

## **Characterization of soils from North and Central Portugal for forensic purposes**

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Nowadays the crime ratio is a serious problem in our society and is increasing substantially every year. Soil forensics has the purpose to characterize and investigate a match between soil samples collected as evidence.

In this study 68 soil samples from Azores and North and Central Portugal were previously collected and stored.

The main goal of this study is to elaborate a soils database which could be used in future forensic investigations and demonstrate the portability and effectiveness that the equipment used could have in soils forensic.

Three properties were investigated: the colour determined by a spectrophotometer, magnetic susceptibility determined by a susceptibility meter and elemental composition determined by an X-ray fluorescence analyser. A hierarchical cluster analysis was applied to ascertain the capacity of the different properties for discrimination between samples from the different regions.

The combination of these techniques enables discrimination of samples collected in some of the regions and the equipment used have revealed to be of friendly manipulation and very effective for the analyses. The results will be added to the Portuguese Scientific Police Laboratory soils database.

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