

Title Mango maturity index using photonic spectrum
Author Ahmad S., Nor Aliah B. Teoh C.C, Mohamad Zamri K.A.
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Abstract

Lately photonic devices have been widely employed for identification purposes by wide industrial applications. It is anticipated that maturity index of mango can be evaluate using its skin colour spectrum using UV -VIS spectroscopy. The device may overcome human fatigue and untrained eyes associated with conventional manual method. UV-VIS spectroscopy was evaluated for non-destructive measurement of ripening chokanan mango. Spectrum measurements were performed by using USB4000 Ocean Optic Spectrometer. The unit consisted of tungsten halogen light source, bifurcated optical fibre probe, reflection probe holder and SpectraSuite software. The system offer high color and efficient output that transcend human eyes. In our study, premium grade Chokanan mango at different maturity stages available on commercial market was selected. USB4000 Fibre Optic Spectrometer was set to acquire reflectance spectrums range of 400nm to 1200nm wavelength. Measurement were made at the top, equator and bottom of each mango at approximate 90°, 180° and 270° rotations from the intial site. The juice from the mango where the spectrum was taken extracted and the soluble solids content (SSC) was measured using Reichert AR200 Refractometer. Brix and spectrum data were then compared to determine the correlation. We found out that 600-650 nm wavelengths gave best estimation for brix contents. Peaks of different spectral wavelength were clearly distinguishable for brix betaween 6.8° to 18.1. A linear estimation on the graph was made. This estimation gave a general trend of frequency intensity versus brix content of ripening chokanan mango. This finding indicated that maturity index can be defined by using frequency spectrum method