

Abstract

This research studied the feasibility of making rapid measurements of the soluble solids contents (SSC) and acidity of 'Fuji' apple (*Malus domestica* Borkh. cv. Fuji) fruit. FT-NIR spectra were recorded in the interactance mode, using fiber optics and a special sample holder. Calibration models related the FT-NIR spectra to SSC, titratable acidity (TA) and available acidity (pH) and were developed based on partial least square (PLS) regression with respect to the logarithms of the reflectance reciprocal and its first and second derivative. The prediction performance of calibration models in different wavelength regions was also investigated. The best models gave a standard errors of prediction (SEP) of 0.455, 0.044 and 0.068, and correlation coefficients of 0.968, 0.728 and 0.831 for SSC, TA and pH, respectively, in the wavelength range of 812–2357 nm. Based on the results, it was concluded that FT-NIR spectrometry could be easy to facilitate, reliable, accurate and a fast method for non-invasive measurements of apple SSC and acidity.