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**GROUNDING OF SEMISOLID MEDICINAL  
FORMS PRODUCTION  
ON NATURE COMPONENTS**

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**Резюме:** данная публикация посвящена актуальному вопросу разработки лекарственных препаратов содержащих растительные компоненты, приведен анализ по производителям, а также лекарственным формам препаратов созданных на основе продуктов пчеловодства. Освещены вопросы применения и разработки мазей для лечения инфекционных осложнений раневой инфекции.

**Резюме:** дана публікація присвячена актуальному питанню розробки лікарських препаратів що містять рослинні компоненти, наведено аналіз по виробникам, а також лікарським формам препаратів створених на основі продуктів бджільництва. Висвітлено питання застосування і розробки мазей для лікування інфекційних ускладнень ранової інфекції.

**Summary:** this publication is devoted to the current issue of the medicines containing nature components development, an analysis by manufacturers and dosage forms of medicines based on bee products is given. Questions of application and development of ointments for treatment of wound infectious complications are shown.

**Ключевые слова:** биологически активные вещества, раневой процесс, мягкие лекарственные формы.

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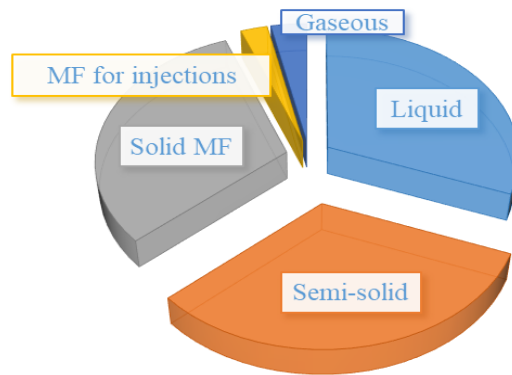
**Key words:** biologically active substances, wound process, soft medicinal forms.

In recent years, for modern medicine, significantly increased demand for medicines obtained from Ukrainian raw materials, in connection with changes that has arisen in the international economic space. The effectiveness of modern preparations containing plant components can exceed many synthetic drugs, in view of the complex effect provided, due to the content of the amount of biologically active substances.

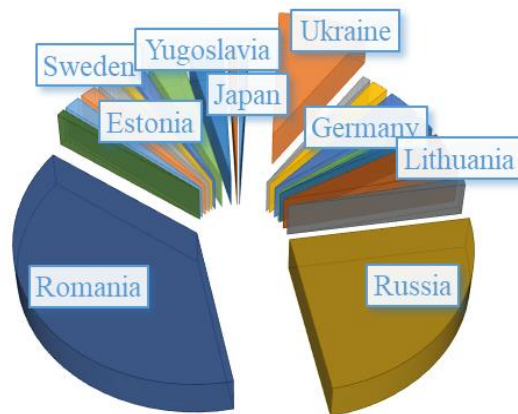
It is advisable to use as active substances derived from medicinal plants and mushrooms, especially growing in Ukraine, as well as beekeeping products known since ancient times and rich in API complexes. This is due to the following advantages: low toxicity, hypoallergenic, complex action, high nutrient content and the possibility of their long-term use without significant side effects. Extracts are the most common complexes of substances obtained from medicinal plant raw materials used for the production of soft medicinal forms. From the biologically active products of beekeeping (BAPB) honey, bee bread, propolis, flower pollen, bee pollen, royal jelly, bee venom, FGMP and others are most commonly used for medicine preparation [1, 2, 8].

The listed BAPB has been used in more than 150 medicines and biologically active additives such as Apiphor (Russia), Venapiolinum (Russia), Apisarthron (Germany), Ungapiven (Germany), Virapin (The Czech Republic), Vundehil (Ukraine) and many others. From the analyzed 150 medicines containing BAPB (Figure 1), about 26.6% occupy semi-solid medicinal forms (MF), slightly lesser 25.3% liquid MF and 25.3% solid MF, 2.6% gaseous MF 2% MF for injections [5-7].

Among the leading producers of medicines, Romania holds 38% and Russia 24%; Ukraine ranks third with 9%, followed by Lithuania 5%, Germany 3%, Estonia 3%, Yugoslavia 3% and other countries (Figure 2) [5-7].



Pic. 1 Medicinal forms containing biologically active products of beekeeping



Pic. 2 Countries producing medicines containing biologically active products of beekeeping

Wound process it is a complex of biological reactions of the organism, developing in response to tissue damage and directed to their healing. During wound process destructive and restorative changes of connective, epithelial, nervous, muscular skin layers takes place. Therefore it is rational for treatment to use combined medicines or plant complexes of API and their combinations [3, 4].

Soft medicinal forms application for various types of purulent-inflammatory processes curing makes possible to create the necessary concentration of active substances in the foci of infection. For soft medicinal forms developing uniting effectiveness, safety and affordable cost, research of dry and dense extracts introduction into the ointments and gels, the selection of the API and base components, rational technology and their introduction into production are conducted [3, 4, 8].

Team of authors were studied the dense extract of chlorophyllipt®, thick extracts of hops cones and poplar, dry poplar extract, which in addition to expressed antimicrobial action also exhibits anti-inflammatory, reparative and other activities as active pharmaceutical ingredients for soft medicinal forms creation. As a result of these studies, the composition and technology of the ointment "Filetol" exhibits of listed types of activities was developed and patented [8].

Researches are underway to study the impact of base components influence on the antimicrobial, anti-inflammatory, reparative activities of natural origin API's and it's rational technology of introduction to semisolid medicinal forms (MF). In the future, the isolation and development of MF containing biologically active substances of *Langermania gigantea* is relevant [1].

The composition of fungi include proteins, carbohydrates, lipids, minerals (potassium, calcium, iron, copper, boron, cobalt, aluminum, phosphorus, fluorine, manganese and titanium) and vitamins (especially B group (B1, B2, B3, B5, B9), and to a lesser extent vitamin C, provitamin A and D. The medical use of fungi is based on the vast experience of traditional medicine. Fungotherapy - treatment of various human diseases, based on the using fungi as medicines, and complex preparations obtained from mushrooms. Methods of processing of mushrooms for Fung drugs are not focused on the release of chemically pure active substance but on usage of active substances complex in most simple and close to natural forms (decoction, tincture, extract, and others) [1, 8].

Fungus *Langermania gigantea* (giant puffball *Calvatia gigantea*,) contains antibiotic kalvacin and more than 5% proteins. On

the basis of *Langermania gigantea* already received antibiotic kalvacin and kalvacinic acid which inhibits the growth of bacteria and fungi and also has antitumor activity. Obtained by chemical synthesis derivatives of kalvacinic acid also has antibiotic activity. In folk medicine and homeopathy, the giant puffball is used as a hemostatic and disinfectant. *Langermania gigantea* contains ergosterol (provitamin D2), kalvacin, kalvacinin acid eliminates many pathogenic bacteria in the human body. Spores can be safely apply to the bleeding wounds surface and successfully applied to heal festering wounds and ulcers. White core of giant puffball was used as patch in the field conditions. Medicines of the spores contribute to the removal of radionuclides, heavy metals, toxic fluorine and chlorine compounds, helminthiases toxins, hepatitis, dysbioses, acute kidney inflammation. All of the above leads to the conclusion that the *Langermania gigantea* contains valuable natural raw materials [1, 8].

Considering the breadth of application for semisolid MF production, their effectiveness, comparative safety, low toxicity, the number of API's contained in BAPB products, plants and fungi, there is a need to expand the range of Ukrainian medicines especially soft dosage forms containing active substances of natural origin.

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