Rare Earths Data for Geographical Origin Assignment of Wine: A Portuguese Case Study

S. Catarino(1), I.M. Trancoso(1), M. Madeira(2), F. Monteiro(2), R. Bruno de Sousa(3), A.S. Curvelo-Garcia(1)

sofia.catarino@inrb.pt

(2) CEF - Instituto Superior de Agronomia, Universidade Técnica de Lisboa, Tapada da Ajuda, 1349-017 Lisboa, Portugal.

(3) UIQA - Instituto Superior de Agronomia, Universidade Técnica de Lisboa, Tapada da Ajuda, 1349-017 Lisboa, Portugal.

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ABSTRACT

In order to evaluate the suitability of rare earth elements composition as a tool for the traceability of wines, the patterns of fourteen REEs (La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu) through the pathway of wine production were determined by ICP-MS. Soils and grapes were sampled from four vineyards located in three Portuguese Protected Designations of Origin (Dão, Óbidos and Palmela), with distinct environmental conditions and established in distinct soil types. The wines were produced at industrial scale, by application of different winemaking practices. Chondrite normalization for the REEs concentrations of samples was performed. Soils from distinct D.O.P. showed different REEs patterns. For all vineyards, must samples reflected the REEs patterns of soils. Wines from distinct vineyards, of the same D.O.P., showed similar REEs patterns. The REEs patterns can represent a suitable fingerprint for wine origin authentication. However, careful interpretation should be paid because in some cases winemaking processes affect slightly the REEs composition of the wine. (Bulletin de l'OIV, 2011, vol. 84, n°965-966-967, p. 233-246)