

Effect of Different Ozone Doses on Antioxidant Activity in Different Tomato Tissues and at Different Stages of Ripening

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Abstract : Tomatoes are widely produced and consumed due to their nutritional content and versatility. However, the tomato is a soft fruit liable to damage and flavour deterioration. Hence, the main challenge for the tomato producing industry is to prevent the high loss incurred during harvest, handling and transportation of the crops. The objective of this study was to investigate the overall nutritional implication of controlled storage of tomatoes using ozone on the basic nutritional components of tomatoes. This investigation was also designed to focus on the effect of different ozone doses on the basic components (antioxidant activity). Green, yellow and red stages of ripeness (elegance tomatoes), were harvested at different dates for each experiment. The tomatoes were cleaned and placed inside the glass reactors and ozonated at 0.25, 0.50 and 1 mg O₃/g tomatoes and clean air respectively for 5 days at 15°C ± 2 and 90-95 % relative humidity respectively. The fruits were analysed for total antioxidant activity. Analysis of the fruits clearly showed that antioxidant activity in the pericarp tissue was the lowest (P<0.001) compared with the pulp tissue of tomatoes during storage in the red stage of maturity, after being treated with ozone in the atmosphere of storage in a dose of 1.00 mgO₃/g tomatoes. It can be concluded from this study that the use of ozone in the atmospheres of storage and handling of fresh products maintains the important compounds of these products while maintaining the nutritional value and health quality.

Keywords : post-harvest treatment, controlled atmosphere storage, ozone, tomatoes, antioxidant activity

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