Title Postharvest hot air treatment effects on the antioxidant system in stored mature-green tomatoes

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Abstract

'Rhapsody' tomatoes were exposed to air at 20 (control), 34 or 38 °C, and 95% RH for 24 h and then stored at 4 °C or 20 °C for up to 4 weeks. Fruit exposed to 34 or 38 °C and stored at 20 °C had higher cysteine, "reduced glutathione", catalase, and glutathione *S*-transferase, but lower isoascorbic acid and ascorbate peroxidase compared to control fruit. Fruit exposed to 38 °C developed slight heat injury, and had slightly lower β-carotene, lycopene, cysteine, ascorbate peroxidase, catalase, and "reduced glutathione" compared to fruit exposed to 34 °C. Fruit stored at 4 °C had less color development, lower β-carotene, lycopene, ascorbic acid, isoascorbic acid, dehydroascorbic acid, cysteine and "reduced glutathione", and higher α-tocopherol, dehydroascorbate reductase, peroxidase, catalase, and glutathione reductase than those stored at 20 °C. Of the two heat treatments, 34 °C for 24 h caused little injury, and had less negative effects on antioxidants during storage at 4 or 20 °C than did prior exposure to 38 °C.