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ARH. FARM. Godina 60 Br. 5 Strana 425- 1218 Beograd

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## METAL CONTENT IN MEDICINAL PLANTS GROWING IN MACEDONIA

Darinka Gjorgieva<sup>1</sup>, Tatjana Kadifkova-Panovska<sup>2</sup>,  
Katerina Baceva<sup>3</sup>, Trajce Stafilov<sup>3</sup>

<sup>1</sup>Faculty of Medical Sciences, Goce Delcev University, <sup>2</sup>Faculty of Pharmacy, Ss. Cyril and Methodius University, <sup>3</sup>Institute of Chemistry, Faculty of Mathematics and Natural Science

### Introduction and aim:

Monitoring of metals in medicinal plants is of great importance in order to protect general population from possible toxic effects of metals and also to give information about the nutritional value of the plants. The aim of this study was to determine the amounts of certain essential and toxic metals (Cd, Cu, Pb, Ni, Zn, Al, Fe, Cr, Sr) in the plants that are frequently used in R. Macedonia, in order to find out if they contain metals in amounts that could be toxic.

### Methodology:

Contents of some toxic and essential metals were determined in four medicinal plants [*Urtica dioica* L. (*Urticaceae*), *Robinia pseudoacacia* L. (*Fabaceae*), *Taraxacum officinale* (*Asteraceae*) and *Matricaria recutita* (*Asteraceae*)] growing in Plackovica Mountain, R. Macedonia, with atomic emission spectrometry with inductively coupled plasma (ICP-AES).

### Results and discussion:

A total of nine elements (Cd, Cu, Pb, Ni, Zn, Al, Fe, Cr, Sr) were analyzed from the powdered medicinal plants and metal contents were in descending order of Fe>Al>Sr>Zn>Cu>Cr, while Pb, Ni and Cd were detected only in half of the samples and in the others were under the limit of detection. The higher results (in mg kg<sup>-1</sup>), for each metal determined, in four plants species, were as follows: Cd (0.28), Cu (9.74), Pb (3.86), Ni (5.74), Zn (35.34), Al (655.46), Fe (881.46), Cr (1.88) and Sr (87.47).

### Conclusion:

Medicinal plants included in the present study could be a source of essential elements (Fe, Zn, Cu, Ni) as well as toxic metals (Pb, Cd, Sr). In this study, all determined values were below the WHO permissible levels. From toxicological point of view, none of investigated plants would be harmful for the user by taking the plant material in the traditional manner for phytotherapeutically purposes.