

МІНІСТЕРСТВО ОСВІТИ ТА НАУКИ УКРАЇНИ
СУМСЬКИЙ ДЕРЖАВНИЙ УНІВЕРСИТЕТ
МЕДИЧНИЙ ІНСТИТУТ



АКТУАЛЬНІ ПИТАННЯ
ТЕОРЕТИЧНОЇ ТА КЛІНІЧНОЇ МЕДИЦИНИ
Topical Issues of Theoretical and Clinical Medicine

ЗБІРНИК ТЕЗ ДОПОВІДЕЙ
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Each respondent eat dairy everyday, but 33% of 18 y.o. 30.5% of 19 y.o. 14% of 20 y.o. and 20% of 21 y.o. don't eat the fish at all.

It is noticed, that 60% of students have in their ration a fast-food such as snacks, porridges and soups of instant preparation and street food. There are 44.4% of 18 years old, 66.7% - 19 y.o., 52.7% of 20 y.o., 70% of 21 y.o. It is defined, that the females eat more fast-food (33% of 60%), herewith the maximal using is among 19 y.o. girls.

THE PROBLEM OF PROLIFERATION METHICILLIN-RESISTANT *S. AUREUS*

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Staphylococci are natural inhabitant of human and animal skin but sometimes they can cause infections affecting many organs (endocarditis, toxic shock syndrome, sepsis, pneumonia and arthritis). Most staphylococci are responsible for skin infections such as boil, carbuncle, and furuncle and some cause food poisoning resulting in severe vomiting and diarrhea. Staphylococci also cause mastitis in cow and also cause joint infection leading to edema and arthritis. An emerging problem in treating *S. aureus* infections is the increasing resistance against antibiotics.

The aim of this study was to characterize problem of *S. aureus* antimicrobial resistance.

Some staphylococci and in particular *S. aureus* is methicillin-resistant (MRSA): hospital associated (HA-MRSA) or community associated (CA-MRSA), livestock associated (LA-MRSA). Infections caused by these resistant strains may be fatal because of lack of alternative antibiotics. MRSA are also frequently resistant to most of the commonly used antimicrobial agents, including the aminoglycosides, macrolides, chloramphenicol, tetracycline, and fluoroquinolones. MRSA strains should be considered to be resistant to all cephalosporins, cepheems, and other beta-lactams (such as ampicillin-sulbactam, amoxicillin-clavulanic acid, ticarcillin-clavulanic acid, piperacillin-tazobactam, and the carbapenems).

MRSA produces large numbers of extracellular proteins and toxins. The most important toxins are called Staphylococcal enterotoxins (SEs). There are 17 major serologically distinct SEs (SEA through SER with no SEF). In addition, the SEC has three antigenically distinct subtypes: SEC1, SEC2, SEC3, and SEG have a variant form called, SEGv. Many SEs are responsible for food poisoning, acute illness, fever, erythematous lesions, and hypotension. Enterotoxins are called superantigens, because they form a complex with MHC Class II molecules, activating T-cells to produce excess amounts of cytokines that contribute to diarrhea and fatal toxic shock syndrome.

S. aureus and MRSA evolve and adapt the changing environment. Therefore, dissemination of MRSA should be continuously monitored for the antibiotic susceptibility pattern and molecular epidemiology comprising hospital, community, and livestock settings.

PECULIARITIES OF CHITOSAN MODIFICATION IN ORDER TO USE AS ANTIDOTE-THERAPEUTIC AGENT

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Perspective of chitosan' use as antidote-therapeutic agent at acute intoxications by epoxide compounds is high interest, because different xenobiotics containing epoxy groups can interact with functional groups of proteins with their inactivation.

Obtained from chitin chitosan has high molecular weight that significantly complicates its practical use. Therefore, the use of chitosan as biologically active compound requires its modification for molecular weight reduction.

We investigated some peculiarities of alkaline and acidic hydrolysis of chitosan. Degree of molecular weight reduction was estimated by determination of intrinsic viscosity of chitosan samples in 2% aqueous solution of acetic acid with addition of 0.2 M sodium acetate.

Research has shown that relation of intrinsic viscosity of chitosan samples from alkali concentration has extreme character, and the degree of polymer deacetylation elevates almost linearly.

During alkaline hydrolysis of chitosan, two processes were observed: chitin deacetylation and polymer hydrolysis. Parallel existence of these processes excluded possibility of obtaining of chitosan which standardized of both molecular weight and degree of acetylation.

Therefore, we investigated the acidic hydrolysis of chitosan. Significant reduction of chitosan' molecular weight is achieved with hydrolysis in 0.7 normality sulfuric acid solution. Reduction of chitosan' mass fraction from 10% to 4% led to the decrease of intrinsic viscosity of polymer almost two times.

Thus, reduction of chitosan' molecular weight by means of acidic hydrolysis is preferable because provide the possibility to receive polymer with different molecular weight but with standardized degree of deacetylation.

FEATURES OF RESTRUCTURING OF BIOMATERIALS BASED ON ALGINAT – ORTOPHOSPHAS CERAMICS IN BONE

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Introduction: Advances in investigation of medical materials made it possible to expand the arsenal of biomaterials, that are widely used today, during reconstructive operations on the bones of the skeleton. Alumina ceramic materials are often used today. However, along with the positive qualities alumina ceramics has a number of drawbacks.

Investigation of material with pasty consistency – is one of the modern areas in medical materials science. A new direction - is a combination of ceramic material of biological agents that act biologically active connections - collagen, glycosaminoglycans, chitin and others. As the result material "Kolapol" and paste different tracks (Algipore, Bio-Oss and others.) were created. Combinations of hydroxiapatite with collagen or glycosaminoglycans activates bone regeneration. Search for new composite materials based on bioactive ceramics continues.

The aim of the study was to investigate bone regeneration and reconstruction of composites based on calcium phosphate ceramics morphologically, after their implantation into bone defects.

Materials and Methods: In resaerch physical methods, including defraction, morphological methods, histological methods, in vivo studies on white mice were used.

Results: Samples were obtained showing good results in biocompatibility. As well as good substitute properties. So, investigated biomaterials had high osteoconducted properties without violating the regeneration of the bone and not exhibiting toxic properties.

Conclusion: Biomaterial based on alginat – ortophosphas ceramics showed promising results in restoration of bone tissues and have to be put into medical practice.