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"Development on the margin"

Minimal Processing Application to Extend Shelf-life and Preserve Quality of Fresh-cut Pineapples

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Abstract

Pineapple (*Ananas comosus*) is an exotic tropical fruit which is popular due to its sweet-sour taste and high nutrition content, especially vitamin C. Most of people prefer to consume fresh pineapples, although pineapple-based products are available diversely. The consumption of fresh-cut fruits usually faces some limitations because they are perishable substances, susceptible for discolouration, texture softening as well as nutrition losses. Therefore, additional treatments are required for extending shelf-life of fresh-cut fruits. Minimal processing is a technique in food production to provide sufficient shelf-life and preserve the fresh-like quality as well. The simple and inexpensive process is considered as an appropriate method to provide fresh-cut pineapples by small-scale industry. The objective of this research was to investigate the effects of immersion in calcium chloride and ascorbic acid solutions on the chemical and sensory properties of fresh-cut pineapples during storage.

Ripe-stage pineapples were harvested from the farmers' fields in Pemalang, a centre of pineapples production in Central Java, Indonesia. The fruits were peeled, trimmed and cut into 8 slices of edible parts. Fresh-cut pineapples were immersed in the 0.2, 0.3 and 0.4 % of calcium chloride solutions and in the 200, 300, and 400 ppm of ascorbic acids solutions, respectively. They were then stored in the refrigerator (12–15°C) and investigated every 4 days during storage. Fresh-cut pineapples without treatments were also performed as a control. Sensory analysis of 4-point scale with 15 assessors was conducted to evaluate colour, texture, flavour and overall impression. The chemical properties determined were moisture, total sugars, and vitamin C content.

The results showed that all samples from the treatments were still acceptable after being stored for 8-days which was longer than for the control. Storage for 12-days was not recommended due to significant changing in the sensory properties. Discolouration and texture degradation contributed significantly to the assessors' impression. Immersion in ascorbic acid solution maintained vitamin C content during storage. Moreover, there were no significant effects on moisture and total sugars content during 8-days storage.

Therefore, this additional procedure can be recommended to small-scale industry on providing fresh-cut pineapples.

Keywords: Fresh-cut pineapple, minimal processing

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