

Title Changes in physiochemical quality and browning related enzyme activity of longkong fruit during four different weeks of on-tree maturation

Author Karthikeyan Venkatachalam and Mutita Meenune

Citation Food Chemistry, Volume 131, Issue 4, 15 April 2012, Pages 1437–1442

Keywords Longkong; Maturation; Physiochemical; Enzyme; Ultrastructure; Quality

Abstract

The optimum harvesting period of longkong from 13 to 16 weeks of maturation were used to analyse the changes in physiochemical and browning related enzymes. The colour, such as lightness (L^*) and yellowness (b^*) decreased and conversely redness (a^*) increased. The fruit weight was significantly increased from 21.21 to 24.93 g and the diameter was also increased ($p > 0.05$). Chemical qualities, such as total soluble solids, pH, total sugar and reducing sugar increased while titratable acidity decreased at the end of maturation period ($p < 0.05$). The antioxidant activity, such as 1,1-diphenyl-2-picrylhydrazyl radical scavenging activity (from 4.73 to 8.97 mg/100 g), ferric reducing antioxidant power (from 5.06 to 6.83 mg/100 g) and total phenolic content increased (from 42.65 to 58.71 mg/100 g) ($p < 0.05$). The polyphenol oxidase activity significantly increased throughout the maturation; peroxidase and phenyl alanine ammonia lyase enzymes increased at the beginning but after that they decreased at the end of the maturation period. Peel epidermal trichomes losses on the surface and parenchyma cell changes in the cross section were found during these stages.