

# DEVELOPMENT OF THE COMPOSITION AND TECHNOLOGY OF TABLETS AND CAPSULES BASED ON VEGETABLE SPECIES OF GASTRIC AND SEDATIVE ACTION

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**Introduction.** Gastric diseases in our time is a very common problem among people of different age groups. An important reason for the emergence of these diseases is the stress which, along with malnutrition, the consumption of a large amount of alcohol, tobacco, uncontrolled use of medicines poses a threat to normal human life. In case of mortality, the digestive system occupies the third place in the world (5.4%). In Ukraine, this value is 9.7% and is steadily increasing year by year. The lack of proper treatment has a very negative effect on the standard of living of people, in some cases leads to disability or death. Based on the above statistics, an increase in the nomenclature of drugs for the treatment of stomach diseases is today a very important and necessary task of pharmacy.

The phytotherapeutic approach in the treatment of stress and diseases of the gastrointestinal tract has several advantages over pharmacotherapy. This is due to the relatively low toxicity of phytopreparations and, at the same time, their multifactorial pharmacological action, the mutual potentiation of positive traits of the therapeutic effect of various plants in the composition of phytospecies, the possibility of long-term introduction of drugs from medicinal plants, including repeated courses in the absence of undesirable side effects. Medicinal plants, especially in the form of combined phytopreparations, can prevent or reduce the severity of side effects of chemotherapy, including in those cases where inevitably the simultaneous use of several synthetic drugs, and even longer courses. In this regard, the search for and the creation of new, effective, integrated medicines derived from plant material, is a very topical task.

Medicinal plants are used in the various dosage forms. Traditional medicinal forms in phytotherapy are decoctions and infusions, which are water extracts of plant material. Given the disadvantages such as instability during storage, the length of the manufacturing process, the dosage forms are no longer relevant. It is advisable to use herbs or teas, a mixture of dried and crushed medicinal plants containing a variety of biologically active substances.

The perspective direction is the use of crushed (powdered) vegetative raw materials for the production of medicinal forms on its basis: granules, tablets, capsules. The use of species as substances for the manufacture of pharmaceutical forms will expand the range of complex phytopreparations.

**Aim.** To develop the composition and technology of tablets and capsules based on gastric and sedative species.

**Materials and methods.** As objects of study used the gastric and sedative species. Granules prepared by wet granulation, wetting their by starch paste (3% and 7%), a solution of polyvinylpyrrolidone (PVP) (3% and 5%) and sugar syrup. To select the optimal moisturizer, we studied the physicochemical and technological properties of granules using the methods of the State Pharmacopoeia of Ukraine (StPh). We investigated the fractional composition, bulk volume before and after tapping, bulk density before and after tapping and fluidity. After tableting and encapsulating, we investigated the technological properties of the resulting dosage forms, such as mechanical strength, elasticity and disintegration time for tablets; for capsules - homogeneity of mass, time of decomposition.

**Results and discussion.** The results of analysis of the mixture of raw materials indicated that almost all samples are non-uniform in size, have poor technological properties and consist of particles of very large size. Therefore, we had included in the process a grinding of raw materials. Research of technological properties of granules obtained with different humidifiers allowed to significantly improve technological properties of research objects. The best results were shown by samples of granules obtained using a sugar syrup as a moisturizer. For them, the homogeneity of the fractional composition was 95-96%, the fluidity was 4.5-5.2 g/sec, the bulk density was 0.42-0.48 g/cm<sup>3</sup>. The mechanical strength of the tablets obtained on their basis also fully meets the requirements of the StPh. The mechanical strength is 90 N, the abrasion resistance does not exceed 1%, the disintegration time is 3 minutes. Properties of capsules for homogeneity of mass and time decomposition also met the requirements of the SPF.

In addition, we have offered the technology of obtaining tablets and capsules based on the studied species, which includes the following stages: preparation of raw materials, preparation of a humidifier, mixing and wetting of the mass, granulation, drying and dusting of granules, capsulation or tableting, packaging and labelling of the resulting products

**Conclusions:** In the course of experimental research, we developed the composition and technology of tablets and capsules based on the species of gastric and sedative action. It is proved, that all samples of the received granules, as well as tablets and capsules on their basis, fully comply with the requirements of the StPt in all indicators. The best moisturizer for preparing tablets and capsules is sugar syrup.

## SELECTION OF ESSENTIAL OIL CONCENTRATION FOR VAGINAL SUPPOSITORIES BASED ON MICROBIOLOGICAL RESEARCH

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**Introduction.** Cervical erosion is a disruption of the integrity of cervix epithelial cells. Over 35% women are diagnosed with this disease and they are most frequently below the age of 25. Erosion is an important problem because it might lead to such serious health complications as infertility, dysplasia and even cervical cancer.

**Aim.** Our goal is to develop technology and ingredients of vaginal suppositories for cervical erosion treatment which contain vinilin, eucalyptus essential oil, fir essential oil and rosemary essential oil. Three samples of vaginal suppositories were obtained for the study of antimicrobial activity. Samples contain tallow base, vinilin in the concentration of 1%, eucalyptus essential oil (sample №1), fir essential oil (sample №2) and rosemary essential oil (sample №3) in concentrations of the 0,5%.

**Materials and methods.** Antimicrobial activity of the samples has been evaluated in vitro with the agar diffusion method. It bases on ability of active substances to diffuse into agar medium inoculated with bacteria cultures. Following cultures were used in the research: gram positive microorganisms *Staphylococcus aureus* ATTC 25293; spore culture of *Bacillus subtilis* ATTC 6633; gram negative microorganisms *Escherichia coli* ATTC 25922 and *Candida albicans* ATTC 885-653. In research were used suspensions of bacteria microorganisms in saline solution. Microbial load was  $10^7$  colony-forming units in 1 ml of growth medium (CFU/ml).

**Results and discussion.** The study showed that samples №1 and №3 have a board spectrum of activity and high antimicrobial activity. Test subject №1 showed higher antimicrobial activity compared to test subject №3: *Staphylococcus aureus* -  $14,1 \pm 0,5$  i  $13,2 \pm 0,4$ ; *Bacillus subtilis* -  $14,3 \pm 0,4$  i  $13,0 \pm 0,4$ ; *Escherichia coli* -  $13,2 \pm 0,5$  i  $13,1 \pm 0,4$ ; *Candida albicans* -  $12,5 \pm 0,5$  i  $11,2 \pm 0,4$ .

**Conclusions.** The researches have proved that test subject №1 which consists of vinilin in concentration of 1% and eucalyptus essential oil in concentration of 0,5% is the most perspective for further developing of technology of vaginal suppositories for cervix erosion treatment.

## DEVELOPMENT OF COMPOSITION AND TECHNOLOGIES OF EXTEMPORARY OINTMENT WITH BIOLOGICALLY ACTIVE SUBSTANCES

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**Introduction.** In assigning health priorities, skin diseases are sometimes thought of, in planning terms, as small-time players in the global league of illness compared with diseases that cause significant mortality, such as HIV/AIDS, community-acquired pneumonias, and tuberculosis. However, skin problems are generally among the most common diseases.