



Characterisation of free and glycosidically bound odourant compounds of Aragonez clonal musts by GC-O

Goreti Botelho^{a,b,c,*}, Arlete Mendes-Faia^{b,d}, Maria Cristina Clímaco^a

^a INIA - Dois Portos, INRB, I.P., Quinta da Almoíña, 2565-191 Dois Portos, Portugal

^b Universidade de Trás-os-Montes e Alto Douro, 5000-911 Vila Real, Portugal

^c CEA - CERNAS - Centro de Estudos de Recursos Naturais, Ambiente e Sociedade, Escola Superior Agrária de Coimbra, Bencanta, 3040-316 Coimbra, Portugal

^d IBB - Centro de Genética e Biotecnologia, Universidade de Trás-os-Montes e Alto Douro, 5000-911 Vila Real, Portugal

ARTICLE INFO

Article history:

Received 29 August 2009

Received in revised form 12 October 2009

Accepted 14 October 2009

Available online 23 October 2009

Keywords:

Gas chromatography-olfactometry

Clonal red musts

Free fractions

Bound fractions

Odourant compounds

ABSTRACT

To evaluate the potential aroma of Aragonez clonal red musts, several free and glycosidically bound odourant compounds were extracted. Then, the gas chromatography-olfactometry (GC-O) posterior intensity method was used to evaluate their odour intensity and the compounds were identified by gas chromatography-mass spectrometry (GC-MS). A group of eight sniffers evaluated free and bound fractions of Aragonez musts and perceived forty-three and twenty-two odourant peaks respectively. Furaneol (burnt sugar, candy-cotton) and vanillin (vanilla, sweet) were identified in both free and bound fractions of Aragonez musts, indicating their grape-derived origin. Principal component analysis (PCA) was applied to the posterior intensity method data and a relationship between the different odourant compound variables and the free fractions was established. Two principal components (PCs) were found which together explained 100% of the total variance. A large number of potentially important but yet unknown odourants was detected by the GC-O analysis.

© 2009 Elsevier B.V. All rights reserved.

* Corresponding author at: Escola Superior Agrária de Coimbra, Bencanta, 3040-316 Coimbra, Portugal. Tel.: +351 239802940; fax: +351 239802979.

E-mail addresses: goreti@esac.pt (G. Botelho), afaia@utad.pt (A. Mendes-Faia), evn.mclimaco@mail.net4b.pt (M.C. Clímaco).