hypertension. However, today it has been discovered that pyrrolizidine alkaloids can cause necrosis in the vascular glomeruli and epithelium of the urinary tract tubules of the kidneys. The hepatotoxicity, genotoxicity and carcinogenicity of the pyrrolizidine alkaloids may be misinterpreted as a result of other etiological factors such as alcohol abuse, for example. The Committee on Herbal Medicinal Products (HMPC) controls the content of pyrrolizidine alkaloids, both in medicines and in foodstuffs.

Such alkaloids include echimidine, europine, cheliotropine, heliotrine, erucifoline, lasiocarpine, monocrotaline, retrosine, senecionine, seneciphylline, sarracine, senkirkine, trichodesmine, integerrimine and others. In particular, the HMPC claims that since the alkaloids are excreted from the body for 24 hours, the intoxication of the human body can not be confirmed, because the symptoms can be observed in a few days or months. The HMPC recommends that the daily dose of alkaloids in drugs should not exceed 1  $\mu$ g, with a limited duration of use of six weeks per year. The Medical Agency (EMA) has set a daily dose of less than 0.035  $\mu$ g for adults (body weight 50 kg); for a child – 0.014 micrograms (body weight 20 kg). At the same time there are drugs at the pharmaceutical market that have become popular for the treatment of various diseases that may contain pyrrolizidine alkaloids.

**Aim.** Therefore, it was appropriate to analyze the official herbal mix and herbal remedies for the content of pyrrolizidine alkaloids

**Materials and methods.** Official herbal mix were chosen as the objects of the study: "Chest collection number", "Chest collection number 2" and "Zhivokist" root, 100 g. Alkaloids were isolated from the raw materials by known classical methods. The sum of alkaloids was chromatographed by thinlayer chromatography in various solvent systems: chloroform-methanol-benzene (20: 1: 2) and chloroform-methanol-ammonia (85: 14: 1). Remedies of platyphillin were taken as substance- witness, as well as the sum of alkaloids of the roots of Senecio *platyphylloides*. Chromogenic reagents were Dragendorff reagents (brown color) and Ehrlich (after preliminary oxidation with sodium nitroprusside – red-violet color).

**Results and discussion.** The extracts from the objects that were studied gave a positive hydroxamic test, which is typical for esters formed by a necine base (amino alcohols) and one or more necic acids; with solutions of potassium dichromate and perhydrol in acetone (1:10); solution of ferrous (II) sulphate, hydrogen peroxide and alkali. The quantitative determination of alkaloids was carried out by spectrophotometry at  $\lambda = 220$  nm in terms of platyphylline, using the specific absorption rate of platyphylline hydrobromide at the same wavelength.

**Conclusion:** The alkaloids were found in investigated objects by chemical and chromatographic methods and classified as pyrrolizidine derivatives. The content of alkaloids was determined by spectrophotometric method.

## RESEARCH OF ANTHOCYANINS IN MEDICAL HERBAL MIX OF ANTI-INFLAMMATORY ACTION

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**Introduction**. The official medical herbal mix of anti-inflammatory drugs, that are presented at the Ukrainian pharmaceutical market, often include plant material containing anthocyanins. Anthocyanins belong to flavonoids, which have a restored isopropane fragment that gives them antioxidant properties. Multifunctional pharmacological action of anthocyanins was proven through experiments – membrane-stabilizing, immunomodulating, anti-inflammatory, anticancer. This action is a «trap» for free radicals.

**Aim.** Anthocyanins are valuable components of herbal mixtures that provide an antioxidant and anti-inflammatory effect. Therefore, it is appropriate to analyze herbal mix for the presence of anthocyanins.

**Materials and methods.** Official herbal mix – herbal tea and a complex remedy based on herbal mix were chosen as the objects of the study: *Species diureticae*  $N \ge 1$  (leaves of martyrs 3 parts, flowers of

cornflower blue 1 part, licorice root nuts 1 part); *Species diureticae* №2 (leaves of martyr 2 parts, juniper fruit of usual 2 parts, licorice root of the bare 1 part); «Phytobronchol» (daisies of flowers 20%, common stems of 20%, calendula of flowers 20%, violets of grass 20%, licorice 15%, peppermint 5%, Baby herbal tea «Malinka» (Raspberry fruit, wild rose, black currants, sudan rose petals, mint leaves, licorice root).

**Results and discussion.** Most natural anthocyanins have a range of maximum absorption limits at 510-540 nm. The anthocyanins were extracted with acidified methanol (methanol and 1% HCl) in water bath for 30 min. Preliminary chromatographic study was performed by the method of paper chromatography. The same quantities of studied examples were applied to the start line of the paper Filtrak and chromatographed by upward method in solvent system ethyl acetate – glacial acetic acid – water (10:2:3). The dried chromatograms were viewed in visible light. For spectrophotometric determination, dilution was prepared in the ratio of 0.5: 25, as a solution for comparison, 70% ethyl alcohol was used. The optical density was measured on a spectrophotometer. The content of anthocyanins (%) was calculated on cyanidine chloride. To determine, the specific absorption of cyanidin chloride was used. The optical density was measured on a Agilent spectrophotometer. The method of quantification corresponded to the European Pharmacopoeia method (Ph. Eur. 7.0 Vol. 1. Hawthorn berries). The optical density of the solution at 545 nm is measured.

**Conclusion.** The quantitative content of anthocyanins in terms of cyanidin is determined. Cyanidin, delphinidin, petunidin and maldivin were identified by chromatography in plant mixtures.

## MORPHOLOGICAL AND ANATOMICAL STUDY OF PEANUT LEAF CULTIVARS

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**Introduction.** At present, the current problem is the search for new sources of physiologically and biologically valuable products from non-traditional oilseeds. From a large number of the most widespread nut cultures, peanuts should be singled out, because their seeds are characterized by a balanced natural combination of basic native components.

Cultivated peanut, underground or earth peanut (Arachis hypogaea) is an annual herbaceous plant of the legumes family (Fabaceae). The following varieties of peanuts are common in Ukraine: Krasnodarets 13, Krasnodarets 14, Krasnodar 14, Krasnodar 15, AR 1, AR 2, AR 3, AR 4, AR 5, AR 6, VNIIOK 14, VNIIOK 15, Pink large, Pale pink 1, Pale pink 2, Pale pink 3, Dark red, Malinovy, Klynsky. For the most part, the Ukrainian market offers peanuts imported from China, India, and Uzbekistan. Despite the high value of peanut products, its crops in Ukraine occupy small areas.

**Aim.** The purpose of our work was to study the morphological and anatomical structure of peanut leaf varieties and to establish their diagnostic features.

**Materials and methods.** The above-ground part of peanuts was collected in the summer of 2018 in the Pervomaysky district of the Kharkiv region. The anatomical structure was studied using the microscope Item: PB-2610, the resulting photos were processed with application of the Adobe Photoshop CC 2018 program.

**Results and discussion**. Cultivated peanut is an annual plant, the root system is branched, and the stem is 30-50 cm high. The leaves are paripinnate, consisting of two pairs of leaves of ovoid shape. The leaves are glossy on the top, the lower side is slightly pubescent. The petiole is pubescent, thick, grooved, up to 5 cm in length, with two ring-shaped stipules. Flowers are of the butterfly type, yellow, sit in the axils of the leaves by one or two-three pieces. The lower flowers are on pedicels, sitting on the stem above. There are ten stamens nine of which are merged. Fruit is a bean, it has a mesh shell and, depending on the variety, contains from 1 to 3 (less often 4-6) seeds. Each plant produces 30-50 beans, and in some varieties it is much larger.