



## Trace Elements Distribution in Red Soils under Semiarid Mediterranean Environment

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### ABSTRACT

This study states the potential trace elements (TE' s) content of red soils located at the centre region of Spain, characterized by low rainfall and slight acidity over prolonged weathering periods. For this purpose, three soil profiles from a catena were described, sampled and analyzed. The most notable characteristics are the low organic matter content and the predominantly acidic pH. Illite and kaolinite are the predominant clay minerals. The fertility of the soils is sufficient to provide most of the nutrients required, with very suitable potassium levels. The geochemical characters of this soil are: only few elements remain almost invariable across the profiles and over time, however the majority of them were directly linked with the clay content. These soils are characterized by relatively low levels of some trace elements such as Sr (64.35 mg?kg<sup>-1</sup>), Ba (303.67 mg?kg<sup>-1</sup>) and Sc (13.14 mg?kg<sup>-1</sup>); high levels of other trace elements such as V (103.92 mg?kg<sup>-1</sup>), Cr (79.9 mg?kg<sup>-1</sup>), Cu (15.18 mg?kg<sup>-1</sup>), Hf (10.26 mg?kg<sup>-1</sup>), Ni (38 mg?kg<sup>-1</sup>) and Zr (337 mg?kg<sup>-1</sup>); while the levels for rare earth elements (REE' s) such as La (48.36 mg?kg<sup>-1</sup>), Ce (95.07 mg?kg<sup>-1</sup>), Th (13.33 mg?kg<sup>-1</sup>) and Nd (42.65 mg?kg<sup>-1</sup>) are significantly high. The distribution of mayor and trace elements was directly re- lated to weathering processes, parent material and anthropogenic activities.

### KEYWORDS

Trace Elements, Castilla-La Mancha Region, Red Soils, Soil Geochemistry

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