Title Inhibition of pericarp browning and phenolics oxidation in longan (*Dimocarpus longan* Lour.) fruit during controlled atmosphere storage

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

Citation ISHS Acta Horticulturae 857:395-400. 2010.

Keyword longan; *Dimocarpus longan* Lour.; pericarp browning; phenolics; polyphenol oxidase; phenylalanine ammonia lyase; controlled atmosphere

Abstract

Longan fruit cv. Daw at the commercial ripe stage were held in controlled atmosphere (CA) chambers applied with 2 or 4 kPa O_2 plus 5 or 15 kPa CO_2 (balance nitrogen) or air (control) at 4°C with 95% relative humidity. CA levels in 2 kPa O_2 treatments were effectively inhibited pericarp browning relative to the control, whilst 4 kPa O_2 treatments were not consistently better than the control. Polyphenol oxidase (PPO) activity correspondingly decreased resulting to reduced phenolics oxidation indicated by retention of higher phenolics content than that in air. Phenylalanine ammonia lyase (PAL) also decreased and may have contributed to the reduction of browning. Most effective CA level was 2 kPa O_2 plus 15 kPa CO_2, retarding browning by 10 days. However, pulp ethanol content increased in CA-stored fruits.