Heavy metals and trace element accumulation and distribution in the organs of Phragmites australis (Cav.) Trin. eh Steud. 1841, Tisza River, Serbia

[a]Štrbac S, [b]Jovančićević B, [c]Šajnović A, [d]Simonović P, [c]Dojčinović B, [a]Grubin Kašanin M, [e]Vasić N, [b]Srdić D

Heavy metals and trace elements are accumulated in different components of the environment. Aquatic plants can accumulate high amounts of heavy metals and they can reflect the toxicity of the environment, and may serve as a tool for biomonitoring. Plants absorb a number of elements from sediments, some of which have no known biological function and some are known to be toxic at low concentrations. The concentrations of heavy metals and trace elements were studied *in Phragmites australis* (Cav.) Trin. eh Steud. 1841. To determine the extent of metal accumulation in common reeds, plants were sampled from four sites along river flow, river Tisza, Serbia. Plants were separated into various tissues (rhizome, stems, and leaves), and Al, As, B, Cd, Co, Cr, Cu, Fe, Hg, Mn, Ni, Pb, Se, Sr and Zn were analyzed using inductively coupled plasma – optical emission spectrometry. The highest concentrations were found for Fe, Al, Mn, Zn and Sr. Concentrations in belowground organs were usually higher than aboveground tissues, and the general decreasing trend of element content was rhizome>leaves>stems. These results are in agreement with previous research. It was confirmed that Al, Fe and Zn which had a high phytotoxic level in rhizome and low plant/root mobility, may indicate that rhizomes are inherently tolerant to these metals, and act as filters to prevent toxic distribution in the plant. *P. australis* showed a direct response to environmental conditions, and its application as a biomonitor should be considered.

[a] *Educons University, Faculty of Environmental Protection, Vojvode Putnika 87, 21208 Sremska Kamenica, Serbia (strbacsn@eunet.rs)*
[b] *University of Belgrade, Faculty of Chemistry, Studentski Trg 12-16, 11000 Belgrade, Serbia*
[c] *University of Belgrade, Center of Chemistry, Institute of Chemistry, Technology and Metallurgy, Studentski trg 12-16, 11000 Belgrade, Serbia*
[d] *University of Belgrade, Faculty of Biology, Studentski Trg 16, 11000 Belgrade, Serbia*
[e] *University of Belgrade, Faculty of Mining and Geology, Đušina 7, 11000 Belgrade, Serbia*