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THE INVESTIGATION TOTAL CONTENT OF FREE ORGANIC ACIDS IN THE ST. JOHN HERB

Maslov O.Yu., Komisarenko M.A., Kolisnyk S.V.
National University of Pharmacy, Kharkiv, Ukraine

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 content of total organic 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 organic acids was carried out by the following method: 5.0 g (exact mass) of dried leaves of lingonberry leaves were grinded to the size of $1-2$ mm. The extraction of free organic acids was provided by distilled water on water bath in a flask with a reflux condenser and extracted at the ratio raw material/solvent 1/40 (*m/v*), during the 2 hours. The obtained extract was filtrated to the measuring flask and a mark was made up by freshly boiled distilled water [2]. The quantitative content of the sum of organic acids, in terms of citric acid, (X, %) was calculated according to the formula:

$$X(\%) = \frac{(V_{eq} - V_x) \cdot 0.0032 \cdot K \cdot 100 \cdot 100 \cdot 100}{m \cdot 5 \cdot (100 - W)},$$

where, 0.0032 – the amount of citric acid, which is equivalent to NaOH solution, g/mL; V_{eq} is the equivalent volume of NaOH solution, mL; V_x – the blank volume of NaOH solution, mL; m – the mass of the raw materials, g; K – correction coefficient; W – the loss in mass upon drying, %.

Main results. The total content of organic acids was 1.02±0.10% expressed as citric acid in St. John herb.

Conclusions. These findings show the great potential of St. John's wort in the development and creation of new medicines with antimicrobial and antifungal effects.

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

Maslov O.Yu., Komisarenko M.A., Kolisnyk S.V.
National University of Pharmacy, Kharkiv, Ukraine

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.