

**Materials and methods.** The dietary supplement "Lactiale", the leaven "Yogurt", the preparation "Bifidumbacterin", clinical isolates (as representatives of human normoflora), and natural bee products, namely, natural floral honey, propolis, flower pollen and royal jelly have been used as researched objects. Traditional microbiological, physico-chemical, organoleptic and statistical methods jelly have been used in researches.

**Results and discussion.** The results of research have been shown that, in general, bee products have a positive effect on the cultures of selected probiotic product groups – the representatives of dietary supplements "Lactiale", domestic probiotics "Bifidumbacterin", leaven product "Yogurt" and on clinical isolates, which have provided as representatives of human microflora.

**Conclusions.** During the study of the influence of bee products on microorganisms, which form the basis of certain groups of probiotic products, and on the clinical isolates of representatives of normoflora, it can be argued that in general, the biggest positive effect of bee products was observed on the complex additive "Lactiale" and leaven "Yogurt", the main components of which are lactic acid bacteria. The smallest positive effect was observed on the monoprobiotic "Bifidumbacterin", which is based on bifidobacteria. The highest positive effect among bee products was observed for royal jelly. Somewhat smaller but also large effect was for honey and beeswax. The obtained results allow recommending the use of bee products as effective stimulators of growth of own microflora in traditional medicine and as a combination with lactic acid bacteria in the creation of complex dosage forms of probiotics.

## **MICROBIAL PURITY OF A COMBINED MEDICINAL FORM ON THE BASIS OF DERIVATIVE CAMPHORIC ACID**

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**Introduction.** Starting with the development of a new pharmaceutical product on the whole path from production to consumer, it is necessary to evaluate derivation chance of low a quality product and make a risk management system to achieve it's quality. A special place in testing pharmaceuticals take microbiological methods, where microbiological purity is not the least one, which is based on determination of the consistency and microorganisms quantity, as well as matching the standards that provide microbial contamination. The level of microbial contamination depends on many factors: nature of raw materials, water content, the type of packaging or violation of sanitary standards for the manufacture of medicines. While creating new medicines it is necessary to consider and follow certain requirements which are specified in SPhU 2nd edition.

**Aim.** Determination of the method and criteria for assessing the microbiological purity of a new non-sterile oral compound based on derivative camphoric acid.

**Materials and methods.** Objects of research – a derivative of camphoric acid, microbiological purity, recommended by the State Pharmacopoeia of Ukraine the test culture of microorganisms. To solve assigned tasks there were used microbiological methods of research.

**Results and discussion.** The Development problem, the substantiation and establishment of a sufficient level of microorganism content in new medicines is closely linked to the choice of the method for their detection, and identification, which provides the effectiveness of the analysis.

The new combined oral form based on derivative camphoric acid belongs to solid unsterile medicinal products, containing the main active ingredient, which does not exhibit antimicrobial action.

For non-sterile medicinal products, quantitative determination of mesophilic bacteria and fungi capable of growing under aerobic conditions is carried out. During the study, it is mandatory to check the growth properties of nutrient media. The preparation of an experimental test sample depends on the physico-chemical characteristics of the medical substance. For a derivative of camphoric acid, it is rational to use the pharmacopoeial method of preparation of the sample with water-insoluble medicinal products, which do not contain fats. Detection of microorganisms in the presence of a combined oral form based on

the derivative of camphoric acid is carried out by sowing (deep and superficial) on the dishes (breeding 1:10).

The standardization of the microbiological purity of the medicinal product subject to investigation must be carried out in accordance with the criteria for the acceptability of non-sterile finished medicinal products, the State Pharmacopoeia of Ukraine 2 – non-aqueous medicines for oral use, not containing bacteria of the genus Enterobacteriaceae - *Escherichia coli*, the total number of aerobic microorganisms of bacteria should not exceed 10<sup>3</sup> CFU/g, and the content of yeast and mildew mushrooms should be considerably less 10<sup>2</sup> CFU/g..

**Conclusions.** This method has been chosen due to simplicity and testing flexibility exactly on unsterile drugs.

### **BIOTESTING RESEARCH ON *PARAMECIUM CAUDATUM***

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**Introduction.** Recently, more often, scientists are turning to the use of unicellular organisms (paramezii) as a test facility for pharmacological and toxicological studies, since they represent a miniature copy of a multicellular organism. The body of paramezes has the same functional systems, with the help of which it is possible to screen new synthetic substances and pharmacological assessment of the safety of natural and synthetic complex drugs.

**Aim.** The purpose of this paper was to consider the possibility of using unicellular organisms (paramezii) in biotesting pharmaceutical and cosmetic products.

**Materials and methods.** Biotesting is a procedure for determining the toxicity of the medium through test objects that signal the danger, regardless of what substances and in what combination cause changes in vital functions in the test objects. Thanks to its simplicity, efficiency and availability, biotesting has gained widespread acceptance throughout the world, and is increasingly being used along with analytical chemistry. There are 2 types of biotesting: morphophysiological and chemotactic. The chemotactic method is more precise, since it uses a special device, and the morphophysiological one allows more accurately to describe what happens to test objects, for example, in contaminated water.

It is known that various types of infusoria (*Paramecium caudatum*, *Colpoda stenii*, *Tetrahymena pyriformis*) are widely used in biotesting.

**Results and discussion.** The choice of *Paramecium caudatum* as a living model for the study of various substances is due to the fact that they react to the external environment as an independent organism. In the pharmacology of paramecia as a biological model, antioxidant drugs (regulatory lipid peroxidation) and membrane-stabilizing action types are used to screen drugs.

Infusion classes have a high degree of adaptability. They are capable of producing protective reactions aimed at reducing the damaging effects of various stimuli, and resistance to stimuli is retained for some time after their removal. This property of paramezii is used for the screening of natural compounds possessing adaptogenic properties.

As control of toxicity, the most widely used growth and reproduction reactions of infusoria in the nutrient medium with the addition of chemical substances, as well as the reaction of chemotaxis. Criteria for toxicity are various concentrations of live paramets in experimental and control samples and concentrations of substances that cause functional and morphological changes in cells.

**Conclusions.** Biotesting methods using the simplest can be used to assess the immunological and physiological state of various aquatic organisms in reservoirs of various trophic status, pollution of water bodies with a variety of economic and industrial effluents, as well as the influence of other anthropogenic factors. It is possible to determine the toxicity of meat products, pharmaceuticals, beverages, cosmetics.

At the Department of Biotechnology have begun the research on biotesting of new medical forms and perfume-cosmetics using model *Paramecium caudatum*.