



## **Organo-mineral microaggregates – specific units of interaction between mineral soil, microorganisms and soil invertebrate animals**

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Organo-mineral microaggregates represent one of the basic biologically active ultrastructural units in soil environment. They consist of microorganisms (bacteria or fungi) surrounded by microbial polysaccharides with fine mineral particles forming their external protective cover layers. The structure, distribution and functioning of microaggregates in soil environment are known due to the transmission electron microscopy (TEM) studies. Based on these methods we can observe vast spectrum of soil bacteria, actinomycetes and fungi as well as their activity in organo-mineral and other soil materials. Earthworms, important representatives of soil saprophagous invertebrates, consume actively both mineral as well as organic compounds of soil material together with present microflora. During the passage of ingested material throughout their gut, the biodegradation of organic compounds, partial digestion of plant residues and disintegration of existing organo-mineral aggregates together with lysis of microorganisms take place. Besides the degradation processes, the release of individual microorganisms and their new incorporation into fine mineral particles including the formation of new microbial microaggregates in the hindgut of earthworms take place. Thus, organo-mineral microaggregates are an example of active interaction between anorganic soil compounds and soil biota represented by both soil microorganisms and soil fauna.

Based on the TEM analysis of organic soil compounds, earthworm gut and casts, individual phases of biodegradation and formation of new microaggregates will be

demonstrated.