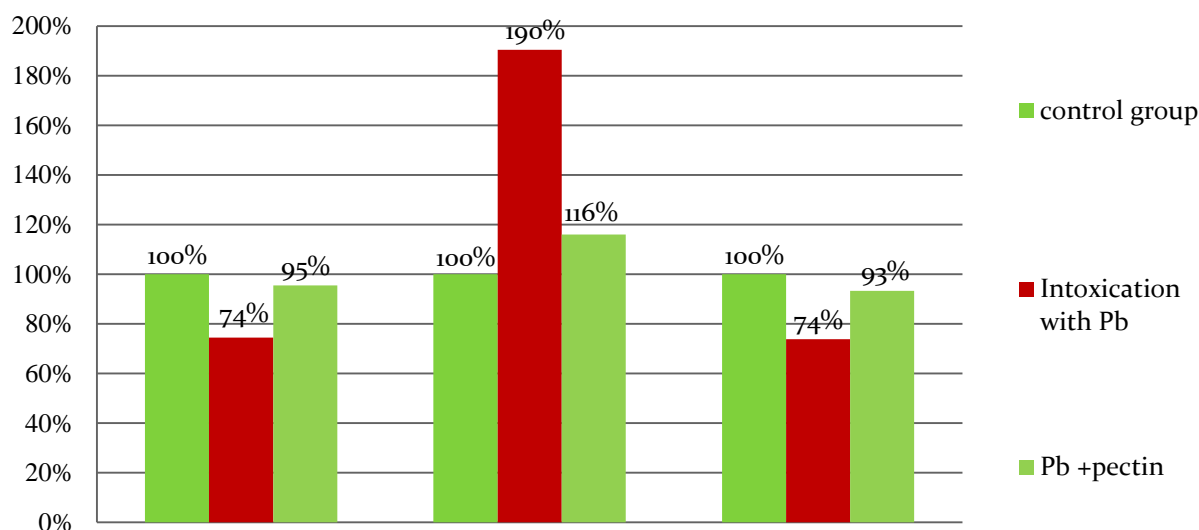


Changes in total protein, urea and hemoglobin in the blood of experimental and control rats in % ratio



The dynamics of changes in the biochemical parameters of blood and hemoglobin of lead-induced rats with the correction of their nutrition showed a stable and progressive change in the content of lead and biochemical parameters of blood, as well as hemoglobin towards improvement. From 30 days from the beginning of correction to the end of the experiment, biochemical blood parameters of experimental rats approached the indicators of intact animals by the 3rd month of their feeding with pure pectin. By the end of the 3rd month after the beginning of correction of lead intoxication in experimental rats, the total protein content was equal to $65,10 \pm 3.20$, which amounted to 95% of the intact rats, thus was significantly close to the normal values. The lead poisoning is faster, are removed heavy metals more intensely than other ions of heavy metals.

Conclusions. Apple pectin has a pronounced effect of correction on the biochemical parameters of blood, as a total protein and hemoglobin, which improves the functional state of stress-induced animals. The developed Apple pectin extract has a positive tendency to reduce the toxic effect, there by performing the function of a heavy metal corrector.

STUDY OF STRUCTURAL-MECHANICAL PROPERTIES OF OINTMENT FOR ECZEMA TREATMENT

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Introduction. Eczema is a multifactorial disease characterized by complex pathogenesis, a tendency to a chronic recurrent course, manifested by polymorphic rashes and itching. At present there is an increase in the incidence of this pathology, which emphasizes the relevance of this problem.

Topical treatment of eczema is carried out depending on the intensity of the inflammatory process, the area of the focal point. Here semisolid dosage forms – pastes, ointments, creams are most commonly used.

We have developed an ointment that includes an extract of fir that has antiseptic, bactericidal, anti-inflammatory, regenerating properties, due to the high content of flavonoids, borneol, camphene, vitamin E, carotenoids, vitamin C and chloropyramine hydrochloride – a derivative of ethylenediamine, which has a pronounced anti-itching effect. The combination of these active pharmaceutical ingredients in

one dosage form will provide the effectiveness of the treatment and rapid recovery of the patient. Based on previous physico-chemical and microscopic studies, an emulsion base of O/W type has been selected.

Aim of the work – study of the structural and mechanical properties of the developed ointment for the treatment of eczema.

Materials and methods. Measurement of rheological parameters of the model specimen was carried out on a rotary viscometer «Myr 3000 V2R» (Viscotech, Spain) in the system of coaxial cylinders using the SPU technique in a wide range of shear rates. The research was carried out at a temperature of $(25 \pm 0,1)$ °C. On the basis of the experimental data, the curve of the shear stress (τ) dependence on the shear rate ($\dot{\gamma}$), was plotted based on which conclusions about the type of flow and the presence of thixotropic properties in the system were made.

Results and discussion. As a result of the research, a rheogram of the test sample was obtained indicating the pseudoplastic flow type. The formation of a hysteresis loop has confirmed the presence of thixotropic properties, which characterize its good spreadability, packing into tubes and extrudability.

Conclusions. The rheological studies have found that the ointment for eczema treatment has thixotropic properties that will provide the necessary consumer characteristics: the process of extrusion from tubes, the convenience and ease of application on the skin.

STUDY OF SORPTION AND DESORPTION PROCESSES OF SULFACETAMIDE BY SOFT CONTACT LENSES

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Introduction. Currently, eye drops are the most widely used form of administration in ophthalmology. However efficacy of those form are near-zero, so it necessitates of drug dosage increase. Development of active prolong ophthalmic drug delivery systems will ensure a high level of patient compliance and its speedy convalescence.

Aim. Study of sorption and desorption processes of sulfacetamide by soft contact lenses represented in Belarus.

Materials and methods. Analysis data of State register of medical devices and medical equipments of the Republic of Belarus. Polymeric material – soft contact lenses Air Optix, Optima FW (Bausch & Lomb Incorporated, USA) and Pure Vision 2 HD (ALCON Laboratories Inc, USA). Saturation solution – ophthalmic drops «Sulfacyl-sodium» 300 mg/ml (RUE (republican unitary enterprise) «Belmedpreparaty», Belarus). Release medium – sodium chloride solution 9 mg/ml. Additive agent – hyaluronic acid in the form of ophthalmic solution 0.2% Artelac® Splash Uno (Dr. Gerhard Mann Chem.–Pharm. Fabrik GmbH, Germany). Lens saturation with sulfacetamide realized by soaking in 2 ml eye drops known concentration within 1, 2, 4 and 6 hr. Added 2 ml of 0.2% hyaluronic acid solution to study the process of prolongation and the uniformity of release of sulfacetamide. Soft contact lenses were removed from the solution of sulfacetamide and placed in 2 ml of isotonic solution in order to desorb the active substance. The sampling frequency for analysis with updating the release medium was 1, 2, 4, 6 and 8 hr. 2 ml of the sample solution was placed in a 50.0 ml capacity flask and was dilute to the volume with distilled water (solution A), 1 ml of the solution A was placed in a 100.0 ml capacity flask and was dilute to the volume with distilled water (solution B), 2 ml of the solution B was placed in the 50.0 ml capacity flask and was distilled to the volume with distilled water. The optical density of the obtained samples was detected using a Varian Cary® 50 spectrophotometer at a wavelength of 255 nm in cuvettes, 10 mm, the concentration of residual (after sorption) and released (after desorption) substance was determined by the calibration curve method. Statistical data processing was carried out using the MS Excel analysis package.

Results and discussion. It was found the saturation time of soft contact lenses with sulfacetamide is 1 h, while the degree of sorption is almost unchanged for the next 7 hr. The peak of desorption is