

## **WILD-GROWING MACROFUNGI OF SERBIA IN MONITORING OF HEAVY METALS**

Qualitative and quantitative content of heavy metals (Cd, Pb, Cr, Ni, Cu, Mn, Fe, Zn) was determined in 10 autochthonous species of lignicolous macrofungi, belonging to 7 Basidiomycota families: *Trametes versicolor*, *Agrocybe cylindracea*, *Ganoderma lucidum*, *Laetiporus sulphureus*, *Stereum hirsutum*, *Meripilus giganteus*, *Ganoderma applanatum*, *Omphalotus olearius*, *Fomes fomentarius*, *Lentinus tigrinus*. Since inedible medicinal mushrooms species have been increasingly collected and consumed in the recent years in Serbia, mostly in the form of teas and extracts, the aim of this study was to determine the content of heavy metals in wild-growing edible and medicinal macrofungi of Serbia, which may affect health of their consumers.

Fungal samples of the whole basidioms were collected during 2003–2005 period from three forest regions in northern part of Serbia (Fruska Gora Mt./VoroVo, Kamenica, OsoVlje; Morovic; City of Novi Sad) and from two species (*G. lucidum*, *G. applanatum*) during 2010 year at Morovic location. Analysis was conducted by atomic absorption spectrophotometer AAS (FS AAS240/GTA120, Varian) using the acetylene/air burner flame technique for Cu, Mg quantification and the nitrous oxide (N<sub>2</sub>O)-acetylene flame for Ca content determination. By using single element hollow-cathode lamps concentrations of Cu, Mg and Ca were determined at 324.8, 285.2 and 422.7 nm, respectively and expressed in mg/kg dry weight (DW) of fungal material.

Concentrations of analyzed elements ranged as follows: **Cd**: 0 (*T. versicolor* V) – 3.77 (*A. cylindracea*), **Pb**: 0 (*G. lucidum*) – 6.12 (*T. versicolor* O), **Cr**: 0.51 (*L. sulphureus*) – 18.52 (***G. lucidum***), **Ni**: 0.06 (*L. sulphureus*) – 13.44 (*S. hirsutum*), **Cu**: 3.37 (*M. giganteus*) – 32.98 (*T. versicolor* K), **Mn**: 2.75 (*L. sulphureus*) – 156.85 (*T. versicolor* O), **Fe**: 53.81 (*A. cylindracea*) – 4836.32 (*S. hirsutum*), **Zn**: 18.05 (*T. versicolor* K) – 3566.67 (*A. cylindracea*).

Exceptionally high levels of Fe and Zn were found in *S. hirsutum* and *A. cylindracea*, respectively. Furthermore, *S. hirsutum* showed to have maximum values of Cr, Ni and Fe, as well as one of the two highest values for Pb and Mn. Concentrations of Pb, Mn and Cu were the highest in a species *T. versicolor*. Edible species *L. sulphureus*, *L. tigrinus* and *M. giganteus* together with one poisonous, but medicinal mushroom *O. olearius* showed lower content of metals in general, comparing to other species, which indicates its safe consumption in human diet or possible safe usage as a source of pharmaceuticals.

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## **ДИКОРАСТУЩИЕ ГРИБЫ В СЕРБИИ В МОНИТОРИНГЕ ТЯЖЕЛЫХ МЕТАЛЛОВ**

В докладе рассматриваются результаты аналитических исследований различных грибов на содержание тяжелых металлов.