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THE QUALITY OF SOILS WITH KNOWN ELECTRICAL CONDUCTIVITY

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INTRODUCTION

Around the world salt affects the growth and development of crops, limiting nutrient availability.
Salts have a negative impact on nutrient uptake, the necessary amount for plants and the activity of some enzymes by high concentrations of cations and anions (Fageria et al., 2011).

MATERIALS AND METHODS

The soil samples were collected from 6 points, of which only 1 and 6 were taken into this study. The samples were collected from the following depths: 0-30 cm, 30-60 cm, 60-90 cm.
The soil electrical conductivity was realized (Amezketa, 2007).
The soils samples were mixed resulting 2 samples and subjected to microwave digestion: 0.100 g of soil sample were weighed in Teflon tubes.
The following reagents were added: HNO3, HCl and H2O2. Of them two combinations were used as follows: method A - HNO3, HCl and H2O2 in 3:1:1 (v/v), and method B - HNO3, HCl 3:1 (v/v), aqua regia (Turek et al., 2012).
The samples were brought to a final volume of 50 ml then subjected to ICP-MS analysis using Helium as carrier gas and an Agilent 7700 + ASX 500 + G3292A Spectrometer.

RESULTS AND DISCUSSIONS

The results regarding electrical conductivity are presented in table 1
The trace element content of the sample are presented in Figures 1 (a, b, and c.).

Table. 1. Electrical conductivity of tested soil samples

Sample	EC dS/m
P1a, 0-30 cm	87,000
P1b, 30-60 cm	45,000
P1c, 60-90 cm	30,500
P6a, 0-30 cm	106,400
P6b, 30-60 cm	48,500
P6c, 60-90 cm	32,000

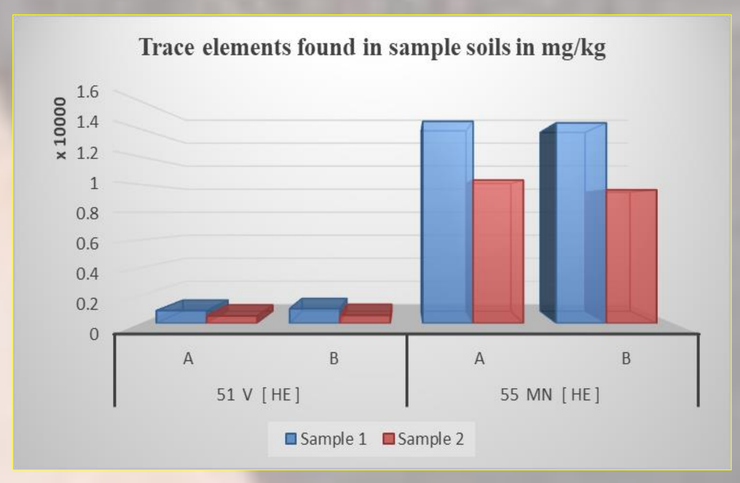

Figure. 1a. Results from ICP-MS semi – quantitative analisys

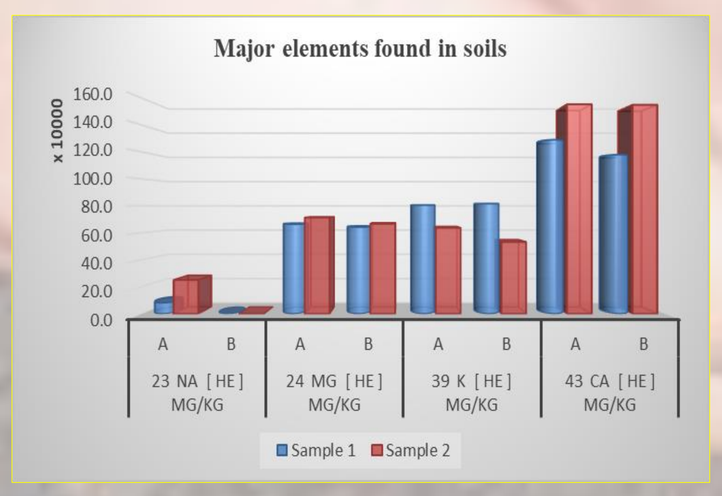

Figure. 1c Results from ICP-MS semi – quantitative analysis

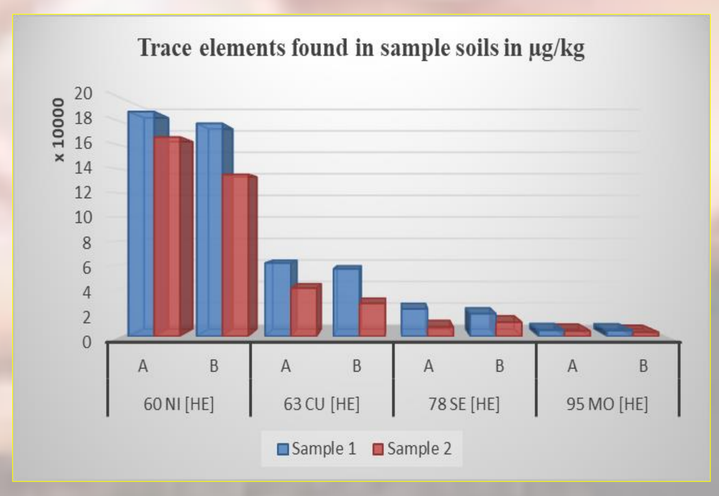

Figure. 1b. Results from ICP-MS semi – quantitative analysis

CONCLUSIONS

- ✓ **The electrical conductivity values for soils were higher than 4 dS/cm, highlighting a very high salinity content.**
- ✓ **The elemental content (e.g. Na, K, Mg, Ca, V, Mn, Ni, Cu, Se, Mo, Co, Zn, Ag, Cd, Pb) was the same in both case of extraction A and B.**
- ✓ **Mixture A was more efficient than B, as showed the high values of the majority of elements.**

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