

DISTRIBUTION OF HEAVY METALS IN PLANTS AND THEIR HABITATS IN THE OUTCROP AREA OF DICTYONEMA SHALE

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*The aim of the investigation was to find out the regularities of the concentration of heavy metals characteristic of Dictyonema shale in the mineral part of the roots of meadowsweet (*Filipendula ulmaria*), which is a well-known indicator plant. From 1996 to 2001 meadowsweet samples and soil samples around the roots were collected in 38 sampling points situated in the outcrop area of Dictyonema shale in Kunda–Aseri region. Root samples were washed, dried to constant weight and ashed at a temperature of 450 °C. The soil samples were sieved, and the fraction <2 mm was used for the analyses. Cd, Cu, Fe, Pb and Zn soluble in aqua regia in ash and total concentrations of these elements in soil were analyzed by atomic absorption spectrometry; Mo and U were analyzed by X-ray fluorescence method.*

Results indicate that Cu, Mo and Zn known as micronutrients or bioactive elements generally concentrate in the roots, and their content is close to the average one in the ash of plants. Some sampling points, however, show concentrations of these elements many times exceeding the average. Concentrations of “unfavorable” elements are different. The content of Pb in the ash of meadowsweet roots is close to the average, contrasting anomalies are lacking. Concentrations of Cd and U in ash are very heterogeneous, their averages are many times higher in plant ash, and they exceed the average dozens of times in some sampling points.

Although the soil does not seem to be influenced by anthropogenic pollution from the town of Rakvere and Kunda Cement Plant, the concentration of Cd, Cu and Pb in the ash of meadowsweet roots indicates the opposite. Analyses of the ash of meadowsweet roots reflect not only the high concentration of heavy metals in Dictyonema shale, but also their contrast concentration possibilities and anthropogenic pollution of the region.

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