

## **VISCOSIMETRIC STUDIES OF METHYLCELLULOSE DERIVATIVES**

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Currently are widely used soft dosage forms in the form of gels, due to a number of benefits such as efficiency (well absorbed through the skin and mucous membranes), usability (easy to apply and spread over the surface), simplicity and efficiency of preparation technology. As a gelling agent carbopol of different brands is often used. Of great interest is the study of hydrocolloids, as which may be used methylcellulose and its derivatives, carrageenan, gums, pectins to create new drugs based on them.

We have studied 0.5%, 1%, 1.5%, 2%, 2.5% and 3% solutions of sodium carboxymethylcellulose, hydroxypropylmethylcellulose, hydroxyethylcellulose, ethylcellulose. The samples were prepared by the gravimetric method, dispersion of methyl cellulose derivatives in purified water performed with a homogenizer POLYTRON 2500 E of company "KINEMATICA AG" (Switzerland). Prepared samples were subjected to rheological (structural-mechanical) research on the device "Rheotest-2" (Germany) with the H set of coaxial cylinders. Rheological studies allow to judge of the viscous-plastic properties of solutions of methyl cellulose derivatives and their thixotropy. To compare the data of the dynamic viscosity of the methylcellulose derivatives solutions carbopol solutions were prepared at the same concentration. Samples which viscosity did not allow carrying out rheological studies were subjected to determination of kinematic viscosity using the viscometer 2-VSL.

As a result of experiments it was found that in all the samples with increasing concentration value of the dynamic viscosity increased. In the concentration range of 0.5 - 1.0% solutions have low viscosity, systems are approaching Newtonian liquids. In samples with a concentration of 2.5 - 3% viscosity increases sharply, but does not exceed the viscosity of the gels prepared with Carbopol.

On the other hand incorporation of salts into the hydrocolloid lowers the viscosity thereof. Thus, the next stage of our work will be to study the dependence of viscosity of hydrocolloids solutions from introducing into their composition of solutions of salts and other substances.