# EFFICACY OF PECTIN-BASED EDIBLE COATING IN EXTENDING THE SHELF LIFE OF FRESH TOMATO

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# ABSTRACT

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Fresh tomatoes are highly perishable due to their high moisture content and susceptibility to microbial spoilage. The use of edible coatings is a promising approach to enhance the shelf life of fresh produce. This study aimed to determine the efficacy of a pectin-based edible coating in extending the shelf life of fresh tomatoes.

Fresh tomatoes were coated with a pectin-based edible coating formulation, and uncoated tomatoes were used as the control. Coated and uncoated tomatoes were stored under ambient conditions for a designated period, and their quality attributes were evaluated every three (3) days for analysis. The efficacy of pharmaceutical-grade mango pectin-based edible coating was evaluated in extending the shelf-life of tomatoes. Tomatoes were washed, dipped in 1% and 2% pectin-based edible coating, air dried, and stored at ambient temperature (24-25˚C) for 15 days (destructive) and 20 days (non-destructive). Untreated tomatoes served as control samples.

Results showed that pharmaceutical-grade mango pectin-based edible coating regardless of concentration, 1% or 2%, was effective in delaying the ripening of fresh tomatoes. The treatments delay softening of tomatoes from day 9, slower increase in pH, significantly reduce weight loss, and changes in the color of tomatoes during storage.

Moreover, pectin-based edible coating solutions significantly help delay visual quality deterioration and prevented disease development.

Cost analysis also showed that the cost of pectin edible coating was P5.50/kg (1% pectin) and P8.00/kg (2% pectin). The cost of treatment is expected to reduce if a large number of tomatoes will be treated as there are always economies of scale.

Therefore, the pharmaceutical-grade mango pectin-based edible coating was effective and economical in extending the shelf life of tomatoes from 9 days to 15 days. The technology will help in preventing postharvest losses of this important food crop.

Keywords: Pectin, edible coatings, shelf life, tomato, quality

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