

## STUDY OF THE EFFICACY OF A NEW COMBINED GEL WHICH CONTAINS THICK OAK BARK EXTRACT AND DRY EXTRACT OF ALOE, UNDER CONDITION OF APHTHOSIS STOMATITIS

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**Introduction.** Destructive inflammatory diseases of the oral cavity (stomatitis, gingivitis and periodontitis) are extremely widespread among the population, adversely affect the general functional and psychological state and are an underestimated problem of modern medicine. Destructive inflammatory diseases in most cases are positively correlated with chronic systemic pathologies. Today it is important to search for new drugs with polymodal pharmacological activity in order to create a new drug that will have a multidirectional pharmacological effect, would not be toxic under conditions of long-term use, with a convenient dosage form, effective in treatment of destructive inflammatory diseases of the oral cavity. The new gel was developed at the Drug Technology Department of NUPh by prof. Khokhlenkova N.V. New combined drug was in the form of a gel with plant extracts for the treatment of inflammatory diseases of oral cavity: dry extract of aloe (DEA) and thick oak bark extract (TOBE).

**Aim.** The aim of this work is to study effect of the new gel at the condition of the mucous membrane of the lower lip and gums of rats in experimental stomatitis.

**Materials and methods.** Experimental stomatitis was developed by a single 5-second application of a cotton swab with 10% sodium hydroxide solution on the wall of the oral cavity between the lower lip and the incisors of the lower jaw of rats. The experiment was performed on 32 male rats with weight of 180-210 g. Animals that developed stomatitis were divided into 4 groups: Group 1 – intact control; Group 2 – animals with a reproduced model of stomatitis – control pathology; Group 3 – animals with model pathology, which were treated with a new gel containing DAE and TOBE; Group 4 – animals treated with the comparison drug Metrogil denta gel. The test agents were applied to the animals on the affected area of the mucous membrane with a cotton swab 2 times a day for 10 days in the form of applications. The intensity of the inflammatory process was assessed on day 5 and 10 by changes in such parameters as leukocytes and erythrocyte sedimentation rate. Animals were removed from the experiment after 10 days and biomaterial (blood, tongue) were collected to determine the performance of the LPO/AOP system (catalase, TBA-reactants, GSH). The state of the immune system was assessed by circulating immune complexes. Histological studies were performed under experimental aphthous stomatitis at rats. The object of the study was the mucous membrane of the lower lip and gums of rat. At the end of the experiment, the lower lip and gums of rats of all groups were fixed in 10% formalin solution, poured into paraffin. From the blocks were made slices 5-6  $\mu\text{m}$  thick, stained with hematoxylin and eosin. Examination of micropreparations was performed with a Granum microscope, photographing microscopic images was performed with a digital video camera Granum DSM 310. The photos were processed on a 2.4GHz Pentium computer using Toup View.

**Results and discussion.** Treatment with a new gel at the background of aphthous experimental stomatitis prevents the development of destructive-inflammatory changes in the mucous membrane of the lower lip and gums in 83.3% of rats. In the gums destructive-inflammatory changes of the epithelium and mucous membrane are also absent, or there were minor remnants of the inflammatory reaction subepithelially. The therapeutic effect of the new gel in this experimental model was slightly higher than that of the comparison drug Metrogil denta gel.

**Conclusions.** The pharmacological activity of the new gel was studied. The application of a new gel at the treatment under conditions of experimental aphthous stomatitis contributed to the normalization of all clinical and biochemical parameters, reduces the severity of destructive-inflammatory changes and accelerates healing of the oral mucosa.