

Determination of heavy metals content in wild mushrooms and soil by EDXRF and FAAS techniques

Cristiana RADULESCU^{a*}, Claudia STIHI^a, Ion. V. POPESCU^{a,b,c}, Gabriela BUSUIOC^d, Anca Irina GHEBOIANU^b, Valerica Gh. CIMPOCA^{a,b}, Ioana Daniela DULAMĂ^b and Mihaela DIACONESCU^e

^a *Sciences Department, Faculty of Sciences and Arts, Valahia University of Targoviste, 130082, Targoviste, Romania*

^b *Multidisciplinary Research Institute for Science and Technologies, Valahia University of Targoviste, 130082, Romania*

^c *Academy of Romanian Scientists, 54 Splaiul Independentei, Bucharest 050094, Romania*

^d *Environmental Engineering Department, Faculty of Environmental Engineering and Biotechnologies, Valahia University of Targoviste, 130082, Targoviste, Romania*

^e *National College Nicolae Titulescu, Pucioasa, 135400, Romania*

Abstract The heavy metals (Cd, Cr, Ni, Pb, Zn, Cu, Fe, Mn) content of some edible wild mushrooms (*Amanita caesarea*, *Amanita rubescens*, *Amanita vaginata*, *Amanita spissa*) and soil samples, of ten sites from Dambovita county Romania, were analyzed. Elements concentrations were determined by Flame Atomic Absorption (FAA) spectrometry and Energy Dispersive X-ray spectrometry (EDXRF) in 40 samples of *Amanita* species and 40 underlying soil samples. In fruiting body of these mushrooms, the highest mean concentration of macroelements (dry mass basis) was found for Zn and Fe. Some metals (Cd, Pb, Cr and Zn) were bioconcentrated mainly in cap than the stipe of fruiting body. The mean concentration of heavy metals (Cd, Cr, Ni, Pb) was higher in mushrooms which was collected on sites near urban settlements Lead was determined at highest concentration in soil surrounding *Amanita vaginata*. The studied mushrooms were good bioaccumulators of zinc and copper. The iso-concentration curves of heavy metals in samples of *Amanita sp.* and soil were realized with Surfer 9 Model.

Keywords wild mushroom, EDXRF, FAAS, heavy metal
