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 I 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.