

## RESEARCH ON THE CREATION OF A PHARMACOLOGICALLY ACTIVE DRESSING BASED ON RAW MATERIALS OF NATURAL ORIGIN

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**Introduction.** The system approach in the treatment of wound process involves the use of both pharmacologically inert and pharmacologically active dressing agents designed primarily to close the wound, ulcer or inflamed body in order to eliminate unfavorable external conditions or to fix its contact with drugs. The analysis of the market of dressings means that most of the products needed by the Ukrainian consumer are manufactured abroad, which reduces their economic and physical availability. Pharmacological activity of plaster is mainly due to synthetic active substances, which limits the possibility of their use, in particular in pediatric and geriatric practice. Thus, despite the wide range of dressings, there is still a need to develop new types of wound dressings of domestic production based on raw materials of natural origin, having specific properties and indications for use depending on the phase of the wound process and the peculiarities of its flow.

**Aim.** The purpose of this work was to develop the composition and technology of plaster based on dense extract of oak bark (DEOB), developed at the department of technology of drugs. The spectrum of the local effects of the DEOB includes astringent, anti-inflammatory, hemostatic and antimicrobial

**Materials and methods.** Modern materials used as carriers of dressings may be of natural or synthetic origin, be inert or have their own activity and must meet certain requirements: to be resistant to chemical and microbial biodegradation, to have high mechanical stability, to have a minimum non-specific adsorption. An important requirement for a carrier of a dressing is the possibility of gas exchange of oxygen and carbon dioxide and the regulation of moisture in the wound.

Textile nonwoven materials which are allowed for use in medical practice, was used as the carrier of new patch. They are highly absorbent, have a high gas exchange rate, do not cause irritation when applied.

**Results and discussion.** In order to provide a wide range of activities, it was advisable to introduce sodium alginate into the solution for saturation, which has hemostatic and wound healing properties. Sodium alginate is also used in pharmacy as a thickener and gel formulation agent. Therefore, in order to immobilize the DEOB on the dressings, we chose the method of applying the DEOB as the alginate hydrogel composition. Taking into account the technological properties of sodium alginate, namely very slow dissolution in water with the formation of a viscous colloidal solution, we investigated the dependence of the dissolution process on the presence of difference auxiliary substances. Taking into account the appointment of dressings, PEO-400 was chosen as an excipient, which has the highest osmotic activity. The optimal concentration of PEO-400 was set at a level that would significantly increase the rate of dissolution of sodium alginate. An optimal temperature of dissolution of sodium alginate is also established. Based on the study of the antimicrobial activity of the model samples, an optimal concentration of DEOB in alginate hydrogel was studied.

**Conclusions.** On the basis of the obtained results of researches the optimal composition of the saturated solution for dressings was established..