



# The 8th International Conference on Pharmaceutical Sciences and Pharmacy Practice

**dedicated to the 80th anniversary of the  
Museum of History of Lithuanian Medicine  
and Pharmacy**

Book of abstracts



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## **Studying of the compounding ointment with Eucalyptus tincture rheological parameters**

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In addition to the articles «Non-sterile compounding medicines» and the general article «Medicines», compounding ointments should meet the requirements of the article «Topical semi-solid preparations». In this article it is specified that during the semi-solid preparations production, compliance with the established rheological parameters should be ensured. Rheological properties are one of the ointments quality parameters. They characterize its consumer properties (easiness of application on the skin surface, fixation on it, uniform distribution, etc.) and determine the therapeutic efficacy of the dosage form. The ointment rheological parameters are influenced by the excipients, the degree of the ointment mechanical processing during the process of its production, the temperature of preparation and storage conditions. Saving of the structural and mechanical properties of the ointment provides the optimal consistency of the dosage form, which is the main characteristic of the ointment consumer properties and its stability. The studying of these parameters can serve as one of the methods for the ointments quality control during the production and the storage period. Thus, an assessment of the degree of the ointments rheological parameters changing during storage is an integral part of the ointment stability analysis over a specified period.

The object of the study was the compounding ointment: Eucalyptus tincture 2,5 ml; wool fat 1,25; white soft paraffin 21,25. The evaluation of rheological parameters was carried out during the month: on the 10th, 20th and 30th day of ointment storage. During the study, the ointment was stored at a temperature  $5 \pm 3$  °C.

The rheological properties of the ointment samples were determined using a rotary viscometer “Rheolab QC” (Anton Paar, Austria) with coaxial cylinders C-CC27/SS. The determination of rheological parameters was carried out at a temperature  $20 \pm 0,5$  °C. Thermostating of samples was carried out using a thermostat MLM U15<sup>c</sup>. Ointment sample (close to 17,0 g) was placed in the container of an external fixed cylinder, set the required experimental temperature.

## ORAL PRESENTATIONS

Time of thermostating was 20 minutes. Research was conducted in shear rate from 0,01 to 350 s<sup>-1</sup>.

Obtained results are given in the Table 1. Sample 1 is the ointment sample after 10 days of storage, sample 2 is the ointment sample after 20 days of storage and sample 3 is the ointment sample after 30 days of storage.

**Table 1.** Results of the ointment with Eucalyptus tincture rheological parameters estimation

Sample No	Structural viscosity (Pa·s) of the ointment samples depending on the shear rate, D <sub>r</sub> s <sup>-1</sup>							
	0,01	47,2	91,0	145,0	195,0	246,0	296,0	350,0
1	517	4,93	2,72	1,78	1,36	1,13	0,97	0,86
2	546	4,63	2,70	1,79	1,39	1,15	0,99	0,88
3	561	4,97	2,72	1,79	1,36	1,12	0,98	0,86

The structural viscosity numerical values of the three ointment samples are almost don't differ from each other. The obtained results of structural and mechanical properties of ointment samples studies within one month shown that during the specified period there are no negative changes in rheological parameters. The ointment retains plastic-viscous properties, which guarantees the stability of her consumer properties.



### Multidisciplinary international investigations of phytopreparations

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