group CuSO4, 0,01 mg/l. When exposed copper sulfate (II) concentration of 1 mg/L is an increase in glucose level in the hemolymph coils 1.5 times compared group CuSO4, 0,1 mg/L (Table 2).

When exposed copper sulfate (II) in concentrations of 0.01; 0.1 and 1.0 mg/l in *Planorbarius corneus* not observed significant reduction of catalase activity in hepatopancreas (Table 2).

When exposed copper sulfate (II) at a concentration of 1.0 mg/L in the coil horn decreased ALT activity in hepatopancreas 1.2 times compared with the control group (Table 2).

Significant differences were noted in the interspecific level. In comparison with *Planorbarius corneus* glucose in the hemolymph *Lymnaea stagnalis* in the control group was 4.2 times lower; under the action of copper sulfate (II) in concentrations of 0.01 mg/L - 2.7 times, 0.1 mg/l - 1.7-fold and 1.0 mg/l - 1.7 times lower.

When comparing the glycogen content in the hepatopancreas *Planorbarius corneus Lymnaea stagnalis* and control groups showed statistically significant differences were not; under the action of copper sulfate(II) at a concentration of 0.01 mg/L in the coil horn glycogen content 1.7 times lower than that of ordinary truncatula; 0.1 mg/l - 1.4 times below, and at a concentration of 1.0 mg/l - 1.5 times lower [3].

Conclusion. Through the use of a pulmonary bioassay freshwater mollusks that immediately respond to physiological, morphological, cytogenetic and behavioral changes, you can quickly diagnose early disturbances in the water system. This in turn will ensure the implementation of preventive measures, preventing water pollution and the development of diseases in humans.

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CHANGE RATIO IN METABOLIC EFFECTS OF ZINC SULFATE (II)

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Pulmonary freshwater clams *Lymnaea stagnalis*, *Planorbarius corneus* with different oxygen carriers (copper-containing hemocyanin and iron-containing hemoglobin, respectively) represent the test organisms to assess biodiversity and aquatic biological and ecological studies.It is known that high levels of inorganic pollutants in water bodies due to date mainly anthropogenic load on the hydrosphere. Metallic waste water agro-industrial complexes, as well as upstream and downstream manufacturing plants are the primary source of heavy metals in aqueous medium [1, 2].

The purpose of the study – to determine the content of marker indices in the haemolymph and hepatopancreas pulmonary freshwater clams by the action of zinc sulfate (II).

Material and methods. We used two representatives of the pulmonary mollusks - common pond snail (*L. stagnalis*) and horn coil (*P. corneus*). Clams were collected in the reservoirs of the Vitebsk region. Most shellfish were collected manually. Some individuals were captured using a net. Before the experiment acclimatization for molluscs in heated tanks with settled tap water for 2 days, the density of planting shellfish - 3 copies/L, water temperature – 20–22°C. The animals were fed leaves of dandelion. Then, water was added zinc sulphate at concentrations0.05; 0.5 and 5.0 mg/l. Duration of acute experiment 24 hours. It served as a control specimen contained in the settled tap water.

Findings and their discussion. Since the contamination of aquatic ecosystems is one of the leading positions occupied by heavy metals has been analyzed and complex changes in the body of freshwater shellfish lung by the action of toxicants. The aquatic organism heavy metals arrive by diffusion or by adsorption from the environment [3].

Tables 1–2 present data on the content of glucose in the hemolymph, ALT and catalase in hepatopancreas *Lymnaeastagnalis, Planorbariuscorneus* and under the action of zinc sulfate (II).

Table 1 – Effect of zinc sulfate (II) on the performance of glucose (mlmol/liter), catalase activity (pmol/min g), ALT (U/L) in the hepatopancreas *Lymnaeastagnalis* (M ± m)

Group, (n=9)	Indicator		
	Glucose, mlmol/l	Catalase activity, micromoles/min/g	ALT activity, U/L
Thecontrol	0.52 ± 0,14	5.07 ± 0,15	45.91 ± 1.47
ZnSO4, 0,05 mg/l	1.48 ± 0.23 *	5.26 ± 0.13	43,66 ± 4.08
ZnSO4, 0,5 mg/l	0.61 ± 0,12 *	4.57 ± 0,16 *	39.87 ± 4.75
ZnSO4, 5,0 mg/l	1.30 ± 0,33 *	4.95 ± 0.23	31.54 ± 5.81 *

Note: * P <0.05 compared with the control group

Table 2 – Effect of zinc sulfate (II) on the performance of glucose (mlmol/liter), catalase activity (pmol/min/g), ALT (U/L) in the hepatopancreas *Planorbariuscorneus* (M±m)

Group, (n = 9)	Indicator		
	Glucose, mlmol/l	Catalase activity, micromoles/min/g	ALT activity, U/L
Thecontrol	0.97 ± 0,25	5.46 ± 0,08	48.13 ± 4.62
ZnSO4, 0,05 mg/l	0.96 ± 0.35	4.77 ± 0,28 *	43.76 ± 2.44
ZnSO4, 0,5 mg/l	0.68 ± 0,19	5.13 ± 0,11	42.59 ± 2.05
ZnSO4, 5,0 mg/l	1.25 ± 0.35	4.35 ± 0.48 *	41.18 ± 1.78

Note: * P <0.05 compared with the control group

Under the influence of zinc sulfate (II) concentration of 0.05 mg/l glucose is an increase in the hemolymph mollusks 2.8 times, under the action of zinc sulfate (II) concentration of 0.5 mg/l in glucose increases mollusks 1.2 times, and by the action of zinc sulfate (II) concentration of 5.0 mg/l glucose level is an increase in the hemolymph mollusks 2.5 times compared with the control group (table 1).

Under the influence of zinc sulfate (II) in concentrations of 0.05; 0.5 and 5.0 mg/l showed a significant reduction of catalase activity in hepatopancreas *Lymnaeastagnalis* compared with the control group (Table 1).

Under the influence of zinc sulfate (II) concentration of 5 mg/l of a reduction in ALT activity in the hemolymph *Lymnaeastagnalis* 1.5 times compared with the control group (Table 1).

Under the influence of zinc sulfate (II) concentration of 0.5 mg/l in glucose coils is reduced by 1.4 times, and by the action of zinc sulfate (II) concentration of 5.0 mg/l of glucose an increase in the hemolymph coils 1, 3 times compared to the control group (table 2).

Under the influence of zinc sulfate (II) at a concentration of 5 mg/l of catalase activity is a decrease in the hepatopancreas *Planorbariuscorneus* 1.25 times compared with the control group (Table 2).

Under the influence of zinc sulfate (II) at a concentration of 5 mg/l there is a decrease in activity AaA Thepatopancreas *Planorbariuscorneus* 1.2 times compared with the control group (Table 2).

Conclusion. It is found that the penetration of heavy metal salts reservoirs causes metabolic changes in the body clam, characterized by changes in metabolism. zinc sulfate causes changes in metabolism, manifested by activation of free radical oxidation and changes in the activity of the antioxidant defense system. More resistant to the toxic effects of phenol was coil horn.

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