

THE ELEMENT COMPOSITION OF *VERONICA LONGIFOLIA* L. HERB

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Veronica longifolia L. belongs to the family *Plantaginaceae*. Many publications based on molecular and phylogenetic contain the information that family *Plantaginaceae* called *Veronicaceae* Durande. Earlier this family belonged to Fig-wort family (*Scrophulariaceae*).

Veronica longifolia L. is a promising species in flora of Ukraine, the areal part of which had been used in folk medicine for a long time as analgesic, anti-inflammatory, expectorant, wound healing, fungicidal, cholagogic remedy and has a large area of distribution.

We have identified rich composition of biologically active substances (BAS): flavonoids, iridoids, terpenoids, coumarins, aliphatic and aromatic acids, tannins, triterpene and steroidal saponins, polysaccharides, amino acids. Iridoids and flavonoids are the most studied groups of BAS of *Veronica* L. genus.

Considering that plants accumulate mineral substances, which are involved in the biosynthesis of various BAS, after entering the human body they are involved in various physiological and biochemical reactions and have high biological activity, and are closely connected with various BAS. Macro- and microelements of *Veronica longifolia* L. attracted our attention because they are not completely studied for today.

The aim of the study was to study elemental composition of *Veronica longifolia* L. herb and to check the limit of heavy metals in plant drug.

Materials and methods.

The object of our study was air-dried herb of *Veronica longifolia* L. harvested in the flowering stage in Kupiansk and Lubotin district of Kharkiv region in June, 2013.

The study of elemental composition was carried out on the base of DNU “STC ”Institute for Single Crystals” of NAS of Ukraine by using atomic emission spectrophotometric method.

When this work had been carried out, the spectrograph DFS-8 had been used with a measuring complex for photoelectric registration of emission spectra. The following conditions of powders evaporation have been set: the amperage of arc AC (generator IVS- 28) – 16A, the frequency of igniting pulse – 100 bits per second at 60 seconds exposure.

Spectra have been registered on the photographic film using spectrograph DFS-8 with a diffraction grating of 600 lines/mm and a three-lens system of slit lighting. Lines of spectra have been determined at wavelength of 270 nm to 347 nm in samples comparing with standard samples of mineral elements mixture using microphotometer MF-4.

Obtained results.

In *Veronica longifolia* L. herb 19 elements have been identified and quantified. Of these, 11 microelements (Fe, Mn, Al, Pb, Sr, Mn, Mo, Cu, Zn, Ni, Pb) and 6 macroelements (K, Na, Ca, P, Mg, Si). The total amount of elements in herb was 4997.59 mg/100g. The dominant macroelements (mg/100 g) K (2640), Ca (880), Mg (440), Si (790), P (150) were.

The descending series of chemical elements $K > Ca > Si > Mg > P > Fe > Al > Na$, $Mn > Sr$, $Zn > Cu > Ni > Pb$, Mo, Co > Cd, As, Hg showed the individual characteristics of their accumulation in the studied herbal drug.

The limit of Co (<0.03), Cd, As, Hg (<0.01), which have been present in herb, not inflated, according the State Pharmacopoeia of Ukraine and may be recommended for use in medicine.

Conclusions.

In the *Veronica longifolia* L. herb micro- and macroelements have been identified and quantified, the dominant macroelements (mg/100 g) K (2640), Ca (880), Mg (440), Si (790), P (150) were. The results create conditions for development of new drugs compositions with combined activity, in particular, for treatment and prevention of disease, that related with the mineral imbalance.