

Estimation of heavy metals in medicinal plants and their infusions

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Abstract. Medicinal plants and their extracts deserve special attention because of the important influence they have to human health. There are easily contaminated with metals during growth, development and processing. The aim of this study was to achieve the quantitative determination of metallic elements (Cu, Cr, Cd, Fe, Mn, Zn, Pb) in some medicinal plants including *Mentha piperita* L., *Matricaria camomilla* L., *Hypericum perforatum* L., *Achillea millefolium* L., *Thymus serpyllum*, *Capsella-bursa-pastoris* L., *Urtica dioica* L., *Primula veris* L., *Plantago major* L., *Taraxacum officinalis* L., and their infusions, using flame absorption spectrometry. The highest concentration of metal in medicinal plants was that of iron $333.22 \pm 35.18 \text{ mg Kg}^{-1}$ and zinc $244.90 \pm 32.13 \text{ mg Kg}^{-1}$. Metal content in the powdered medicinal plants was in descending order: Fe > Zn > Mn > Cu > Cr; Pb and Cd were present in minor amounts. Analysis of plant infusions showed transfer of heavy metals during extraction procedure. Monitoring the content of mineral elements in medicinal plants and their boiling water extracts is of high importance because some heavy metals in large quantities in the body may have a toxic effect.

Keywords: medicinal plants, infusions, heavy metals.
