Materials and methods. Herbal drug preparations, namely, tinctures, liquid and thick extracts from *C. officinalis* L., *T. officinale* Wigg., *I. helenium* L. and *A. annua* L. were chromatographed "as is" and after acid hydrolysis.

As reference herbal drug preparations, licorice syrup, escuzan, esflazid, infusions from *Astragalus dasyanthus* herb and *Orthosiphon stamineus* leaves were used. To detect saponins on the chromatograms obtained, a detection reagent (anis aldehyde reagent) was used, followed by heating at 105°C for 5 minutes.

Results and discussion. By TLC method, in the objects studied (before and after acid hydrolysis) from 4 to 12 compounds of terpene nature, in particular *β*-amyrin and *α*-amyrin, were detected according to the chromatographic behavior of the spots.

Conclusions. The presence of *β*-amyrin and *α*-amyrin in the marked herbal drug preparations from *Calendula officinalis* L., *Taraxacum officinale* Wigg., *Inula helenium* L. and *Artemisia annua* L. gives background for carrying out phytochemical and pharmacological studies aimed at extension of the range of indications for use of tinctures, liquid and thick extracts from the above-mentioned official plants of *Asteraceae* family.

THE STUDY OF SAPONINS IN *SMILAX EXCELSA* L. ROOTS

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Introduction. *Smilax* L. genus is the only genus of Smilacaceae family with more than 350 species, of which 80 grow in China, more than 20 species grow in India, up to 30 – in Central America, others – in Africa, in Europe from 1 to 3 species grow.

Common smilax – *Smilax excelsa* L. (*Smilax aspera*) or Sarsaparilla (*Sarsaparilla excelsa* L.) grows in Europe and the Caucasus. The plant is a climber up to 10 m long, stems with sharp strong thorns 4-8 mm long. Leaves of variable shape, mostly ovate-cordate, rarely guitar-shaped, shortly pointed at the apex, sometimes prickly at the edge, short-petiolate, with 2 tendrils at the base. Flowers 4-10 in the axils of cymes; pedicel up to 2 cm long. Perianth petal-shaped, greenish. Male flowers with 6 stamens. Female flowers bear 1 ovarium with 3 stigmas. Berry spherical red, 1-3 locular. A flowering period: from May to December.

The plant is distributed in the Mediterranean region, Asia Minor, the Caucasus, Iran. Sarsaparilla grows both in swampy forests and on limestone rocks. With the help of paired thorns-hooks climbs high on the trees, forms lush impassable spinney.

In Smilax plants, flavones, flavonones, flavonols, stilbenes, smilasides, saponins, resins, bitter substances were reported. Smilax aspera L. accumulates anthocyanins: pelargonidin and cyanidin.

Radix Sarsaparillae excelsae and other Sarsaparilla species have long been used in folk and ancient medicine as a diuretic and detoxifying agents for the treatment of rheumatoid arthritis, syphilis, diabetes, gout, ulcers, cancer, inflammation, ophthalmic diseases.

Some compounds of *Smilax riparia*, namely, riparoside B and thymosaponin J reverse the damage to renal tissue in hyperuricemia and concomitant urate nephropathy. At the same time, the structure of epithelial cells and renal tubules is restored. According to the results of studies into the use of *Smilax riparia* extract, the level of uric acid in the serum is reduced by 16-39%, while urea nitrogen level is reduced by 20-28%.

We previously reported on the study of biologically active compounds (BACs) in the aerial part of Chinese smilax and the identification of aglycones, namely apigenin, luteolin, kaempferol and quercetin; catechins; *p*-coumaric, ferulic and chlorogenic acids in the acid hydrolysate.

Aim. The aim of the present research was to study saponins in roots of *Smilax excelsa*.

Materials and methods. *Smilax excelsa* roots were collected in November 2020. The sum of saponins was obtained by two methods. In the first method, Smilax roots were pre-degreased using petroleum ether to destroy the complexes of saponins and alcohols insoluble in water and aqueous alcohols. The resulting extract was treated with water-ethanol mixtures of various concentrations, then butanol saturated with water wasadded, the fractions were combined. The sum of saponins was isolated by adding water to the alcoholic combined solution, somewhat later saponins precipitated and were purified by re-precipitation.

In the second method, saponins were extracted from the roots using 70% alcohol and precipitated by addition of cholesterol solution; the formed cholesterol complexes were broken down by extraction of cholesterol with chloroform, and the sum of saponins was obtained.

An identification of saponins was performed by reactions based on physical (foaming index and determination of chemical nature) and chemical (precipitation and color reactions) properties.

The precipitation reagents used: lead acetate solution, solutions of copper and zinc salts; alcohol solution of cholesterol; the aglycone moiety of saponins was determined in Liebermann-Burchard test; color reactions were performed with reagents containing sulfuric acid and hydrochloric acids with acetic anhydride and other aldehydes, namely vanillin, formaldehyde, 4-dimethylbenzaldehyde with small amounts of metals' salts, etc.: Salkovskiy reaction, Sagnier reaction, Lafon reaction.

The thin layer chromatography (TLC) studies of saponins were performed, the solvent system: chloroform/acetic acid/ethanol/water (60:40:12:8) was used. For the detection of saponins on chromatograms, vanillin (*p*-dimethylaminobenzaldehyde) reagent was used.

Results and discussion. As a result, the steroidal nature of saponins was established. Chromatographically, in all extracts from 8 to 10 substances of saponin nature were detected. According to Rf values, fluorescence, spots colour after treatment with chromogenic developer and in comparison with reliable samples, two substances were identified as spirostanol saponins: dioscin (Rf value of 0.30) and diosgenin (Rf value of 0.75).

Conclusions. The thin layer chromatography (TLC) studies of saponins in *Smilax excelsa* L. was performed; dioscin and diosgenin were chromatographically detected. The presence of dioscin and diosgenin justifies the prospects of in-depth studies for the development of herbal drug preparations with antitumor, hypolipidemic, hypoglycaemic properties, as well as antifungal herbal drug preparations against *Candida* spp.

THE MORPHOLOGICAL AND ANATOMICAL STUDY OF *SMILAX EXCELSA* L.

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Introduction. Dietary supplements containig Smilax or Sarsaparilla become common on the pharmaceutical market of Ukraine. Smilax contains a complex of biologically active compounds (BACs), the principal BACs are steroidal saponins. Smilax herbal preparations are recommended as