The nematode assemblage in contaminated by heavy metals soil is characterized by low taxonomic diversity: index H '(1.99-2.14), relatively high level of domination C (0-38-0.49), low evenness (0.46-0.74) and low maturity index (1,92-1-98). Monitoring of nematodes community and responding to the changes of soil parameters is continuing and will be fixed each 6 month of experiment.

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FLORISTIC COMPOSITION AND IMPACT OF ENVIRONMENTAL FACTORS ON HABITATS OF COPPER HEAP PODLIPA (CENTRAL SLOVAKIA)
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The contribution deals with the analysis of flora and vegetation of copper mine heap Podlipa near Ľubietová village in Central Slovakia in terms of the impact of increased content of selected chemical elements in the soil, especially heavy metals, pH and ecological factors derived from Ellenberg's indicator values and Shannon-Wiener diversity index.

Field research was conducted from June to October 2016.

On the mine heap we identified and evaluated 9 types of biotopes, where we recorded 111 taxa of vascular plants and 58 species of bryophytes. From each biotope a mixed representative soil sample was analyzed using ICP – MS method, in which the contents of 23 chemical elements, especially heavy metals, as well as pH were determined.

By determining the pH of soil samples, which ranged from 4.16 to 5.86, we have found that the entire heap field has sporadically extremely acidic soils that develop on the coarse skeletal debris of the heap itself.

Increased contents, compared to the standards for agricultural land of the Act of the National Council of the Slovak republic no. 220/2004 on the protection and exploitation of agricultural land, had copper, arsenic and cobalt.

Using the multidimensional analysis of ecological data by PC-ORD, we created the dendrogram of similarities of identified habitats that were divided into two clusters. The first cluster was formed by 6 non-forest habitats with tree layer covering of less than 15 % and the second cluster by 3 biotopes with a well-developed tree layer covering at least 50 % of the area. For both clusters by analyzing the synoptic table in the Juice program we determined diagnostic, constant and dominant species.

The dominant species in the first cluster there were the grasses *Agrostis capillaris* and *Agrostis stolonifera*, in the second cluster the trees from tree layer *Pinus sylvestris, Picea abies* and *Quercus petraea*. In the Canoco program we have found a positive correlation between forest habitats (cluster 2) and nutrients and humidity, and between non-forest habitats (cluster 1) and light, using Canonical Correspondence Analysis (CCA). In relation to soil chemistry forest habitats were characterized by a negative correlation to the presence of most of the 23 chemical elements representing independent variables, in contrast to non-forest habitats, each of which showed a positive correlation to at least one chemical element.

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From the used analyses it can be assumed that habitats, plant communities and plant species themselves are affected by several ecological and environmental factors with a synergetic effect.

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MORPHOMETRIC CHARACTERISTICS OF DOMINANT PLANTS ON MINING DUMPS WITH DIFFERENT MINERALOGICAL COMPOSITION (CENTRAL SLOVAKIA)

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The aim of the contribution is to compare the influence of contaminated soil substrate on the assimilation apparatus of one of the most dominant pioneer tree *Betula pendula*. As study areas, copper deposit Podlipa and mercury deposit Veľká Studňa were selected in the vicinity of Banská Bystrica (Central Slovakia). The results were compared respectively with relevant reference areas.

Field research was realized from June to September 2016. In the soil samples, taken from root balls of 16 individual trees (5 from each heap and 3 from each reference area), pH values were measured. The results for Veľká Studňa indicates neutral conditions (pH 7 in av.), which could be caused by small local occurrence of limestones in the volcanic mountains Kremnické vrchy. On the contrary, the soil substrate of copper deposit Podlipa has an acidic character (pH 5 in av.), whereby the geological base has also the volcanic character, always without limestones. In the all soil samples, Bureau Veritas Minerals laboratory (Vancouver, Canada) by ICP – MS analytical method has determined the contents of 35 chemical elements including several heavy metals. For each individual of *Betula pendula* was also determined leaf area surface, 25 leaves in total (after 5 leaves from 5 branches). Computer software Plant Image Analyses – Easy Leaf Area was used for this purpose.

We compared the differences in the size of assimilation apparatus of *Betula pendula* in pairs of data sets from both dump-fields, as well as from theirs corresponding reference areas, where we have confirmed statistically significant differences at the 0.01 level of significance using the paired Student's t-test.

Various mineralogical compositions of two heaps were also confirmed by the Two-Sample Assuming Equal Variances at the 0.01 level of significance in the concentration of chemical elements in the soil, especially Cu, Mg, Ca, K, As and Zn. The impact on the assimilation apparatus of the studied wood species on each of the four localities was tested by multiple analysis of variance (ANOVA), but there was not found any significant correlations. However, the results of leaf area surface show a significant influence of habitat conditions on the assimilation apparatus among studied trees, but it is not probably caused by investigated heavy metals and another chemical elements. The anomalies are with high probability results of a synergistic effect of several ecological and environmental factors that should be an object of further research.