The dried plates were developed in UV light at a wavelength of 364 nm. The paper chromatogram was carried out on a FN-4 paper in a solvent system ethyl acetate – formic acid – water (10:2:3). After drying chromatograms were treated with ammonia vapor.

Results and discussion. In the ethyl acetate – formic acid – water system, 3 spots with Rf 0.52; 0.48; 0.61 and 1 of 3 standards (Rf = 0.61 – hyperoside) appeared on the plate. As a result of paper chromatography research, 23 spots have been identified. Such substances as hyperoside, rutin and coffeic acid were discovered.

Conclusion. According to the results of chromatographic analysis, the most pronounced concentration of BAS substances was found in the tinctures Hippocrates, Viola and Rotokan, and the smallest – in Phytopharm.

COMPARATIVE FITOCHEMICAL STUDY OF ELEUTEROCOCCUS EXTRACT PRODUCED BY VARIOUS FIRMS

Vorchakova K. V., Ochkur O. V., Goryacha O. V.
Scientific supervisor: prof. Kovalyova A. M.
National University of Pharmacy, Kharkiv, Ukraine
katya.vorchakova@ukr.net

Introduction. *Eleutherococcus senticosus* is an officinal plant belonging to the *Araliaceae* family. Eleutherococcus is similar to ginseng for its medicinal properties, so sometimes it is called "Siberian Ginseng" in the West. In the people you can hear his name: wild or prickly pepper, a freethinker prickly or a drunkard. The chemical composition is very various, since in the roots, stalks and leaves there are substances that are classified into different classes of organic compounds. The main substances are eleuterosids B and E, which cause the greatest interest of scientists.

On the basis of eleutherococcus, various dosage forms have been developed: the liquid extract, the phytotea "Edel-66", it is included in the collection of "Arfazetin" and "Fitonefrol". In the countries of the West, pills, syrup and ointment are also manufactured. Liquid extract of eleutherococcus is used for treatment of physical and mental fatigue, neurasthenia and psychosthenia, functional exhaustion of the nervous system, which is accompanied by a decrease in work efficiency.

At present, information on pharmacological properties and use of underground organs from *Eleutherococcus senticosus* in medical practice is scientifically reasonable. There is insufficient information on the presence of BAS and microelements in the vegetative organs of this plant. In connection with distribution at the pharmaceutical market of various firms, there was a necessity to compare quality and quantitative composition of select preparations of eleutherococcus.

Aim. The purpose of the work was to carry out a comparative phytochemical analysis of the eleutherococcus liquid extract of different producers in the pharmaceutical market of Ukraine.

Materials and methods. For our research, a liquid extract of *Eleutherococcus* manufactured by five domestic producers («Lubnyfarm», «Viola», «Eurasia», «Zhytomyr» and «Ternoparma») was used.

Preliminary chromatographic analysis was carried out by paper (PC) and thin-layer chromatography (TLC). The same amounts of the test examples was applied to the starting position of Silufol plate and chromatographed with a rising method in a solvent system: chloroform-methanol-water (26:14:3) and ethyl acetate-formic acid-water (10:2:3). The dried plates were exposed to UV light at the wavelength of 354 nm.

Results and discussion. In the chloroform - methanol - water system, no visible changes occurred, resulting in the conclusion that this system is not suitable for the determination of the eleutherococcus liquid extract. Instead, in the system of ethyl acetate - formic acid - water, three spots with Rf 0.42, 0.77, 0.94, and one of the three standards (β-methylaesculetin, Rf = 0.94) appeared. The chromatogram was treated with 1% NaOH alcoholic solution, after which fluorescence was intensified. Paper chromatography was carried out on paper FN-4 in the solvent system ethyl acetate - formic acid - water (10:2:3). After drying, the chromatogram was exposed to UV light and processed by the vapor of ammonia. As a result, 16 spots of phenolic nature appeared, five of which were previously attributed to flavonoids, and three to phenylpropanoid compounds (eleutheroside B, chlorogenic and coffeic acids).

For spectrophotometric determination, elution with 70% alcohol was performed. The optical density of solutions was measured on a spectrophotometer SF-46 with 70% alcohol as a standard. The UV spectral characteristic of eleuteroside B showed that the maximum absorption was at a wavelength of 282 nm. The quantitative content of Eleutheroside B in the liquid extract of "Viola" was 0.022%, and «Lubnyfarm» – 0.021%.

Conclusions. According to the results of the chromatographic study, the most expressed concentration of active substances was found in the liquid extract of producers "Lubnifarm" and "Ternofarm", and the least – in the liquid extract of "Viola". But the quantitative content of Eleutheroside B determined by spectrophotometric method was a bit higher in the extract of "Viola" than in "Lubnifarm".

MORPHOLOGICAL AND ANATOMICAL FEATURES OF THE *RHODODENDRON LUTEUM* (L.) SWEET LEAVES

Vusyk D.
Scientific superiors: assoc. prof. Sira L.M., assoc. prof. Gaponenko V. P.
National University of Pharmacy, Kharkiv, Ukraine
dvusyk@ukr.net

Introduction. The *Rhododendron* L. genus is the largest in the *Ericaceae* family, its species and varieties are known as decorative and medicinal for about two centuries. Due to the diverse composition of biologically active substances accumulated in all organs, rhododendrons are used in folk medicine as antifungal, bactericidal, anti-inflammatory, tonic, diuretic, cardiotonic and other means.

In the natural conditions of Ukraine, only two species of rhododendron grow: in the highlands of the Carpathians, a rare species, listed in the Red Book of Ukraine *Rhododendron kotschyi* Simonk., and a relic of the tertiary flora of Ukrainian Polissya – *Rhododendron luteum* (L.) Sweet. (*R. flavum, R. polessicum*). Available literary sources relate to research on the chemical composition, cultivation of this species, and publications about the morphological and anatomical structure of the leaves are absent.

Aim. The aim was to establish specific morphological and anatomical sign leaves of *Rhododendron luteum* (L.) Sweet. as promising domestic medicinal plant material.

Materials and methods. Yellow rhododendron leaves were collected during mass flowering of plants in botanical gardens of Kharkiv National Pedagogical University. G.S. Skovoroda and Kharkiv State University named V.N. Karazin. To determine the macroscopic and microscopic characters were used fresh, dried and fixed with ethanol – glycerol – water (1: 1: 1) leaves. Anatomical features were studied on transverse sections, preparations from the surface of different parts of the leaf blade. We used known methods and microscope «bio LOMO". Objects were considered at an increase of 80, 100, 300 times. Diagnostic features were fixed with a Nikon Coolpix digital camera. The photos were processed in Adobe Photoshop CS5. The work also used: magnifying glass and binocular microscope MBS-9.

Results and discussion. Species morphological signs of *Rhododendron luteum* (L.) Sweet are as follows: short-cut leaves, 4,5-12,0 cm long, 1,5-8,0 cm wide. The blade is elongated, lanceolate, elliptical or obovate-egg-shaped. The top is acute or acuminate; the base is wedge-shaped and dentate edge. Both sides of the young leaf are green, softly pubescent with reddish hairs. The old leaves are yellow, orange, pubescent or naked. The anatomical diagnostic features of the leaves include the following. The leaf blade is dorsoventral, pubescent on the edge and on both sides' simple and glandular trichomes. Upper epidermis has no stomas, basic cells with slightly winding, thin side walls and a thick layer of cuticle. There are multicellular elongated cover hairs; the secretory function is performed by glandular trichomes and big emergences with a head and a multicellular pedestal that accumulates a yellowish-brunette secretion. The body of emergents expanded downwards, it is formed by many narrow, elongated, living cells, which are placed in several longitudinal rows; the head is oval-cylindrical, multicellular, with a dark secret. Body of hairs has of three varieties: dominated by 1-2-cell acute, thin and long, slightly curved live hairs with 8-10-cell basic rosette. The edges of the blade are thick, and the upper side of the ones is rarely are pubescent by bunches or separated elongated conical emergents. There are similar in structure to the glandular, but without a head, with a sharp tip. The basis of trichomes forms a multicellular support. Base cells of the