

Sudarat Tancharoensukjit 2008: Quality Maintenance of Fresh-cut Pineapples cv. Phuket Using Antibrowning Agents and Controlled Atmosphere Storage. Master of Science (Food Science), Major Field: Food Science, Department of Food Science and Technology. Thesis Advisor: Mrs. Sasitorn Tongchitpakdee, Ph.D. 194 pages.

Effects of wounding, temperature, antibrowning agents and controlled atmosphere on quality and post-cutting life of fresh-cut pineapples cv. Phuket were studied. Respiration rate of fresh-cut pineapples was higher than respiration rate of peeled whole and whole fruits approximately 1.5 and 1.9 times, respectively. Shelf-life of fresh-cut pineapples stored at 0 and 5 °C were 12-15 and 6-9 days, respectively. The optimum storage temperature for fresh-cut pineapples in this study were 0-5 °C. The results showed that 0.2M ascorbic acid was the most effective antibrowning agent for fresh-cut pineapples which helped maintaining visual quality and color of fresh-cut pineapples as well as inhibiting polyphenol oxidase (PPO) activity. In this study, the oxygen (O<sub>2</sub>) tolerance limit for fresh-cut pineapples was at 5% O<sub>2</sub>, while the carbon dioxide (CO<sub>2</sub>) tolerance limit was at 10% CO<sub>2</sub>. Optimum controlled atmosphere (CA) for fresh-cut pineapples was at 5-10% O<sub>2</sub> and 5-10% CO<sub>2</sub>. Combination of 0.2M ascorbic acid dipping and CA storage helped extending shelf-life of fresh-cut pineapples to 12-15 days at 5°C by maintaining color, reducing microbial growth as well as retaining β-carotene and total ascorbic acid contents. Ascorbic acid dipping mainly helped retarding browning, while CA storage helped retaining total ascorbic acid contents and reducing microbial growth of fresh-cut pineapples.

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