Evaluation of Peach Quality Attribute Using an Electronic Nose

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In this study, responses of a sensor array were examined to establish a quality index model for evaluating peach quality index. The results showed that the multiple linear regression model is effective for predicting quality index, with high correlation coefficients ($R^2 = 0.87$ for compression force; $R^2 = 0.79$ for sugar content; $R^2 = 0.81$ for pH) and relatively low average percentage errors (9.66%, 7.68% and 3.6%, for compression force, sugar content and pH, respectively). The feed-forward neural network also provides an accurate quality index model with high correlations ($R^2 = 0.90$, 0.81 and 0.87 for compression force, sugar content and pH, respectively) between predicted and measured values and relatively low average percentage errors (6.39%, 6.21% and 3.13% for compression force, sugar content and pH, respectively) for prediction. These results prove that the electronic nose has the potential to become a reliable instrument to assess fruit quality index.

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