

**APPLICATION OF BIOLOGICALLY ACTIVE COMPOUNDS "ALBUVIR"
IN GROWING FRESHWATER MUSSELS AND CRAYFISH**

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**ПРИМЕНЕНИЕ БИОЛОГИЧЕСКИ АКТИВНОЙ ДОБАВКИ
«АЛЬБУВИР» В ВЫРАЩИВАНИИ ПРЕСНОВОДНЫХ МИДИЙ И
ЛАНГУСТОВ**

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Abstract. The article presents the results of biological studies of a new antiviral drug "Albuvir". We found a positive effect of the drug in growing crayfish and shellfish. We have noted an increase in weight gain by using aquatic 0.01% solution of the drug. The results obtained can be used in aquaculture to produce viable young aquatic organisms.

Key words: aquaculture, crayfish, the apple snails, "Albuvir".

Реферат. В статье представлены результаты биологических исследований нового противовирусного препарата «Альбувир». Был обнаружен положительный эффект применения препарата на растущих моллюсках и лангустах. Был отмечен рост привесов при использовании 0,01% водного раствора препарата. Полученные результаты могут быть использованы в аквакультуре для производства жизнеспособной молодежи водных организмов.

Ключевые слова: аквакультура, лангуст, ампулярии, «Альбувир».

Introduction

One of the important problems of modern aquaculture is to produce the planned number of high-quality planting material of cultivation objects. Growing success of viable young aquatic linked to a number of conditions and, above all, with full feeding and the use of natural dietary supplements. The use of stimulant drugs

can improve the immune system of aquatic organisms and to intensify the process of their cultivation.

Recent years, considerable attention is paid to the development of aquaculture and the search for promising targets for cultivation, which became popular among the invertebrates: crustaceans and molluscs.

Materials and methods

The aim of the work was to develop ways to intensify the cultivation of aquatic organisms using the latest additive solution immunostimulatory peptides of low molecular weight acidic – "Albuvir". A feature of the drug is the almost complete lack of a toxicity (peptides are broken down into amino acids) and the impossibility of adaptation on the part of the virus and the animal - amino acids organize themselves in the body of the animal. The drug is widely used in animal husbandry and veterinary medicine as preventive and immunostimulatory drug, but it can also be used in fish farming and aquaculture.

The basis of the work was to determine the task of the new anti-virus biologically active drug "Albuvir" for growing juvenile snails and crayfish. As experimental facilities coeval marble parthenogenetic crayfish (*Procambarus fallax f. virginalis*, marbled crayfish) and mollusks of the family Ampullariidae (*Pomacea bridgesii*, the apple snails) were used.

For the experiment, selected crayfish and apple snails one generation and the same size and weight. Experiments were performed in aquarium conditions at the Department of General Biology and Aquatic biological resources of Oles Gonchar Dnepropetrovsk National University. A series of experiments was carried out in duplicate for crayfish and snails in particular. In each aquarium planted the same number of individuals. A weekly water changes in aquariums, and the drug "Albuvir" was added to the experimental aquariums. The concentration of drug in the water was 0,01%. Feeding shellfish and crabs was carried out once a day universal bottom feed brand Nature "Catfish", the daily dose – 5% by weight of aquatic organisms (in the control experiment and fed the same amount of feed).

Results and discussion

In the experimental and control tank at the beginning of the experiment average weight of crayfish as experimental and control groups was $0,06\pm 0,001$ g of oscillations between minimum and maximum weight does not exceed 10%. In assessing the weights the growth of crayfish was found that 10 weeks of the young ones in the experimental aquarium crayfish has increased by almost 4,6 times, while in the control aquarium – 3,6 times (table 1).

Table 1 – Weighing indicator of crayfish

Indicators	The Experience, $M\pm m$	The Control, $M\pm m$
Initial weight, grams	$0,06\pm 0,001$	$0,06\pm 0,001$
Final weight, grams	$0,28\pm 0,003$	$0,22\pm 0,003$

At the end of the experiment the difference between the weight of the individual control and experimental aquaria was 27,2% ($p<0,05$). It was noted that the experimental group of crayfish cases of cannibalism occurred 20% less likely than individuals in the control group.

In the experimental and control tank at the beginning of the experience of average weight of mollusks was 0,22 g (table 2).

Table 2 – Weighing indicator of apple snails

№	The Date	The Experience, g, $M\pm m$	The Control, g, $M\pm m$
1	20.10.2014	$0,22\pm 0,02$	$0,21\pm 0,01$
2	27.10.2014	$0,38\pm 0,03$	$0,33\pm 0,02$
3	03.11.2014	$0,57\pm 0,05$	$0,48\pm 0,05$
4	10.11.2014	$0,77\pm 0,07$	$0,71\pm 0,03$
5	17.11.2014	$1,04\pm 0,10$	$0,82\pm 0,06$

When evaluating the performance apple snails growth was found that the experimental weight shellfish tank increased by 78%, while in the control tank – 57%.

The relative weight gain apple snails for the period of the experiment in the experiment was 1.5 times higher than in the controls. It is also found that the survival rate of fry mollusks and disease resistance for saprolegniasis was – 40%. The effectiveness of the use of artificial feed in experimental conditions has reached 25%.

Conclusions

Thus, the application of the developed method of growing juvenile crayfish and mollusks with use of the drug "Albuvir" allows you to increase the rate of growth of aquatic species and to improve their immunity.

The studies developed recommendations for the use of the active drug "Albuvir" for cultivation and breeding crayfish and mollusks. The findings are the essential foundation for the optimization of biotechnology cultivation of freshwater aquatic organisms. The results of research have been implemented in the practice of veterinary center "Optim-Vet", and also filed for a patent.