

Abstract:

Non-destructive determination of soluble solids (Brix) in harvested fruits using near infrared (NIR) spectroscopy has been reported by many researchers. Using NIR spectroscopy to determine Brix in watermelons may be difficult because of the thick rind, but Brix in watermelons can be well estimated by a multiple regression equation. Key wavelengths of 902 and 872 nm for non-destructive Brix determination were included in the multiple regression equation as the independent variables. For the 23 fruit of the calibration sample set, the standard error of the calibration sample set (SEC) was 0.560 %, with a multiple correlation coefficient (R) of 0.871. For the 12 fruit of the prediction sample set, the root mean square (RMS) was 0.664 %. In addition, as the thickness of the fruit increased, absorbance at 902 nm was more downward. It was concluded that Brix in watermelons could be determined non-destructively using NIR spectroscopy.