

**Title** Variation of lycopene, antioxidant activity, total soluble solids and weight loss of tomato during postharvest storage

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### **Abstract**

The time between harvesting and consumption of fruit or vegetables could be up to several weeks. Phytochemical reactions in response to environmental conditions of harvested fruit or vegetables during this period may change the level of biological and medicinal activities of particular compounds. Therefore, quantification of such phytochemical reactions is a critical point in designing nutritional value studies. Red stage ripened cluster tomatoes (*Lycopersicon esculentum* Mill. cv. Clermon) grown hydroponically in greenhouses were analyzed for variation of lycopene, hydrophilic antioxidant activity (using TEAC assay), total soluble solids and weight loss during two subsequent weeks of storing at 12 and 5 °C in comparison to 7 d room temperature storage as control. Low temperature storage at 5 °C in compare to 12 °C inhibited weight loss and enhancement of lycopene and TSS but antioxidant activity was increased as much as 1.77 times. Room temperature stored tomatoes showed significant increase in lycopene content and weight loss, but no effect on TSS and antioxidant activity during 7 d storage. TSS was not affected either by room temperature or low temperature storage, but weight loss, lycopene content and antioxidant activity at room temperature in compare to low temperature stored tomatoes were significantly different. It seems chilling stress shifts the pathways involved in the biosynthesis of antioxidant active compounds into higher levels of production. The results showed that postharvest environmental conditions need to be considered carefully for evaluation of particular bioactive compounds in fresh fruit and vegetables.