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BOOK OF ABSTRACTS

ASSOCIATION OF CHEMISTRY AND THE ENVIRONMENT

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Ivana Ivančev-Tumbas

Vladimir P. Beškoski

Aleksandra Šajnović

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Metals Pollution of Surface Flowing Water in Timiș County, Romania

F. Crista[1], N. M. Zaric [2], I. Hotea[3]*, A. Berbecea*[1], I. Imbrea[1], L. Crista[1], S. Gaspar[1], I. Banatean-Dunea[1], L. Nita[1], S. Batrana[1], Lj. Stanisavljevic[2], M. Zaric[4], I. Radulov[1]. (1) Faculty of Agriculture,Banat University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Romania. (2) University of Belgrade – Faculty of Biology, Serbia. (3) Faculty of Veterinary Medicine, Banat University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara, Romania. (4) Scientific Institution Institute of Chemistry, Technology andMetallurgy, University of Belgrade, Serbia. (3) Faculty of Agriculture, Banat University of Agriculture, Romania. *contact_nenad.zaric@bio.bg.ac.rs; ionelahotea@usab-tm.ro; adina_berbecea@usab-tm.ro.*

Metals are considered pollutants in the environment, due to their toxicity and bioaccumulation. They can be of natural origin, through the weathering of rocks as well as a consequence of a variety of human activities such as mining, fossil fuel burning, smelting, electroplating, andindustrial processes that have metal residues in their waste streams. Fertilizers and metal-containing fungicides and pesticides used in agriculture were recognized as another potential source of metal pollution [1]. Metal pollution of surface flowing water represents a problem both for the region crossed by these waters and for the discharge area. As the most of the rivers in Timiș County, Romania flow into Serbia, the metal content of these waters is a cross border problem.

The purpose of these study was to determine the content of metals and some elements with toxic potential in surface flowing water, in order to identify the best methods to prevent degradation of their quality. The samples were taken in the autumn of 2020, from 19 sites from Timiș County, Romania (Dragșina, Chevereșu Mare, Biled, Becicherec, Checea, Bobda, Ceteiu (2), Uivar(2), Otelec, Foeni(2), Grăniceri, Toager, Denta, Moravița, Jamu Mare, located on the banks of rivers Timiș, Bega, Bârzava, Moravița and streams Ieriu, Jeru, Timișăț and Șimița).

Using an ICP-MS method, we determined the following pollutants from water samples: Cr (0 ÷ 5.136 ppb), Ni (0 ÷ 3,09 ppb), Cu (0 ÷ 5,30 ppb), Zn (0,28 ÷ 50,60 ppb), Fe (0 ÷ 1653 ppb), Mn (0,854 ÷ 707,5 ppb), Pb (0,064 ÷ 0,661 ppb), Sr (7,91 ÷ 329 ppb), Ba (0 ÷ 36 ppb).

In order to avoid the degradation of the quality of these waters, a permanent monitoring is necessary in order to act immediately in case of detecting the increases of the metal content.

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