Title Improvement of PLS calibration for Brix value and dry matter of mango using information from MLR calibration

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Abstract

The possibility of using NIR spectroscopy for quality evaluation of intact mango was investigated using the short wavelength region from 700 nm to 1100 nm and the long wavelength region from 1100 nm to 2500 nm. Multiple linear regression (MLR) and partial least squares regression (PLS) were used to make the calibration equations for Brix value and dry matter (DM). The results obtained are as follows. (i) The short wavelength region was suitable for quality determination of intact mango because its penetration depth in mango flesh was higher than that of the long wavelength region. (ii) PLS calibration and validation results would be improved if the appropriate wavelength region was selected. (iii) The appropriate wavelength region for PLS regression could be estimated by using the wavelengths selected by MLR. (iv) The MLR and PLS calibration equations would have similar performance for determining Brix value and DM of intact mango if the appropriate wavelengths or wavelength region were selected.