


Evaluating the Quality of Tea using Electronic Nose and Multivariate Analysis

Sushant Kaushal¹, Ho-Hsien Chen²

¹Department of Tropical Agriculture and International Cooperation, National Pingtung University of Science and Technology, Pingtung 91201, Taiwan

²Department of Food Science, National Pingtung University of Science and Technology, Pingtung 91201, Taiwan



25/10

Abstract

Aroma is one of the important characteristics for evaluating the quality of teas. Traditionally, sensory evaluations were carried out by expert panels in previous years. Nowadays, systematic detection of aromatic substances for the quality assessment of different teas is based on the use of instruments. Recently, much attention has been gained on the application of the electronic nose (E-nose) for the classification of different teas for their quality assessment. E-nose can mimic sensory perception of smell based on the obtained response signals, representing the information of tea samples. Hence, this review discusses the findings on the classification of different tea types using E-nose and various multivariate methods. In this regard, several studies applied E-nose combined with linear discriminant analysis (LDA), principal component analysis (PCA), and cluster analysis (CA) to classify different tea samples. The detailed instrumentation, working principle, and the different gas sensors of the E-nose used for collecting the aroma are represented. Furthermore, to check the accuracy of E-nose, we conducted an experiment to monitor the aromatic variation among the different tea types. Therefore, the findings showed the possibility of E-nose to replace the sensory function of practitioners in the future.

Keywords: Aroma, electronic nose, multivariate analysis, quality assessment, tea

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