CHOICE OF THE GELLING AGENT FOR THE DEVELOPMENT OF VAGINAL GEL ON THE BASIS OF MICROBIOLOGICAL RESEARCHES

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Introduction Vaginal candidiasis is one of the most common fungal infections in women's genitourinary system caused by conditionally pathogenic yeast-like fungi of the genus Candida. Factors that contribute to the development of candidiasis can be pregnancy, the use of broad-spectrum antibiotics, oral contraceptives, as well as immunosuppression, diabetes mellitus, intestinal dysbiosis.

Aim. The purpose of our work was to develop the composition and technology of gel, intended for the treatment of vaginal candidiasis with the addition of lactic acid and essential oils of lavender and tea tree. Two samples of vaginal gel were obtained to study antimicrobial activity. As gel-formers we have selected Sepimax (sample number 1) and Aristoflex (sample number 2) in the amount of 3%.

Materials and methods. The antimicrobial activity of the prototype samples was studied in vitro by diffusion in agar method ("wells" method). This method is based on the ability of active substances to diffuse into agar medium, which has been previously inoculated with microorganism cultures. As test cultures used pure cultures: gram-positive microorganisms Staphylococcus aureus ATCC 25293, spore culture Bacillus subtilis ATCC 6633, gram-negative cultures of Escherichia coli ATCC 25922 and Pseudomonas aeruginosa ATCC 27853.

Results and discussion. Experimental data indicate that the samples of vaginal gel number 1 and number 2 have a broad spectrum of antimicrobial activity and a significant antimicrobial activity in relation to the used test strains. Investigated sample No. 2 shows a higher activity in relation to all used microorganism cultures compared with the action of sample No. 1 (Staphylococcus aureus - 21.2 ± 0.4 and 13.8 ± 0.4 respectively, Bacillus subtilis - 22.2 ± 0.4 and 15.8 ± 0.4 respectively, Escherichia coli - 24.8 ± 0.4 and 20.6 ± 0.5, Ps. aeruginosa -21.8 ± 0.4 and $15.6 \pm 0,5$). Thus, it should be noted that in the presence of identical active substances in samples number 1 and 2 their release from the basis of sample number 2 is more effective and antimicrobial activity is higher than in sample number 1.

Conclusion. The performed studies have proven that the sample number 2 based on Aristoflex gel-former at a concentration of 3% is prospective for further work on the development of composition and technology of the vaginal gel.

STUDY OF THE THERMAL BEHAVIOR OF BURNET RHIZOMES AND ROOTS BY THE TERMOGRAVYMETRIC METHOD - BASED ON THE DEVELOPMENT OF THE TECHNOLOGY OF THICK EXTRACT

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Introduction. The substantiation of the technological process is a key step in the production of plant substances, in particular, thick extract. Among the stages in the process of their production are thickening of the extractor. The removal of the extractant at this stage is accompanied by thermal processes, which can lead to destructive changes in the components of biologically active substances. However, if medicinal plant material is taken as an object of research is necessary to consider it as a multicomponent mixture of active substances, the study of thermal behavior of which can be carried out using the method of thermogravimetry.

Aim. Conducting thermogravimetric analysis of the burnet rhizomes and roots, which is the raw material for obtaining a burnet extract of thick.

Materials and methods. As a material for the study, pre-shredded particles of less than 1 mm of rhizome root and root were used. The weight of the test sample was 200 mg. Equipment for research -

Derivatograph Q-1500 D systems Paulic, Paulic-Erday with platinum-iridium thermocouple. The sample was heated in ceramic crucibles. The heating rate is 5°C per minute. Thermochemical transformations of medicinal plant material were studied in the temperature range from 24°C to 500°C in the air using a standardized Al2O3 powder (ДФУ, доп. 1 до ДФУ, п. 2.2.34.). The temperature and weight changes curves (T and TG respectively), differentiated curves of changes in thermal effects and weights (DTA and DTG respectively) were registered.

Results and discussion. On the basis of the analysis of the results of the registration of changes in the mass the burnet rhizomes and roots, depending on the temperature regime, three stages of the destruction of the object were distinguished. At the first stage, at a temperature of up to 140°C, the mass loss was 8% of the weight gain at a maximum velocity at t=95°C. In the second stage, at a temperature range of 140° C to 220°C, the mass loss was 7.5% at a maximum velocity at t=205°C. The third stage was marked in the temperature range of 220-380 ° C, a mass loss of 31% with a maximum velocity at t = from three stages of change in the mass of the test sample was accompanied by a weakly manifested endothermic reaction associated with evaporation, as evidenced by endothermic maxima on the curve DTA.

Conclusion. The study of the thermal behavior the burnet rhizomes and roots. by the thermogravimetric method and the proven lack of signs of destruction of the investigated medicinal plant material in the temperature range from 24°C to 95°C is determined by the thermostability of the components of the biologically active components the burnet rhizomes and roots., which is a positive side in developing the technology of obtaining a new plant substances.

STUDY OF THE POSSIBILITY OF VEGETATIVE ANALOGUES OF GELATINE USE FOR CREATING MEDICAL CAPSULES

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Introduction. Drugs in capsules are now one of the most sought after directions in pharmacy and occupies up to 20% of the nomenclature in countries with a developed pharmaceutical industry. However, factors restricting the use of gelatin capsules are: the susceptibility of gelatin to microbial contamination, the possibility of capsules breaking at a temperature of more than 40 ° C or at a humidity of more than 75%, and limiting their use to vegetarians and people taking halal and kosher food. An alternative to gelatin capsules are capsules made from plant materials.

Aim. To study the possibility of creating shells of capsules using plant analogues of gelatin.

Materials and methods. As the materials were used gelatin, corn and amylase starch, agar-agar, cellulose derivatives, carrageenan. To improve the structure of mechanical and biopharmaceutical properties of capsular mass - glycerol, sorbitol, sodium citrate, citric acid, sodium chloride, polyvinyl alcohol. The quality of the obtained capsule shells was evaluated according to the following parameters: appearance, structural-mechanical properties (capsule mass viscosity, tensile strength, fluidity); The stability of the shells was estimated by the influence of humidity on them.

Results. Various compositions of capsular shells were prepared with these materials. Capsules were prepared by immersion. In them the main structural and mechanical parameters were determined - the strength of the capsules for rupture, the capsule shell thickness, the viscosity of the capsule mass. It was found that the greatest thickness possesses gelatinous shell (with the addition of glycerin, as a plasticizer, and water), the smallest - shells consisting of agar-agar, and carrageenase and starch. The introduction of sorbitol and citric acid to the coatings prepared on agar-agar, affects the viscosity of the capsule mass; Glycerin, being a plasticizer, increases the strength of the capsule shells. The capsule shell obtained on the basis of hydroxypropylmethylcellulose is stable at a temperature of -50 ° C to + 50 ° C and mechanically stable, but has insufficient plasticity.

Conclusions. Capsule shells of plant analogs of gelatin are sufficiently thin, but strong, which allows using them for the production of medical capsules.