

A Method to Increase the Viability of *Cyprinus Carpio* (Linnaeus, 1758) Stocking of the Aquatories Under the Influence Advanced Biotechnologies

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Abstract

This research investigated *Spirulina Platensis*, *Chlorella vulgaris* and *Artemia salina* as additional sources of protein and biologically active substances that affect the parameters of the carp body. Additional addition of carp to the diet in the ratio: *Spirulina Platensis* - 40%, *Chlorella vulgaris* - 30% and *Artemia salina* - 30% made an impact on the parameters of carp development. The components were cultured in a bioreactor built into a recirculating aquaculture system. The results showed that after additional feeding of carp with the indicated components, the body weight of one-year carp was higher than the control group by 8.9%, and safety by 3.4%. Body weight two-year carp was greater in the experimental group than in the group where the fish ate the total diet. The difference was 12.1% in body weight and 2.9% in safety. These parameters were significantly lower in fish fed the control diet ($P < 0.05$). This scientific work has demonstrated the additional use of natural food as a method for improving the blood composition of carp: an increase in hemoglobin by 15.5% ($P < 0.05$), erythrocytes by 5.5% in comparison with the control group. Indicators of gas-discharge visualization of a biological object supplemented the obtained result.

Introduction

The results of monitoring observations of current state and development trends of Ukrainian fish industry, first of all, show a high level of water pollution, irrational use of the potential of aquatic bioresources, and as a result, a tendency of reduction of fish resources (Korzhov, Kutishev & Honcharova, 2020; Sherman *et al.*, 2013). Any water area constitutes an ecosystem with a certain bioproductive potential, which is formed by the interaction of the entire complex of factors of different origins. An important aspect is correlation of each of these elements, as far as they have direct or indirect influence on the dynamics of quantitative and

qualitative or species composition of hydrobionts in different trophic levels, determining the feed capacity of water reservoir and the balance of ichthyofauna (Korzhov & Honcharova, 2020). Consequently, there is a question that requires urgent solution: a stocking of reservoirs of different forms and targets with stock, the organism of which is functionally active and has a high level of viability. Through the example of small storage reservoirs, transformed aquatories, these issues can be resolved and improve their condition by the artificial reproduction of valuable industrial fish species with preliminary growth of fish stock material for annual introduction and preservation of ichthyofauna. In resolving of stated issues, technological aspects of