МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ

МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ

КАФЕДРА ФАРМАКОГНОЗІЇ ТА БОТАНІКИ

НАУКА, ПРАКТИКА ТА ОСВІТА

PLANTA+

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НАЦІОНАЛЬНИЙ ФАРМАЦЕВТИЧНИЙ УНІВЕРСИТЕТ
ПРИВАТНИЙ ВИЩИЙ НАВЧАЛЬНИЙ ЗАКЛАД
"КИЇВСЬКИЙ МЕДИЧНИЙ УНІВЕРСИТЕТ"
ІНСТИТУТ БОТАНІКИ ІМ. М.Г. ХОЛОДНОГО НАН УКРАЇНИ

«PLANTA+. НАУКА, ПРАКТИКА ТА ОСВІТА»

Матеріали
IV Науково-практичної конференції з міжнародною участю,
до 20-річчя кафедри фармакогнозії та ботаніки
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Figure 1. The results of the swelling index for dried whole and powdered fruits and fruits waste after juice extraction of red currant, sea buckthorn and feijoa

The highest swelling index was observed in dried whole fruits of red currant and dried cut fruits of feijoa – 9. For whole sea buckthorn fruits, the swelling index was 8. When grinding the fruit, the index decreased: red currant and feijoa – 8, sea buckthorn – 7. Dried cake had the same swelling index and was 7 for all types of raw materials. For the powdered fruits waste the swelling index decreased and was: red currant and sea buckthorn -6, feijoa – 5.

Conclusions. During the study it was found that grinding affects the swelling index for fruits, namely – reduces it. Comparison of the swelling index between fruits and fruits waste indicates a decrease in this parameter in fruits waste by at least 1 unit. This indicates the loss of pectin substances and polysaccharides during the extraction of fruit juice and the influence of grinding on swelling index.

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MICROSCOPIC STUDIES OF QUINCE AND JAPANESE QUINCE LEAF POWDERS

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Key words: microscopic analysis, quince, Japanese quince

Introduction. Japanese quince (*Chaenomeles japonica* (Thunb.) Lindl. Ex Spach) and quince (*Cydonia oblonga* Mill.) are cultivated fruit crops that are well known throughout the world. The leaves of japanese quince and quince have a diverse, valuable composition of biologically active substances [2,3].

The aim of work was a study of the anatomical structure of quince and japanese quince leaf powders according to SPhU to develop quality control methods for the leaves.

Materials and methods. The study of the anatomical structure of the leaves of *Chaenomeles japonica* and *Cydonia oblonga* was carried out by the method of light microscopy without special preparing and processing “like it is” [1]. We used dried raw materials harvested in May 2022 in the Kyiv region, Makarivskyi district. The

dried raw material was ground into a powder (0.5 mm). To make micropreparations, the powder was softened by boiling in water. Temporary preparations were made from the softened objects by illuminating them in a chloralhydrate solution. Remains of water and chloralhydrate solution were removed with filter paper, the section was covered with a cover glass and examined under a microscope. A ULAB trinocular light microscope was used to study temporary preparations at magnifications of 40, 100, 400, and 1000 times. Sections were photographed using a TREK DCM 220 digital microcamera and a Canon EOS 550 SLR camera.

Results and their discussion. The Fig. 1 shows the parts of the veins in the powder of japanese quince. The whole or broken hairs and individual prismatic crystals of calcium oxalate were also found in the field of vision (Fig. 2), stomata of anomocytic type, torn cells of mesophyll and epidermis (Fig. 3).

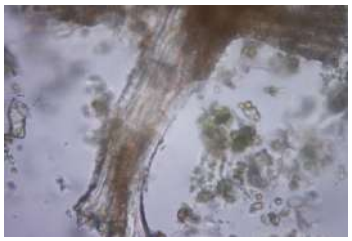

Fig. 1. Leaf vein with prismatic crystal of Japanese quince leaves (1:400)

Fig. 2. Simple hair and prismatic crystal of Japanese quince leaves (1:400)

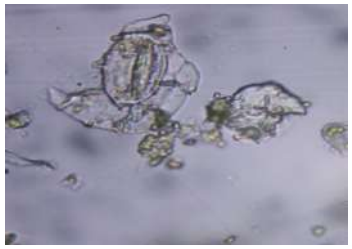

Fig. 3. Parts of mesophyll and epidermis cells, stomata of Japanese quince leaves (1:400)

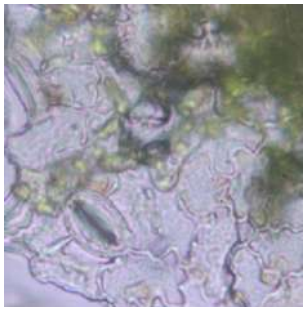

Fig. 4. Epidermal cells of quince leaves (1:400)

Fig. 5. Veins with calcium oxalate crystals quince leaves (1:100)

Fig. 6. Simple single-celled, thread-like hairs of quince leaves 1:400)

In the powder of quince leaves there are thin-walled, convoluted cells of the epidermis, stomatal apparatus of the anomocytic type (Fig. 4), pronounced veins accompanied by calcium oxalate crystals (Fig. 5). Pubescence is also observed in the form of simple single-cell filamentous thick-walled hairs that intertwine with each other (Fig. 6).

Conclusions. The results of the study of microscopic characteristics of powders of quince leaves and Japanese quince could be used for the development of quality control methods for these MPM.

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CHROMATO-MASS SPECTROMETRIC RESEARCH OF HEMP AGRIMONY TINCTURE

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Key words: *Eupatorium cannabinum L.*, hemp agrimony, chromato-mass spectroscopy, component composition

Introduction. Hemp agrimony *(Eupatorium cannabinum L.)* is a perennial plant which belongs to the Asteraceae family. The plant grows almost throughout the territory of Ukraine on the banks of rivers and reservoirs, in wet forests and shrubs. *Eupatorium cannabinum* herb is used for fever, cold, for diseases of the uterus, liver and gall bladder. *Eupatorium cannabinum* has variety of biological activities such as anti-inflammatory, antibacterial, antifungal, immunomodulatory, choleretic, diuretic, analgesic and cytotoxic [1-2]. The aim of the study was to determine the component composition of hemp agrimony tincture by chromato-mass spectrometry.

Materials and methods. The object of study was the tincture of hemp agrimony (*(Eupatorium cannabinum L.)* made from herb. The component composition of hemp agrimony tincture was studied using an Agilent 7890B gas chromatograph with a mass spectrometric detector 5977B. Chromatography conditions: DB-5ms column 30 m long, with an inner diameter of 250 μm and a phase thickness of 0.25 μm; the speed of the carrier gas (helium) – 1.3 ml/min; the injection volume – 0.5 μl; the division of the flow – 1:5; the temperature of the sample injection unit – 265 °C. Thermostat temperature: programmable – 70 °C (exposure 1 min), up to 150 °C at a speed of 20 °/min (exposure 1 min), up to 270 °C at a speed of 20 °/min (exposure 4 min). The NIST 14 mass spectrum library was used to identify the components.