



## **Evaluation of the quality of urban soils in Sopron**

Adrienn Horváth, Orsolya Kámán, Eszter Németh, Péter Szűcs, and András Bidló  
(adri.horvath85@gmail.com)

The location and evolution of the cities were fundamentally influenced by the environmental factors and the characteristics of the landscape. In order to investigate the soil we have collected samples from various sampling sites in a west hungarian city, called Sopron. The soil samples were taken from 0-10 and 10-20 cm depth within a standard network in the city and its industrial territories. The values we gained through our examinations were placed on a digital map with GIS (Geospatial Information system) methods. After entering the pH values, the acidity of the parental material can be observed in both layers on the southwest forest territories of the city, moreover the - so far insignificant - alkalizing of the city territories compared to the surroundings due to the land-shaping activities of mankind. We cannot find any carbonated lime in one fourth of the samples, these samples came mostly from the mountainous surrounding of the city. In the samples from the internal areas of the city, however, carbonated lime could be found particularly due to the disposal of construction scrap. The upper layer of the examined soil is rich on humus, in spite of the increasing landscape usage and alteration of the structure. The highest humus and nitrogen values could be found in the soil of the forests near to the television tower, in the lower layers the amount of organic material was less. The lowest AL-solvent potassium values could be found in these areas, as well. We have found significant values of AL-solvent phosphorus, KCI-solvent potassium and magnesium in vehicular zones or near agricultural land. Higher iron content could be found in the samples of acid forest territories, the manganese values follow these tendencies. The highest zinc values can be shown in both layers near the bus station and the roads with the highest traffic. The copper tests gave us steadily high values at several sampling points throughout the Virágvölgy-site and the separate house zone of the city.

In the course of our examination we were trying to find a connection between land usage and land status which would allow the evaluation of the future status and the processing of the necessary improvement methods. Based on our experiments the unique character of the city is fading away, the qualification of the peripheral areas is changing, the land use is condensing which lead to a declining quality of urban soil. In this year we will start to analyse the heavy metal content and chemical compositions of the collected soil samples with infrared spectrometry to get a whole picture about the industrial and the anthropogenic effects.