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Improving shelf-life of Cavendish Banana Using Chitosan Edible Coating

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Abstract

Chitosan has been widely used as an edible coating for extending the shelf life of fruit. In this research, chitosan was applied to Cavendish banana. The effect of different degree of deacetylation (DD) of chitosan (70%, 80%) in various chitosan concentration (1, 1.5, 2 % w/w) in solution on weight loss and vitamin C loss were investigated. The effect of the presence of emulsifier triethanolamine (TEA) was also examined. Sensory analyses were conducted to monitor the changes in color, texture, and aroma. The results showed that coated banana fruit demonstrated delayed ripening processes compared to the uncoated banana. This also confirmed by the reduction in weight loss as well as in vitamin C loss in comparison to the uncoated banana. Weight loss and vitamin C loss decreased with increasing chitosan concentration and degree of deacetylation of chitosan. The addition of TEA emulsifier was not significantly influence the weight loss and vitamin C loss. In summary, 2% (w/w) chitosan with DD of 80% was proved to be the most suitable coating among the others for reducing the weight loss and vitamin C loss. loss, and desirable sensory analysis.

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Keywords: Banana; chitosan; shelf-life; weight loss; vitamin C loss

1. Introduction

Banana is a quite popular tropical fruit, especially in commercial local trade. It contains a lot of nutrients and minerals which are very beneficial for health. Its vitamin C content which is regarded as a familiar antioxidant is relatively high of up to 15%. Bananas are usually harvested before fully mature for domestic consumption. Usually bananas are stored at room temperature. During storage, banana fruit is easily deteriorated due to the quick ripening

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