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

Borshchov N. S.
Scientific supervisor: assoc. prof. Khokhlova L. N.
National University of Pharmacy , Kharkiv, Ukraine
23mufasa@gmail.com

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.