

**CONTENT OF POLYPHENOLIC COMPOUNDS, MACRO-
AND MICROELEMENTS IN THE STEMS AND LEAVES
OF *LONICERA CAERULEA* SUBSP. *PALLASII* (CAPRIFOLIACEAE)**

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SUMMARY

The purpose of this paper was to study population variability of individual and group composition of biologically active phenol compounds in stems and leaves of *Lonicera caerulea* subsp. *pallasii* (Ledeb.) Browic. in natural population of south taiga subzone of West-Siberian plain in connection with their content of trace and macroelements, soil composition and properties. The studies were performed in the years 2012–2013 differed by meteorological characteristics during vegetational season. Comparative study of individual and group composition of flavonoids and hydroxycinnamic acids in stems and leaves was conducted by method of high-performance liquid chromatography. The content of movable form of trace and macro elements in soils and their total content in plants were determined by atomic absorption method (in acetate-ammonium buffer solution, pH 4.8). As a result of conducted studies it was established that main compounds of leaves of *L. caerulea* subsp. *pallasii* were the derivatives of hydroxycinnamic acids, i. e. chlorogenic and dicaffeoylquinic (1400–6800 mg per 100 g), flavonols such as quercetin glycoside (400–1500 mg per 100 g) and flavons such as luteolin and apigenin glycosides (220–1100 mg per 100 g). The stems contain chlorogenic and dicaffeoylquinic acids (740–3700 mg per 100 g) and quercetin glycosides (32–320 mg per 100 g), flavons are in minor amounts. Under conditions of not uniform content of soil movable forms of Ca, Mg, Sr, Na, Fe and Mn the considerable change of intensity of absorption of biophil elements by plants takes place, this predetermined the large range of variability of concentration of trace and macroelements in organs of *L. caerulea* subsp. *pallasii* within the limits of the studied population. On neutral base-saturated soils the intensification of biosynthesis of hydroxycinnamic acids and flavonoids associated significant negative linear relation with the concentration of K, Ca, Na, Cu, Mn, Ni, Li and Zn and positive with Mg and Fe in plant organs. At the same time, the change took place in the ratios of physiologically important for plants chemical elements connected with transport mechanisms of organic and mineral substances and permeability of cell membranes (K/Na, Ca/K, Ca/Na, Mg/Na), and redox processes as well (Fe/Mn, Ca/Fe). Direct dependences on content of Ca, K, Li, Sr, Cu and Ni and inverse dependences on Fe and Mn were established for flavons in 2012. Under the impact of drought which proved to be anomalous for southern taiga the amount of K, Ca, Mg, Mn and Ni diminished essentially in leaves, and in stalks the concentration of Fe increased, accumulation of hydroxycinnamic acids and flavonoids increased more than 2 times.

Keywords: *Lonicera caerulea*, flavonoids, hydroxycinnamic acids, trace and micro elements.