

Title Effects of postharvest hot air treatments on the quality and antioxidant levels in tomato fruit  
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Citation LWT - Food Science and Technology Volume 38, Issue 6, September 2005, Pages 657-663  
Keyword *Lycopersicon esculentum*; Postharvest; Carotenoids; Lycopene; Ascorbic acid; Isoascorbic acid; Cysteine; Glutathione; Glutathione reductase; Glutathione S-transferase

### Abstract

'Rhapsody' tomatoes heated for 24 h in air at 34 or 38 °C were compared to fruit heated in 5% O<sub>2</sub> at 38 °C in order to determine if heat treatment applied in reduced O<sub>2</sub> pressure might reduce stress-related oxidative changes that sometimes accompany heat injury. Fruit were subsequently stored at 4 or 10 °C for up to 30 d. Unheated fruit and those heated in air at 34 °C for 24 h developed the best colour during storage at 10 °C. Storage at 4 °C inhibited carotenoid development in all treatments. Fruit heated in air or in 5% O<sub>2</sub> lost the most ascorbic acid and isoascorbic acid. Glutathione reductase activity at the end of storage was similar in all fruit, while glutathione S-transferase activity was higher in fruit that had initially been heated in 5% O<sub>2</sub>. Heating of 'Rhapsody' tomato fruit in air at 34 °C for 24 h prior to storage at 10 °C for up to 30 d resulted in the least losses in antioxidant content, and fruit colour developed adequately. Reduced O<sub>2</sub> neither improved the efficacy of the heat treatment in reducing chilling injury nor protected tomato fruit from the negative effects of heat treatment.