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THE INVESTIGATION TOTAL CONTENT OF HYDROXYCINNAMIC ACIDS IN THE ST. JOHN HERB

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Introduction. St. John is an herbaceous perennial plants that origin to Europe, Asia and Africa. St. John contains derivatives of antraquinone, flavonoids, prenylated phloroglucinols, hydroxycinnamic acids, volatile compounds and organic acids. The St. John herb has a wide range of application in medicine: inflammation of bronchs, stomac ulcers, diabetes mellitus, wound healing, colds, obesity and depression. Therefore, investigation the phytochemical composition of St. John herb is a perspective topic for today. [1]

The aim of the study. Determine the total content of hydroxycinnamic acids in the St. John herb.

Methods of research. The object of the study was the St. John herb. The herb was collected in July 2022 in the Ternova village, Kharkiv region, Ukraine. The quantitative determination of the total hydroxycinnamic acids was carried out by the following method: 0.300 g of raw materials crushed into powder than 95 ml of *ethanol (50%, v/v) P* was added, it was boiled with a reflux on a water bath for 30 min, cooled and filtered. The filter was rinsed with 5 ml of *ethanol (50%, v/v) P*, the filtrate and washing water were combined in a volumetric flask and the volume of the solution was made up with *ethanol (50%, v/v) P* to 100.0 ml. To 1.0 ml of the test solution, it was added 2 ml of a *0.5 M solution of hydrochloric acid P*, 2 ml of a solution prepared by dissolving 10 g of *sodium nitrite P* and 10 g of *sodium molybdate P* in 100 ml of *water P*, then it was added 2 ml of *sodium hydroxide of diluted P*, it was brought the volume to the mark with *water P* to 10.0 ml and mix (Solution A). The absorbance of the test solution was immediately measured at a wavelength of 525 nm, using as a compensating liquid a solution prepared as follows: 1.0 ml of the test solution (A), 2 ml of a *0.5 M solution of hydrochloric acid P*, 2 ml *sodium hydroxide solution of diluted P* were mixed and the volume of the solution was brought up to 10.0 ml with *water P*. The quantitative content of the sum of hydroxycinnamic acids, expressed as chlorogenic acid, (X, %) was calculated according to the formula:

$$X = \frac{A \cdot K_{dil} \cdot 100}{188 \cdot m_{н} \cdot (100 - W)},$$

where, A – absorbance; 188 – absorbance coefficient of chlorogenic acid at 525 nm; K is the dilution factor; W – weight loss during drying, %; m_n is mass of sample, g.

Main results. The total content of hydroxycinnamic acids was 1.44±0.10% expressed as chlorogenic acid in the St. John herb.

Conclusion. The obtained research results can be used in the development of herbal pharmaceuticals, dietary supplements and medicines.

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THE INVESTIGATION TOTAL CONTENT OF CATECHINS IN THE LINGONBERRY LEAF

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Introduction. Lingonberry (*Vaccinum vitis-idaea* L.) is an evergreen shrub of the *Ericaceae* family. Owing to rich chemical content of lingonberry leaf, extract has possessed variety of pharmacological activity: antimicrobial, antioxidant, anti-inflammatory, diuretic and neuroprotective actions [1]. Therefore, investigation the phytochemical composition of lingonberry leaf is a perspective topic for today.

The aim of the study. Determine the total content of catechins in the lingonberry leaf.

Methods of research. The object of the study was the lingonberry leaf. The leaf was collected in October 2021 in the Kostivtsi village, Zhutomyr region, Ukraine (50.329417, 29.536861). The determination the total content of catechins in green tea leaves a 5 g (an exact amount sample) was taken of the crushed raw material and placed in a 250 mL flask with ground glass joints, poured 100 mL of 70% ethanol and kept for 1 hours in a boiling water bath. The extraction was repeated one more time. After cooling, the solution was quantitatively transferred into a 250 mL volumetric flask and make up to the mark by the 70% ethanol (solution A). A 1 mL of prepared solution A was mixed with 7.5 mL of 1% vanillin solution in 96% ethanol in a 25 mL volumetric flask. Than the solution was made up by the addition 0.5 mol/L HCl in 96% ethanol solution. The mixture was analyzed at 505 nm after standing for 30 min as compensation liquid was 70% ethanol. The total content of catechins was determined using the standard substance (epigallocatechin-3-O-gallate). The calibration curve was plotted with interval concentrations 100 – 400 × 10^{-6} g/mL. The quantitative content of the sum of catechins, expressed as epigallocatechin-3-O-gallate, (X, %) was calculated according to the formula:

$$X(\%) = \frac{C_x \times K_{dil} \times 100 \times 100}{m \times (100 - W)},$$

where, C_x – concentration of epigallocatechin-3-O-gallate according to calibration curve, C×10^{-6} g/mL; K_{dil} – coefficient of dilution; W – weight loss during drying, %; m_n is mass of sample, g.

Main results. The total content of catechins was 3.12±0.10% expressed as epigallocatechin-3-O-gallate in the lingonberry leaf.