

MINERALOGICAL STUDY OF SOILS FROM WEST HUNGARY

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The healthy growth of trees depends on the nutrient supply of the forest resources. There is no fertilisation in the different types of the Hungarian forests, because of the economical and natural conservation reasons. In this case, the nutrient supply of the forests is dominantly based on the content and cycling of nutrients in soils. The amount of the nutrients is strongly connected with the mineralogical contents of parent materials and rate of the weathering processes.

The purpose of this work is mineralogical and pedological studies of different types of soils from Iván and Sopron, West Hungary. After the descriptions and sampling of the soil profiles from the above mentioned sites, the chemical and physical characteristics of soils including pH-value ($\text{pH}_{\text{H}_2\text{O}}$, pH_{KCl}), acidity (γ_1 , γ_2), CaCO_3 -content, cation exchange capacity and exchangeable cations, particle size fractions, hygroscopic moisture content by Kuron, limit of plasticity by Arany, humus content, nitrogen content, AL-soluble K and P, as well as EDTA- and KCl-soluble nutrients. On the basis of standards, the mineralogical constituents were analysed by XRD using Náráy-Szabó's and Péter Tiborné's methods and by derivatograph.

Soils at both sampling sites have been shown very acid and clayey loam physical characters. In general, the parent material (Iván: fluviosediments from River Rába; Sopron: weathered rocks from the metamorphic formations and fluviosediments of the Alps) is close to surface in the soil profiles.

Quartz plays an important role in the soil of site Iván, which corresponds to the strong weathering process in the regional geological settings. Moreover, in some cases, albite and microcline have been observed in specimens. Only one sample contains adularia, which probably was transported by seedlings. A little amount of muscovite was also presented in all of the samples. Anorthite was found in only two soil profiles. Illite, vermiculite, montmorillonite, chlorite and chamosite as sheet silicates were also identified in this area.

The soil profiles of Sopron mainly contain quartz, muscovite and albite. Anorthite and microcline (on the metamorphic based profiles) appeared in a few profiles. Sanidine was also found in only one sample. Clinochlor, leuchtenbergite, pennine and amesite as chlorites were also observed in variable amounts in all soil profiles.

Acknowledgements

This work was supported by OTKA (Hungarian National Research Foundation-T 035051).

References

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