and species common in Belarus: *Heracleum sosnowskyi*, *Heracleum persicum*, *Heracleum mantegazzianum*, *Solidago canadensis*, *Solidago gigantea*. The active uncontrolled spread of invasive species in Eastern Europe, threatening not only the biodiversity of the territories but also the health of the population, *Heracleum sosnowskyi* has been known since the 1980s. At the same time, the first events on the invasion's local destruction began, but in the absence of a coordination center that could organize a coordinated and qualified "struggle" there was no. In 2005 the collective authors released The Practical Guide to Combating Giant Hogweed (based on European experience in dealing with invasive weeds), which became the main reference source for all land users faced with the problem of "contamination" of the territories by *Heracleum*. The fight against the spread of *Solidago* is also underway, but not so organized, since direct contact is not dangerous either to humans or to animals.

Conclusion. We can conclude about the high level of work's related relevance of to the study of invasive species. For comparison, in the Republic of Belarus such scientific papers began to appear only in the last 5-7 years. Such studies are gaining popularity since the problem of active propagation takes a leading position on par with other environmental problems of our time. The main work is carried out on invasive plant species' inventory and analysis of growth in our country, while studies related to the examination of invasive insect spreads are very rare.

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ACTIVITY OF GENERAL GLUTATHIONPEROXIDASE IN THE HEMOLYMPH OF A PONDER OF THE ORDINAL

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Environmental changes affect aquatic ecosystems in general and their inhabitants in particular. Therefore, pulmonary freshwater mollusks are used as bioindicators of anthropogenic influence on the environment. Bioindication methods have a number of significant advantages compared with physicochemical methods of analysis: high sensitivity and specificity of bioindicators to toxic substances; summation of all pollution data without exception; the ability to characterize the state of a particular environment over a long period of time; low cost of research.

Determination of the metabolism characteristics of pulmonary freshwater mollusks was carried out taking into account seasonal changes and habitat conditions of individuals selected from six studied reservoirs. The study of the biochemical parameters of these organisms gives us a theoretical basis for the qualitative assessment of the state of the studied ecosystem [1].

The aim of the research is to investigate the content of glutathione peroxidase in the hemolymph of Lymnaea stagnalis, depending on the season of the year and habitat.

Material and methods. The experiments were conducted on 108 individuals of *Lymnaea stagnalis* (common pond snail). Mollusks were collected in spring (April-May), in summer (July) and in autumn (September-October) from reservoirs of six districts of the Vitebsk region (table 1). Each research subgroup contained 9 mollusks.

Table 1 – Places for the selection of mollusks

Shellfish collection area	Collection place	Pond name
Vitebsk district	Vitebsk	r. Vitba
Dubrovensky district	v. Lyady	l. Afanasyevskoe
Ushachsky district	v. Dubrovka	l. Dubrovskoe
Shumilinsky district	a/g Bashni	l. Budovest

The principle of the method. The method for determining the total activity of glutathione peroxidase is based on measuring the amount of unreacted with hydrogen peroxide GSH, determined by reaction with DTNBK [2].

The course of determination.

Table 2 – Scheme for determining the total activity of glutathione peroxidase (GP)

Stages	Experimental sample	Control sample
1. Hemolymph, ml	0,15	0,15
2. 0.25 M Tris-HCl buffer, (pH 7.4), ml	1,5	1,5
3. 25mM EDTA ml	0,05	0,05
4. 0,4 M NaN_3, ml	0,05	0,05
Incubated for 5 min at 37 ° C		
5. 5mM GSH, ml	0,15	0,15
Incubated for 5 min at 37 ° C		
6. 5mM H_2O_2, ml	0,05	–
Incubated for 5 min at 37 ° C		
7. 10% THU	1,0	1,0
8. 5mM H_2O_2, ml	–	0,05
Centrifuged for 15 min at 3000 rpm		
9. Supernatant, ml	0,3	0,3
10. 0,2 M KNFB, ml	3,0	3,0
11. DTNBK, ml	0,1	0,1
Incubated for 10 minutes at room temperature.		
Measure the optical density at a wavelength of 412 nm		

Mathematical processing of the results was carried out using parametric and non-parametric statistics using the statistical software package Microsoft Excel 2010, STATISTICA 12.5.

Findings and their discussion. Glutathione peroxidase activity depends on the season of the year. It was established that the highest activity of this indicator is recorded in the spring, the smallest values - in the summer period of the collection of mollusks. (table 3).

Table 3 – Glutathione peroxidase activity (μmol / ml min) in the hemolymph of tissues of pulmonary mollusks of the genus *Lymnaea stagnalis* (*M± m*)

Shellfish collection area	Season of the year		
	Spring (n=9)	Summer (n=9)	Autumn (n=9)
Vitebsk district	6,70±0,25[1]	5,82±0,13[2]	6,30±0,37[1]
Dubrovensky district	6,90± 0,40	5,60±0,35	6,20± 0,40
Ushachsky district	6,60 ± 0,30	5,10±0,25[2]	6,00 ± 0,60[1]
Shumilinsky district	6,60 ± 0,11[1]	5,70±0,33[2]	6,20 ± 0,77[1]

Note - [1]p <0,05 compared with the summer period of collecting mollusks; [2]p <0,05 compared with the autumn period of collecting mollusks

When comparing this indicator between the districts, it was found that the highest values and their variation was observed in mollusks collected in the Vitebsk and Dubrovno districts. When comparing the indicator of mollusks from running water (Vitba river, Vitebsk region) and standing water (lakes of all other areas), higher values are observed for mollusks collected and living in running water.

Compared to the summer period of collection, in the mollusks glutathione peroxidase activity is increased in spring by 1,2 times in the Vitebsk, Dubrovensky and Shumiln regions, 1,3 times in the Ushachsky district. Compared with the summer period of collection in the mollusks, glutathione peroxidase activity in the autumn period was increased by 1,2 times in the Ushachi district. Compared with the autumn period, the activity of glutathione peroxidase in the tissues of the pond snail during the spring period, no statistically significant differences were found (table 3).

Conclusion. Glutathione peroxidase catalyzes the reduction reaction of glutathione hydrogen peroxide and to a lesser extent unstable organic hydroperoxides. In the course of this study, it was revealed that the content of glutathione peroxidase in the hemolymph of *Lymnae stagnalis* varies by seasons and areas of collection. The following pattern is observed: in summer, the collection of low values of this indicator are recorded, which is associated with the most favorable environmental conditions for the life of organisms, and the highest values – in the spring, during this period, the mollusks experience oxidative stress due to lack of food and seasonal daily temperature fluctuations habitat.

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