close to natural and are well absorbed by animals. Also an integral part of their quality is compliance with microbiological purity.

Aim. To determine microbiological parameters in dry complete feed for cats of Super Premium class. Determine their biosafety.

Materials and methods. Materials – three kinds of complete dry food for cats Super Premium in a package weighing more than 4 kg. Sampling was performed by opening the package and at the end of its use. Meat-peptone agar (MPA), Endo agar, selective salt agar (ESA), Saburo agar, Wilson-Blair medium were used for research. The studies were conducted using laboratory (microbiological) methods of research, in accordance with the Order of the Ministry of Agrarian Policy and Food of Ukraine dated 19.03.2012 № 131 «On approval of the List of maximum permissible levels of undesirable substances in feed and feed raw materials for animals» on the basis of research Laboratory of microbiological and immunological research at the Department of Microbiology, Virology and Immunology National University of pharmacy.

Results and discussion. On MPA we determined the total microbial contamination, on endo agar-the presence of enterobacteria, ESA-the presence of Staphylococcus on Wilson-Blair medium – the presence of toxin-forming anaerobes, on Saburo agar-the total number of fungi.

In the study of sample number 1 (when opening the package), it was found that the total microbial contamination in 1 g of feed was $2{,}4 \cdot 10^1$ colony – forming units (CFU), enterobacteria, toxin-forming anaerobes, coagulase-positive staphylococci and fungi-were not isolated. At the end of its use (after 1 month), the indicator of total microbial contamination increased to $8.1 \cdot 10^2$ CFU in 1 g, also isolated coagulase-negative *Staphylococcus* saprophyticus. Other indicators of food remained unchanged.

In the study of sample number 2 (when opening the package), the total microbial contamination in 1 g of feed was $2.8 \cdot 10^1$ CFU, enterobacteria, toxin-forming anaerobes, coagulase-positive staphylococci and fungi-were not found. At the end of its use (after 1 month), the indicator of total microbial contamination increased to $8.3 \cdot 10^2$ CFU in 1 g, enterobacteria, toxin-forming anaerobes, coagulase-positive staphylococci and fungi were also not isolated.

In the study of sample number 3 (when opening the package), it was found that the total microbial contamination in 1 g of feed was $2.7 \cdot 10^1$ CFU, enterobacteria, toxin – forming anaerobes, coagulase-positive staphylococci and fungi-were not isolated. At the end of its use (after 4 months), the indicator of total microbial contamination increased to $8{,}7 \cdot 10^2$ CFU in 1 g, also isolated coagulase-positive *Staphylococcus aureus*, which does not meet existing standards. Other indicators of food remained unchanged.

Conclusions. So, after carrying out bacteriological researches it is possible to claim that in the Ukrainian market dry forages for cats of a Super Premium class meet the standards and are safe for feeding. But the owners should be vigilant and monitor the shelf life of feed. After the feed package is opened, they are allowed to feed the animals for 1 month. Packaging of feed that has been opened for more than 1 month is not recommended for animal feeding.

ANTIBIOTIC RESISTANCE IN BACTERIA: LOOK AT THE PROBLEM AND PROSPECTS OF ITS DECISIONS

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Introduction. Antibiotics have become the most important achievement of humankind in the XX century. But to date, many cases of bacterial resistance to antibiotics have been recorded. In 2011, the World Health Organization announced a global problem of antibiotic resistance, which has already engulfed the whole world.

Aim. To analyze the literature on the resistance of bacteria to antibiotics.

Results and its discussion. Every year, almost a million people die from bacterial infections that are not treated with conventional antibiotics due to the emergence of resistance in bacteria. At the present stage revealed some clinical strains of bacteria which are multiresistant.

Bacteria realize their resistance through various mechanisms, such as: produce new, not peculiar to them earlier, enzymes that can inactivate the active substance of drugs; change the permeability of cell membranes; form biofilms; acquire a molecular pump that pumps antibiotic molecules out of the cell; the target, to which the action of the drug is directed, is being reworked beyond recognition, or, for example, they substitute the "false targets" antibiotic.

In addition to the invention of new drugs and approaches, scientists are also engaged in the improvement of old methods. For example, with the addition of silver ions, modern antibiotics are able to destroy 1000 times more pathogenic bacteria. This mechanism is implemented by increasing the permeability of the cell membrane of bacteria for drugs and the formation of a large number of reactive oxygen species that are aggressive against bacterial cells. Another promising area is the creation of a specific treatment strategy with several antibiotics, forcing the bacteria to lose their resistance to the antibiotic, which was used to treat the patient initially.

Scientists have noticed, that when a bacterium becomes resistant to one antibiotic, it makes it more vulnerable to another antibacterial drug. At this stage, bacteriophages have again become the focus, since they can be a good alternative to antibiotics. This principle works well for intestinal bacteria, due to which dysbacteriosis develops.

Conclusions. The problem of bacterial resistance to antibiotics must be addressed internationally. Today, new antibacterial drugs are being developed and new approaches are being created in the treatment of infectious diseases. The search for new antibiotics is a time consuming, long-term and costly process. To date, combined methods of treatment are the most common way of treating patients with multidrug resistance to infectious agents.

BACTERIOPHAGES ON THE WAY TO MEDICINE OF THE FUTURE

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Introduction. According to modern science, more than 60% of pathogens are resistant to most antibiotics. This figure will be close to 100% in the next 10-20 years. The prevalence of gram-negative bacteria such as *Klebsiella spp*, *Escherichia coli* and *Proteus spp*. becomes extremely relevant for clinical practice, since their plasmid enzymes can destroy cephalosporins III and even IV generation. Especially dangerous is *Escherichia coli*, which is resistant to many antibacterial drugs such as fluoroquinols, ampicillin, co-trimoxazole, gentamicin. The synthesis of new classes of antibiotics has decreased over the past decades. The introduction of fundamentally new representatives of antibiotics into clinical practice during this period also decreased. In 2014, the World Health Organization (WHO) officially announced a crisis of antibiotic therapy. The WHO has published a report which concludes that the world has entered a post-antibiotic era. On this point, the priority tasks were: 1 –counteracting the spread of resistant microorganisms, 2 – searching for alternatives for antibiotic therapy. One of the results of such research is the possibility of using bacteriophages – specific viruses that destroy strictly defined pathogenic microorganisms.

Aim. Assessment of the ability of bacteriophages to solve the problem of antibiotic resistance.

Materials and methods. Analysis of the scientific literature and the results of the advanced research in the field of medicine and pharmacology.

Results and discussion. Bacteriophages are called such viruses that are characterized by the specific ability to selectively infect bacterial cells belonging to the same strain or antigenically homologous strains of one species or genus, followed by lysis of the host cell. Bacteriophages are natural enemies of bacteria in nature. Their ability to mutate allows us to fight the emerging varieties of bacteria.