

Accepted Manuscript

Title: Identification and quantification of 56 targeted phenols in wines, spirits, and vinegars by online solid-phase extraction–ultrahigh-performance liquid chromatography–quadrupole-Orbitrap mass spectrometry

Author: C. Barnaba E. Dellacassa G. Nicolini T. Nardin M. Malacarne R. Larcher



PII: S0021-9673(15)01573-3
DOI: <http://dx.doi.org/doi:10.1016/j.chroma.2015.10.085>
Reference: CHROMA 357000

To appear in: *Journal of Chromatography A*

Received date: 30-7-2015
Revised date: 13-10-2015
Accepted date: 25-10-2015

Please cite this article as: C. Barnaba, E. Dellacassa, G. Nicolini, T. Nardin, M. Malacarne, R. Larcher, Identification and quantification of 56 targeted phenols in wines, spirits, and vinegars by online solid-phase extraction and ultrahigh-performance liquid chromatography–quadrupole-Orbitrap mass spectrometry, *Journal of Chromatography A* (2015), <http://dx.doi.org/10.1016/j.chroma.2015.10.085>

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1 **Identification and quantification of 56 targeted phenols in wines, spirits, and**
2 **vinegars by online solid-phase extraction – ultrahigh-performance liquid**
3 **chromatography – quadrupole-Orbitrap mass spectrometry**

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5 C. Barnaba^a, E. Dellacassa^b, G. Nicolini^a, T. Nardin^a, M. Malacarne^a, R. Larcher^{a*},

6
7 ^a Centro Trasferimento Tecnologico, Fondazione E. Mach, via E. Mach 1, 38010 San Michele
8 all'Adige (TN), Italia.

9 ^b Universidad de la Republica Uruguay, Facultad de Quimica, Gral. Flores 2124, C.P. 11800,
10 Montevideo, Uruguay.

11 * email: roberto.larcher@fmach.it ; tel. num. 0461-615361 .

12
13 **Abstract**

14 Phenolic compounds seriously affect the sensory and nutritional qualities of food products, both through the
15 positive contribution of wood transfer in barrel-aged products and as off-flavours. A new targeted analytical
16 approach combining on-line solid-phase extraction (SPE) clean-up to reduce matrix interference and rapid
17 chromatographic detection performed with ultrahigh-performance liquid chromatography coupled with
18 quadrupole/high-resolution mass spectrometry (Q-Orbitrap), was developed for the quantification of 56
19 simple phenols. Considering the advantages of using on-line SPE and a resolving power of 140,000, the
20 proposed method was applied to define phenolic content in red (N=8) and white (8) wines, spirits (8),
21 common (8) and balsamic (8) vinegars. The final method was linear from the limits of quantification
22 (0.0001-0.001 $\mu\text{g mL}^{-1}$) up to 10 $\mu\text{g mL}^{-1}$ with R^2 of at least 0.99. Recovery, used to define method accuracy,
23 ranged from 80 to 120% for 89% of compounds. The method was suitable for analytical requirements in the
24 tested matrices being able to analyze 46 phenols in red wines, 41 phenols in white wines and in spirits, 42
25 phenols in common vinegars and 44 phenols in balsamic vinegars.

26
27 **Key words**

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