



## Chemical features of soils in a natural forest of West Hungary

Eszter Hofmann and András Bidló

1University of West Hungary, Faculty of Forestry, Institute of Environmental- and Earth Sciences, Department of Soil Site Survey Sopron, Hungary, n.eszty7@gmail.com

The present research focuses on the chemical results of soils formed on miocene carbonate rocks in a natural forest of West Hungary. Soil profiles derived from the Szárhalom Forest, located near the Lake Fertő, next to the city of Sopron. Six soil profiles were opened and analysed in this area. In the field the following physical parameters were evaluated from the soil profiles: transition, structure, compactness, roots, skeletal percent, colour, physical assortment, concretion and soil defect. Laboratory analysis involved the measurement of acidity, particle distribution, carbonated lime content, humus content, ammonium lactate-acetic acid soluble phosphorus- and potassium content, potassium chloride soluble calcium- and magnesium content, ethylene-diamine-tetraacetic-acid (EDTA) and diethylene-triamine-pentaacetic-acid (DTPA) soluble copper-, iron-, manganese- and zinc contents.

These soils formed under a hornbeam-oak forest climate mainly and under a beech forest climate diffusely. The location and climate of the sites forms a basis of the comparison of the soils with similar base rock. The formation of the acidic and humus-rich upper layer of the soil profiles is influenced by the mineral composition and the weathering of the rocks. X-ray diffraction (Philips P W3710/PW1050 type X-ray diffractometer), thermoanalytical measurements (Mettler Toledo TGA/DSC 1 type thermogravimeter) and ICP-OES (Thermo Scientific iCAP 7000 Series) were also carried out to determine the mineral composition of the soils and the content of heavy metals. The soil samples were collected with both traditional and undisturbed (using the Kubiena box) sampling methods to enable further micromorphological investigations as well.

The research is supported by the “Agroclimate-2” (VKSZ\_12-1-2013-0034) joint EU-national research project.

Key words: Natural forest, Miocene limestone, Mineral composition, Thermal analysis, Micromorphology