

ANALYSIS OF THE RANGE OF OAT-BASED PRODUCTS

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Introduction. Ukraine has many years of experience in agriculture, even under martial law, farmers have shown high professionalism and possible ways to solve the problems of ensuring food security of society and supporting the country's economy. Wartime makes it impossible to collect wild plants in most of the country, they had a significant share in the list of sources of raw materials for the creation of medicines. In turn, pharmacists are faced with the task of finding alternative sources of biologically active substances (BAS) for the creation of medicines. Therefore, the use of cultivated food crops as sources of medicinal raw materials is promising.

According to the Ministry of Agrarian Policy, as of March 28, 2025, 50.7 thousand hectares of oats were sown, which may contribute to solving, among other things, the problem of the raw materials for the creation of medicines [1]. Oats, or common oats (*Avena sativa* L.) is an annual herbaceous plant of the genus *Oves*, family *Poaceae*.

Scientists around the world are engaged in oat breeding [2, 3]. Popular varieties cultivated in Ukraine are Common oats (*Avena sativa* L.) and Byzantine oats (*Avena buxantina* C. Koch.). The most famous and widely cultivated varieties are Salomon, Neptune, and Chernihivskyi 28 [1].

Oats differ significantly from other cereals in their high protein content (the main ones are globulins) and a wide range of essential amino acids [4,5]. The high nutritional value of oats is also due to the high content of β -glucan, which is an important food component [6]. In addition, oats contain more than 20 unique polyphenolic compounds, known as avenanthramides [7-10]. These are conjugates of phenylpropanoids (p-coumaric, ferulic or caffeic acid) with anthranilic acid or 5-hydroxyanthranilic acid. Most of these compounds are found in oat groats with the highest concentration in the bran. Avn A, Avn B and Avn C8 are well studied (formulas - Fig. 1).

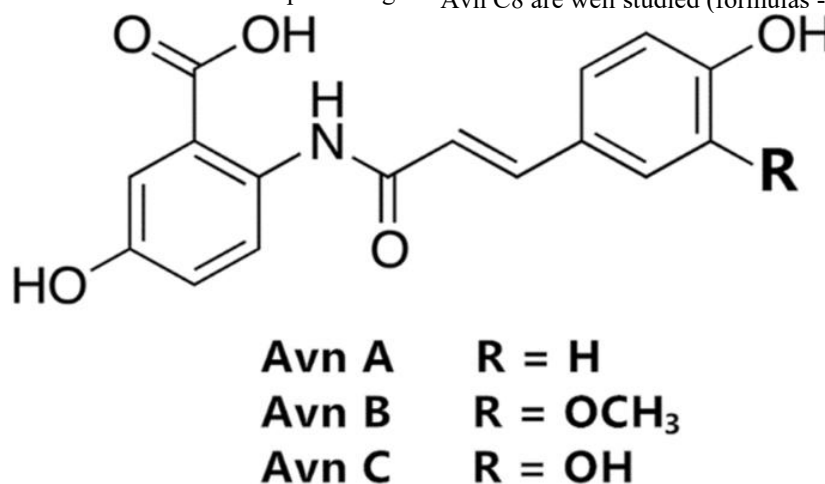


Fig. 1. Avenanthramide formulas A, B, C

The chemical composition of the plant is quite well studied [11]. The presence of proteins, minerals, lipids, β -glucan, avenanthramides, alkaloids, flavonoids, triterpenoids, saponins, lipids and sterols provides powerful pharmacological activity [12, 13]. There is evidence of antioxidant, anti-inflammatory, immunomodulatory, hypoglycemic, gastroprotective, hypolipidemic, adaptogenic, psychotropic, cardioprotective and many other biological actions [14-19].

There is evidence of the effect of oat extract of "milk ripeness" on the cognitive functions of the human brain [20, 21]. Fermentation with probiotics increases the content of phenols in the raw material and improves antioxidant activity, increases the level and bioavailability of vitamins and minerals, improves protein digestibility and reduces antinutritional factors of oats [22].

Ukrainian scientists analyzed the effect of oat nutrients on the muscle tissue of geese. Regardless of the

methods of adding to the diet of geese, seed oats contribute to the increase of antioxidant activity of the muscle tissue of geese. However, a more stable antioxidant effect was observed when oat extract was added to the diet [23].

Korean researchers have analyzed the functionality of germinated oats. It was found that during germination, various enzymes, nutrients and genetic information in the germinal disc and endosperm of the seed are activated and the maximum amount of nutrients is provided. The amount of amino acids, carbohydrates, fatty acids and vitamins B1, B2 and E increases, and minerals and dietary fiber are modified. In addition, the content of active ingredients such as γ -aminobutyric acid, γ -oryzanol and arabinoxylan increases [24].

Considering the above: the presence of a wide raw material base, significant use in the food industry, diverse chemical composition, pharmacological activity, oat raw materials as a source of BAS require more in-depth research. It is expedient and relevant in this aspect to study oat products on the Ukrainian market. Economic

challenges and martial law in Ukraine increase patriotic sentiments, which contributes to the growth of demand for domestically produced products. At the same time, significant competition from international brands complicates the promotion of Ukrainian manufacturers. Despite this, the market demonstrates positive dynamics in the online sales segment. Platforms such as Rozetka, MakeUp, EVA, Prom.ua are becoming key channels for product sales, allowing to analyze the assortment and pricing policy.

The purpose of the work. To determine the prospects for developing a medicinal product based on oat seed raw materials, outlining specific steps in the process of obtaining an API.

Material and methods. Sources of scientific information (Google Scholar, Pubmed), online trading

platforms (EVA, Rozetka, Prom.ua, OLX.ua), content analysis with subsequent data systematization and market segmentation.

Results and discussion. In addition to the widespread use of fruits in the food industry, the raw material is used in the domestic pharmaceutical industry in the form of medicinal raw materials (herb), dietary supplements (dietary supplements) and cosmetic products (creams, lotions, shampoos, etc.) (table).

As part of the study of the Ukrainian market, we identified approximately 100 oat-based products and analyzed their range by producing country. Currently, there are at least 5 countries producing products based on it on the Ukrainian market (Fig. 1).

Segmentation of the state market for oat-based products by producing countries (number of products)

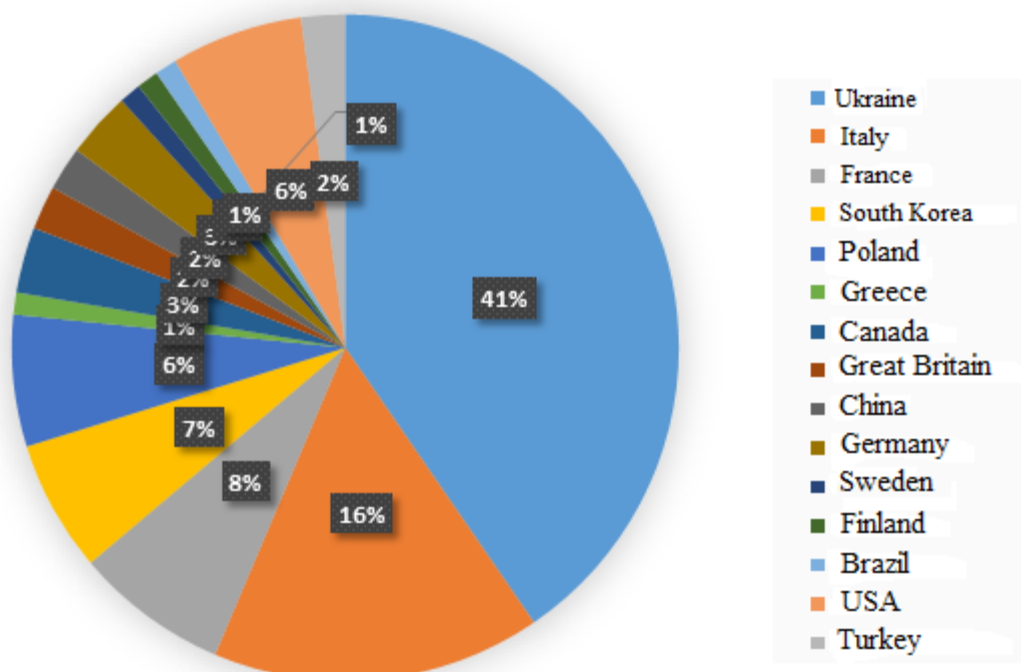


Fig. 1. Countries - producers of oat-based products on the Ukrainian market.

The lion's share is made up of domestic manufacturers (41%). Moreover, the majority of products are dietary supplements.

Table. Market analysis of oat-based products.

№	Product name	Producer	Estimated cost, UAH
1	Oats of milk ripeness grass, 25 g	Travy Ukrayiny, Ukraine	18
2	Oats of milk ripeness grass, 1 kg	Health - Trav'yani zbory, korinnya, plody ta nasinnya, Ukraine	267
3	Oats of milk ripeness grass, 500 g, 1 kg	Dary Karpat, Ukraine	140, 270
4	Oats of milk ripeness grass, 1 kg	GreenHouse, Ukraine	261
5	Oats of milk ripeness grass, 1 kg	Eko travy, Ukraine	260
6	Oats of milk ripeness grass, 50 g	Sednivs'ki travy, Ukraine	35
7	Oats of milk ripeness grass, 1 kg	Ecolotos, Ukraine	270

№	Product name	Producer	Estimated cost, UAH
8	Oats of milk ripeness grass, 500 g	Ruchna robota, Ukraine	150
9	Organic chopped and selected oat greens, 16 ounces (453 g)	USA	746
10	Oat straw, 50 g Powder, 500 g	Fito Frontier Natural Products, USA	189
11	Oat milk, 100 g	Naturalis Ukraine	70
12	Oat milk, 50 g	Organic Herbs, Ukraine	40-43
13	Navenin based on Avicenna oat grass extract, №10	Avicenna, Ukraine	
14	Fitomax Delta with oat extract, tablets № 40	Fitodar, Ukraine	255
15	Ovesit, tablets № 40 (choleretic)	Elixir, Ukraine	117
16	Phytosed, capsules № 20	Public Joint-Stock Company "Khimpharmzavod" Red Star	155
17	Avenicetin, tablets № 30	Avicenna, scientific and therapeutic phytocenter, Ukraine	120
18	Cortez Ovesite Oat and Artichoke Extract Oat Extract + Artichoke, tablets № 40	Elixir, Ukraine	114-130
19	"Ovesan" - 100%. Natural herbal complex for digestive system health	Biolica, Ukraine	137-142
20	Standardized Wild Green Oat Extract for Seniors, Dopa-Mind, Life Extension, Tablets № 60	USA	1775
21	Phytocandles based on oat seed extract at the milky ripeness stage № 10	Avicenna, Ukraine	120
22	Avena cosmetics line (face cream, skin milk, shampoo and hair balm)	Bottegaverde, Italy	+ 2500
23	A-Derma product line (23 products)	A-Derma, France	From 300
24	Purito product line (intensive cream with oats, soothing gel-cream for the face, soothing cream with oat seed water)	Purito, South Korea	+ 2500
25	Bielenda Vegan Muesli line moisturizing face cream, face cream, eye cream	Bielenda, Poland	365
26	Ubtan anti-aging cream with oatmeal, 90 g	Trijuga, Ukraine	120
27	Proraso Shaving Cream for Sensitive Skin with Green Tea and Oat Extract, 100 ml	Proraso, Italy	156-195
28	Proraso Sensitive Shaving Cream with Green Tea and Oat Extract, 100 ml	Proraso, Italy	225-295
29	Avene Cold Cream Concentrated Hand Cream, 50 ml	Avene, France	279-332
30	Hand cream "Vanilla and Oats" - Bioearth Family Vanilla & Oat Hand Cream, 30 ml	BioEarth, Italy	283
31	Crabtree and Evelyn Goatmilk Moisturizing Hand Cream, 30 ml	Great Britain	598
32	Hand cream with oat extract Zozu Oatmeal Hand Cream, 60 ml	Zozu, China	62-73
33	Vensen anti-aging face cream with oat extract, 70 g	Vensen, China	384
34	Face cream with oats and mineral oils	Vensen, China	300
35	Polka Oat face Cream nourishing face cream, 50 ml	Poland	200
36	Nourishing face cream with oat extract, 50 ml	Gracia Bio, Poland	346
37	Nourishing face cream with organic oats and berries Love nature, 50 ml	Oriflame, Sweden	241
38	Babycoccole Winter Cream with Oat Beta-Glucan, 30 ml	Babycoccole, Italy	235-383

№	Product name	Producer	Estimated cost, UAH
39	24-hour anti-wrinkle face cream with Myrtle extract and oats BioSelect Cream Anti-Aging, 50 ml	BioSelect, Greece	1400
40	Nature Queen Cream for Problematic Skin with Oats and Thyme, 50 ml	Nature Queen, Poland	500
41	Moisturizing cream mist with turmeric, amaranth and oat extract Dr. Jart+ Ceramidin Cream Mist, 110 ml	Dr. Jart+, South Korea	1000
42	Moisturizing cream "Oat germs" day/night, 50 ml	Lirene, Poland	121
43	Facial milk with oats Bioturm Hafer-Reinigungsmilch Nr, 200 ml	Germany	1245
44	Children's cream for the treatment of eczema Aveeno, 141- 354 g	Aveeno, Canada	925-1575
45	Baby softening cream soap Aveeno, 236-354 g	Aveeno, Canada	715-825
46	Baby moisturizing cream oil Aveeno, 227 g	Aveeno, Canada	695
47	Naturaverde diaper cream with oat and chamomile extract, 100 ml	Naturaverde, Italy	216
48	Dr. Sante Baby Oat and Olive Oil Baby Cream Soap, 90 g	Dr. Sante, Ukraine	17-90
49	Hand Made product with oat protein to enhance the effect of shampoo/conditioner, 5 мл	Vilarus LLC NPK (Ukraine, Ladyzhyn)	28
50	Sodium Lauroyl Oat Aminoacids	Panisoap CIIIA, Canada	-
51	Avicenna Natural Shampoo with Oat Extract, 250 ml	Avicenna, Ukraine	110
52	Brelil Professional Numero Restorative Hair Mask with Oats 300 ml, 1000 ml	Numero, Italy	147-309
53	Відновлювальна маска Nua з екстрактом вівса і насінням льону, 1000 мл	Nua, Italy	365
54	Nourishing hair mask with oat proteins, 1000 ml	UNi.tec professional Avena Mask, Germany	231
55	Regenerating mask with oat extract New, 1000 ml	Sias, Italy	304-385
56	Nourishing and moisturizing mask for dry, brittle and split ends hair Bioearth Hair 2.0 Nourishing Pack 150 ml	Bioearth, Italy	552
57	Filling mask for chemically treated hair with oat proteins, 1000ml	Mirella professional, Italy	693
58	Melica Black mask with oat extract for normal hair, 200 ml	Melica, Lithuania	240
59	Hair restoration mask with oats, 300 ml	Brelil, Italy	408
60	Regenerating mask for colored and damaged hair White Mandarin (natural) Protection, 150 ml (oat extract, oat proteins)	White Mandarin, Ukraine	450
61	FORME Sim Sensitive Restorative Hair Mask, 200 ml	Forme, Finland	1322
62	L'Occitane en Provence Aromachologie Intensive Hair Mask, 200 ml	L'Occitane, France	2315
63	Hair mask with egg yolk extract and oats Daeng Gi Meo Ri Egg, 200 ml	Egg Planet, South Korea	455
64	2-in-1 Mask Conditioner for Dry Damaged Hair Oats EUGENE PERMA Paris Nat & Nove BIO Masque Conditioner 2en1 Nourissant, 2in1 Mask-Conditioner for dry damaged hair Oats 200 ml	Nat & Nove, France	378

№	Product name	Producer	Estimated cost, UAH
65	SelestaLife Intensive Care Mask with Oat Extract, 200 ml	Selesta, Turkey	197
66	Inoar Doctor Reconstruction Mask, 250 ml	Inoar Doctor, Brazil	951
67	Hair mask with oats and yellow clay, 20 ml	Marion, Poland	75
68	label.m Nourishing Mask and Honey Oat, 120 ml	label.m, USA	675
69	Hair mask with organic Aloe juice 15% and oat extract - I Provenzali Aloe Mask, 200 ml	I Provenzali, Italy	657
70	Masil 8 Seconds Salon Hair Mask, 100 ml	Seconds Salon Hair Mask, South Korea	260
71	Restorative premium hair mask Masil 10 Premium Repair Hair Mask, 300 ml	Masil, South Korea	585
72	Moisturizing mask for damaged hair Incus M-Cerade Hydrating Hair Pack, 150 ml	Cerade, South Korea	225
73	Moisturizing mask with shea oil and oat extract Avena & Karite Hair Mask Young, 1000 ml	Avena & Karite, Italy	570
74	Avena sativa (oat) grain powder	France	-
75	Fitola organic raw oat grain, 400 g	Organic Country, Ukraine	49
76	Organic oat extract, colloidal, 5 g	France	45
77	Oat extract, 50 ml, 500 ml	Ukraine	43, 249
78	Oat fiber, 210 g	Pharmacom, Ukraine	23-38
79	Oat seed meal, 300 g	Zhytomyrbioprodukt, Ukraine	47
80	Ovesil-fiber, 150 g	Yantra, Ukraine	90
81	Oat grain fiber, 150 g	LLC "ECO ORGANIC", Ukraine	28
82	Oats Forte, fiber for intestinal restoration, 150 g	NaturLine, Ukraine	115
83	Fiber cleansing Detoxan oats GreenSet clean intestines, thin waist, 150 g	Green Set, Ukraine	106
84	Sprouted oat grains in sticks, 100 g	Dobra Yizha, Ukraine	173
85	Beta-Glucan, capsules No. 180	Sanct Bernhard, Germany	500
86	Lake Avenue Nutrition, beta-glucan 1-3, 1-6, 200 mg, capsules No. 60	Lake Avenue Nutrition, USA	600
87	Beta Glucan, 25 g, 100 g, 250 g (50% concentrate from oats) for hair	City Soap, Ukraine	66-198-429
88	Dietary supplement "Beta Glucan" NATURALNEST, capsules No. 30	Orzax, Turkey	499-800
89	Beta glucan, cosmetic ingredient, 25 g	Zulfiya, Ukraine	89
90	Oat extract, beta-glucan, wild Avena Sativa extract	Shaanxi NHK Technology Co., Ltd. China	-
91	Oat bran, 350 g	LLC "Organic-Eco-Product", Ukraine	40
92	Sprouted grains, 150 g package	CHOICE, Ukraine	170
93	Whitgrass — live juice from oat sprouts, 30 ml	Growa, city farm network, Ukraine	68
94	CO ₂ oat extract, 5 g – 20 g <i>Avena sativa</i> Extract	Magical Ariya, Ukraine	35 - 118
95	CO ₂ oat extract, 5 g – 1000 g	Mylo Opt. Ukraine	9,46 - 1491
96	CO ₂ oat extract, 15 g – 1000 g	Anro Extracts, Ukraine	75 - 2480
97	CO ₂ oat extract, 1 kg	England	2032
98	Herb Pharm, Oat Seed Alcohol-Free, Wild Oats, (milk oat seed extract), 120 ml	Herb Pharm, USA	2540
99	Wild oats Swanson <i>Avena Sativa</i> 575 мг, капсули № 60	Swanson, USA	322
100	POLISOL classic (extract from sprouted grains), 550 g	LLC "Starch-products", Ukraine	92
101	Mandor oat drink without sugar, 1000 ml	Policom, Italy	139

«-» - price is not available on the website

There are a number of oat-based products of Ukrainian origin on the pharmaceutical market (Fig. 2). The complex product “Phytosed” contains the indole alkaloid avenin, B vitamins and other substances contained in oat fruits and have a positive effect on the nervous system and have a pronounced calming effect. DD “Avenicetin” based on oats optimizes the functional activity of the nervous and cardiovascular systems. A network of organic vertical city farms in Ukraine produces oatgrass, or oat sprouts - young green sprouts of premium quality organic microgreen oats, cut at the moment when the shoots reach 8-10 cm. The manufacturer declares great benefits for the human body when consuming oat juice. The Scientific and Medical Center “Avicenna” offers a preventive and hygienic remedy based on an extract of oat

grass in the stage of milk ripeness, which prevents aging processes, normalizes the synchrony of the functional activity of the nervous and cardiovascular systems, enhances the synthesis of substances, promotes hematopoiesis, raises vitality against the background of overwork and stress. Also, they offer the DD “Avenicetin”, which is positioned as a means for achieving a calming and tonic effect in the treatment of neuroses, nervous exhaustion of various etiologies, for recovery after chemo- and radiation therapy. “Navenin” based on an extract of oat grass in the stage of milk ripeness (suppositories No. 10) is positioned as strengthening the nervous system, blood vessels and heart muscle, favorably affecting the composition of the blood.

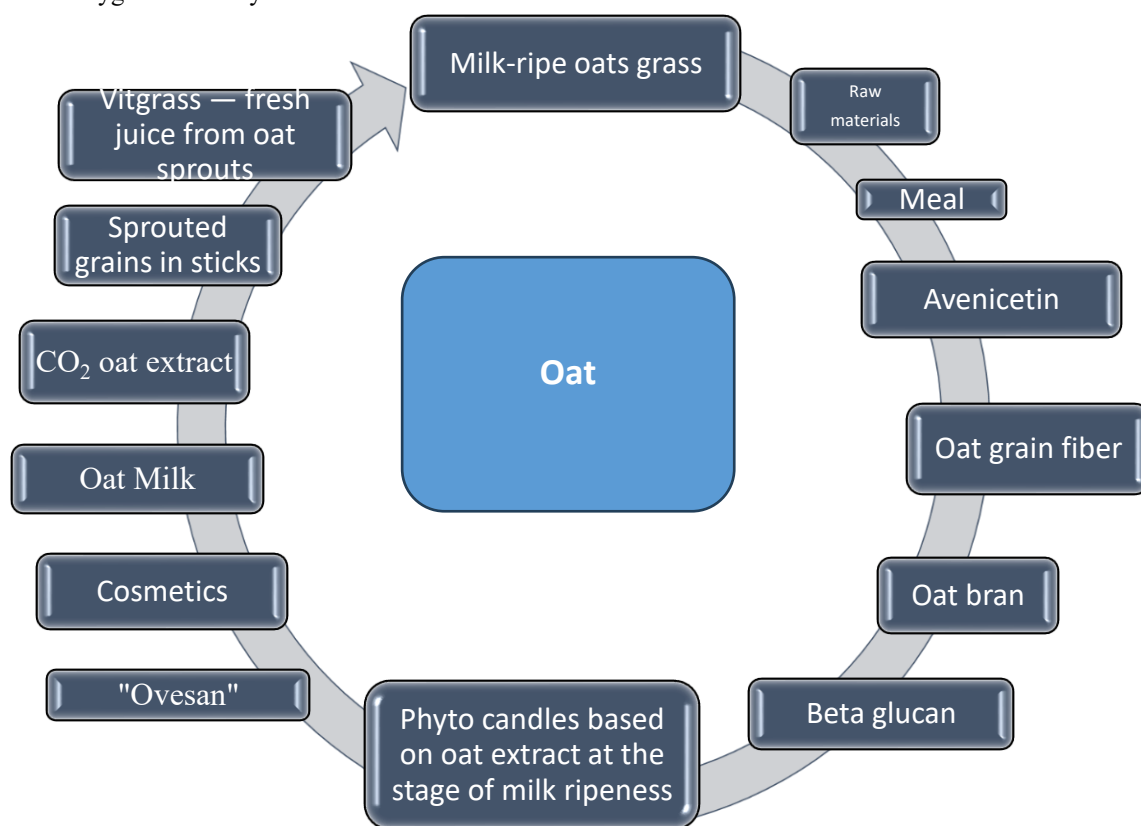


Fig. 2. Assortment of domestically produced oat-based products.

The Biolica company offers a natural herbal complex called Ovesan Biolica, which helps normalize intestinal function and has an antispasmodic and anti-inflammatory effect.

Many manufacturers are suppliers of raw oat grass: milky ripe grass (Dary Karpat, Health- Herbal Collections, Roots, Fruits and Seeds, Eco Grasses, Sednivski Grasses, etc.), also offer raw organic oat grain (Organic Country), sprouted grains in sticks (CHOICE), oat seed meal (Zhytomyrbioproduct). There are also cosmetics from Ukrainian manufacturers on the market (Zulfiya, Trijuga and others).

Cosmetic products made from oats on the Ukrainian market are mainly of foreign production. These are creams, facial milks, hair masks, shampoos and balms. The presence of oats in the composition of the products

indicates the anti-aging, regenerating, antioxidant, anti-inflammatory and moisturizing properties of the products.

While conducting a market analysis, we noticed that most often manufacturers prefer milky oat grass as a raw material. According to literature, this raw material, due to its unique composition, has a positive effect on human cognitive abilities, exhibits general strengthening, anti-inflammatory, immunomodulatory, sedative properties, etc. Given this potential, further research into milky oat grass for obtaining APIs with the subsequent creation of a medicinal product based on it is timely.

Conclusions. The results of the study indicate that the domestic market of herbal remedies based on oats is represented by a fairly wide range. It should be noted that it is not import-dependent, since the vast majority of the nomenclature is made up of remedies of domestic origin.

Given the popularity of the use of oats as a source of BAS, the availability of a raw material base, a powerful chemical composition, and a confirmed therapeutic effect, the development of domestic original monopreparations and complex medicines based on the herb of oat of waxy-milk ripeness is relevant.

Prospects for further research. The first steps will be the procurement of raw materials from different cultivation locations and varieties.

Financing of the research conducted at the expense of individuals.

Conflict of interest: none.

Analysis of the range of oat-based products

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Introduction. The use of cultivated food crops as sources of medicinal raw materials is promising. Popular varieties cultivated in Ukraine are oat (*Avena sativa* L.) varieties Salomon, Neptune and Chernihivsky 28. Raw materials for the creation of medicines, dietary supplements, cosmetic and food products are grass of milky-wax ripeness, straw, grain and sprouts. There is data on antioxidant, anti-inflammatory, immunomodulatory, hypoglycemic, gastroprotective, hypolipidemic, cardioprotective, psychotropic effects, positive effect on cognitive brain functions. The presence of a wide raw material base, significant use in the food industry, diverse chemical composition, pharmacological activity, oat raw materials as a source of BAS require more in-depth research. The study of oat products on the Ukrainian market is expedient and relevant in this aspect. **The purpose of the work.** To determine the prospects for developing a medicinal product based on oat seed raw materials, outlining specific steps in the process of obtaining an API. **Material and methods.** Sources of scientific information (Google Scholar, Pubmed), online trading platforms (EVA, Rozetka, Prom.ua, OLX.ua), content analysis with subsequent data systematization and market segmentation. **Results and discussion.** As part of our research into the Ukrainian market, we identified approximately 100 oat-based products and analyzed their range by producer country. Currently, there are at least 15 countries producing oat-based products on the Ukrainian market. The lion's share is made up of domestic producers (41%). Moreover, most of the products are dietary supplements. **Conclusions.** The results of the study indicate that the domestic market of herbal remedies based on oats is represented by a fairly wide range. It should be noted that it is not import-dependent, since the vast majority of the nomenclature consists of remedies of domestic origin. Given the popularity of the use of oats as a source of BAS, the availability of raw materials, powerful chemical composition, and confirmed therapeutic effect, the development of domestic original monopreparations and complex medicines based on oat grass of waxy-milk ripeness is relevant.

Keywords: *Avena sativa* L., assortment, pharmaceutical market

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