

STUDY OF ANTIMICROBIAL ACTIVITY OF NEW GEL FOR TREATMENT OF PERIODONTAL DISEASES

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Introduction. Oral diseases are one of the serious common health problems in life and are expensive for treatment. Dental caries, periodontal disease and gingivitis are among the most important preventable global infectious-inflammatory diseases in Ukraine and the world as a whole. More than 90% of the adult population of the Earth are prone to periodontal diseases. This leads to tooth loss, chronic oral cavity, significantly worsen health and quality of life. The activity of each component of the drug should be directed to a particular factor in the inflammatory process. Local medical treatment is carried out in order to affect the microflora of pathological gum pockets, and give preference to herbal medicines. Composition and technology of new gel based on plant extracts was developed by prof. Khokhlenkova N.V. at the Department of Drug Technology of National University of Pharmacy.

Aim. The purpose of this work is to study the antimicrobial activity of new gel containing plant extracts for the treatment of periodontal diseases.

Materials and methods. Antimicrobial activity was studied using cup diffusion method by diffusion to agar by evaluating antibiotic susceptibility on the following strains of test microorganisms: *Staphylococcus aureus*, *Escherichia coli*, *Basillus subtilis*, *Candida albicans*. The results of studies characterize the antimicrobial activity of the drug as well as the release of a substance from the base, as stunted growth of microorganisms zone formed by diffusion of substances in dense nutrient medium. Test samples of the antimicrobial activity were compared to the registered in Ukraine dental gel for gums «Metrogyl Dent» classical drug for the treatment of inflammatory periodontal diseases.

Results and discussion. The level of antimicrobial activity of the new gel exceeds the comparator, it is shown against the bacterial test strains according to the diameter of the zones. The antimicrobial effect of «Metrogyl Dent» shown by the following results: *S. aureus* 15.1±0.3 mm, *E. coli* 14.7±0.6 mm and *C. albicans* 22.0±0.1 mm. New gel shows more intense antimicrobial activity, as indicated by results: *S. aureus* 19.8±0.4 mm, *E. coli* 200±0.7 mm and *C. albicans* 29.4±0.5 mm.

Conclusions. As a result of the research it was found that new gel have a wide spectrum of antimicrobial activity and is characterized by activity against both gram-positive and gram-negative bacterial cultures of microorganisms and shows high activity against fungus *Candida albicans*.