

## COMPARATIVE FITOCHEMICAL ANALYSIS OF TINCTURE AND FLOWERS OF CHAMOMILE OF DIFFERENT MANUFACTURERS

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**Introduction.** Flowers of the chamomile (*Matricaria recutita* L.) of the Asteraceae family are used in the medicine of many countries, which are the part of the National Pharmacopoeia and in Ukraine they are considered to be pharmacopoeial raw materials. Several drugs from this raw material are presented in the pharmaceutical market of Ukraine. They are chamomile flowers in packed form such as «Recutan», «Romazulan» and others.

**Aim.** The aim of the study was the comparative phytochemical analysis of chamomile flowers and the drug «Recutan» from this raw material of various domestic manufacturers.

**Materials and methods.** The determination of mass loss during drying, ash of the general, the content of impurities was carried out gravimetrically. A comparative organoleptic analysis was conducted for «Recutan». The determination of the content of hydroxycinnamic acids, the sum of phenolic compounds in this medical plant raw material and tinctures was carried out by direct spectrophotometry at  $\lambda = 325$  nm and 270 nm, respectively. The content of flavonoids was determined by the method of differential spectrophotometry at  $\lambda = 405$  nm.

**Results and discussion.** It is determined that in the raw material of PrJSC «Liktravy» there are 1.98% of extraneous impurities, the mass loss at drying is 8.67%, the total ash content is 14.17%. In the production of PrJSC Pharmaceutical company «Viola» these figures are 1.09%, 8.29% and 14.31% respectively. As a result of the research it was found that in the flowers of chamomile produced by PrJSC «Liktravy» there are 1.57% of hydroxychric acids in terms of chlorogenic acid, 1.68% of the sum of phenolic compounds in terms of gallic acid and 0.40% of flavonoids per rutin. Flowers of chamomile produced by PrJSC Pharmaceutical company «Viola» contain 1.56% of hydroxycholic acids, 2.84% of the sum of phenolic compounds and 0.43% of flavonoids. In the study of tincture of the Experimental Plant DNTSLZ (State Scientific Center of Medicinal Products) it was found that the content of hydroxycholic acids is 0.27%, the amount of phenolic compounds is 0.29% and the amount of flavonoids is 0.37%. In the tincture of camomiles manufactured by Corporation «Arterium» the content of hydroxycholic acids is 0.22%, the amount of phenolic compounds is 0.23%, the amount of flavonoids is 0.64%.

**Conclusions.** As a result of the research, it was found that the chamomile flowers of two Ukrainian producers are close to the content of hydrocortic acids and flavonoids, but differ in the content of the amount of phenolic compounds. The chamomile tincture of two domestic manufacturers has similar values of the content of hydroxycinnamic acids and the amount of phenolic compounds, but the content of flavonoids in the drug of the Corporation «Arterium» is almost twice as high as in the «Recute» produced by the Experimental Plant DNTSLZ.

## IDENTIFICATION AND QUANTIFICATION OF ORGANIC ACIDS AND CARBOHYDRATES IN THE MEDICINAL HERBAL TEA FOR THE TREATMENT OF DISEASES OF URINARY SYSTEM

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**Introduction.** Derivatives of aliphatic carboxylic acids and aminoacids possess a wide diversity of pharmacological effects and are represented in medicinal usage by single-component medications and by the complex remedies among which there are medications of plant origin. Polysaccharides from medicinal plants possess several pharmacological effects among which there are laxative and expectorant

effects caused by mucilages and positive effect of intestinal microbiocenosis provided by inuline. The medicinal herbal tea K-1<sup>®</sup> contains different groups of biologically active compounds including carboxylic acids and aminoacids as well as carbohydrates represented by mucilages and inuline.

**Purpose of the study.** Identification and quantification of aliphatic carboxylic acids and aminoacids as well as carbohydrates in the patented medicinal herbal tea K-1<sup>®</sup> for the treatment of the diseases of urinary system.

**Materials and methods.** The medicinal herbal tea K-1<sup>®</sup> containing St. John's wort herb (*Hyperici herba*), Wild pansy herb (*Violae herba*), Peppermint (*Menthae folium*), Tansy flowers (*Tanacetii flores*), Horsetail field shoots (*Equiseti arvensis herba*), Coltsfoot leaf (*Farfarae folia*), Wild thyme herb (*Serpylli herba*), Elecampane rhizome and root (*Inulae rhizomata et radices*), Sunflower flowers (*Helianthi flores*), Elder fruits (*Sambuci fructus*), Common heather herb (*Callunae vulgaris herba*), Convallaria leaf (*Convallariae folia*), methods of pharmaceutical chemistry and pharmacognosy.

**Results and conclusion.** The identification of carboxylic acids and aliphatic aminoacids in the composition of the medicinal herbal tea K-1<sup>®</sup> for the treatment of diseases of urinary system was carried out by the method of thin layer chromatography. The identification of mucilages and inuline was carried out by the method of thin layer chromatography and by qualitative reactions. Quantification of free carboxylic acids in the composition of the medicinal herbal tea was carried out by the method of alkalimetry (calculation for malic acid). The assay of ascorbic acid was carried out by the method of redox titration by 2,6-dichlorophenolindophenol, the assay of aminoacids by the method of visible spectrophotometry (calculation for leicine). The assay of water soluble polysaccharides was carried out by the method of gravimetry.

## **IDENTIFICATION AND QUANTIFICATION OF PHENOLIC COMPOUNDS IN THE MEDICINAL HERBAL TEA FOR THE TREATMENT OF DISEASES OF URINARY SYSTEM**

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**Introduction.** Derivatives of phenols represent a group of medicinal substances which possess the antimicrobial activity as one of the main pharmacological effects. A big variety of phenol derivatives can be found in the medicines of plant origin. The medicinal herbal tea K-1<sup>®</sup> contains different groups of biologically active compounds including phenolic compounds, which are represented by several groups, among which there are simple phenols, phenolic and cinnamic acids, flavonoids, and polyphenols.

**Purpose of the study.** Identification and quantification of the phenolic compounds in the patented medicinal herbal tea K-1<sup>®</sup> for the treatment of the diseases of urinary system.

**Materials and methods.** The medicinal herbal tea K-1<sup>®</sup> containing St. John's wort herb (*Hyperici herba*), Wild pansy herb (*Violae herba*), Peppermint (*Menthae folium*), Tansy flowers (*Tanacetii flores*), Horsetail field shoots (*Equiseti arvensis herba*), Coltsfoot leaf (*Farfarae folia*), Wild thyme herb (*Serpylli herba*), Elecampane rhizome and root (*Inulae rhizomata et radices*), Sunflower flowers (*Helianthi flores*), Elder fruits (*Sambuci fructus*), Common heather herb (*Callunae vulgaris herba*), Convallaria leaf (*Convallariae folia*), methods of pharmaceutical chemistry and pharmacognosy.

**Results and conclusion.** The identification of phenolic compounds in the composition of the medicinal herbal tea K-1<sup>®</sup> for the treatment of diseases of urinary system was carried out by the quality reactions and by the method of high-performance liquid chromatography. The groups of simple phenols, phenolic and cinnamic acids, flavonoids, and polyphenols were identified. Quantification of phenolic compounds in the composition of the medicinal herbal tea was carried out. The assay of simple phenols was carried out by the method of visible spectrophotometry, the assay of phenolic and cinnamic acids by the method of UV-spectrophotometry (calculation for gallic and chlorogenic acids correspondingly), the assay of oxidizable polyphenols by the method of permanganometry (calculation for tannin), and the