Micromorphological Features of Clay Translocations in Mediterranean Red Soils (Rhodoxeralfs-Haploxeralfs)

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In Soil Micromorphology, a thin-section is representative of a horizon. The basic descriptive unit is the s-matrix; it consists of the *plasma, skeleton grains and voids (porosity)* ... (Kubiëna, 1938; Brewer, 1964).
The arrangement of these basic components and the proportions of plasma, silt and sand lead to formation of distinct «related distribution patterns».
The plasma — colloidal fraction of the soil — is the most active component of the soil material and is capable of reorganization, translocation and neoformation.
In Soil Taxonomy (Soil Survey Staff, 1975), soils are classified based on the activity of the plasma or on the characteristic given to the soil by a specific behaviour of the plasma (v.gr. in the argillaceous horizon, plasma has accumulated by translocation).
Although a colloidal size is specified, individual plasma can not be seen with the petrographic microscope and even with the scanning electron microscope a magnification of more than 10,000 is generally necessary. However, plasma domains are readily discernible (Eswaran & Baños, 1976).
Skeleton grains comprise a range of minerals which are primary or secondary, which vary in solubility, which are or may be present in all stages of transformation and which are present in all size fractions greater than colloidal size.
In this paper, micromorphological features of clay translocation in B_t horizons of mediterranean «red soils» are studied. They are located in the Guadalquivir River basin (Seville, Spain).
The principal process occurring in this group of soils is probably the illuviation of fine clay in the argillaceous horizons B_t indicated by the existence of ferriargilans (cutans with clay and iron oxides) in conducting channels.
Examination of thin-sections by petrographic microscopy showed the existence of «sepic plasmic fabric» and specific features e.g. «stress cutans». Both are related to alternative shrinking and welling of clay plasma (type 2 : 1 in deep, Pérez Rodríguez *et al.*, 1980). Their swelling pressure effect conditioned clay turbulency preventing the formation of oriented birefringence.
Oriented mobile plasma is a stable and typical fabric for B_t horizons of mediterranean «red soils» (Rhodoxeralf-Haploxeralfs). Its colour varies from pale reddish to yellowish under the light microscope.
The skeleton grains included quartz, feldspar and lithorelics of weathered mica, generally coarse and fine sand size.

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