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Mineralogy of the clay fraction of water-stable aggregates from dark gray forest soil

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Abstract

Regular structural changes of mixed-layered illite-smectite phases depending on aggregate sizes were revealed by x-ray powder diffraction analysis in the clay fraction of water-stable aggregates of dark gray forest soil. They indicate the differences in the aggregation mechanisms at different depths of the soil profile, which are mutually related and restrict the growth of the water-stable aggregates in the lower part of the A1 horizon to a certain optimal size, because only the smectite surface (unlike the mica one) of the process-determining organomineral composites is capable of interacting. This ensures the kinetic stabilization of the soil as a system and its self-regulation ability. © Pleiades Publishing, Inc. 2006.

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