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Abstract

A procedure which combines impact response and near-infrared sensing in a two-step classification method has been developed for identification of woolly peaches. Two hundred and seventy *Maycrest* peaches from three ripeness stages at harvest, stored during 0, 1, 2, 3 and 4 weeks at 1 and 5°C, were tested by non-destructive techniques (non-destructive impact and near-infrared spectroscopy) in order to assess woolliness (also known as mealiness in apples). Destructive mechanical tests (Magness–Taylor, confined compression and shear rupture) were used as a reference method to identify woolly fruits. Non-destructive impact data were processed by discriminant analysis to segregate into two texture categories (crispy–firm–hard and non-crispy–non-firm–soft). In the same way, discriminant analysis techniques were used to classify into three juicy categories (low juicy, medium juicy and high juicy), according to the near-infrared second derivative curve. Combining non-destructive impact and near-infrared spectroscopy, not crispy, not firm and soft fruit from the low juicy group were classified as woolly. The percentage of correctly classified fruits in both categories was 80%. The conditions about the experimental factors which enhance woolliness obtained from the destructive procedures were confirmed by the non-destructive procedure.