In this paper, we have studied uptake and accumulation of essential major and trace metals present in the six selected medicinal plants from Serbia, and their transfer from soil to plant. Inductively coupled plasma optical emission spectroscopy (ICP-OES) was used to analyze the metals: Na, K, Mg, Ca, Mn, Fe, Cu, and Zn in plant and soil samples. Selected plants accumulate a sufficient amount of studied metals, except Cu. They are not accumulator of Na, Ca and Fe, neither are they tolerant to Na and Mn, except Dittrichia graveolens, tolerant species to all examined metals. The tested plant species can be important in human diet as a source of the essential elements of importance for the optimal functioning of the human body.

Key words: essential metals, medicinal plant, ICP-OES