VOLATILE COMPOUNDS OF LEAVES OF *CERASUS JULIANA* LAM.

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Introduction. *Cerasus Juliana* Lam. belongs to the genus *Cerasus* Juss., section *Eucerasus* Koehne. This plant is a variety of *Cerasus avium* L., which is successfully cultivated in Ukraine and it differs from other varieties by juicy and fleshy fruits.

Aim. Continuing the phytochemical study of members of the family *Rosaceae* L., the aim of the work was to study the volatile compounds of the leaves of *Cerasus Juliana* Lam.

Materials and methods. The object of the study were the leaves of *Cerasus Juliana* Lam. collected in August 2019. For study of compounds an Agilent Technologies 6890 chromatograph with a mass spectrometry detector 5973 was used. The herbal drugs placed in a vial and internal standard (tridecane) was added. The sample placed into the chromatographic column in splitless mode. Chromatography conditions: sampling rate 1.2 ml / min for 0.2 minutes; chromatographic column - capillary DB-5 (ext. diam. 0.25 mm), 30 m long; carrier gas spleet (helium) 1.2 ml / min; sample input heater temperature - 250 degrees; thermostat temperature programmable from 50 to 320 degrees with a speed of 4 degrees / min. To identify volatile components, the NIST05 and WILEY 2007 mass spectra library with a total number of spectra of more than 470,000 in combination with the programs for identifying AMDIS and NIST are used. For quantitative calculations, the internal standard method is used. The research results are presented in Table 1 and in Fig. 1.

Results and discussion. In the leaves of *Cerasus Juliana* Lam. were detected 47 volatile substances of different chemical nature and 45 compounds were identified. The content of substances in herbal drugs (% of the total) was: aromatic compounds 0.14% (eugenol), terpenoids 30.46% (trans-linalool oxide, cis-linalool oxide, linalool, nerol, α-terpeniol, geraniol, geranylacetone, terpene-4-ol, β-damascenone, geranylacetone, squalene, farnesol, farnesene epoxide); tricyclic sesquiterpenoids 1.73% (nerolidol); aldehydes, higher alcohols, hydrocarbons - 48.23%; fatty acids 19.44%. Dominate among terpenoid substances in terms of quantitative content are squalene (10.34%), farnesol (8.50%), α-farnesene (6.21%), α-terpeniol (0.87%).

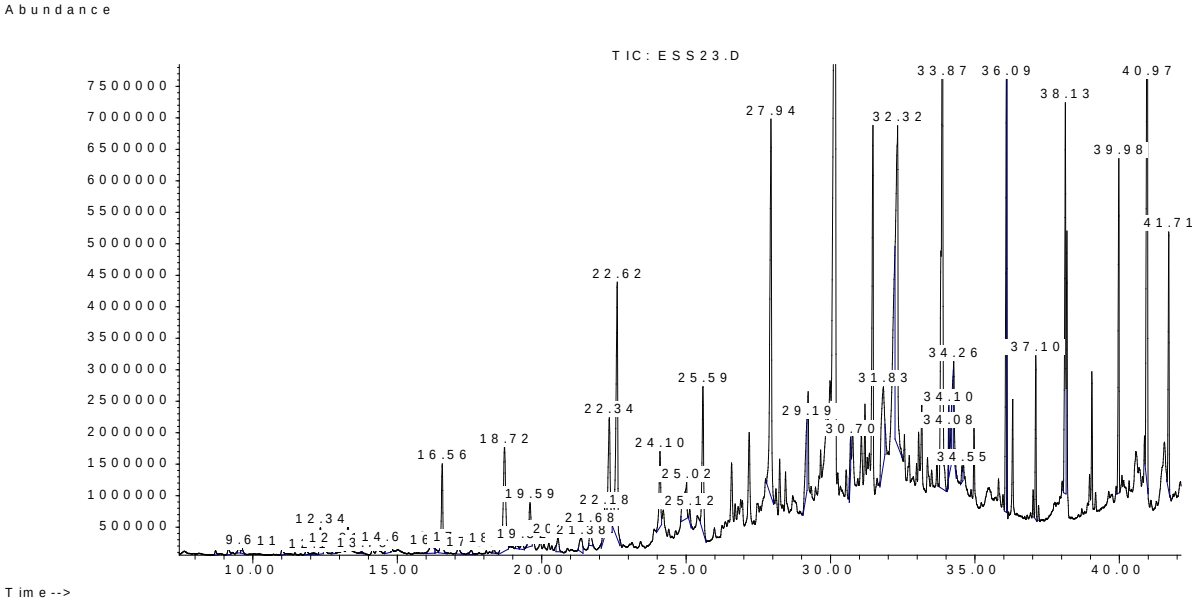

Fig.1 Chromatogram of volatile substances of *Cerasus Juliana* Lam. leaves

Table 1

Results of chromato-mass spectrometric study the leaves of *Cerasus Juliana* Lam.

№	Retention time, (min.)	Compounds	Content, (mg/kg)
1	8.716	Trans-linalool oxide	2.28
2	9.148	Cis-linalool oxide	4.17
3	9.518	Nonanal	4.11
4	9.618	Linalool	3.31
5	11.006	-	3.76
6	11.862	Neral	3.18
7	12.108	*p*-Kumen-8-ol	1.75
8	12.34	α-Terpeniol	20.88
9	12.81	Decanal	3.74
10	13.781	Nerol	1.35
11	14.637	Geraniol	8.31
12	16.195	4-vinyl-2-methoxyphenol	11.81
13	16.31	Deca-2,4-dienal	2.22
15	17.112	1-methyl-4- benzene	6.62
16	17.559	Eugenol	3.57
17	18.346	β-damascenone	3.47
18	18.716	-	89.17
19	19.132	Capric acid	2.94
20	19.317	Dodecanal	5.28
21	19.595	4- (2,2,6-trimethylcyclohex-1,3-dienyl) butan-2-one	31.98
22	20.566	Geranylacetone	9.57
23	21.376	Ionone-5,6-epoxyde	12.88
24	21.677	Cyclodecan	7.63
25	22.178	3,7,11-trimethyl-dodecane-1,3,6,10-tetraene	19.88
26	22.34	-	84.29
27	22.617	α-Farnesene	148.30
28	24.098	Nerolidol	41.49
29	25.023	Lauric acid	43.58
30	25.123	Benzophenone	5.25
31	25.586	Farnesene epoxyde	75.47
32	27.937	Farnesol	203.02
33	29.186	Myristic acid	41.90
34	30.698	Pentadecanoic acid	13.24
35	31.831	Palmitoleic acid	80.29
36	32.325	Palmitic acid	228.10
37	33.874	Phytol	308.59
38	34.083	Linolenic acid	8.35
39	34.098	Linoleic acid	32.26
40	34.612	Oleic acid	53.27
41	34.553	Stearic acid	6.41
42	36.095	Tricosan	143.51
43	37.105	Pentacosan	44.87
44	38.13	Hexacosan	132.48
45	39.981	Heptacosan	100.37
46	40.968	Squalene	246.70
47	41.708	Nonacosan	78.75

Conclusions. For the first time, a chromatography-mass spectrometric study of the volatile compounds of leaves of *Cerasus Juliana* Lam. was carried out. The main biologically active substances have been established, which can be used in the future for creating the medicines on base of this herbal drugs.

DUCHESNEA INDICA (ANDR.) FOCKE, A MEDICINAL PLANT WITH BROAD THERAPEUTIC POTENTIAL

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Introduction. *Duchesnea* Smith (*Rosaceae* Juss.) is a genus of perennial herbs, comprising only 2 species. *Duchesnea indica* (Andr.) Focke is the perennial herb with petiolulate leaves, yellow flowers and red, glossy achenes. Naturally, the plant grows at mountain slopes, meadows, riverbanks, wet places. In Ukraine, *D. indica* is cultivated as ornamental plant. *D. indica* is as a rich source of phenolic compounds, and nowadays, worldwide, much attention is paid to therapeutic potential of this plant.

Aim. In this abstract, data on *in vitro* pharmacological studies of *D. indica* carried out worldwide are summarized in order to show a therapeutic potential of this plant, as well as to justify pharmacognostic study of *D. indica* cultivated in Ukraine.

Materials and methods. For the present abstract, we performed a search in NCBI-PubMed database using "*Duchesnea indica*" as a keyword. In the present abstract we report results of five *in vitro* pharmacological studies of *D. indica*.

Results and discussion. X.-F. Li *et al.,* 2011 reported that the ethanol extract from *D. indica* can reduce an inflammatory injury of neurons induced by herpes simplex virus due to the induction of microglia apoptosis. A neutral polysaccharide from *D. indica* exhibited dose-dependent scavenging activities on hydroxyl, DPPH, ABTS radicals, and demonstrated high inhibitory activity against cells of ovarian cancer cell line SKOV-3, as well as human liver cancer cell line Hep-G2 (B. Xiang *et al.,* 2019). P.-N. Chen *et al.,* 2016 established that *D. indica* extracts inhibited cells of highly metastatic lung cancer cell lines A549 and H1299, and reduced the cell adhesion properties. Also, these extracts down-regulated the expression of mesenchymal markers. Authors concluded that *D. indica* extracts have potential to prevent and treat a lung cancer. The leaf extract from *D. indica* increases the cell viability, thymocyte and splenocyte proliferation in the time- and dose-dependent manner demonstrating immunostimulant effect (H. Y. Ang *et al.,* 2014). Fazli Khuda *et al.,* 2014 evaluated the anti-inflammatory potential of ethyl acetate fraction from *D. indica*. The research showed that the studied fraction from *D. indica* showed significant lipoxygenase inhibition activity.

Conclusions. *In vitro* pharmacological studies carried out worldwide showed antitumor, antioxidant, anti-inflammatory and immunostimulant properties of *Duchesnea indica*, what justifies pharmacognostic study of *D. indica* cultivated in Ukraine.