperatures

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Abstract

This study investigated the postharvest changes in the activities of invertase (EC ; 3. 2. 1. 26), sucrose synthase (SS ; EC 2. 4. 1. 13) and sucrose phosphate synthase (SPS ; EC 4. 4. 1. 14) in cucumber fruits (Cucumis sativus L. cv. Project X) stored at 13 and 25degC for 20 days to understand the changes in fruit quality in relation to firmness and color after harvest. The acid invertase activities in the soluble and cell-wall-bound fractions in the cucumber stored at 25degC were significantly higher than those stored at 13degC from days 4 to 16. The acid invertase activity was 30-35 times higher than the SS activity on day 8 of storage at 25degC. The SS and SPS activities in the cucumber fruits stored at 25degC showed the highest activity on day 8. Low-temperature storage was effective in decreasing invertase activity in both fractions, thereby suppressing sucrose degradation. Low-temperature storage at 13degC caused no chilling injury to the cucumber. It was effective in maintaining sucrose content, color and firmness of cucumber fruits.