



## **INFLUENCE OF pH IN THE UPTAKE AND ACCUMULATION OF MINERAL ELEMENTS ON VINE LEAF (*Vitis vinifera* L.) FROM CASTILLA-LA MANCHA (SPAIN.)**

Sandra Bravo, José Angel Amorós, Caridad Pérez-de-los-Reyes, Francisco J García-Navarro, Pablo Higuera, and Mónica Sanchez-Ormeño

Universidad de Castilla-La Mancha - Instituto de Geología Aplicada (JoseAngel.Amoros@uclm.es)

Each soil-plant system has specific parameters on the uptake of different minerals in the soil, depending on several factors. One of these factors, perhaps the most important, is the pH. 101 Vineyard plots have been selected in Castilla-La Mancha (Spain) and have been analysed (pH among other parameters) by the methods described by FAO. Leaf samples have also been taken in each plot. We analysed the content of 25 mineral elements in both soil and leaf through FRX technique. In addition, we calculated the BAC (bioaccumulation coefficient, calculated as the ratio between the concentration of element in the plant and soil) to establish if the soil pH influences the accumulation of mineral elements for the plant.

As a result we have observed a different behavior of groups of elements for acids or alkaline soils. Thus, the alkaline elements (Na, K, Rb) have a higher BAC value in alkaline soils except cesium (Cs) that has a similar value; while the alkaline-earth elements (Ca, Mg, Sr) present lower BAC in alkaline soils except for barium (Ba) that shows similar value in both cases. Rare Earths (Y, La, Ce, Th and Nd) have very similar values in bioaccumulation for acidic and alkaline soils, while metals (Fe, Al, V, Cr, Co, Cu, Rb and Pb) show a higher bioaccumulation in alkaline soils. Instead Mn, Zn and Ga are preferentially bioaccumulated in acid soils. The values obtained for the sulfur (S) are superior in acid soils.

We conclude that certain mineral elements accumulate in the leaves of vines depending on the soil pH. The pH will influence the ionic form in which the element is present in the soil and plants preferentially uptake mineral elements in certain ionic forms.