



Main features of anthropogenic inner-urban soils in Szeged, Hungary

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At the beginning of the 21st century, due to the intensive urbanization it is necessary to gather more and more information on altered physical, chemical and biological parameters of urban soils in order to ensure their suitable management and protection for appropriate living conditions. Nowadays, these measures are very relevant since negative environmental effects can modify the soil forming factors in cities. Szeged, the 4th largest city of Hungary, proved to be an ideal sampling area for the research of urban soils since its original surface has been altered by intensive anthropogenic activities. The main objectives of my research are the investigation, description and evaluation of the altered soils in Szeged.

For the physical and chemical analysis (humus, nitrogen, carbonate content, heavy metals, pH, artefacts etc.) of soils 124 samples were taken from the horizons of 25 profiles in Szeged and its peripherals (as control samples). The profiles were sampled at sites affected by different extent of artificial infill according to infill maps (1. profiles fully made up of infill; 2. so-called mixed profiles consisting of considerable amount of infill material and buried soil horizons; 3. natural profiles located in the peripherals of the city). With the help of the above-mentioned parameters, the studied soils of Szeged were assigned into the classification system of WRB(2006), which classifies the soils of urban and industrial areas as an individual soil group (under the term Technosols) for the first time.

In accordance with the WRB(2006) nomenclature three main soil types can be identified in Szeged with respect to the degree of human influence: profiles slightly influenced, strongly modified, completely altered by human activities. During this poster, we present the peculiarities of typical urban profiles strongly and completely altered by human influence. Most profiles were placed into the group of Technosols due to the considerable transformation of their diagnostic properties (e.g. coverage by artificial objects, intensive compaction, horizontal and vertical variability, abrupt colour and textural changes usually high amount of artefacts, irregular fluctuation of diagnostic properties along the profiles, anthropogenic parent material, high pH and carbonate content, poor humus quality, mainly sand, sandy loam texture etc.). Transformations were best reflected by suffixes such as Ekranic, Urbic, Lincic. Among the suffix qualifiers Calcaric, Ruptic, Densic and Arenic were used the most frequently. Furthermore, we found that some of the studied profiles were not situated in the city centre. Consequently, the location of these profiles in the city centre is not necessary since local influences can overwhelm the effect of artificial infill. Considering all the profiles, two of them in city centre can be considered to be the most anthropogenic: profile No. 11 [Ekranic Technosol (Ruptic, Toxic, Endoclayic)] and profile No. 22 [Urbic Technosol (Calcaric, Ruptic, Densic, Arenic)]. It can be claimed that profile No. 11 with "technic hard rock" has the least chance to experience pedogenetic processes since the horizons are covered by thick, surface artificial object, and isolated from the outside world. However, in case of profile No. 22 with dense vegetation and without surface artificial object, the high amount of artefact inhibits pedogenesis.