

## **P14: ISOTOPIC MODEL FOR DETECTING ORIGINAL WINE PRODUCT**

Karalis P.,<sup>1),\*</sup>, Poutouki A. E.<sup>1)</sup>, Dotsika E.<sup>1),2)</sup>

<sup>1</sup> Laboratory of Stable Isotopes and Radiocarbon, Institute of Nanoscience & Nanotechnology, NCSR “Demokritos”, 153 10, Greece - \*[p.karalis@inn.demokritos.gr](mailto:p.karalis@inn.demokritos.gr)

<sup>2</sup> Institute of Geosciences and Earth Resources, Via G. Moruzzi 1, 56124 Pisa, Italy

Wine products such as vinegar are susceptible to serious fraud incidents, as the result of a mixing of chemical ingredients and water, with a direct impact on both consumers and producers. However, a manufactured with a natural vinegar displays different isotopic identity despite their chemical identity. The isotopic distribution of elements of raw materials is determined by local conditions (e.g. rainfall, soil, topography, climate) during the environmental and biochemical pathway from the atmosphere, rain water and soil, plant (vineyard), wine and finally the vinegar.  $^{18}\text{O}/^{16}\text{O}$ ,  $^{13}\text{C}/^{12}\text{C}$  and D/H isotope values of authentic vinegars in Greece range from -1.8‰ to +5.0‰, from -23.7‰ to -27.8‰ and from 98 ppm to 105 ppm, respectively. Finally,  $^{14}\text{C}$  values reflected the  $^{14}\text{C}$  variations of atmospheric  $\text{CO}_2$ .

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