SELECTION OF WAELENGTH REGION FOR PLS BRIX CALIBRATION OF MANGO BY MLR METHOD

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The calibration equations for Brix value determination of intact mango were developed using the NIR spectra in a short wavelength region from 700 to 1100 nm. Multiple linear regression (MLR) and partial least square regression (PLS) was used for the calibration. It was found that the best wavelength region for PLS calibration from 900 to 1000 nm was similar to the wavelength region selected by MLR from 906 nm to 996 nm. Both MLR and selected region PLS provided sufficiently accurate prediction equations for Brix determination of intact mango.

For MLR, the prediction results were SEP = 0.45 Brix and Bias = -0.04 Brix while PLS prediction results were SEP = 0.46 Brix and Bias = -0.2 Brix. It was concluded that MLR and PLS would have similar abilities in making calibration equation for Brix determination of intact mango if the appropriate wavelengths or wavelength region were selected. The appropriate wavelength region for PLS regression could be assumed by using the wavelength region selected by MLR in place of random selection. The relationship between calibration results of MLR and PLS regression is discussed.