

Title Quality maintenance of fresh-cut pineapples (CV. Phuket) using ascorbic acid treatment and controlled atmosphere storage

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Abstract

Introduction: Fresh-cut pineapples (cv. Phuket) has become more popular for domestic consumption and export. The aims of this study were to determine the effects of ascorbic acid treatment and controlled atmosphere (CA) storage on quality of fresh-cut pineapples cv. Phuket. **Materials and Methods:** Pineapples cv. Phuket were peeled, cored and cut into wedges before dipping in 100 ppm sodium hypochlorite solution. The pulps then were blotted to dry and dipped into 0.2M ascorbic acid before storage at 5°C. Fresh-cut pineapples were divided into 4 groups (control, CA (5%O₂ and 10%CO₂), 0.2M ascorbic acid dipping and combination of 0.2M ascorbic acid dipping and CA storage). Visual quality, Juice leakage, color, soluble solids, pH, titratable acidity, firmness, and microbial count were evaluated, L-ascorbic acid, dehydro-L-ascorbic acid, total ascorbic acid, and β carotene contents of samples were also analyzed using High Performance Liquid Chromatography (HPLC). **Results and Discussion:** The results showed that 0.2M ascorbic acid helped retarding browning of fresh-cut pineapple while CA storage helped retaining firmness, total ascorbic acid and reducing microbial growth of fresh-cut pineapples. After 9 days of storage at 5°C, total ascorbic acid of fresh-cut pineapples treated with ascorbic acid and stored in CA decreased by 11%, while total ascorbic acid of those treated with ascorbic acid and stored in air decrease by 35%. The results also showed that oxidation of L-ascorbic acid to dehydro-L-ascorbic acid was retarded under CA storage. The combination of 0.2M ascorbic acid dipping and CA storage also helped maintaining β-carotene content and reducing microbial growth of fresh-cut pineapples. After 9 days of storage at 5°C, β-carotene content of fresh-cut pineapple (ascorbic acid dipping) stored in CA and air decreased by 1% and 9%, respectively. At 5°C, shelf life of fresh-cut pineapple could be extended to 12-15 days using the combination of 0.2M ascorbic acid dipping and CA storage.