

**DETERMINATION OF QUANTITATIVE COMPOSITION
OF XANTHONES IN THE UNDERGROUND ORGANS
OF *IRIS SIBIRICA* AND *IRIS HUNGARICA***

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The representatives of the family *Iridaceae*, of the genus *Iris* – *Iris hungarica* L. and *Iris sibirica* L. – are grown not only as an ornamental plants, and have been used long in folk medicine as an analgesic, anti-inflammatory, enveloping, expectorant remedy.

There are over 250 species of irises in the world, and about 13 species – in the territory of Ukraine. They are growing in the steppes, on the slopes, there are not undemanding to the soil. Widely distributed in the Northern and Eastern Europe, Asia Minor, the Caucasus, the Mediterranean.

Iris hungarica is the perennial herbaceous plant 15 – 40 cm height, the stem with direct line-xiphoid or sickle curved leaves up to 45 cm long, narrowed at the ends. In the winter the leaves die off, appear after stems in the spring. The stems are thin up to 50 cm tall, the branching. Perianth is blue-violet color, back-ovoid form, has sixtyseparated limb. The orange-yellow "beards" are situated at the slightly bent outer parts. The basis of flowers are covered by swollen leathery leaves. Blooms in late of April – in beggin of May. The fruit is the cylindrical box. Fruits in July – August. The underground organs are presented by thick branched rhizome of about 2 cm in thickness with branches grows. Propagated by seeds and vegetatively.

Iris sibirica is the herbaceous perennial plant. The rhizome is 8 – 10 cm length and 3 cm thick, is irregularly thickened, the upper part is covered by brown remnants of leaves. It has a brown color, a faint smell. Leaves are the linear form, dense, light green color, 32 – 70 cm length and 0.5 – 1 cm wide. The leaves are much shorter than the stem, are located at the base of pneumatic cavities. It has 2 – 3 flowers on unequal pedicels with short tube of perianth, dark blue color. External share are blue with pale-blue nail. The box 2 – 3 cm long, the dull.

According to the literature it is known, that in the leaves of iris contains phenol carbonic acids, there are coffee, sinapinic, *n* – coumaric, ferulic; flavonoids – quercetin; ascorbic acid. In the underground organs of irises contain xanthoness, sucrose, starch, fructans, and essential oil. The chemical composition of the rhizomes with roots has been little studied.

The particular value in the irises up xanthoness, namely mangiferin with a high biological activity. It has anti-inflammatory, immunostimulating, antiviral effect.

The objects of study were rhizomes with roots of *Iris hungarica*, harvested on May, 2014, and *Iris sibirica*, harvested on September, 2012 in N. N. Gryshko National Botanical Garden of the National Academy of Sciences of Ukraine, Kiev (Ukraine).

Previously, a qualitative analysis of xanthoness was conducted by paper chromatography. On chromatography paper «Filtrak FN-4" 70% alcohol – aqueous extracts of the objects was applied; then was placed in the system of solvent of I direction – *n*-butanol – acetic acid – water (4:1:2); II direction – 15% acetic acid. After passage, the chromatogram was dried and viewed in visible and UV light. Spots, that are characteristic for xanthoness, had a yellow color, after tilling by ammonia vapors became yellow-orange, and after tilling by solution of 3% FeCl₃ – green color.

For the quantitative determination of the amount of xanthoness in the re-calculation of mangiferin used previously published method (Aslanukov A.K. et al. Development, research and marketing of a new pharmaceutical products. Collection of research papers. Pyatigorsk, 2009. Vol. 64 (in Russian)). Measurements were made by Thermo Scientific Evolution 60S UV – Visible Spectrophotometer, (USA).

The results of the quantitative determination showed, that the amount of xanthoness was: in the rhizomes with roots of the *Iris hungarica* – $0,85 \pm 0.01\%$, in *Iris sibirica* – $0,10 \pm 0.05\%$ in the re-calculation of mangiferin.

Conclusions: it was found, that the quantitative content of the amount of xanthoness in the underground parts of the *Iris hungarica* and *Iris sibirica* is 0.85% and 0.10% respectively. Plants of the genus *Iris* are a promising raw material for the study and selection of xanthoness.