

Changes of Selected Phytochemical Contents in Tomato (*Solanum Lycopersicum* L.) Fruits in Response to Postharvest Hot Water Treatments

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Tomato (*Solanum lycopersicum* L.) is one of the major fruits that contain high amount of lycopene, an important intermediate in the biosynthesis of many carotenoids including β -carotene. Lycopene shows the highest antioxidant activity among phytochemicals present in tomato fruit. Aims of this study were to evaluate the effect of hot water treatments (dipping in hot water bath) on phytochemical properties of tomato fruits and to find the relationship between heat and lycopene development in tomato fruits. pH (using pH meter), total soluble solids (brix value) content (using refractometer), vitamin C (by titrimetry), total polyphenolic content (TPC), and total flavonoid content (TFC), lycopene, total carotene (using spectrophotometer) were measured at three different colour development stages (Colour break, Orange, Red) of fruit after imposing to different hot water treatments (control, 40 °C, 60 °C, 80 °C) for 10 minutes. Experiment was conducted in Complete Randomized Design with four replications. Upon hot water treatments pH and brix values of fruit increased in all three colour development stages. Lycopene and total carotene contents also increased with increasing temperature of hot water treatments and higher contents of those two components were observed in red colour stage than in other stages. The highest vitamin C content was observed in control treatment and it reduced gradually with increasing temperature. Highest TPC and TFC contents were recorded in the tomatoes which were subjected to hot water treatments than the control. However, a consistent relationship between the hot water treatment & TPC & TFC contents in different ripening stages of fruit could not be found. Overall results indicated that heat imposed by hot water differently affected phytochemicals in ripening tomato fruits while conserving some phytochemicals with increasing temperature such as lycopene.

Keywords: Lycopene, Carotene, Antioxidant, Flavonoid, Phenolic, Phytochemicals