



Micromorphological Aspects of Forensic Geopedology: Ultramicroscopic Characterization of Phosphatic Impregnations on Soil Particles in Experimental Burials

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The role played by soil scientists in the modern forensic science is very real and important, above all in the crime scenes when buried remains, both strongly decomposed or skeletal, are found. Among the different techniques applied to forensic geopedology, soil micromorphology (including optical microscopy and ultramicroscopy) has been underused up today, for various reasons.

An interdisciplinary team, leaded by researchers from the Legal Medicine Institute of the University of Milano, is working on several sets of experimental burial of pigs and piglets, in different soil types and for different times of burial, in order to get new evidences on environmental responses to the burial, including geopedological and micropedological aspects.

The present work is focused on ultramicroscopic characterization (SEM-EDS) of the phosphatic impregnation (by body fluids) on soils sampled under the dead bodies of three couples of pigs, buried respectively for one month, six month and one year, in two different areas.

The first results show trends of persistency of such phosphatic features, mainly related to:

- grain size of the impregnated soil particles;
- time since burial;
- weather conditions (or seasons) of burial/exhumation.

Further experiments are in progress in order to clarify the pathways of phosphorus precipitation and leaching for longer times of burial and different seasons of exhumation.