

Apple crispness estimation from optical parameters

S. Waluyo, A. Shuaib, G. Yao, J. Tan

Acta Horticulturae 1011: 227-234. 2013.

Abstract

The possibility of using optical absorbance and total coefficient of attenuation was investigated on apple crispness evaluation. Partial least-squares (PLS) technique was applied to construct a regression model for sensory crispness prediction from the optical properties. The results showed that absorbance spectrum through apple typically had two dominant peaks at 670 and 980 nm corresponding to absorption of chlorophyll and water in apple, respectively. Different apple cultivars produced different absorbance and total coefficient of attenuation. The correlation coefficients of the calibration models were 0.760 ($RMSE=0.688$) and 0.820 ($RMSE=0.607$) using, respectively, absorbance and total coefficient of attenuation. It is recommended that the optical properties both absorbance and total coefficient of attenuation be potentially used to predict the sensory crispness of apple.