



**Fast Classification ~~Authentication~~ of Hazelnut cultivars through Portable Infrared Spectroscopy and Chemometrics**

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**Abstract**

The authentication and traceability of hazelnuts is very important for both the consumer and the food industry, to safeguard the protected varieties and the food quality. This study investigates the use of a portable FTIR spectrometer coupled to multivariate statistical analysis for the classification ~~authentication~~ of raw hazelnuts. The method discriminates hazelnuts from different origins/cultivars based on differences of the signal intensities of their IR spectra. The multivariate classification methods, namely principal component analysis (PCA) followed by linear discriminant analysis (LDA) and partial least square discriminant analysis (PLS-DA), with or without variable selection,

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