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DETERMINATION OF THE ACCUMULATION OF HEAVY METALS OF RIVER SEDIMENT BY PLANTS

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Danube is one of the main rivers in Hungary. The river, its floodplains and oxbow lakes are often operating as ecological corridors, or they have important roles in turism as well as in logistics and industry. It is well known, that there are many industrial towns and cities along the river Danube, and their heavy industrial pollution has affected the water quality for a long time. Among these pollutants heavy metals are the most dangerous components in the water and in the sediment, because they can accumulate in the food-chain and cause serious health problems. The main aim of this research is to investigate the accumulation of the heavy metal content of the river sediment with different kinds of plants. The main sampling place was a sediment dump created by excavation from the Open Beach of Dunaújváros in 2009. The test plants were parella *(Rumex patientia)*, perennial rye-grass *(Lolium perenne),* sedge *(Carex riparia)* and persicaria *(Persicaria maculosa).* The heavy metals were extracted from the sediment and plant samples with nitric acid and hidrogen peroxide according to the MSZ (Hungarian) standard. Among the heavy metals lead, cadmium, nickel, chromium, copper and zinc were measured with AAS. The results were compared to the standard levels of the Hungarian regulations. According to the given data the distribution of the heavy metals within test plants were determined and compared. The results revealed that persicaria accumulated Cd, Ni, Cr and Zn mainly in the roots as long as parella accumulated all of the measured elements in the upper stem. Our further tasks are to find adequate plant species for accumulation of the heavy metals from the river sediment or industrial sludges.

Keywords: *heavy metals, sediment, bioaccumulation, phytoextraction*

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