

Title Starch index determination of apple fruit by means of a hyperspectral near infrared reflectance imaging system

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Abstract

A new technique, based on hyperspectral near infrared reflectance imaging, was developed to determine the maturity stage of pre-climacteric apple fruit. The technique is advantageous with respect to existing machine vision techniques as it avoids the use of toxic iodine solution. It was shown that the starch concentration obtained in each position of the fruit was continuously measured compared with the discrete values (stained/not stained) obtained with the traditional technique. The difference between the starch area and non-starch area was classified using a threshold value of the first principle component score image. The technique may be simplified in the future, using a number of bandpass filters, which will speed up the application while the purchase costs will decrease considerably. It can be considered as a model system to map quality attributes of apple fruit.