



## Volatile composition of oak and chestnut woods used in brandy ageing: Modification induced by heat treatment

Ilda Caldeira <sup>a,\*</sup>, M.C. Clímaco <sup>a</sup>, R. Bruno de Sousa <sup>b</sup>, A.P. Belchior <sup>a</sup>

<sup>a</sup> INIAP-Estação Vitivinícola Nacional, 2565-191 Dois Portos, Portugal

<sup>b</sup> Instituto Superior de Agronomia, Departamento de Química Agrícola e Ambiental, Tapada da Ajuda, 1349-017 Lisboa, Portugal

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### Abstract

The volatile composition (26 compounds) of seven different types of wood (6 oaks and 1 chestnut), used in brandy ageing, were studied by GC–MS and the modification induced by the heat treatment, that occurs during the barrel making, was evaluated. Some of these compounds are identified for the first time, namely the 4-hydroxy-2-butenic acid lactone in oak and chestnut wood, and 2 + 3-methyl-1-butanol, benzaldehyde, acetovanillone,  $\beta$ -methyl- $\gamma$ -octalactone, guaiacol, 4-methylguaiacol, 4-propylguaiacol, 4-ethylguaiacol, eugenol, isoeugenol, 4-methylsyringol and 4-allyl-syringol in chestnut. Eugenol, *cis*- $\beta$ -methyl- $\gamma$ -octalactone, furfural, 4-hydroxy-2-butenic acid lactone, hexanoic acid and guaiacol seemed to be important compounds, which could help to control the wood origin. The toasting process modified strongly the volatile composition of the different types of wood, particularly the levels of furanic aldehydes (furfural, 5-methylfurfural, HMF), volatile phenols (syringol and 4-allyl-syringol), propanoic acid, 4-hydroxy-2-butenic acid lactone and vanillin.

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\* Corresponding author. Tel.: +351 261712106; fax: +351 261712426.

E-mail addresses: [inia.evn.tec@oninet.pt](mailto:inia.evn.tec@oninet.pt), [inia.evn.quim@oninet.pt](mailto:inia.evn.quim@oninet.pt) (I. Caldeira).