

## PROSPECTS OF AVOCADO PLANT MATERIAL APPLICATION IN PHARMACY

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**Introduction.** The search for new sources of medicinal plant material is one of the topical tasks of modern pharmacy. Medicinal products based on medicinal plant raw materials possess low toxicity, have a small amount of side effects and diverse pharmacological effects on the body. Particular attention is attracted by plants that have long been used in folk medicine. In this plan, our attention was attracted by the plant *Persea americana*, family *Lauraceae*.

**Aim.** Conduct a review of literary sources on *Persea americana* plant material.

**Materials and methods.** Available sources of literature for the last 15 years have been analyzed.

**Results and discussion.** Evergreen tree up to 20 m high, leaves 10 to 20 cm in length and 3 to 10 cm wide, oval, sharpened, opposite or almost opposite, dark green, with a laurel aroma. Flowers are white or yellowish, in multiflorous wreaths at the ends of the branches. Flowers are small, bisexual or same-sex (plants sometimes dioecious), are right. Perianth is simple, from two circles of leaves, on 2-4 (most often 3) in each circle, grow at the base. The stamen is usually twice as much as the leaves of the perianth, at least 3, sometimes all stamens of the inner circle are converted into nectaries. Pestle with an upper ovary and only oviposition. Seeds lack endosperm. Avocado belongs to cross-pollinated plants, prototype flowers.

The content of the main substances in the pulp per 100 g of product, %: carbohydrates - 1,6-4,5; protein - 1,5-2,1; fatty, easily digestible, hard oil - 20,6-29, 4-30; a lot of vitamins (carotene, thiamine, tocopherol, calciferol and etc.), mineral substances (potassium, sodium, calcium, phosphorus, magnesium, ferrum).

The plant also contains monounsaturated acids – oleic, palmitoleic and linoleic. The leaves contains essential oil and bitter substance abacantine, which possesses the properties of cocoa fruits' alkaloid theobromine.

It is the chemical composition that causes the ability to reduce the risk of cardiovascular disease, reduce blood cholesterol levels, improve the functioning of the gastrointestinal tract, exhibit antioxidant and anti-inflammatory effects.

**Conclusions.** Avocado plant material is a promising material for the further study and creation of new drugs on its base.

## PIGMENTS OF TANACETUM PARTHENIUM HERB

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**Introduction.** Nowadays, great attention is paid to the development of medicines that contain lipophilic compounds, such as chlorophylls and carotenoids. These groups of bioactive substances are involved in processes of photosynthesis and breathing. Feverfew (*Tanacetum parthenium* (L.) Schultz Bip) is a member of Aster family (*Asteraceae*), which is widely cultivated in the territory of Ukraine. Its medicinal properties have been used in folk medicine of many countries for a long time. Feverfew has multiple pharmacologic properties, such as anti-inflammatory, antimicrobial, antipyretic, antiallergic, anticancer and cardiogenic. Information about chemical composition of the lipophilic fraction to which chlorophylls and carotenoids are attributed has not been found by us.

**Aim.** The purpose of the current experiment was to determine the qualitative composition and quantitative content of chlorophylls and carotenoids in *Tanacetum parthenium* herb.

**Materials and methods.** The object of the research was *Tanacetum parthenium* herb collected in the period of its mass flowering in the NUPH botanical garden (July, 2017). Qualitative composition of chlorophylls and carotenoids was determined by thin layer chromatography (TLC) for chromatography

plates «Silufol», the solvent system: chloroform – methanol (9:1). Quantitative content was determined by spectrophotometric method. An absorbance was detected for chlorophyll *a* at wavelength  $\lambda=665$  nm and for chlorophyll *b* at wavelength  $\lambda=649$  nm. An absorbance for quantitative content determination of carotenoids was detected at wavelength  $\lambda=441$  nm. An ethanol 96% was a reference solution in all the cases.

**Results and discussion.** Chlorophylls were detected as the red zones and carotenoids as the yellow-orange zones in UV light at the chromatograms. The content of chlorophyll *a* was  $0,96\pm 0,02$ , chlorophyll *b* –  $0,27\pm 0,02$ , carotenoids –  $0,31\pm 0,02$ .

**Conclusions.** Chlorophylls and carotenoids in *Tanacetum parthenium* herb were identified by TLC. Quantitative content of chlorophyll *a*, chlorophyll *b* and carotenoids was determined by spectrophotometric method. The obtained data will be used in further research.

## RESEARCH OF ELEMENTAL COMPOSITION OF GLADIOLUS X HYBRIDUS HORT.

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**Introduction.** *Gladiolus x hybridus hort.* is a perennial flowering plants in the iris family (Iridaceae) and representatives of the genus *Gladiolus* L. *Gladiolus* are cultivated on the territory of Ukraine and have long been used in folk medicine as an analgesic, anti-inflammatory, immunomodulating and also stimulates lactation

The chemical composition of the leaves of *Gladiolus x hybridus hort* is poorly understood. The detection of the elemental composition of *Gladiolus* plays an important role in medicinal plant standardization in order to construct and create new phytopreparations.

**Aim.** To determine the elemental composition of *Gladiolus x hybridus hort.* 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 *Gladiolus x hybridus hort.* harvested during the growing season in 2017, 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 atomic emission spectroscopy with arc excitation was used to determine the elemental composition of studied objects. The principle of spectral analysis is based on the study of emission spectra of free atoms and ions in the gas phase excited in a light source. As a light source, in this case, an electric arc was used.

Pre – treated by sulfuric acid, the crushed raw materials of the investigated object were insulated in porcelain crucibles at a temperature of  $500^{\circ}\text{C}$  for 1 hour in a muffle furnace. To obtain and record the spectra of samples, the DFS – 8 spectrograph was used, with the diffraction gratings of 600 ps/mm and the three – line slit illumination system. Measurement of the intensity of the emission lines was carried out using a microfotometer MF – 4. Sample data was compared with standard sample items. The results are obtained by averaging 4 – 5 parallel tests.

**Results and discussion.** As a result of the analysis, it has been found that the in the raw mater of *Gladiolus*, 19 elements in total were identified, among which were 5 – macroelements (Mg, Ca, Na, K, P), 10 – microelements elements (Fe, Cu, Zn, Mn, Si, Al, Pl, Ni, Mo, Sr), 4 – ultra microelements (Hg, Co, Cd, As.), set quantitative content. A significant amount contains potassium (3450 mg/100 g), calcium (920 mg/100 g) which are important elements for ensuring the conformation of enzymes proteins, regulating osmotic potential, control the permeability of membranes of plant cells.

Such macroelements as magnesium (170 mg/100 g), phosphorus (115 mg/100 g) and sodium (90 mg/100 g) accumulate in smaller quantities. Sodium transfer of potentials in the plant cell and participates in maintaining osmotic pressure. Magnesium interact with polyphosphate compounds such as Adenosine