



## **The Role Of Mineralogy And Geochemistry In The Understanding Of The Trace Elements Soil Pollution And Remediation. Cases Study In Mining Areas Of Andalusia (South Spain).**

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Geochemical and mineralogical studies of soils potentially polluted by trace elements are basic to find the source of pollution, to understand the behaviour of the contaminants in the environment and, finally, to propose remediation and reclamation actions. This work reviews the role of the Mineralogy and Geochemistry to assess the hazard of soil contamination, focusing on several studies carried out in the Andalusian Community (South Spain). To assess the degree of contamination, regional and local geochemical baselines should be established in order to distinguish the geogenic from the anthropogenic contribution, particularly in mining areas where both sources overlap. In these areas, mineralogical studies of the primary phases releasing contaminant elements and the secondary phases precipitating will help to understand the processes affecting the contamination. Agricultural activities are also important sources of trace elements into soils. Several examples show they may be relevant even in mining areas. The metals reaching the soil tend to be accumulated, but they can mobilize under certain physical-chemical environments. The hazard of the contamination will depend on the availability of the trace elements, the adsorption processes and the stability of mineral phases storing the trace elements. Several results show that the availability of trace elements is usually higher in contaminated sites than in geogenic soils, regardless the total concentration. Mineralogical and geochemical studies are then interesting to understand the processes affecting the contamination, as well as to prevent the hazard to the population.