

STUDY OF STRUCTURAL-MECHANICAL PROPERTIES OF CARMELLOSE GELS

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Introduction. Gels, as a dosage form have become widely used due to their advantages, which include simplicity of technological process, stability, indifference and superb consumer properties. And sometimes gels are virtually the only appropriate dosage form. For today there is a large amount of gelling agents of synthetic and natural origin. Natural gelling agents include cellulose and its derivatives. Introduction of active substances in the composition of the gel base is done with their pre-dissolution in non-aqueous hydrophilic solvents (propylene glycol, macrogol-400, glycerol) the amount of which may vary in wide limits. Therefore, study of capacity abilities of sodium carmellose gels is a prerequisite for creation of medicated gel for thrombophlebitis treatment.

The aim of the study. The study of changes in structural and mechanical properties of 2% sodium carmellose gels depending on the concentration of propylene glycol, macrogol 400 and glycerol.

Materials and methods. The objects of research were 2% sodium carmellose gels which differed by content of propylene glycol, macrogol 400 and glycerol. Concentrations of non-aqueous solvents ranged from 5% to 30% in increments of 5%. The study of structural and mechanical properties performed on a rotary viscometer "Reotest 2" (Germany) at 25 °C. According to the research built sample flow rheograms and structural viscosity dependence on shear rate gradient.

Results. As a result of studies it has been found that separate introduction of hydrophilic non-aqueous solvents in concentrations up to 20% results in increased structural viscosity. Increasing the quantitative content of propylene glycol, macrogol -400 and glycerol more than 20% reduces the structural and mechanical properties. At this all samples meet consumer requirements. It has also been found that propylene glycol reveals greater ability to influence the structural and mechanical properties.

Conclusions. The properties of the croscarmellose sodium gels with various content of non-aqueous solvents have been studied. It has been found that their amount may vary within 5 - 30%. The introduction of such concentrations in 2% sodium croscarmellose gel does not lead to the destruction of coagulation structure.