

The concentration of uric acid is increased in the spring and summer periods of collection at the ordinary coil by 1,2 and 1,5 times, respectively, at the common pond - by 2,9 and 1,6 times compared with the autumn collection period. Compared with the spring and summer periods of collection, two species of mollusks reduced the glucose content in the autumn period of collection by 2,3 and 1,6 times, respectively. Pl. corneus increased the content of TBA-PV and reduced glutathione in hepatopancreas in the autumn and spring periods of collection by 1.6 and 1,2 times, respectively, in *L. stagnalis* 2,6 and 1,5 times TBA-PV and 1,4 times reduced glutathione compared to the summer harvest. Catalase activity compared to the summer harvest at Pl. corneus increased by 2,6 and 1,7 times, in *L. stagnalis* – by 2,1 and 1,4 in the spring and autumn periods of collection (tables 1, 2).

Conclusion. The data on the metabolism of light freshwater mollusks are related to the environmental data of the Vitebsk region and its coastal zones. Strong anthropogenic load negatively affects the metabolism of mollusks, activates oxidative stress in mollusks. It is about rivers from a river and a river.

1. Laboratory biochemical studies: guidelines for laboratory work for students of the Faculty of Biology, specialty 1-02 04 04 “Biology. NAP ”/ E.O. Danchenko, A.A. Chirkin, O.M. Balaeva-Tikhomirova, T.A. Tolkacheva. – Vitebsk: VSU named P.M. Masherov. – 2017. – 41 p.

THE INFLUENCE OF ANTIBIOTICS CIPROFLOXACIN ON THE CONTENT OF MALONDIALDEHYDE IN IN A HEPATOPANCREAS *LYMNAEA STAGNALIS*

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The study of changing biochemical values and molluscs in realtime has a significant meaning for the ecological monitoring. Considering that molluscs are susceptible to the smallest changes occurring in the water ecosystems, they turn out to be the most suitable objects to study and conduct research on. Observing them allows to ensure a high-quality and timely implementation of cleaning measures, assessing the impact of antropogenic factors such as threats to the environment and preventing human diseases. Medical preparations affect the environment negatively. Thus, antibiotics contribute to the development of pathogens resistant to them. One of the most significant environmental factors is the interference into aquatic ecosystems of various toxicants, which can negatively affect the life of organisms. The first to respond to changing environmental factors is the antioxidant system. Its key indicator is the content of malondialdehyde (MDA).

The aim of the study – of this study is to determine the content of small dialdehyde in the liver of a common pond by means of an antibiotic ciprofloxacin.

Material and methods. A representative of pulmonary mollusks, the common pond (*Lymnaea stagnalis*), was studied in the work. The molluscs were collected in the River Vitba in Vitebsk, then subjected to a 15-day acclimatization, planting density of 3 copies per liter, water temperature – 20–22°C, pH 7,2–7,7. One-third of the water has been replaced every day. The animals were fed fresh dandelion leaves or green salad. To simulate the poisoning of molluscs with the antibiotic "Ciprofloxacin", they were kept in water for 48 hours with a dissolved preparation. The control was individuals contained in the settled tap water.. Hepatopancreas were used for this research, which were taken after the shell as been crushed.

The definition of the contents of the IDA was as follows: the homogenat hepatopancreas has been prepared in a cold buffer solution KCl (1:9). Samples were heated for 20 minutes in a boiling water bath, then cooled under running water and centrifugated for 10 minutes at 1,500 rpm. The malondialdehyde content was measured by the intensity of the developed coloration by the reaction with thiobarbituric acid (TBA) on the spectrophotometer at wavelength of 532 nm ($\epsilon = 1.56 \cdot 10^5 \text{ M}^{-1} \text{ cm}^{-1}$). The statistical processing was carried out using the Student's t-criterion.

Findings and their discussion. All living organisms showcase different reactions to environmental changes. The formation of protective effects during adaptation is provided by the activation of the genetic apparatus, changes in cell metabolism, as well as changes in the functioning of almost all major systems of the body. Any strong environmental impacts cause a standard stress response. In the short-term action of moderate-intensity stresses, the functioning of the organs and the mobilization of the body occur.

Though, with an intense and prolonged stress reaction in cells, there is an activation of the process of free-radical oxidation, intracellular calcium overload, suppression of energy products, reduction of protein synthesis and denaturation of protein structures. This has a damaging effect on organs and tissues, and, thus, the stress reaction from the adaptation link turns into the pathogenesis link. Stress-limiting systems prevent the activation of stress systems and the implementation of damaging effects. One possible component of the rapid response to stress is the activation of lipid peroxidation. The products of lipid peroxidation are: MDA, diene conjugants, hydroperoxides. The results of the antibiotic ciprofloxacin are shown in the table.

Table – Effect of an antibiotic ciprofloxacin on the content of small dialdehyde (nmol/g) in hepatopancreas_____

Object	Control	Antibiotic
<i>L. stagnalis</i>	0,097±0,014	0,203±0,038 ¹

Note: ¹p<0,05 compared to control

The table shows that when the antibiotic was added to the water, which contained mollusks, the content of raspberry dialdehyde in hepatopancreas increased 2,1 times compared to the control group.

Conclusion. The analysis of the results shows that the studied biochemical indicator in pulmonary mollusks *L. stagnalis* has changed in response to the effects of the antibiotic. Initial data from previous studies and responses to the action of a drug, aquatic mollusks can be used for preclinical trials of pharmacological substances, drugs, including antibiotics.

1. Gordzjalkovsky, A. V. Aquatic mollusks - promising objects for biological monitoring / A. V. Gordzjalkovsky, O. N. Makurina // Vestnik SamGU Natural Science Series. – 2006. – №. 7. – P.37.
2. Danchenko, E.O. Methods of biochemical research based on the use of specialized equipment / E.O. Danchenko, A.A. Chirkin, O.M. Balaeva-Tikhomirova, T.A. Tolkacheva. – Vitebsk: Vitebsk State University named after P.M. Masherov. – 2018. – P. 30-31.

PROBLEM OF PRESERVING THE MODERN CLIMATE OF THE EARTH

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Climate change poses an immediate threat to the population. The temperature of the air increases every day, and human intervention affects the atmosphere more than the geophysical or biospheric, which changed the trajectory of the Earth in the past. But many factors affecting climate change have not yet been studied.

Most experts, studying the complexity of the Earth's climate system, associate an increase in global temperature and future climate changes with an increase in CO₂ in the air.

But modern standards, the amount of CO₂ emissions has almost doubled.

The goal of the work is to consider the problem of saving the modern climate of the Earth.

Material and methods. During the research there were used materials of statistical publications, Internet resources, The Fifth IPCC Report convened by the Science Advisory Group of the UN Climate Action Summit.

To achieve this goal we used next methods: descriptive, statistical, mathematical.

Findings and their discussion. To prevent climate change, the world must be transformed into complex problems. At present, mankind is moving to lower quantitative indicators of greenhouse gases in the atmosphere, and some, on the contrary, are dealing with the situation. The solution to this problem requires rapid changes, especially in the coming decades.