

Title Off-flavor formation in longkong (*Aglaia dookkoo* Griff.) as affected by modified atmosphere conditions during storage

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Abstract

Longkong (*Aglaia dookkoo* Griff.) is highly perishable tropical fruit and need to use an effective tool to extend its shelf-life. High CO₂ and/or low O₂ as modified atmosphere packaging (MAP) and/or storage under an optimal temperature were generally used. However, these abnormal conditions induced fruit stress, could be demonstrated disorder attributes especially the composition which affects on its organoleptic, such as ethanolic off-flavors are formed. In this study, changes in physical, chemical quality as well as sensory evaluation of longkong during storage with different MAP conditions including 5%CO₂ + 5%O₂, 5%CO₂ + 10%O₂ and 10%CO₂ + 5%O₂ at 18°C and room temperature (-30°C) were evaluated. The results showed that longkong could be prolonged its satisfied quality by using the condition of 5%CO₂ + 5%O₂ at 18°C for 24 days with only 0.75% weight loss. All MAP conditions resulted in reduction of lightness (L *) value, fruit firmness and sugar content, while redness (a*) value and total acidity content (TA) was increased with storage time. In addition, increasing of headspace CO₂ with ethanol accumulation was found in all treatments. Under the condition of 5%CO₂ + 5%O at 18°C, on the end of storage (day 24) showed 30.26 and 9.47 of L* and a* values, respectively. A decrease of TA was observed until reach 12 days of storage and then increased to 0.761 % at the end of storage (P≤0.05). A sharpen increase of CO₂ was found up to 6 days during storage and after that slightly increased until the end of storage (P≤0.05) as well as ethanol accumulation was found only 0.21 g/g of fruit weight at the end of storage. The decreasing of fruit flavor score was also in agreement with high levels of ethanol content.