

RESEARCH OF ELEMENTAL COMPOSITION OF CLADRASTIS

Zhadanova K. Y., Kalinichenko D. V.

Scientific supervisors: Demeshko O. V., Kovalev S. V.

National University of Pharmacy, Kharkiv, Ukraine

olgademeshko@gmail.com

Introduction. The work is devoted to the study of the elemental composition of the plant *Cladrastis*. *Cladrastis* (yellowwood) is a genus of nine species of flowering plants in the family Fabaceae, eight native to eastern Asia, and one to southeastern North America.

Species of *Cladrastis* are small to medium-sized deciduous trees typically growing 10–20 m tall, exceptionally to 27 m tall. The leaves are compound pinnate, with 5–17 alternately arranged leaflets. The flowers are fragrant, white or pink, produced in racemes or panicles 15–40 cm long. The fruit is a pod 3–8 cm long, containing one to six seeds.

Cladrastis is related to the genus *Maackia*, from which it differs in having the buds concealed in the leaf base, and in the leaflets being arranged alternately on the leaf rachis, not in opposite pairs. The genus name derives from the Greek *klados*, branch, and *thraustos*, fragile, referring to the brittle nature of the twigs.

The chemical composition and pharmacological properties of this plant have not been studied sufficiently despite the long history.

The study of the elemental composition of *Cladrastis* is very relevant and gives the opportunity to expand the pharmacological application of this plant.

Aim. To determine the elemental composition of *Cladrastis* and DSB varieties leaves by the atomic emission spectroscopy method with an arc excitation of the spectrum.

Materials and methods. The objects of the study were leaves of *Cladrastis* harvested during the growing season in 2020, at the Botanical Garden of the National University of Pharmacy (Kharkiv). Studies of the mineral complex took place in the State Scientific Institution "Institute for Single Crystals" of the National Academy of Sciences of Ukraine. The atom-emission spectrographic method with photographic registration was used for the study of the common mullein leaves element composition.

Results and discussion. As a result of the analysis, it has been found that in the raw material of *Cladrastis*, 15 elements in total were identified, among which were 5 – macroelements (Ca, Mg, P, K, Na), 9 – microelements elements (Si, Sr, Al, Fe, Zn, Mn, Ni, Cu, Mo), 5 – ultra microelements (Pb), set quantitative content. Among the macronutrients, calcium is contained in a significant amount (1380 mg/100 g). Silicon (1190 mg/100 g) dominates among trace elements. Raw material of *Cladrastis* accumulates a considerable amount of magnesium (765 mg/100 g), phosphorus (230 mg/100 g). The content of the elements in the samples of raw *Cladrastis*, can be arranged in the following decreasing sequence of the content for leaves –Ca > Si > Mg > P > K = Na > Sr > Al = Fe > Zn > Mn > Ni > Cu > Mo = Pb

Conclusions. The content of 15 elements in leaves of *Cladrastis* has been determined. A significant amount contains calcium, silicon, magnesium, phosphorus. The study of plant of the of *Cladrastis* continues.