

MEASURES TO PREVENT THE SPREAD AND PREVENTION OF NON-INFECTIOUS BRONCHIONECROSIS OF FISH

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Annotation. There are 2 types of non-infectious bronchionecrosis in fish: exogenous and endogenous. Analysis of the literature on the chronic impact of adverse environmental factors on fish as the main cause of non-infectious bronchionecrosis in fish.

Keyword. Bronchionecrosis, exogenous and endogenous, organic acids, concentration of free ammonia, ammonia nitrogen, nitrates, Fermi, poison, pH, macrophytes, phytoplankton, ammonia nitrogen. Quicklime (CaO), quenched (Ca (ON)₂) and calcium carbonate (Ca CO₃), table salt solution, sodium formalin alkali, potassium permanganate, chloramine B, levoristatin, calcium hypochlorite, copper sulfate, Karbofos, tribasque, mytilene blue.

Relevance of the topic. Further development of fishing and the growing demand of our people for fish and fish products. This, in turn, contributes to the accelerated development of fisheries based on new innovative technologies and the widespread introduction in the industry of innovative methods of fish farming based on intensive technologies. As an example, a number of resolutions and orders of our esteemed president are given. In particular, this year, in accordance with the Decree of the President of the Republic of Uzbekistan dated August 29, 2020 No. PP-4816 “on measures to support and improve the efficiency of the fishing network,” work is being carried out in the republic to support the fishing network, improve the efficiency of fishing and fishing farms, rational and efficient use of land and water resources in this area, in order to ensure widespread introduction of intensive technologies:

In 2021-2022 In conditions of water scarcity, the practice of gradual widespread use of new resource-intensive intensive technologies and secondary water sources in artificial reservoirs by fisheries that receive water from rivers and canals has been introduced. In accordance with the resolution, intensive development of the fishing industry in the republic is provided on the basis of a scientific approach, increasing efficiency through the introduction of modern and innovative methods of production of fish products into the industry. To date, most dangerous diseases have been studied in depth, and recommendations for their prevention and treatment have been developed. However, skilled personnel are required in the field to be able to select the optimal and cost-effective measures in specific conditions that will prevent and reduce damage from disease.

Currently, practical measures are being taken in the republic to implement this resolution. However, diseases encountered in fish during the farming of fish and fish products,



including infectious and non-infectious fish diseases, to some extent hinder the development of the industry.

The degree of knowledge of the problem. Infectious and non-infectious fish diseases are common in nature and most often affect young, one- and two-year-old fish. When treating diseases, good results are achieved by using the bath method, as well as complex treatment. It was noted that regular fishing reclamation, veterinary, sanitary and therapeutic measures help well in preventing the disease.

Purpose of the study. In the course of research work in intensive reservoirs of Samarkand, Pastdargam, Kattakurgan, Payarik and Agdarya districts of the Samarkand region, i.e. on fish from the carp family affected by 1-2-year-old non-infectious bronchionecrosis, the goal was to test highly effective methods of prevention and treatment of the disease.

Materials and methods of research. To study the clinical signs of diseases, fish with suspected disease were first isolated, a specially prepared aquarium and small cages were prepared, where they were under constant observation. In order to determine the pH value of water using litmus paper, as well as diagnosis, treatment and prevention of contaminated fish, scientific personnel have been created at the Samarkand State University of Veterinary Medicine, Animal Husbandry and Biotechnology and the Samarkand State University of Veterinary Medicine, Animal Husbandry and Biotechnology for the development of veterinary medicine, biotechnology and animal husbandry in Uzbekistan. intensive preparation of a scientific business incubator” mega project “fish” experiment in the room “birds, fish, diseases of bees and fur-bearing animals.” Mycological studies were carried out in the aro optatech laboratory, based on the detection of hyphae of the pathogen, the diagnosis was made through parasitological studies. In addition, general, ichthyopathological, organoleptic, microscopic and pathological methods of studying fish were used. Young carp fish grown in fish farms were selected as the object of the study. In the course of clinical and organoleptic studies, the clinical condition of the Fish, their appearance, coordination of movements, reaction to the influence of the external environment, body position in water, body weight, color of mucous membranes, color of coins, vision, and the condition of the gill covers were studied.

The results obtained and their analysis. In our experiments, we studied non-infectious bronchial necrosis of Fish of 2 types: exogenous and endogenous. The main cause of non-infectious bronchial necrosis of fish on the farm was chronic exposure of fish to unfavorable environmental factors. When conducting experiments at a fish farm in the Kattakurgan region, a change in the hydrochemical parameters of water as a result of a violation of water quality, the entry of final waste (Gung) and organic acids (algae proliferation from brains) into the water with contaminated waters led to a decrease in the pH of the water in an acidic environment to 5. 0-5.6: in the fish farms of the Pastdargam region, the pH of the water was 5.6 out of 9-10, an excess of the concentration of free ammonia above the norm (0.4-0.7 mg or more), ammonia nitrogen (more than 3 mg) was observed increased nitrate content (more than 0.3 mg).

It has been established that the excessive application of organic and mineral fertilizers to reservoirs by economic ichthyologists in the spring is caused by the excessive use of waste, sometimes coming from livestock farms.

Occurrence of non-infectious bronchial necrosis by season

No.	Seasons	Changes to the pool
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1	Spring	During our experiments, it was noticed that the disease in the spring months is in most cases accompanied by saprolegniosis, opportunistic microflora and ectoparasites. In Pisces 2-3 years of age, it was recorded mainly in the spring-summer period.
2	Summer	Poisoning of fish with endogenous ammonia and non-infectious bronchial necrosis was more common. In Fish, the gills are primarily affected as a result of the excretion of major metabolic end products and ammonia by the gills. In our experiments, it was noticed that the lack of oxygen dissolved in water and the slowdown in the excretion of ammonia due to unfavorable environmental factors and an increase in the level of the water (pH) environment, these toxic ammonia substances accumulate in the body and mainly cause ear injuries (jabra).
3	Autumn	Non-infectious bronchionecrosis at different ages was observed in sturgeon, silverwings (crucian carp), herbivores (grass carp) and other fish during intensive fish farming in a basin farm.
4	Winter	In adult fish, non-infectious bronchionecrosis in most cases occurs in late winter and early spring. And this condition becomes the basis for the development of infectious and parasitic diseases by spring.

In the second half of winter and early spring, non-infectious bronchionecrosis was more often observed in the group of cultured salmon fish; the disease was chronic and, as a consequence, complicated by saprolegniosis. In our experiments, it was noticed that the occurrence of the disease in such cases is due to the deterioration of the aquatic environment in winter. Due to oxygen deficiency or fluctuations in water, an increase in ammonia nitrogen, hydrogen sulfide and toxins was observed. As a result of such conditions, the fish become very worried, and then calm down and begin to gather on the surface of the water and at the entrance to the water.

Spring spread of Harrier necrosis is most often observed in 2-3 year old killer whales and other fish species. They have been observed to occur due to optimal or increased oxygen levels in the water due to photosynthesis by macrophytes and algae, as well as increased ammonium nitrogen concentrations. Its source is considered to be macrophytes and phytoplankton. Under such environmental conditions, ammonia nitrogen is converted to the free ammonia form, which then causes disease.

Measures to prevent non-infectious bronchial necrosis of fish during the seasons

No.	Seasons	Disease prevention
1	Spring	Calcium hypochlorite and copper sulfate 0.1-1.0 mg/l. Gacha, Karbofos and copper 8-hydroxyquinolate 0.01 mg/l. from 0.1 mg/l. to, rotenone 0.001 mg/l. from 0, 01 mg/l. The use of Gacha, antimycin and levoristatin in concentrations of no more than 0.001 mg/l gives a good effect against saprolegniosis, opportunistic microflora and ectoparasites. The experiments were carried out taking into account the fact that ichthyocides cannot be introduced into water bodies in concentrations dangerous to warm-blooded health. It is better to use quickly

		decomposing ichthyocides - calcium hypochlorite, copper 8-hydroxyquinolate. Rotstock decomposes in 4-8 weeks, but since it is expensive, it is recommended to use less expensive tools. After using copper hydroxyquinolate, the concentration of its ions decreases in the 4th year, and after using detoxicants, in the 1st-2nd year to the level of the natural background. Levoristatin, calcium hypochlorite, copper sulfate are soluble in water. Carbofos and Tribask are soluble in organic solvents (they were used in the form of emulsions). Karatan, an 8-hydroxyphenolate of copper, is insoluble and was applied to the reservoir in the form of suspensions.
2	Summer	In the summer months, they generally weighed 100 kg of insoluble hops per hectare and poured them into a basin in the form of a suspension (liquid), and a day later they sprayed the basin with a mother solution - a mother solution of 150-200 grams per hectare in 300-500 liters of water. A good effect was achieved when using 65% calcium hypochlorite at 6-8 kg per hectare every other day with repeated spraying of winter rye.
3	Autumn	Ultrasound regulates the cultivation of fish in artificial reservoirs, draining each reservoir until February and spraying the bottom from moles -- (to clean the bottom from spores of parasites and cysts, as well as for better development of species of aquatic bottom creatures. Benthos) --- March 22 in Sandor, part of march composition, sito gas filters were installed, water was discharged, the water temperature exceeded 17 degrees Celsius (Ammophos and horse light), a natural nutritional base was created for the pools and a normal aquatic environment was maintained.
4	Winter	Liming of ponds not only reduces the acidity of water, eliminates iron oxide compounds; in experiments it was noticed that lime promotes the development of beneficial nitrogen-fixing bacteria, improves the composition of the soil, transforming insoluble phosphorus, potassium, siliceous bricks into an easily digestible, soluble state, loses the toxic properties of sodium and magnesium Calcium salts contained in lime are important for the formation of tissues in the body of plants and animals. Quicklime (Ca O) is considered a disinfectant and is used to combat small polluting fish and various infectious and invasive fish diseases. Lime is used in ponds for various purposes and it has been observed in experiments that ponds ultimately result in increased fish productivity. Application in the form of quicklime (Ca O), slaked lime (Ca (OH) ₂) and calcium carbonate (Ca CO ₃), depending on its application quantity, is reflected in our experiments to combat small pollutants and predatory fish, improve soil quality or even calcium deficiency in the pond.

Conclusions



In the diagnosis of non-infectious bronchial necrosis, it is important to determine the quality indicators of water, changes in its pH, the amount of oxygen dissolved in water, ammonia and ammonia nitrogen, the content of nitrite and nitrate nitrogen, hardness, oxidation, size, as well as the basic physical properties of water. Chloride of lime, calcium hypochlorite, quicklime (CaO), slaked (Ca (OH)₂) and calcium carbonate (Ca CO₃), table salt solution, sodium formalin alkali, potassium permanganate, chloramine B, levoristatin, calcium hypochlorite, copper sulfate, carbofos, tribasque, mytilene, during experiments it was found that the timely use of blue gives a high effect.

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