THE STUDY OF HEAVY METALS AND ISOTOPIC RATIO OF HYDROGEN DISTRIBUTION ON THE OLT RIVER COURSE AROUND RAMNICU VALCEA INDUSTRIAL AREA

Anisoara PREDA¹, Alina MIU¹, Felicia VASUT¹, Claudia DAVID¹, Cristina BARBU², Simona SBIRNA³, Sofia POPESCU⁴  
¹ National R&D Institute for Cryogenics and Isotopic Technologies – ICIT Rm. Valcea, Uzinei Street, No. 4, Romania  
² Spiru Haret University, Broada lui Novac Street, No. 4, Craiova, Dolj, Romania  
³ Faculty of Chemistry, University of Craiova, 165 Calea Bucuresti, Craiova, Romania  
⁴ Banat’s University of Agricultural Science and Veterinary Medicine Timisoara, Faculty of Food Products Technology, 119 Calea Aradului, Timisoara, Romania (anisoara@icit.ro, Tel: 0040250732744, Fax: 0040250732746)

Key Words: Pollution, Heavy metals, Isotopic ratio, Mass-spectrometry, Atomic absorption spectrometry

Pollution is the introduction of contaminants into an environment that causes instability, disorder, harm or discomfort to the ecosystem physical systems or living organisms.

Water pollution has many sources. The most polluting of them are the city sewage and industrial waste discharged into the rivers. Industrial waste water usually contains specific and readily identifiable chemical compounds.

The Olt River is one the most important river from Romania. It flows through Romania counties Harghita, Covasna, Brasov, Sibiu, Valcea and Olt.

The main stationary sources of pollution within this hydrographical basin, area Valcea are the following industries: Oltchim Ramnicu Valcea, Uzinele Sodice Govora through chemical pollution and Ramnicu Valcea communal economy activities.

The isotopic species of hydrogen are: H₂, D₂, T₂, HD, HT, DT, ortho-H₂, para-H₂, ortho-D₂, or para-D₂, where D stands for ²H and T for ³H.

The aim of the paper is to study of isotopic ratio of hydrogen by mass-spectrometry and the study of few heavy metals by atomic absorption spectrometry from the water of Olt River during a three seasons: autumn, winter and spring, in months: September, December and March 2008 - 2009.

Also, we effectuated the next analyses of the water: pH metry, conductivity and turbidity analyses.

References