

**PECTIN SKIN COATING FOR GREEN MATURE TOMATOES
TO EXTEND THE SHELF LIFE AT DIFFERENT STORAGE
TEMPERATURES**



BY

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ABSTRACT

Edible coating is a simple environmentally friendly technology used in fresh fruits and vegetables in order to extend the shelf life and to maintain the quality of the products. This research Study was conducted to investigate the effect of pectin as edible coating on the storage quality and the shelf life of mature green tomatoes "cv. KC-1". Freshly harvested, uniform sized, undamaged mature green tomatoes were dipped into the concentrations of 1%, 3%, and 5% (w/v) pectin solutions for 5 minutes and stored at 30°C (room temperature) and 15°C (refrigeration temperature). Postharvest storage conditions such as Physiological weight loss, ascorbic acid, titratable acidity, pH, total sugars and total soluble solids were tested at each ripening stages (breaker, turning, pink, light red and red). Studies carried out to determine the number of days taken for ripening and also subjected to shelf life evaluation. Based on the quality parameters the best treatments were assessed for sensory characters using nine-point hedonic test. Coated tomatoes at Red stage were subjected to statistical analysis at 5% significant level.

Results indicated that physiological weight loss of coated tomatoes decreased compare to uncoated tomatoes and fruits coated with 5% pectin solution stored at 15°C showed most effective result in minimizing weight loss at Red stage ($p < 0.05$). During storage period tomatoes coated with 3 % of pectin stored at 15°C showed better results in the retention of ascorbic acid, titratable acidity, pH, total sugars and total soluble solids while the tomatoes stored at 30°C with 3% pectin coating fell into the second rank . Significant changes ($p < 0.05$) also observed between the treatments at Red Stage related to nutritional qualities except pH and total soluble solids.

The ripening of tomato fruits delayed by the coating and the shelf life study revealed that the tomatoes coated in 3% pectin solution which were stored at 30°C was the best treatment which can be kept for 28 days without decay and also significantly ($p < 0.05$) differed from other treatments. The sensory analysis also showed that there were significant ($p < 0.05$) differences for the organoleptic characters between the treatments. According to DMRT, the highest overall acceptability was observed in the tomatoes coated with 3% pectin solution which were stored at 30°C. Based on the results of physiological weight loss and shelf life study, nutritional and sensory analyses; tomatoes coated with 3% of pectin solution stored at 30°C was selected as the best treatment which can be stored for 28 days. According to the results this study demonstrates potential benefits of pectin as edible coating for tomatoes in order to meet consumer and market demand.

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