

## **RECEIVING AND RESEARCH OF LIPOPHILIC COMPLEX FROM THE LEAVES AND FLOWERS OF COLTSFOOT**

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Nowadays scientists pay a special attention to study of lipophilic complexes and development of medicinal products on their basis. It is well-known fact that LF have saturated and unsaturated fatty acids, carotenoids, chlorophylls, porphyrins and other substances which are the main products of plant biosynthesis. Depending on the structure of the individual components, they have different kinds of biological activity, which makes their use as drugs. The drugs with such structure are antistaphylococcal drug "Chlorophyllipt", anti-inflammatory and antimicrobial ointment "Marigold" and "Vundehil", wound healing oil of buckthorn and rosehip, multivitamin antiulcer agent "Tykveol", an effective hepatoprotector "Esentsyalye".

The aim of our study was receiving and phytochemical research of lipophilic fraction (LF) from the leaves and flowers of coltsfoot.

Materials and methods. Lf were derived from the leaves and flowers of coltsfoot at the Department of Chemistry of Natural Compounds of NUPh. LF were received in the apparatus of Soxhlet using popular method. Chloroform was used as the extract.

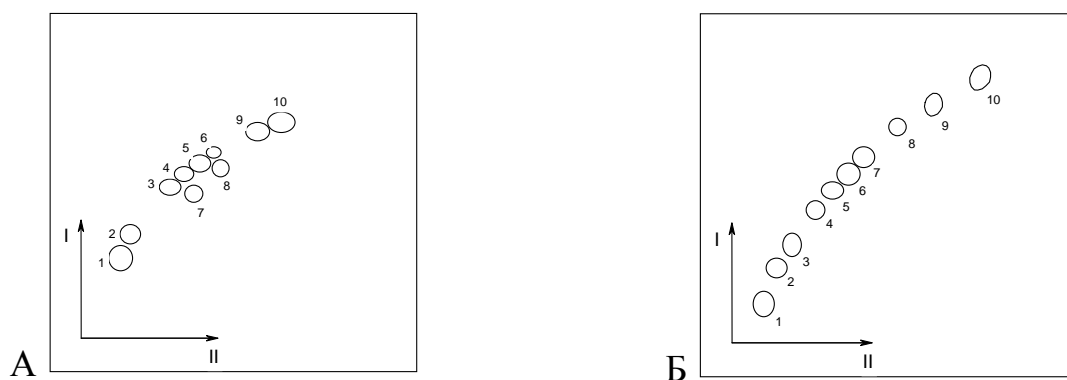
Studying the quality of the received LF was performed by thin-layer chromatography plates "Silufol" in the solvent system hexane-acetone (6:4) – and the direction hexane-acetone (6:2) – the second direction.

In the received lipophilic fractions, we have determined the content of biologically active substances. Determination of content carotenoids was performed by spectrophotometric method at a wavelength of 450 nm. As a reference solution was used hexane. For quantification of chlorophylls used photocolometric method. Optical density was measured at fotoelektrokolorimetr KPhK-2 red filter in a ditch with a layer thickness of 10 mm. The reference solution was 96% ethanol.

For standardization LF was defined chemical, numerical parameters: acid number, saponification number, iodine value and essential. Determination was carried out by the methods of the State Pharmacopoeia of Ukraine.

The results. The release of chemical lipophilic fraction from the leaves of coltsfoot was 11.56%, with flowers - 10.75%.

Schemes of chromatogram were shown in the picture.



Picture. Schemes of chromatograph in the quality of the LF of leaves (A) and flowers (B) of coltsfoot.

As it is shown in the picture. 1, in both received fractions were revealed at least 10 substances of lipophilic nature. Spots 1, 3, 5, 6 (Fig. 1A) and 2, 3 (Pict. 1B) in daylight had a dark green color, and UV-light they had a bright red fluorescence. Therefore, substances 1 and 3 (Fig. 1A) and 2, 3 (Fig. 1B) were referred to chlorophylls. Spots 5, 6 (Pict. 1A) after treatment with a solution of phosphotungstic acid acquired a pale pink color, which changed to purple and eventually disappeared, and was attributed to porphyrins. Spots 2, 4 (Pict. 1A) and 1, 4, 10 (Pict. 1B) in a daylight had orange color, and UV-light they had brown fluorescence. After processing of chromatogram by 2% solution of p-dimethylaminobenzaldehyde in a mixture of ethanol and hydrochloric acid and heating at 80-90 degrees for 5-7 min, they are painted in pink and purple color and were attributed to carotenoids. Spots 7-10 (Pict. 1A) and 5-9 (Pict.1B) in UV-light were blue, purple and yellow-green fluorescence, which intensified under the influence of ammonia.

The structure of carotenoids in LF with leaves of coltsfoot was 85.66 mg%, with flowers – 12.70 mg% and chlorophyll – 48.27% and 10.75% respectively.

The results of determining chemical amounts in the table.

Table

The results of determining chemical amounts

Object of research	Chemical numerical index			
	acid number	saponification number	essential number	iodine number
LF from leaves	36.92	116.65	79.73	47.84
LF from flowers	49.81	157.07	107.26	22.53

The conclusion. The results tell us about opportunity of creation new effective drugs which are based on LF from leaves and flowers of coltsfoot.