

Title Non-destructive evaluation of apple maturity using an electronic nose system
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Abstract

Currently, random and destructive sampling techniques are used to evaluate apple quality. Thus there is need to develop a non-destructive technique to assess apple quality. Maturity indices such as starch index and puncture strength were used to categorize Gala apples into three maturity groups referred to as immature, mature and over mature fruits. Multivariate analysis of variance (MANOVA) of the electronic nose (EN) sensor data indicated that there were different maturity groups (Wilks' Lambda $F = 3.7$, $P < 0.0001$). From the Discriminant analysis (DA), EN could effectively categorize Gala apples into the three maturity groups with the correct classification percentage of 83%.