



EVALUATION OF THE QUALITY AND BIOAVAILABILITY OF MEDICINAL FILMS BASED ON ALOE EXTRACT AND METILURACIL

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Relevance: The effective treatment of many dermatological diseases is associated with the use, along with traditional dosage forms (ointments, gels, solutions), of modern dosage forms such as polymeric medicinal films. The successful treatment of dermatological diseases largely depends on the use of complex therapy, i.e. the combination in the dosage form of substances that have not only antibacterial but also anti-inflammatory and wound-healing effect.

For the treatment of difficult-to-heal wounds, ulcers, inflammations, infected burns, and dermatitis, the use of Aloe preparations, which have an anti-inflammatory effect and enhance the regeneration processes of mucous membranes and skin, has proven to be promising. Among the preparations with regenerative properties is methyluracil, which is a tissue regeneration stimulant that helps restore the natural structure of tissues and promotes wound healing.

Based on the above, previous studies have developed the composition and technology of dermatological phytofilms, containing a complex of Aloe extract and methyluracil.

The purpose of the study. The aim of this study was to evaluate the quality of the obtained phytofilms, as well as to investigate their bioavailability.

Materials and methods: The studies used medicinal components and polymers that meet the requirements of the RD.

The phytofilms, were obtained by the well-known solution method, by casting the film mass on glass substrates, followed by drying at a temperature of 30-320C to the optimal residual moisture. In the studies, the following indicators of phytofilms, were studied: appearance, ability to separate from the substrate surface, pH value of the aqueous solution, and dissolution time according to the methods described in the General Pharmacopoeia of the Russian Federation.1.4.1.0035.18. – Films (State Pharmacopoeia of the Russian Federation. – 14th ed.,: 2018.) as well as in literary sources.

To study the bioavailability of phytofilms, we used a well-known method in the literature, proposed by E.I. Kulish and A.S. Shurshina, which is the method of diffusion into a dialysis medium.

Results. The research results showed that the obtained films were transparent, elastic, and light yellow in color, with an average mass of 0.4 ± 0.018 , and they easily separated from the substrate surface. The films had a dissolution time of 540-720 seconds and a pH value of 6.6-7.0, respectively.

The bioavailability of phytofilms, was evaluated based on the release kinetics of the active components: methyluracil and aloe extract in terms of barbaloin, the quantitative content of which was determined by spectrophotometry at a wavelength of 412 nm (methyluracil) and 260 nm (barbaloin), respectively.

According to the results obtained, the maximum concentration of active substances released from the phytofilms, was observed after 90 minutes, which was 77.1% for methyluracil and 74.2% for Aloe (barbaloin), respectively. It was found that a significant release of active substances was observed within 180 minutes.

Conclusions. The physical, chemical, and technological properties of the phytofilms, obtained using the proposed optimal technology were studied: appearance, mass, dissolution time, and pH



value. The bioavailability of the active components in the developed phytofilms, was studied using the in vitro method. The kinetics of the release of methyluracil and aloe extract (barbaloin) from the phytofilms, into the dialysis medium were investigated.