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Marcello Manfredi, Elisa Robotti, Fabio Quasso, Eleonora Mazzucco, Giorgio Calabrese, Emilio Marengo

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ACCEPTED MANUSCRIPT

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

Marcello Manfredi^{a,1}, Elisa Robotti^{a,1*}, Fabio Quasso^a, Eleonora Mazzucco^a, Giorgio Calabrese^b,

Emilio Marengo^a

^a Department of Sciences and Technological Innovation, University of Eastern Piedmont, Viale Michel 11, 15121 Alessandria, Italy

^b Department of Pharmaceutical and Toxicological Chemistry, University of Napoli Federico II, Via Montesano 49, 80131 Naples, Italy

¹ Both authors have equally contributed to the work and share the first authorship.

Authors e-mails: marcello.manfredi@uniupo.it (Marcello Manfredi), elisa.robotti@uniupo.it (Elisa Robotti), fabio.quasso@uniupo.it (Fabio Quasso), eleonora.mazzucco@uniupo.it (Eleonora Mazzucco), giorgiocalabrese@gcalabrese.it (Giorgio Calabrese), emilio.marengo@uniupo.it (Emilio Marengo).

*Corresponding author: Prof. Elisa Robotti, Department of Sciences and Technological Innovation, University of Eastern Piedmont, Viale Michel 11, 15121 Alessandria, Italy, Phone: +39 0131 360272, Fax: +39 0131 360250, e-mail: elisa.robotti@uniupo.it

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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