

Title Time-resolved and continuous wave NIR reflectance spectroscopy to predict soluble solids content and firmness of pear

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Citation Postharvest Biology and Technology, Volume 47, Issue 1, January 2008, Pages 68-74

Keywords Pear; NIR; Spectroscopy; Reflectance; Absorption; Scattering; TRS; Laser; SSC; Firmness

Abstract

Continuous wave (CW) and time-resolved (TRS) near infrared (NIR) reflectance measurements were carried out on 'Conference' pear fruit. While the absorption coefficient spectra obtained from the TRS measurements were dominated by the overtone of the hydroxyl moiety at 975 nm, the scattering coefficient spectra were almost flat. The spectral data were used to construct calibration models for the soluble solids content (SSC) and Magness Taylor firmness of 'Conference' pear fruit. Reasonable models for SSC (RMSEP = 0.44 °Brix) were obtained when the CW spectra in the range 780–1700 nm were used, but not when the range was limited to that of the TRS equipment (875–1030 nm). No satisfactory calibration model could be established between the TRS absorption coefficient spectrum and SSC. With none of the spectroscopic techniques could significant calibration models for firmness be constructed, although a highly nonlinear relationship between scattering coefficients at 900 nm and firmness was observed.