

## ELEMENTAL COMPOSITION OF SALIX CAPREA L.

Borova E.B. Borodina N.V.

The National University of Pharmacy, Kharkiv, Ukraine

gnosy@ukrfa.kharkov.ua

During millenniums a man uses the different types of willow in the vital functions. Branch of willow are a rich source of connections of phenolic nature (flavonoids, tannic substances), carbohydrates, organic acids, vitamins.

*Salix caprea* L. (goat willow, also known as the pussy willow or great sallow) is a common species of willow native to Europe and western and central Asia. It is a deciduous shrub or small tree, reaching a height of 8–10 m. The leaves are 3-12 cm long and from 2-8 cm wide, broader than most other willows. The flowers are soft silky, and silvery 3-7-cm-long catkins are produced in early spring before the new leaves appear; the male and female catkins are on different plants (dioecious). The male catkins mature yellow at pollen release, the female catkins mature pale green.

The aim of this work was to study whether elemental composition of *Salix caprea* L. complies to the requirements for heavy metals content. The objects of the study were *Salix caprea* L. branch which were collected during 2013 - 2014 years in various parts of the Kharkiv region of Ukrainian. Earlier, we studied phenolic compounds and components of the essential oil of *Salix caprea* L. Study of elemental composition was carried out using atomic emission spectrophotometry on the base of DNU “STC” Institute for Single Crystals” of NAS of Ukraine. Samples were evaporated from the craters of graphite electrodes in the discharge arc AC power 16 A at 60 seconds exposure. As a source of excitation spectra IMS-28 was used. Spectra were recorded on film using the spectrograph DFS-8 with 600 lines / mm diffraction grating and three-lens lighting slit. Spectral lines in the samples were registered at wavelengths from 270 to 347 nm comparing with a mixture of mineral elements standard samples using microphotometer MF-4. 15 elements in *Salix caprea* L. branch have been identified and quantified. Of these, 6 were macroelements (K, Na, Ca, P, Mg, Si) and 9 were microelements (Fe, Mn, Al, Pb, Sr, Ni, Mo, Cu, Zn). The specific sins of theirs content in raw material was defined. Macroelements (mg/100g) potassium (1120), calcium (895) and silicon (450) were dominant. Among microelements (mg/100g) phosphorus (195), iron (56) and aluminum (28) predominated. There were no or were beyond the device’s determinative capabilities next microelements: cobalt and lead (<0.03), cadmium (<0.01), arsenic (<0.01) and mercury (<0.01). As a result it was found that *Salix caprea* L. branch meets the requirements for heavy metals content.