

Currently, several thousand individual enzymes have been discovered in biological objects, and it has been established that each cell can contain up to 1000 different enzymes, each of which accelerates a particular reaction.

According to the chemical structure of the molecule, all enzymes are proteins, they are formed alive in living cells and may contain one protein chain or several, loosely interconnected. Two-component enzymes also contain coenzymes (these are metal cations, mainly d-elements, various vitamins or their primers).

For bicomponent enzymes, neither the protein portion nor the coenzyme separately possess catalytic activity. Only their complex exhibits enzymatic properties. At the same time, the protein part sharply increases the catalytic activity of the coenzyme, which stabilizes the protein part and makes it less vulnerable to denaturing agents.

d-Elements are trace elements and provide an active participation in the body in the most important processes that occur in the cells of the body, namely:

- enzymatic catalysis of synthesis reactions and reactions of cellular energy
- transfer of electrons, ions, molecules and molecular enzymes
- regulating the activity of cell mechanisms and systems

A special role in biochemical processes is played by 10 d-elements « life metals».

So, copper is a necessary trace element of plant and animal organisms, it is 25 copper-containing proteins and enzymes that catalyze the interaction of oxygen and substrate. Copper and iron are involved in the blood circulation process. In the case of copper deficiency, the exchange of iron between the blood plasma and red blood cells is disturbed, which is accompanied by the destruction of red blood cells.

Zinc is contained in more than 40 metalloenzymes that catalyze the hydrolysis of peptides, proteins, certain esters and aldehydes.

Manganese in the body forms complexes with proteins, nucleic acids (RNA, DNA) and amino acids. These complexes are integral parts of many metalloenzymes.

Most of the iron is concentrated in hemoglobin (70%) is also contained in a large number of enzymes. A group of iron-containing enzymes that catalyze the process of electron transfer in mitochondria is called cytochrome. About 50 cytochromes of iron are known.

Cobalt in the role of trace elements forms the active centers of many enzymes necessary for DNA synthesis. In the body, cobalt is in the form of B12 vitamins.

It is known that enzymes that contain molybdenum take part in reactions of transfer of oxo groups, catalyze redox reactions in plant and animal organisms.

Conclusion. a special role in biochemical processes play 10 d-elements

“metals of life”. The peculiarity of their electronic structure, namely the small ionic radii, the large nuclear charge and the presence of energetically favorable atomic orbitals contribute to the formation of numerous bicomplexes contained in biosystems and ensuring their existence.

GADGETS AS POTENTIAL «INCUBATORS» FOR MICROORGANISMS

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Introduction. Nowadays, gadgets become integral part of our life. Everyone doesn't get out of hand phone almost all day long: while staying in transport; by visiting cafe, markets, parks, using phone as means of communication at home and at work. But not everyone is conceived about what microorganisms and in what amount are living there. In 2011 scientists of London's school of hygiene and tropical medicine carried out that every sixth cellphone contained microparticles of faces with pathogenic bacteria (*Staphylococcus aureus*) which can cause disorders of gastrointestinal tract and food poisoning. But still remains a rather unexplored issue of quantity and specificity of microorganisms which living on cellphones. That said about actual of research topic for modern medicine.

Aim. To investigate the presence microorganisms (non-pathogenic, conditionally pathogenic and pathogenic) on cellphones and possibility of their transfer.

Materials and methods: to achieve the aim firstly was conducted on analysis of already known literary sources about issues of microbial contamination of cellphones, possible diseases, that cause by microorganisms, and ways and recommendation for preventing contamination gadgets.

On second stage of research we observed twenty washouts from cellphones of volunteers (students NUPh). Research was carried out in Institute of Microbiology and Immunology of I.I. Mechnikov NAMS of Ukraine under the direction of the head laboratory of biochemistry and biotechnology Osolodchenko T.P.

Materials were taken with sterile cotton wool disposable swabs and placed in a nutritious broth to restore life of microorganisms. For research used: broth and agar media («HIMedia Laboratories Pvt. LtdIndia», production – India). For Candida used Saburo-dextrose agar («HIMedia Laboratories Pvt. LtdIndia», production – India). The media were made in accordance to requisitions of production (amount of power per liter, pH medium, autoclaving conditions etc.). Each series, which used in research, tested on growth qualities in accordance with regulatory documents. Additional used Chystovich's medium, blood agar based on soybean-casein digest agar, Endo's medium, chromogenic medium for confirmation of generic and species characteristics of the microflora. After two, six and eighteen hours' cultivation in nourishing broth materials were shown on the corresponding nutrient media with counting colonies.

Results and discussion. Result obtained after two hours' cultivation testified to the presence non-pathogenic microorganisms (4 types) and conditionally pathogenic (3 types).

Result cultivation after six and eighteen hours' new types of bacteria haven't been detected, but the amount of existing ones has increased. After two hours' cultivation on each object was established no more than two types of microorganisms, then as a result of further cultivation on object after six hours' cultivation was established from three to six types of microorganisms with the amount of colony-forming units from 10^2 to 10^4 . And after eighteen hours' cultivation amount of colony-forming units increased in the range from 10^4 to 10^7 .

Microorganisms, which were on student's gadgets, belong to the class of non-pathogenic (for example, *Bacillus subtilis*) or conditionally pathogenic (for example, *Staphylococcus haemolyticus* or *Enterobacter cloacae*). The class of conditionally pathogenic is a danger to weakened organism, proceeding from this we can conclude that under the circumstances of the disease or weakened organism gadgets can serve as a source of infection, so you need to control their purity. For that are using special sterilizers for gadgets: ultraviolet sterilizers, ozonizes and special solution or ethyl alcohol solution. But keep track of clean gadgets need in any case, because they are a potential source of conditionally pathogenic microorganisms.

Conclusions. Conducted microbiological research the purity of gadgets indicates increased contamination cellphones, that can be cases for the gastrointestinal tract disorders and development of skin diseases.

SEARCH OF NEW PLATELET AGGREGATION INHIBITORS AMONG 9,10-ANTHRACENEDIONE DITHIOCARBAMATES

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Introduction. Thrombotic diseases are recognized as one of the most common pathologies underlying ischemic heart disease and ischemic stroke. As far as the hyper activation of platelets appears to be the prominent factor of thrombotic disease development, the search of new effective inhibitors of