

Title Shelf life prediction of ripe kiwifruit (*Actinidia deliciosa*) based on near infrared spectroscopy

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Citation Abstracts of 27th International Horticultural Congress & Exhibition (IHC 2006), August 13-19, 2006, COEX (Convention & Exhibition), Seoul, Korea. 494 pages.

Keyword kiwifruit; non-destructive; NIR; soluble solids content; fresh firmness

Abstract

Kiwifruit becomes edible by ripening after harvest. During ripening there are two major changes in kiwifruit; a decrease of flesh firmness and conversion of starch to sugar. However, not every kiwifruit reaches the same level of quality after ripening. To establish a standard for ripe kiwifruit sorting, near infrared (NIR) analysis was performed on kiwifruit (*Actinidia deliciosa*) sampled from three different orchards. Destructive measurements for soluble solids content (SSC) and flesh firmness were compared to NIR reflectance spectrums from 700 to 2500 nm. NIR prediction of SSC and flesh firmness was calculated by using modified a partial least square regression (PLS) method. SSC was predicted with a standard error of prediction (SEP) of 0.48 Brix and with a correlation coefficient $R^2 = 0.98$ Flesh firmness was predicted with an SEP of 3.22 N and with an $R^2=0.89$. Ripe kiwifruit were sorted nondestructively into 3 groups according to SSC or flesh firmness using NIR prediction. Each sorted group was stored at room temperature (20°C) or at 4°C. Shelf life of ripe kiwifruit based on various quality attributes was determined by observing on their changes during storage. Therefore non-destructive sorting by NIR can provide information to consumers about shelf life of ripe kiwifruit.