SELECTED MINING DUMPS IN SLANSKÉ VRCHY MTS. (SLOVAKIA): GEOCHEMICAL CONDITIONS AND THEIR INFLUENCE OF VEGETATION

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Mining dumps are specific anthropogenic habitats after mining of raw materials. According to the presence of ore minerals in dumps and their chemical composition in soils developed on dumps, we supposed higher concentration of some elements (arsenic, copper, mercury, lead, antimony). Dumps in the Slanské vrchy Mts. have different soil contamination by observed heavy metals. The most contaminated are the soils with high content of As, Hg and Sb. It relates to their increased content in substratum, which can be caused by natural and anthropogenic factors. Increased mercury content relates to the battering and processing activity and increased mineralisation of soil horizon by components containing structurally bound mercury.

Chemical analyses of leaking mining waters and waters running over observed mining dumps in the Slanské vrchy Mts. and in Merník demonstrate by documents that:

– at Dubník in the Slávik exploratory gallery even after total flooding very acidic mineralising waters still develop, which then leak onto the surface and join the Jedľovec Brook. This brook farther runs over peat marshes at the dump of Jozef gallery at Dubník. These waters preserve their acidic pH value in the interval 2.30–2.47.

From a scientific viewpoint the results confirm the migration of heavy metals and their accumulation in the environment. Our aim was to observe the natural succession of plants at dumps, their development and stand conditions at individual localities. We discovered some differences between the growth of young and old dumps. Colonisation of dumps by vegetation took place and still takes place slowly and we can record certain similarity at certain types of dumps. In plants the content of Hg, As exceed the values of ash. It is exhibited the most strikingly in the case of bent grass (*Agrostis capillaris*). In another species there is a high concentration of Hg from each locality (SITÁŠOVÁ, 2001).

It is deduced from the results that the contamination by heavy metals is caused not only by mining activity but mainly by weathering of hydrothermally altered rocks with sulphide content.

Considering already ascertained facts about the types and amount of heavy metals at observed dumps and their negative influence on the other components of environment or their contamination (SITÁŠOVÁ, 2001) we suggest:

– to ensure the dumps in a way that can eliminate adverse influences on the environment;

– we do not recommend, considering the high toxicity of materials in some dumps, to use this material for surfacing roads in forests, fixture of road communications or as a building material, because uncontrollable diffusion of heavy metals into the natural environment occurs;

– it is necessary to recultivate the dumps and cover them with soil and plant trees or another plants for building in this area to the immediate surroundings.

References

SITÁŠOVÁ, E. (2001). Natura Carpatica, 42: 55–64.
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