

Title High O₂ effects on peel browning and phenolics changes in longan (*Dimocarpus longan* Lour.) fruit

Author S. Kaewsuksaeng, A. Uthairatanakij and S. Kanlayanarat

Citation ISHS Acta Horticulturae 857:389-394. 2010.

Keyword longan; *Dimocarpus longan* Lour.; pericarp browning; phenolics; polyphenol oxidase; phenylalanine ammonia lyase; superatmospheric oxygen

Abstract

The effects of high O₂ atmosphere (HOA) on peel browning and phenolic metabolism in longan were examined. Fruit cv. Daw at the commercial ripe stage were held in controlled atmosphere (CA) chambers flushed with 50, 60, 70 or 80 kPa O₂ (balance nitrogen) or air (control) at 4°C and 95% relative humidity. Pericarp browning rapidly increased during storage accompanied by an increase in polyphenol oxidase (PPO) activity. In contrast, phenylalanine ammonia lyase (PAL) activity decreased during storage. The decrease in PAL activity in HOA was greater than in air. CA storage in 70 kPa O₂ reduced browning and PPO activity. The phenolics content of HOA stored fruit was higher than in fruit stored in air as a consequence of the reduction in PPO activity.