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## MARKETING ANALYSIS OF SUPPLYING THE PHARMACEUTICAL MARKET WITH DRUGS BASED ON BURCH (*ARCTIUM LAPPA L.*)

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### SCIENTIFIC RESEARCH GROUP:

**Matushchak M.R.**

Assistant

*Bukovinian State Medical University*

**Zakharchuk O.I.**

Doctor of Medicine, Professor

*Bukovinian State Medical University*

**Horoshko O.M.**

Ph.D., Associate Professor

*Bukovinian State Medical University*

**Sakhatska I.M.**

Ph.D., Senior lecturer

*Bukovinian State Medical University*

**Ezhned M.A.**

Assistant

*Bukovinian State Medical University*

**Kostyshyn L.V.**

Assistant

Department of Pharmaceutical Botany and Pharmacognosy

*Bukovinian State Medical University*

UKRAINE

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**Abstract.** *Burdock is a well-known medicinal plant that has been widely used in folk medicine for thousands of years. Now decoction, infusion, tincture, oil solutions, ointments, phytocreams, dry powder from the roots, fresh and dried leaves and seeds of burdock are widely used for arthritis, rheumatism, psoriasis, wounds, tumors, gouty nodes, to improve the condition of hair and trophism scalp; fighting alopecia and dry seborrhea, showing anti-inflammatory, antispasmodic, multivitamin, tonic, antibacterial, immunostimulating and antifungal effects; improves metabolic processes in the body. Taking into account the sufficient raw material base of large burdock, a wide range of pharmacological action of its substances, and the limited range of drugs based on it on the pharmaceutical market, the expediency of manufacturing original means of different directions of action from raw materials of large burdock, in particular, in the conditions of a pharmacy, was determined.*

Nowadays, the rational and adequate selection of drugs becomes a growing problem when conducting pharmacotherapy of any disease. After all, a number of requirements apply to them, including pronounced pharmacological activity, a minimal number of adverse reactions, and the possibility of long-term administration in the treatment of chronic processes. These aspects are the advantage of herbal

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preparations, and scientific studies prove that plants are a source of many biologically active substances: vitamins, trace elements, carbohydrates, amino acids, proteins, phenolic compounds and others. Considering this, it is important in the pharmaceutical provision of the population to expand and renew the assortment of medicinal products due to the inclusion of plant raw materials in the composition of medicinal products.

Among all the variety of medicinal plants, the burdock (*Arctium lappa* L.) attracts special attention. Burdock is a biennial herbaceous plant of the Asteraceae family [4]. Burdock leaves contain flavonoids, anthocyanins, organic acids, essential oil, tannins, mucus, palmitic and stearic acids, ascorbic acid (up to 350 mg%); seeds - glycoside arctiin, sesquiterpene lactones, fatty oil, etc. [7].

According to the literature, the roots and leaves of large burdock have diuretic, choleric, antipyretic, hypoglycemic, wound-healing and antitumor effects. The roots also have antimicrobial, reparative, desensitizing, tonic, multivitamin, anti-inflammatory, antispasmodic, astringent, and enveloping effects [2]. Root and leaf extracts are used externally for eczema, dermatitis of various origins, rashes, furunculosis, burns and inflammatory lesions as an antimicrobial, anti-inflammatory and wound-healing agent.

*Arctium lappa* is a well-known traditional medicinal plant in China and Europe that has been used for thousands of years to treat arthritis, baldness or cancer. The plant produces lignans as secondary metabolites with a wide spectrum of bioactivity. Research results have proven the feasibility of using lignans as active pharmaceutical ingredients in the development of antiaging products and ensuring longevity [5]. However, the potential of lignans contained in burdock, unfortunately, has not yet been studied.

**The purpose of the work** was to conduct an analysis of the pharmaceutical market of Ukraine and to determine the expediency of manufacturing large burdock-based medicinal preparations with different directions of action.

**Materials and methods.** In our work, we conducted a bibliographic, systematic, analytical analysis of literature sources, as well as a marketing research of the domestic pharmaceutical market for the availability of preparations based on burdock root.

**Results and discussion.** In traditional medicine, burdock has been used since ancient times, but now herbal medicine is becoming more and more widely used in traditional medicine as well. Table 1 shows the results of the analysis of the domestic market of medicines and dietary supplements, which include burdock root [1, 3, 4]. According to these data, there are two preparations from the roots of large burdock on the pharmaceutical market of Ukraine: Detoxiphyte and Nephrophyte in the form of complex gathers and tablets; as well as 4 dietary supplements: 1 tablet and 3 herbal teas. All drugs were produced exclusively by Ukrainian manufacturers.

At the next stage, the chemical composition of burdock roots [2, 7] and the expected pharmacotherapeutic effect of its components were analyzed in detail. Pay attention to the high content of large inulin in burdock roots (up to 45%). For comparison, the content of inulin in new domestic varieties of root chicory reaches 13–16%, Jerusalem artichoke tubers 16–18% and more, dandelion root up to 40%, and the root of the high delusion up to 44% and dahlia tubers – 16–50% inulin [7]. Medicinal raw materials also contain organic acids (coffee, citric, malic), glycoside arctiin, which during hydrolysis is split into lactone arctigenin and glucose; tannins and bitter substances, mucilage, flavonoids sitosterol and stigmasterol, proteins (about 12%), essential (up to 0.17%) and fatty oils, thanks to which they can be used

as active pharmaceutical ingredients in various dosage forms for the treatment of a wide range of diseases.

Table 1

### Herbal preparations and dietary supplements of large burdock, registered on the Ukrainian drug market

No	Medicine, manufacturer, ATC code	Medicinal form	Pharmacological action
1.	<b>Detoxiphyte LLC "NVFC "Aim", Ukraine A16X19**</b>	Gather filter bag 1.5 g № 20; Gather package 100 g № 1	Bile diuretic, antispasmodic, anti-inflammatory, capillary protective, antiedematous, hypoazotemic, mild saluretic and diuretic. Helps remove salt deposits from the joints and spine. Reduces the content of cholesterol and triglycerides in blood plasma with hyperlipidemia, slows down the development of atherosclerosis, promotes the regression of existing atherosclerotic plaques. Improves the antitoxic function of the liver.
2.	<b>Nephrophyte LLC "NVFC "Aim", Ukraine G04BX</b>	Gather filter bag 1.5 g № 20; Gather package 50 g & 100 g № 1; Tablets 0,85 g № 60	Spasmolytic, anti-inflammatory, antibacterial, diuretic and mild saluretic, increases the nitrogen-excreting function of the kidneys, i.e. contributes to some extent to excretion of salt It has a positive effect on the urea-forming function of the liver and the cleansing function of the kidneys.
3.	Dietary supplement <b>"Burdock – life force"</b> DanikaFarm, Ukraine	Tablets 0,4 g № 90	Immunostimulating, pronounced antioxidant, antiviral and anti-inflammatory.
4.	<b>Burdock</b> CJSC "Liktravy", Ukraine	Gather package 50 g № 1	Antioxidant, antiviral and antiphlogistic.
5.	<b>Burdock root</b> "Keys to Health", Ukraine	Gather package 50 g № 1	Diuretic, choleric, anti-inflammatory, diaphoretic and antimicrobial. Stimulates mineral metabolism, contributes to the deposition of glycogen in the liver, improves the insulin-producing function of the pancreas.
6.	<b>Phyto tea " Burdock"</b> NGO Phytobiotechnologies LLC, Ukraine	Gather package 50 g № 1	Diuretic, choleric, anti-inflammatory, diaphoretic and antimicrobial. Stimulates mineral metabolism.

In traditional medicine, a decoction, infusion, tincture, oil solutions, ointments, phytocreams, dry powder from the roots, fresh and dried leaves and seeds of burdock are widely used for arthritis, rheumatism, psoriasis, wounds, tumors, gouty nodes, for improvement of hair condition and trophism of the scalp; to combat alopecia and dry seborrhea, showing anti-inflammatory, antispasmodic, multivitamin, general strengthening, antibacterial, immunostimulating and antifungal effects, improves metabolic processes in the body.

The natural resources of this raw material are large, so the harvesting of roots and grass does not threaten to reduce natural reserves, but only contributes to the production of an increasing number of medicinal products based on it [6].

**Conclusions.** Summarizing the above information, we can say with confidence that the development of new drugs with proven pharmacological action and standardized composition based on burdock root is relevant.

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