

Title Non-destructive assessment of apricot fruit quality by portable visible-near infrared spectroscopy

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Abstract

The ability of portable Near Infrared Spectroscopy to determine apricot fruit quality has been studied. Calibration models allowing the determination of soluble solids content (SSC), total acidity (TA) and firmness (Fi) of apricots were carried out with variable precisions. Models were built for each variety and global models combining different varieties were attempted. SSC was determined with a root mean square error of cross-validation (RMSECV) comprised between 0.67 and 1.1 °Brix and *R*-values between 0.88 and 0.96. Concerning Fi, the accuracy of the prediction was variety dependant. These predictions were correct for the varieties Kioto and Harostar with RMSECV-values between 6.2% and 13% (*R*-values between 0.85 and 0.92) and unsatisfactory for Bergarouge (RMSECV = 24%). TA was predicted with RMSECV-values between 0.79 and 2.61 g 100 ml⁻¹ and *R*-values between 0.73 and 0.97. In a second application, near infrared spectra were used to classify apricot fruits according to their variety and colour intensity with correct efficiency. The results obtained in the present study showed that NIRS technology could be applicable to apricot quality and that such portable devices could help to obtain a complete follow-up of the fruits in orchards and during post-harvest.