



番石榴長程保鮮氣變包裝技術

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簡歷：



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市場及需求：

番石榴經低溫貯運 2 週以上，常因果實寒害褐變、果肉軟化、病害果腐、衰老轉黃等劣變發生，導致可售率偏低及櫥架壽命短，亟需加強保鮮技術，減低採後損耗。本技術可應用於番石榴外銷歐美、中東等遠距市場，或調節供需貯藏。

技術摘要：

本技術利用調整包裝袋內氣體成分，減緩番石榴果實呼吸代謝、抑制乙烯合成與反應、改善寒害生理障礙、降低病原菌滋生，達到維持品質效果，提高長程貯運果實可售率。技術開發試驗過程，經實際裝櫃、5°C 海運加拿大溫哥華和多倫多市場(約 4 和 5 週航程)測試，比較氣變包裝與慣行包裝(舒果網+芭樂袋)處理對採收成熟度七分熟(外銷成熟度)‘珍珠拔’番石榴果實運抵目標市場之保鮮效果差異。氣變包裝組果實到貨可售率為 $92\pm 2.8\%$ ，顯著優於現行包裝組之 $60.7\pm 13.1\%$ 。回溫展售 3 天，氣變包裝組可售率 $66.4\pm 13.7\%$ ，仍高於慣行包裝組之 $9.2\pm 1.9\%$ 。氣變包裝對延緩‘珍珠拔’病害、質地軟化、果皮轉黃效果尤為顯著；經貯運回溫後，氣變包裝組果肉硬度 $166\pm 10 \text{ N cm}^{-2}$ 、果皮色相角 $110\pm 1^\circ$ ，較對照組之 $140\pm 10 \text{ N cm}^{-2}$ 、 $106\pm 1^\circ$ 能維持較佳品質，且對風味無不良影響，本包裝技術有利於國產番石榴拓展國際市場及番石榴長程貯藏。

優勢：

1. 本氣變包裝技術可直接融入番石榴包裝場作業流程，每箱(10-12 公斤)只多一個步驟、約多花 2 分鐘操作時間。技術投資成本需使用真空包裝機；相關耗材每箱只多使用一內襯塑膠袋及填入氣體，每箱費用不高於 3 元。
2. 本保鮮技術不使用化學藥劑、無殘留食品安全疑慮，易為消費者接受。

競爭產品：

蔬果保鮮袋。

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Modified Atmosphere Packaging Technology for Guava Fruit

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Experience:



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Market Needs:

Guava fruits stored or transported under cold condition for more than 2 weeks usually encounter difficulties in low salability and short shelf life resulting from deteriorations such as chilling-induced discoloration, pulp softening, pathological decay, and senescent yellowing. In order to reduce the postharvest losses, supplement technologies to temperature management are urgently required. The technology introduced is recommended to applied in guava transportation for distant markets, such as Europe, American, and Middle East, as well as long-term storage.

Our Technology:

This postharvest technique is able to slow down respiration and metabolisms, inhibit ethylene biosynthesis and responses, alleviate chilling injury, reduce spoil pathogen proliferation by adjust inside gas compositions of the package and, therefore, to maintain fruit quality and enhance marketable percentage after long-term transportation. Pilot tests of marine container transportation at 5°C to Vancouver and Toronto, Canada (four and five week transit, respectively) had been conducted during establishment of this packaging technology. Comparisons of differences between MAP- and conventional packaging (foam net + 0.02 mm polyethylene bag)-treated 70% ripe 'Jen-Ju Bar' guava, the maturity for export, after arrival at Canadian markets showed that the salability of the former was 92±2.8%, which was better than latter's 60.7±13.1%. Moreover, this percentage of MAP-treated fruit, 66.4±13.7%, was still higher than 9.2±1.9% of the control after 3 days of supermarket display at room temperature. The MAP technology exhibited a better preservation, especially in terms of retardations of disease symptom development, pulp softening, and peel degreening. The texture firmness and peel hue angle of fruit treated with MAP were 166±10 N cm⁻² and 110±1°, respectively, verse 140±10 N cm⁻² and 106±1° of the control. This packaging technology will be beneficial to exploring international markets as well as long-term storage of guava fruits.

Strength:

1. This technology can be directly integrated into current handling process of guava by adding only one 2-minute step per packaging. The equipment needed for this technique is a vacuum package and seal machine. The price of additional expendables, a plastic liner bag and gas injected, is less than 3 NTD per 10 kg-package.
2. Since no chemical used in this technique, there is no food safety anxiety and will be acceptable by consumers.

Competing Products:

Commercialize fresh bags.

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