TECHNIQUES USED FOR SOIL CHARACTERIZATION

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Soil quality refers to the soil capacity to function in an ecosystem in terms of environmental health and crop production. Adequate quantities of nutrients, helpful microorganisms and erosion and degradation resistance are all characteristics of high quality soil. They have the potential to grow the yields of important crops at a suitable level of quality without (or in small quantities) the use of fertilezers.

The present research activity has been directed towards soil macro and micronutrients analysis (soil characterization) and for valorization of winemaking waste for Pb removal.

For evaluation of soil characteristics, soil samples from different depths (0-10 and 10-20 cm) were collected and prepared (air dried, sieved) according to standard protocols. Soil samples were analysed for available-N (Kjeldahl method), available K and P (extracted with neutral 1N NH_4OAc) following the standard methods according to Soil Studies Development methodology delivered by the National Institute of Research and Development in Soil Science, Agrochemistry and Environment – ICPA, Bucharest (INCD – APM – ICPA - 1987). The modified Walkley and Black method was used for soil oxidizable Organic Carbon-fractions and organic matter analysis. The DTPA extractable -Zn, Cu, Fe, Mn forms were performed using an Atomic Absorption Spectrometer - ContrAA 700, Analytik Jena, Germany. Soil pH weas determined in water using an electronic pH meter with a grass electrode (WTW pH 3320, Germany).

For the valorization of winemaking waste for Pb removal, an atomic absorption spectrometer, AAS (ContrAA 700, Analytik Jena, Germany) was used to asses the initial and the remaining Pb concentration in the supernatant after contact time. The flame was generated using air/acetylene (99.95% purity) with triplicate readings, at 217 nm wavelength. Calibration curves were performed before each analyze in a range of 0 – 20 mg/L and 0-100 mg/L with a determination coefficient $R^2 > 0.995$. The detection limit (LOD) was 0.04 mg/L while the quantification limit (LOQ) 0.15 mg/L.

Keywords: *analysis, assessment, lead, macronutrients, waste;*

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