

Evaluation of a Polyethylene-Candelilla Coating for Tangerine Fruit cv. Sai Num Pung

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ABSTRACT

Tangerine fruit cv. Sai Num Pung were coated with four microemulsion wax formulations. The main ingredients were polyethylene and candelilla in ratios : 100:0, 75:25, 60:40 and 0:100 (100% PE, 75% PE, 60% PE and 0% PE). Coated and washed non-coated fruit (control) were stored in plastic baskets at 25±2°C and 87±4% RH. The accumulation of ethanol content increased with storage time. Fruit coated with 0% PE had ethanol content over 1,500 ppm after 16 days which imparted off-flavor but in other coatings, after 21 days storage while non-coated fruit never reached this value. Non-coated fruit and fruit coated with 100% PE had the highest percentage of weight loss and internal O₂ but the lowest ethanol content and internal CO₂. Addition of candelilla wax to polyethylene decreased the percentage of weight loss and internal O₂ but increased internal CO₂ and ethanol content. Coating treatments did not influence total soluble solids, titratable acidity, pH values or vitamin C content of tangerine juice. However, there were significant changes during storage. Titratable acidity and vitamin C content of all coated fruit decreased and total soluble solids and pH values increased during storage.

Key words: Tangerine fruit; Microemulsion wax coating; Ethanol; Physico-chemical evaluation

INTRODUCTION

Tangerine fruit cv. Sai Num Pung is a hybrid cultivar grown commercially in northern Thailand. The fruit is flat (oblate) with an orange peel and firm texture. The flesh is tender, juicy with a sweet/sour taste, and has a rich flavor. Harvested fruit, especially those which are waxed, develop off-flavor after a few days at room temperature (30-35°C) (Ke and Kader, 1990). Cohen et al., (1990)