

in espresso blends. Other types of coffee, such as liberica, arabusta and excelsa, have little industrial value. The chemical composition of coffee beans is represented by alkaloids, proteins, phenolic compounds, mono- and disaccharides, lipids, organic acids, amino acids, and mineral elements. Typical representatives of coffee alkaloids are methylated purine derivatives: caffeine, theobromine, theophylline, and trigonelline. Phenolic compounds are represented by chlorogenic acids and tannins.

Aim. The aim of our study was to determine the qualitative and quantitative composition of alkaloids and phenolic compounds in different varieties of coffee, both whole grain and ground, presented on the Ukrainian market.

Materials and methods. The objects of study were Arabica coffee beans “Mr. Rich Rostkaffee Cafe Creme Torino” (sample 1) and ground coffee “De Luxe Foods & Goods Selected” (sample 2). Phenolic compounds and alkaloids of coffee were investigated by thin layer chromatography method in solvent systems: ethyl acetate - anhydrous formic acid - water (10:2:3) and chloroform - methanol - acetone - ammonia (85:14:1:1). Quantitative determination of alkaloids and hydroxycinnamic acids was performed by spectrophotometry methods in terms of caffeine and chlorogenic acid, respectively.

Results and discussion. The alkaloids trigonelline, caffeine, theophylline and theobromine, as well as hydroxycinnamic acids – p-coumaric, ferulic, caffeic and chlorogenic, were identified in both samples by thin layer chromatography. It was determined that the content of alkaloids in the sample 1 is $0,81\pm 0,03\%$, in the sample 2 – $0,71\pm 0,02\%$; content of hydroxycinnamic acids in the sample 1 is $3,72\pm 0,08\%$, in the sample 2 – $3,15\pm 0,06\%$.

Conclusions. In both studied coffee samples, alkaloids and hydroxycinnamic acids were identified. Using spectrophotometric methods, the content of these groups of biologically active substances was determined.

THE ELEMENTAL COMPOSITION OF *DASIPHORA FRUTICOSA* (L.) VAR. ‘ELIZABETH’

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Introduction. Shrubby Cinquefoil (*Dasiphora fruticosa* (L.) Rydb.; syn. *Potentilla fruticosa* L., family *Rosaceae* L.) is a deciduous shrub common to Northern Hemisphere’s temperate regions. Major and trace elements, unsaturated fatty acids, pectin substances, tannins, hydrocinnamic acids, flavonoids, saponins were reported in *D. fruticosa* herb. Leaves of *D. fruticosa* are used as a tea substitute; in the folk medicine, it is used as an anti-inflammatory and hemostatic agent; an *in vitro* antioxidant activity was reported. Nowadays, *D. fruticosa* is a well-known ornamental plant; depending on the flowers’ size and colour, more than 130 varieties are available. There is no information on the chemical profile of *D. fruticosa* varieties available in the public domain. *D. fruticosa* ‘Elizabeth’ is a bushy shrub of about 1 m in height and it spreads up to 1.5 m; with canary yellow flowers up to 3.5 cm diameter in cymes of 3. *The plant is an* attractant for bees due to flowers rich in nectar and pollen.

Aim. The aim of the present research was to study the elemental composition of aerial part of yellow flowering variety of *D. fruticosa* ‘Elizabeth’ cultivated in Ukraine.

Materials and methods. Aerial part of *D. fruticosa* ‘Elizabeth’ were collected at the flowering stage in Kiev region in August 2020. The elemental composition was studied by atomic emission spectrophotometry (DNU “STC” Institute for Single Crystals” of NAS of Ukraine). IMS-28 was used as a source of excitation spectra; spectra were recorded on the spectrograph DFS-8; the wavelength range from 270 to 347 nm; a comparison with a mixture of mineral elements standard samples was performed.

Results and discussion. In aerial part of *D. fruticosa* ‘Elizabeth’, major and trace elements were identified and quantified. Quantitatively, in the sample studied major elements dominated. The following major elements prevailed in *D. fruticosa* ‘Elizabeth’: calcium, potassium and magnesium. With respect to the trace elements, aluminum, iron and manganese dominated. The raw materials studied comply with the pharmacopoeial limits set for heavy metals content. The results obtained are in concordance with previous studies on elemental composition of aboveground organs of *D. fruticosa* from natural habitats.

Conclusions. The elemental composition of aerial part of *D. fruticosa* ‘Elizabeth’ cultivated in Ukraine was first studied. The results obtained indicate prospects for further pharmacognostic study of *D. fruticosa* ‘Elizabeth’.

BIBLIOGRAPHIC EVALUATION OF PHARMACOLOGICAL PROPERTIES AND THERAPEUTICAL IMPORTANCE OF URSOLIC AND OLEANOLIC ACIDS

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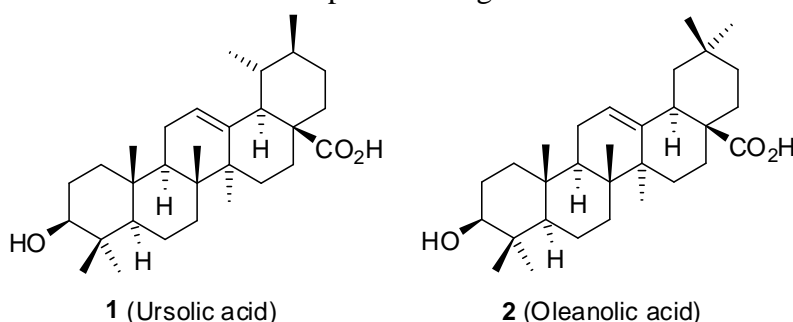
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Introduction. Polyphenols are a large group of natural compounds that are widely distributed in the plant kingdom, as constituents of medicinal herbs and are integral part of the human diet. Within the last few years extensive research has revealed that including of certain fruits and vegetables in a diet can reduce the risk of acquiring specific cancers.

Triterpenoids - ursolic (1) and oleanolic (2) acids are common phytochemicals naturally found in various plants, the wax-like coatings of fruits and many medicinal herbs – lavender, rosemary, oregano in the form of free acids or aglycones for triterpenoid saponins. For a long time, these compounds were considered to be biologically inactive, but in recent years they have attracted the interest of medical scientists because of their pharmacological effects combined with low toxicity.



Ursolic acid (1), originally found in traditional Chinese medicinal herbs (*Panax ginseng*), and its isomer oleanolic acid (2) is especially prevalent in plants belonging to the Oleaceae family (*Olea europaea*) and is found in the epicuticular waxes of plants.