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Characterization of phenolic and volatile composition of extra virgin olive oil extracted from six Italian cultivars using a cooling treatment of olive paste

Gianluca Veneziani, Sonia Esposto, Agnese Taticchi, Stefania Urbani, Roberto Selvaggini, Beatrice Sordini, Maurizio Servili



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1 Characterization of phenolic and volatile composition of extra virgin olive oil extracted from six
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4 Gianluca Veneziani^{*}, Sonia Esposto, Agnese Taticchi, Stefania Urbani, Roberto Selvaggini,
5 Beatrice Sordini, Maurizio Servili

6

7 Affiliations

8 Department of Agricultural, Food and Environmental Sciences, University of Perugia, Via S.
9 Costanzo, 06126 Perugia, Italy.

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11 **Abstract**

12 The effects of a cooling treatment of olive paste were studied to evaluate the impact of six Italian
13 cultivars on the phenolic and volatile compounds of extra virgin olive oil (EVOO) strictly related to
14 its health and sensory quality. The EVOOs, extracted using a continuous industrial system (2.5
15 ton/h), exhibited a significant increase in phenolic composition of Frantoio, Gentile, Leccino and
16 San Felice cultivars. Significant modifications of the volatile profiles were obtained; the sum of
17 aldehydes, mainly represented by the concentration of (*E*)-2-hexenal, showed increases for all the
18 cultivar processed, while the sum of alcohols and esters appeared to be more affected by the genetic
19 origin of the olive cultivars and their varying enzyme specific activities related to the lipoxygenase
20 pathway.

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^{*} Corresponding author.

E-mail addresses: gianluca.veneziani@gmail.com; gianluca.veneziani@progetti.unipg.it (G. Veneziani).

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