

**Title** Postharvest physiology and browning of longkong (*Aglaia dookoo* Griff.) fruit under ambient conditions

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#### **Abstract**

Longkong (*Aglaia dookoo* Griff.) fruit rapidly loses its yellow skin color and turns brown after harvest. We aimed to elucidate the postharvest physiology and browning mechanism of longkong fruit stored at a 70–85% RH and at room temperature (25 °C). The respiration rate slightly decreased with progressive fruit browning, while ethylene production was dramatically increased. Preliminary experiments showed that ethylene treatment markedly increased peel browning, suggesting that this is induced by ethylene. The peel *L*-value continuously decreased during storage, in relation to the severity of peel browning. The peel surface morphological data indicated that the ultrastructure of longkong peel collapsed after harvest, especially around brown areas. The total phenolic content of peel tissue rapidly increased, concomitant with rapid increases in phenylalanine ammonia lyase (PAL) activity and browning score on day 2. Tissue from the lower part of the fruit had higher total phenolic contents, as well as polyphenol oxidase (PPO) and PAL activities, compared to the top and middle parts of the fruit; however, peroxidase (POD) activity slightly changed during storage, possibly independent of phenol oxidation. The browning of longkong peel was not associated with changes in soluble solids contents, titratable acidity or ascorbic acid levels.