



## HEAVY METAL AND LEAD-STRONTIUM ISOTOPE CHARACTERIZATION OF BUJORU, OANCEA AND SMULTI WINE CENTRES

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### ABSTRACT

Contamination of vineyard soils with heavy metals has been a worldwide problem, determination of these metals it is important for the wine industry. The aim of this research was to determine the concentration of different heavy metals (Cd, U, Hg, As, Co, Cu, Ni, Cr, Mn, Pb and Sr) isotopic signature of lead ( $^{207}\text{Pb}/^{206}\text{Pb}$ ,  $^{208}\text{Pb}/^{206}\text{Pb}$  and  $^{204}\text{Pb}/^{206}\text{Pb}$ ) and strontium ( $^{87}\text{Sr}/^{86}\text{Sr}$ ) from Bujoru, Smulti and Oancea wine-growing centers from Dealu Bujorului vineyard and to assess their ability to discriminate between geographical origin of wines. In this study 180 soils samples from Dealu Bujorului vineyard were investigated. The determination of metals from soil samples was performed on mass spectrometer with inductively coupled plasma, (ICP-MS) iCAP Q Thermo scientific model. In case of Cd (1 mg/kg), Pb (20 mg/kg), Hg (0.1 mg/kg), As (5 mg/L), Co (15 mg/kg), Ni (20 mg/kg) and Cr (30 mg/kg) metals in analysed in soil samples were under Maximum Permissible Limits (MPL). Cu concentration in the soil exceeds the maximum admissible limit (20 mg/kg) having the average value of 415.40 mg/kg, this value is a common one for vineyards soils. Our results confirm that the  $^{207}\text{Pb}/^{206}\text{Pb}$ ,  $^{208}\text{Pb}/^{206}\text{Pb}$ ,  $^{204}\text{Pb}/^{206}\text{Pb}$  and  $^{87}\text{Sr}/^{86}\text{Sr}$  isotope ratio can be used to track the geographical origin of wine.

### Keywords:

*Dealu Bujorului vineyard;*

*Heavy metal content;*

*Isotope ratio;*

*Vineyard soil.*