

Engineering Approach for Rapid Food Quality Analysis Using Non-Destructive Methods

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Pursuing a healthy life for most people has been increased due to the spread of well-being trends and the improvement of the national income level. In line with this trend, the food industry is also launching a variety of products focusing on 'health-oriented' and reflecting 'consumers' demands' for food quality. Concerning food quality analysis, it is a complex process such as pretreatment, extraction and instrumental analysis which consumes a lot of time, labor and chemicals. Therefore, non-destructive and rapid quality evaluation methods are being studied using spectroscopy and chemometrics techniques. In this study, moisture and starch contents, which are internal quality evaluation factors of sweet potato, were predicted and classified non-destructively through near IR (NIR) spectroscopy and partial least-square (PLS) and linear discriminant analysis (LDA). To increase model performance, NIR spectrum was pre-treated. These results indicated that quality evaluation of sweet potatoes could predicted and classified using chemometric models by nondestructive detection. Moreover, this technology can be utilized in a variety of food processing applications.