

Title The impact of storage temperature and time on quality and capsaicin concentration of chile peppers

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Abstract

The biosynthesis of capsaicins during development and maturation of chile peppers has been well studied in different cultivars, but changes in capsaicinoids during storage are not well documented. Chile peppers are chilling sensitive but are often stored below the recommended 7-8°C. The objective of this study was to determine whether pungency changes occurred coincident with changes in visual quality and salability. In 2003, mature-green Jalapeno peppers (3 replicates of 10 fruit each) were stored in air for 0, 7, 14, 21, and 28 days at 2.5, 7.5, 10, and 12.5°C and then evaluated after transfer to 20°C for 2 days to accentuate chill-induced injury. Peppers were evaluated for changes in marketable quality (weight loss, appearance, decay, seed discoloration, L*a*b* color values), and capsaicin and dihydrocapsaicin concentrations were determined by HPLC in peppers without decay symptoms. In the 2003 experiment there were few differences in fruit quality due to storage temperature and no significant differences in total capsaicinoids (average = 0.6 mg/g dry weight), however concentrations were notably low. In 2004 initial capsaicinoid concentrations were 1.6, 0.7, and 18.1 mg/g dry weight for Jalapeno, Serrano and Habanero peppers, respectively. Jalapeno and Serrano peppers stored well for 2 weeks at the 3 temperature, but had shrivel and decay symptoms at 12.5°C and chill-induced decay at 2.5°C at 21 days. Habaneros did not show chill-induced decay or discoloration but did lose color intensity. There were very few significant differences in capsaicinoid concentrations due to storage time and temperature.