

Calibration Model of %Titratable Acidity (Citric Acid) for Intact Tomato by Transmittance SW-NIR Spectroscopy

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Abstract : The acidity (citric acid) is one of the chemical contents that can refer to the internal quality and the maturity index of tomato. The titratable acidity (%TA) can be predicted by a non-destructive method prediction by using the transmittance short wavelength (SW-NIR). Spectroscopy in the wavelength range between 665-955 nm. The set of 167 tomato samples divided into groups of 117 tomatoes sample for training set and 50 tomatoes sample for test set were used to establish the calibration model to predict and measure %TA by partial least squares regression (PLSR) technique. The spectra were pretreated with MSC pretreatment and it gave the optimal result for calibration model as ($R = 0.92$, $RMSEC = 0.03\%$) and this model obtained high accuracy result to use for %TA prediction in test set as ($R = 0.81$, $RMSEP = 0.05\%$). From the result of prediction in test set shown that the transmittance SW-NIR spectroscopy technique can be used for a non-destructive method for %TA prediction of tomatoes.

Keywords : tomato, quality, prediction, transmittance, titratable acidity, citric acid

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