

## 2014 № 2 ЗМІСТ (Contents)

Редакційна рада (Editorial Board)	C. (P.)
Зміст (Contents)	1
Вітання головного редактора	2-5
ОГЛЯДИ (REVIEWS)	6

### ANTI-ADHESIVE THERAPIES AS A CONTEMPORARY MEANS TO FIGHT INFECTIOUS DISEASES AND ADHERENCE FACTORS OF CORYNEBACTERIA DIPHTHERIAE

Yelyseyeva I. V., Babych Ye. M., Zhdamarova L. A., Belozersky V. I., Isayenko Ye. Yu., Kolpak S. A.

The emergence and increasing prevalence of bacterial strains that cause infectious diseases and that are resistant to available antibiotics demand the discovery of new therapeutic strategies. For many pathogenic bacteria, infections are initiated only after the organism has first adhered to the host cell surface. A modern alternative approach to antimicrobial therapy is targeting bacterial virulence and specifically adhesion as one of virulence factors. This approach forms the basis of anti-adherence strategies, which have been devised to prevent a variety of bacterial infections. The article deals with some modern strategies for anti-adhesion therapy, the mechanisms of inhibition pathogen adherence, immunization using a bacterial adhesion, an adhesin subunit or an immunogenic peptide fragment and a DNA vaccine encoding the adhesin or part thereof and so on. Investigation of bacterial pili which orchestrate the colonization of host tissues is the area most in need of further study. Bacterial pili may be vaccine candidates in important human pathogens as being highly immunogenic structures which are under the selective pressure of host immune responses. *C. diphtheriae*, the causative agent of diphtheria, is well-investigated in respect to toxin production, while little is known about its factors crucial for colonization of the host. Adherence factors of *Corynebacteria* may be considered as probable components of developing of combined diphtheria vaccines with antibacterial action which localizes a diphtheritic infection in an organism. They'll become an effective method against a resistant carrier state and be forward to stopping of pathogen circulation among human population.

7-19

**Key words:** adhesion, pili, *C. diphtheriae*, anti-adhesion therapy, antibacterial immunity, diphtheria vaccines

### DESCRIPTION OF TECHNOLOGIES FOR OBTAINING OF ANTIGENS OF CANDIDA GENUS FUNGI

Rybalkin M.V.

To develop the vaccine against candidal infection the various biotechnological methods for obtaining antigens of *Candida* genus fungi have been considered in the article. To obtain antigens for the prevention and treatment of candidiasis researchers use different types and parts of fungi of the genus *Candida*. Methods of preparation of antigens also vary widely including chemical, physical and physico-chemical techniques. Of all possible variants development and research of a dead and subunit vaccine based on *C. albicans* and *C. tropicalis* fungi that are the main causative agents of candidiasis have been chosen for further study.

20-24

**Key words:** candidiasis; antigen, vaccine, immunity

### ГРИПП КАК ОБЩЕЧЕЛОВЕЧЕСКАЯ ПРОБЛЕМА. ПЕРСПЕКТИВНЫЕ НАПРАВЛЕНИЯ ПРОФИЛАКТИКИ И ЛЕЧЕНИЯ

Короваева И.В., Кухарь Д.И., Попова Н.Г., Михайленко К.В., Зозуля Н.И.

### FLU AS PROBLEM COMMON TO ALL MANKIND. FUTURE DIRECTIONS FOR PREVENTION AND TREATMENT OF INFLUENZA

Korovaeva I.V., Kuhar D.I., Popova N.G., Mikhaylenko K.V., Zozulya N.I.

This article discusses the flu, as one of the most common infectious diseases affecting humanity throughout its history. The data on the structure of A influenza virus and its variability is given historical background for most famous of the pandemics, which inflicted irreparable damage to the population of the Earth, are shown the basic stages of the study for influenza virus. Are considered the types of variability of the A virus influenza, its ability to overcome interspecies barriers that form the basis of pathogen escape from the immune response. The article shows the promising areas of modern prevention and treatment of this disease.

25-29

**Key words:** flu A, pandemics, changeability of virus of flu, prophylaxis and treatment of flu.

### ЕКСПЕРИМЕНТАЛЬНІ РОБОТИ (EXPERIMENTAL STUDY)

### ФАРМАЦІЯ ТА МІКРОБІОЛОГІЯ (PHARMACY & MICROBIOLOGY)

### ВИВЧЕННЯ ПРОТИМІКРОБНОЇ АКТИВНОСТІ 6-СУЛЬФОНІЛПОХІДНИХ

### 4-МЕТИЛ-1,2-ДИГІДРОКІНОЛІН-2-ОНУ

Цапко Т.О.

### THE STUDY OF THE ANTIMICROBIAL ACTIVITY OF 6-SULFONYL DERIVATIVES OF 4-METHYL-1,2-DIHYDROQUINOLINE-2-ONE

Tsapko T.A.

Experimental study of the antimicrobial activity of the nineteen new 6-R-sulfonyl derivatives of 4-methyl-1,2-dihydroquinolin-2-one has been carried out using the wells method and the serial dilution method in liquid medium. The experiment has shown that 6-alkyl-sulfonyl-4-methyl-1,2-dihydroquinoline-2-ones have weak activity but 4-methyl-2-oxo-1,2-dihydroquinolin-6-sulfonic acid amides exhibit pronounced antibacterial activity, especially against strains of *S. aureus* and *E. coli*. The important structural feature of 4-methyl-2-oxo-1,2-dihydroquinolin-6-sulfonic acid anilides that increases this activity is the presence of the substituent in the *ortho*-position of the benzene ring of the amide residue.

30-34

**Key words:** 1,2-dihydroquinoline-2-one; sulfones; amides, antimicrobial activity, "structure - activity" relationship.

### ANTIMICROBIAL ACTIVITY OF CHOLANIC ACIDS' STEREOISOMERS COMPARED TO CHOLIC ACID ON THE TEST CULTURES OF MICROORGANISMS

Barsuk D.O., Stremouhov O.O., Kovalenko S.M.

The paper presents the results of a study of microbiological activity  $3\alpha$  and  $3\beta$  amino bile acids. We revealed high antimicrobial activity. The availability and range of antimicrobial activity were revealed by the method of serial dilutions in a solid nutrient medium and shown as bacteriostatic as bactericidal effects.

35-39

**Keywords:** bile acid, 3 $\alpha$  and 3 $\beta$  stereoisomers of 3-amino-7 $\alpha$ ,12 $\alpha$ -dihydroxy-5 $\beta$ -cholic acids, antimicrobial activity, microbial screening

**ВИЗНАЧЕННЯ МІКРОБІОЛОГІЧНОЇ ЧИСТОТИ КОНЦЕНТРОВАНИХ РОЗЧИНІВ НЕОРГАНІЧНИХ СОЛЕЙ АПТЕЧНОГО ВИГОТОВЛЕННЯ**

Штримайтіс О.В., Здорик О.А., Стрільєць О.П., Георгіяни В.А.

**MICROBIOLOGICAL PURITY DETERMINATION OF CONCENTRATED SOLUTIONS OF INORGANIC SALTS PHARMACEUTICAL PREPARATION**

Shtrimaitis O.V., Zdoryk O.A., Strilets O.P., Georgiyants V.A.

Results of microbiological purity research of compounding concentrated solutions during the period of their storage period (1 month) under different temperature conditions are given in the article. The tests were carried out according to requirements of the State Pharmacopoeia of Ukraine by direct two-layer sowing (national part). Experimentally there was found the absence of bacteria *Escherichia coli*, *Staphylococcus aureus*, *Pseudomonas aeruginosa*. It is proved that all the analyzed samples of concentrated solutions meet the requirements regarding the quality of the water medicines for oral administration in accordance with the requirements of the State Pharmacopoeia of Ukraine.

40-43

**Key words:** concentrated solutions of salts of inorganic acids, quality control, microbiological purity.

**МЕДИЦИНА (MEDICINE)**

**МІКРОБІОЛОГІЧНІ ОСОБЛИВОСТІ ЗБУДНИКІВ, ВИЛУЧЕНИХ ІЗ МОКРОТИ ХВОРИХ НА ГНІЙНО-ДЕСТРУКТИВНІ УСКЛАДНЕННЯ ПОЗАЛІКАРНЯНОЇ ПНЕВМОНІЇ**

Бакуменко А. В.

**MICROBIOLOGICAL FEATURES OF PATHOGENS FROM SPUTUM IN PATIENTS WITH PURULENT-DESTRUCTIVE COMPLICATIONS COMMUNITY-ACQUIRED PNEUMONIA**

Bakumenko A. V.

The paper analyzes data microbiological examination of sputum that has been deleted in patients with suppurative destructive complications CAP. The species composition of the microflora and the number of different genera of microorganisms in patients with lung abscess and empyema empyemu. Studied the composition of microbial associations. It was established that most of monoculture sown *S. pyogenes* and *C. albicans*. *C. albicans* was removed in two-component associations of *S. epidermidis*, *S. pneumoniae*, *S. pyogenes* and in rare cases with *P.aeruginosa*.

44-48

**Key words:** microbiological researches, empyema of pleura, abscess easy, mikroorganizmy, sputum, *S.pyogenes*, *C. albicans*, *S.epidermidis*, *S.pneumoniae*, *S.pyogenes*, *P.aeruginosa*.

**IMMUNOBIOLOGICAL PROPERTIES OF MEDICINAL PRODUCT OBTAINED ON THE BASIS OF STRAINS OF BIFIDOBACTERIA AND LACTOBACILLI**

Hizhnyak O.S.

The article treats issues of examination of safety of combined bacterial medicinal product on the basis of probiotic strains of bacteria belonging to two genera obtained by submerged mutual cultivation. During conducting experiments, it was found that the medicinal product causes no changes in blood hematological parameters of experimental animals, does not lead to their death, has no immunotoxic action, histological examination shows no deviations from the norm. In comparison with standard medicinal products, the proposed consortium of the said strains of bifidobacteria and lactobacilli does not differ by its safety from commercially available medicinal products "Bifidumbacterin" and "Lactobacterin" produced by PrJSC "Biofarma" but provides higher parameters of biological activity. There also was conducted examination of culture fluid activity after removal of proposed bacterial consortium. A high antibacterial activity of the sterile filtrate of culture fluid was found.

49-53

**Key words:** prebiotic component, microflora, probiotics, sterile filtrate of culture fluid, immunopotentiating activity, antibacterial activity, safety.

**ДЕЯКІ ПОРУШЕННЯ ФУНКЦІЇ НИРОК У ХВОРИХ НА ХРОНІЧНЕ ОБСТРУКТИВНЕ ЗАХВОРЮВАННЯ ЛЕГЕНЬ**

Оспанова Т.С., Білченко О.С., Авдєєва О.В., Боллокадзе Є.О., Веремєєнко О.В.

**SOME VIOLATIONS OF KIDNEY FUNCTION IN PATIENTS CHRONIC OBSTRUCTIVE PULMONARY DISEASE**

Ospanova T., Bilchenko O., Avdeeva E., Bolokadze E., Veremeenko O.

The paper describes the development of pathological processes in the kidney in COPD patients. So, we have investigated indicators MAU, pulmonary function tests, lipid spectrum in patients with COPD, depending on the severity of disease. Highlighted the main pathogenetic factors of the development and progression of renal pathology in COPD.

54-57

**Key words:** kidney, microalbuminuria, chronic obstructive pulmonary disease, pulmonary function tests.

**СТРУКТУРА МІКРОБІОЦЕНОЗУ КИШЕЧНИКА ЩУРІВ ЗА УМОВ ВВЕДЕННЯ В РАЦІОН ПОДРІБНЕНОГО СУБСТРАТУ КСЕНОГЕННОЇ ШКІРИ**

Пр'ятницький Ю.С., Покришко О.В.

**GUT MICROBIOTA STRUCTURE OF RATS UNDER INTRODUCTION OF THE DIET SHREDDED XENOGRAFT SUBSTRATE**

Р'ятницький Ю.С., Покришко О.В.

The data about the influence of lyophilized xenograf powder on rats small intestines and colons cavities microflora composition at the standard conditions and are presented in this article. After feeding animals by this powder for 90 days the disappearance of *Klebsiella* spp., *Proteus* spp., *S. aureus* populations, the reducing of a colonization density of the intestine by other lactosonegative species of *Enterobacteriaceae*, *Bifidobacteria* and *Candida* and increased quantitative indicators specific to populations of *E. coli* and *Clostridia* are noted. However, the adding to the rats ration this substrate did not significantly affect the microbiota of different parts of the digestive tract.

58-63

**Keywords:** antimicrobial activity, lyophilized xenograf, gut microflora, rats

**ОСОБЛИВОСТІ КОНКУРЕНТНОЇ АКТИВНОСТІ ПРОБІОТИЧНИХ ТА ВИЛУЧЕНИХ З РІЗНИХ ЕКОНІШ ШТАМІВ ЛАКТОБАЦИЛ ЗА РІЗНИХ УМОВ ГАЗОВОГО СКЛАДУ АТМОСФЕРИ КУЛЬТИВУВАННЯ**

Рижкова Т.А., Калініченко С.В., Бабич Є.М., Скляр Н.І., Хворостяна В.О., Шкодовська Н.Ю., Куцина О.М., Баганча М.Б., Півненко С.Ю

64-69

**THE PECULIARITIES OF ANTAGONISTIC ACTIVITY OF LACTOBACILLUS STRAINS ISOLATED FROM**

---

**PROBIOTICS AND DIFFERENT ECOTYPES UNDER CULTIVATION CONDITIONS DIFFERENT BY GAS COMPOSITION**

**Ryzhkova T.A., Kalinichenko S.V., Babych E.M., Sklyar N.I., Khvorostiana V.O., Shkodovska N.Yu., Kutsina O.M., Bagancha M.B., Pivnenko S.Yu.**

Antagonistic activity of *Lactobacillus* strains, isolated from different biotopes, against pathogenic corynebacteria and *Staphylococcus aureus* was studied under aerobic and microaerophilic cultivation conditions. It was established that competitive properties of *Lactobacillus spp.* against *C. diphtheriae* and *S. aureus* depended to some degree on the habitat of antagonistic strains. Meanwhile, in aerobic conditions antagonistic properties of *Lactobacillus* strains isolated from man and bees were expressed more than the probiotic ones. All *Lactobacillus* strains isolated from man and bees significantly increased their ability to inhibit the corynebacteria and staphylococci growth in microaerophilic cultivation conditions. In this conditions *L. plantarum* strain isolated from bees was the most powerful antagonist against corynebacteria and *Lactobacillus* strains isolated from humans were the most active against *S. aureus*.

**Key words:** lactobacillus, corynebacteria, staphylococci, antagonistic properties, cultivation conditions.

---

**МАКРОМІКРОСКОПІЧНІ ЗМІНИ У НИРКАХ ЛАБОРАТОРНИХ ЦУРІВ У НОРМІ, ЗА УМОВ ІМУНОКОМПРОМЕТАЦІЇ ТА ЕНТЕРОКОКОВОЇ ІНФЕКЦІЇ**

**Торяник І. І., Мироненко Л. Г., Перетятко О. Г., Ткачак І. П.**

**MACROMICROSCOPIC CHANGES OF THE LABORATORY RATS KIDNEY IN NORM AND AFTER IMMUNOCOMPROMETATION WITH ENTEROCOCCUS INFECTION**

**Torianik I. I., Myronenko L. G., Peretyatko O. G., Tkachuk I. P.**

The unification approach to the creation of the enterococcus infection model in the unlinear immunocomprometive laboratory female rats (Wistar) is presented in the article. The examinational material are in the female rats (of the 3-th- months age's (n=60), the 165-170 g by weight). The purpose of the experiment's are achieving by the seding enterococcus infection means of the basic structures and blood vessels of the kidney, digestive system damages, that similar with the such in a human in a case of the development of a traditional clinic pathology. The results are evaluated to character of the morphological changes (destructive and degenerative alterations, necrosis, nephropathy, inflammatory (alterative) processes. Sum upping, of capable of the achievement, we are noting carried out experiment's efficiency and the using optimistic perspective of the extrapolative data in the capacity as a foundation for the further of the newest methods of the enterococcus infection.

70-73

**Key words:** pathomorphological changes, experimental enterococcus infection, laboratory female rats (Wistar), kidney, nephropathy, inflammatory (alterative) processes.

---

**ЗМІНИ ПОКАЗНИКІВ ЦИТОКІНІВ ПІД ВПЛИВОМ ПОЛІМОРФІЗМУ ГЕНІВ ІЛ-2, ІЛ-4 ТА ІЛ-10 У ХВОРИХ НА ТУБЕРКУЛЬОЗ ЛЕГЕНЬ ПРИ ХІМІОТЕРАПІЇ**

**Бутов Д.О.**

**CHANGES CYTOKINES POLYMORPHISMS IN THE GENES IL-2, IL-4 AND IL-10 PATIENTS WITH PULMONARY TUBERCULOSIS WITH CHEMOTHERAPY**

**Butov D.O.**

It examined 150 patients with newly diagnosed pulmonary tuberculosis (NDTL) and 30 relatively healthy donors. Areas studied genes interleukin (IL)-2 polymorphism T-330G, IL-4 – C-589T та IL-10 – G-1082A and the level of cytokines (IL-2, IL-4 and IL-10) in venous blood were measured by ELISA method. The survey for the treatment of patients with NDTL, there was a significant increase in IL-2, and decreased IL-4, IL-10 performance, when compared with relatively healthy donors. After the two-month standard therapy showed a significant reduction in IL-2 and IL-4 content and IL-10 significantly increased. The low level of secretion of IL-4, IL-10 and high IL-2 changes significantly associated with mutant homozygotes C-589T polymorphism of the gene IL-4, G-1082A – IL-10 and T-330G – IL-2 in patients with infiltrative tuberculosis lungs. IL-4, IL-2 and IL-10 are immune markers of treatment outcomes and can help bring out the best strategy for treating patients with NDTL. Immunogenetic factors have a protective effect in patients with NDTL is normal homozygous variant promoter regions of C-589T the gene IL-4, G-1082A – IL-10 and T-330 – G-IL-2.

74-78

**Key words:** tuberculosis, polymorphism of the gene, immunity, cytokines, interleukins.

---

**ОЦІНКА ЧУТЛИВОСТІ ДО АНТИМІКРОБНИХ ПРЕПАРАТІВ КЛІНІЧНИХ ШТАМІВ *ESCHERICHIA COLI***

**Войда Ю. В.**

**ESTIMATION OF SENSITIVENESS TO ANTIMICROBIAL PREPARATIONS OF CLINICAL STRAINS OF *ESCHERICHIA COLI***

**Voyda Y. V.**

High prevalence of drug-resistance among the isolates – representatives of normal microflora is set which does them the potential source of distribution of determinants of drug-resistance among population of this species and family species of bacteria of different taxonomical groups. The high sensitiveness of strains of *E. coli* to imipenem, gatifloxacin and amikacin is set, that determines their practical value as preparations of reserve for treatment of infections caused by strains with multidrug-resistance. It is found out the growth of resistance to fluoroquinolones and circulation of generous amount mildly proof strains to the nitroxolinum and derivatives of nitrofurantoin, which occupy a leading place in the charts of the empiric therapy of patients by the chronic infections of urinoexcretory ways.

79-86

**Keywords:** bacteria *E. coli*, drug-resistance, antibiotics.

---

**ЛЕКЦІЇ**

**МЕСТО ХОНДРОПРОТЕКТОРОВ В ТЕРАПИИ ОСТЕОАРТРОЗА**

**Зупанец І. А., Зимин С. М.**

**CHONDROPROTECTORS IN THERAPY OF OSTEOARTHRITIS**

**Zupanets I. A., Zimin S. M.**

Osteoarthritis (OA) is a multifactorial disease associated with age, which is characterized by high polymorbidity, level of disability and death. In elderly patients with OA pain therapy especially related to factors such as a significant decrease in physical activity, the presence of comorbid disease (mainly heart disease) and complications caused by irrational drug therapy. Available in an elderly patient OA various somatic diseases and a wide range of treatments used for their medicines suggest the choice of individual treatment strategy that takes into account the ratio of the alleged benefits and possible risks of the purpose of each drug funds in favor of the most safe and effective therapy.

87-91

**Keywords:** osteoarthritis, chondroprotectors, elderly patients.

---

**ЭПИДЕМИОЛОГИЧЕСКИЕ, ДИАГНОСТИЧЕСКИЕ И КЛИНИКО-МОРФОЛОГИЧЕСКИЕ АСПЕКТЫ  
БЕШЕНСТВА У ЧЕЛОВЕКА**

**Головчак Г.С., Сухорукова А.Б., Марковский В.Д., Сорокина И.В., Борзенкова И.В., Мирошниченко М.С.,  
Плитень О.Н., Сакал А.А.**

**EPIDEMIOLOGICAL, DIAGNOSTIC, CLINICAL AND MORPHOLOGICAL ASPECTS OF RABIES IN HUMAN**

**Golovchak G.S., Sukhorukova A.B., Markovsky V.D., Sorokina I.V., Borzenkova I.V., Myroshnychenko M.S., Pliten O.N.,  
Sakal A.A.**

**92-99**

For humanity rabies is known over a millennium as one of the most dangerous zoonotic disease that is caused by the virus and is manifested by severe lesion of central nervous system with a high risk of death. In this article the authors presented the epidemiological, diagnostic, clinical and morphological aspects of rabies and the case of rabies in human from practice.

**Key words:** rabies in human, epidemiology, diagnosis, clinical and morphological features.

---

**Ювілей**

**Мирошниченка Михайла Сергійовича Вітаємо з ювілеєм!**

**100**

---