عنوان مقاله:

Quality Assessment of Olive Oil by Fusion of Two Non-Destructive Methods

محل انتشار:

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خلاصه مقاله:

Due to the importance of foods and its quality and safety and on the other hand the very effective benefits of extra virgin olive oil, fraud samples of it were detected by two non-destructive methods of E-nose and ultrasound systems. Four different classifiers include support vector machine (SVM), K-nearest neighbors, artificial neural network and AdaBoost have been used for classification. The samples were prepared in six levels of fraud and the principal component analysis (PCA) was used for feature reduction. Three most effective features in classification were obtained respectively: "losses in ultrasound wave amplitude percentage", "ultrasound signal's time of flight" and "difference between maximum and minimum output of TGS2620 gas sensor". The results showed that the linear support vector machine model represented the best classification accuracy (95.5%). Furthermore, both K-Nearest Neighbors and artificial neural network methods with 93.3%and 92.1%were effective methods after SVM. It can be concluded that fusion of two non-destructive methods (Ultrasonic an olfaction machine) can detect fraud samples of olive oil.

کلمات کلیدی:

Olive oil, Classification, Fraud, Ultrasound, E-Nose

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