# STUDY OF OIL-IN-WATER TYPE EMULSION STABILITY

Tovstonozhenko A. S., Kozhelupenko A. E., Stepanenko S. V.
Scientific supervisor: PhD., assoc. prof. Kukhtenko H. P.
National University of Pharmacy, Kharkov, Ukraine
galinakukh@gmail.com

**Introduction.** The use of emulsion systems in the development of semisolid drugs provides rapid release of the active substances due to physiological affinity with structural elements of skin cover. Penetration of these systems occurs through sweat and sebaceous glands due to the presence of functional groups of hydrophilic and hydrophobic nature. In the development of these systems much attention is givento methods of stabilization and study of physical stability. Stabilization of emulsion system is achieved using surfactants or high-molecular substances. The physical stability of emulsions is estimated based on the results of structural and mechanical studies and research of their colloid and thermal stability.

In order to develop a medicinal cream to treat cuperosis has been developed a number of formulations of first kind emulsions stabilized with emulsifiers PEG 75, Lanolin and Cetearyl Alcohol 50/50 of different concentrations: №1 - 7% / 3%; №2 - 4% / 10%; №3 - 8% / 8%; №4 - 12% / 6%; №5 - 16% / 4%; №6 - 20% / 2%.

Emulsions were prepared by high-temperature method with high-speed emulsification at a speed of 10,000 rev / min. for 10 minutes using Polytron®System homogenizer PT 2500 E ("Kinematica AG", Switzerland).

**Aim.** Study of the first kindemulsion colloidal stability.

**Materials and methods.** For the test laboratory centrifuge with a set of tubes was used. Test tubes filled 2/3 of the volume with investigated samples and weighed to the nearest 0.01 g.Then the tubes were placed in a water bath at a temperature of $(42,5 \pm 2,5)$ ° C for 20 min., and then placed in the centrifuge slots. Centrifuged for 5 minutes. at a speed of 6000 rev / min. Samples were considered stable if, after centrifugation in test tubes was observed no separation. If at least in one of the tubes was observed sample separation or isolation of sediment analysis was performed again with new portions. If during the repeated test found at least one tube with separation, the sample was considered unstable.

**Results of the study.**According to the results of the first kind emulsion colloidal stability study it has been established that all proposed formulations withstood the test of colloid stability.

**Conclusions.**Thus for further physicochemical and structural-mechanical studies can be used all the proposed samples of emulsion systems.