

Title Effect of UV-B irradiation on chlorophyll-degrading enzyme activities and postharvest quality in stored lime (*Citrus latifolia* Tan.) fruit

Author Samak Kaewsuksaeng, Yoshiyuki Urano, Sukanya Aiamla-or, Masayoshi Shigyo and Naoki Yamauchi

Citation Postharvest Biology and Technology, Volume 61, Issues 2-3, August-September 2011, Pages 124-130

Keywords Lime; UV-B; Chlorophyll degradation; Chlorophyll-degrading enzyme; Quality

Abstract

UV-B irradiation was applied to limefruit to investigate its effect on chlorophyll (Chl)-degrading enzyme activities and postharvest quality during storage. Mature green limefruit were irradiated with or without UV-B doses at 19.0 kJ m^{-2} and then stored at $25 \text{ }^{\circ}\text{C}$ in darkness. UV-B treatment efficiently delayed the decrease of hue angle values and Chl *a* contents. The activities of the Chl-degrading enzymes, chlorophyllase, Chl-degrading peroxidase and pheophytinase in the fruit with UV-B treatment were suppressed and Mg-dechelation activity was also retarded by the treatment. UV-B treatment induced a gradual increase in citric acid and suppressed the increase of sugar contents during storage. In addition, the ascorbic acid content with or without UV-B treatment decreased during storage, but the decrease in the control was faster than that with UV-B treatment. We concluded that UV-B treatment effectively suppressed chlorophyll degradation through the control of chlorophyll-degrading enzyme action and the changes in quality in mature green lime during storage.