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The Pathomorphology Of Disorders Of Vitamins And Protein Metabolism In Fish

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ABSTRACT

The main cause of protein metabolism disorders in fish is poor quality of the feed provided, account for the lack or total absence of vitamins. This pathology leads to decreased appetite, stunted growth and development in fish, decreased mobility, impaired metabolism of proteins and fats. Pathological examination of fish shows signs of excess fat, fatty liver, parenchymatous dystrophy, thickening of the stomach wall.

KEYWORDS

Fish, Dysproteinemia, Hypoproteinemia, Proteins, Dystrophy, Pathological Changes, Necrosis.

INTRODUCTION

The demand of the population of the republic for fish and fish meat is growing. This, in turn, requires the rapid development of fisheries on the basis of new innovative technologies, increasing profitability in the industry. Resolution of the President of the Republic of Uzbekistan dated April 6, 2018 No PP-3657 "On additional measures for the accelerated development of the fishing industry", important tasks in the field of selection and breeding work, feeding fish, as well as the implementation of measures for the prevention and treatment of fish diseases are identified. However, non-communicable diseases of fish, including disorders of protein

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metabolism, are a major obstacle to the implementation of these urgent tasks.

Disorders of protein metabolism in fish are accompanied by a decrease in growth and development, impaired reproductive properties and an increase in their susceptibility to infectious diseases.In most fish farms of the country, among the fish that are mainly intensively bred and fertilized, there are more disorders of metabolism, mainly protein metabolism. Unfortunately, in most cases these diseases are being ignored. It is a group of diseases caused by a lack of protein, which is important for the body, characterized by various physiological disorders and pathological changes. This is due to the fact that various amino acids do not enter the body in sufficient quantities through food or are not synthesized in sufficient quantities in the body, due to the complete absence or lack of protein-rich natural nutrients in the diet of fish. Effective methods of diagnosis and prevention of these diseases have not been developed. This, in turn, is likely to reduce the economic potential of fisheries. To prevent this, taking into account the climate and local conditions of the Republic, as well as the ecological situation, this is done by adding to the diet of fish foods rich in live natural vitamins, organic, inorganic and mineral substances. Due to the limited opportunities for intensification of the fishing industry, their diet includes a variety of vitamin, protein-rich organic, inorganic and mineral supplements, premixes, fish oil, blue mass, animal liver, green grass, etc. In the artificial feeding of fish, their diet should be balanced with the composition, sensitivity and biologically active substances in order to prevent disorders of protein metabolism. The protein requirement of fish is much higher than that of other farm animals, and the total need for protein depends on the type and age of the fish. For example, 31-38% of the diet for carp, 35-40% for trout, 38-40% for sturgeon, 40-42% for African trout and local river trout, and up to 50% in young fish (Kamilov) B.G. Kengerleniski F.Y. 2017y). It can be seen that appetite is initially reduced when protein metabolism is disrupted, mainly in young fish. When the disease is chronic, clinical signs begin to appear over a long period of time (1.5 months or more). Fish lag far behind in growth and development, dysproteinemia can be observed in the fish organism. When the protein metabolism in African trout is disturbed, it causes various anomalies in the stomach (thickening of the stomach wall, ulcers and necrosis), and causes the fish to stop growing. Excess or violation of the ratio of non-metabolic amino acids in the body leads to fatty dystrophy of the liver. (Ataeva A.M. Zubairova M.M. 2005), Lack of protein leads to the manifestation of dystrophic processes in the liver, heart, kidneys and other vital organs ('Diseases of fish and bees' V.F. Abramov, N.B. Ananeva).Obtained results and their analysis:The research was conducted at Aminjon Farukhbek (1) fish farms in Kattakurgan district and Quvonchbek Mirbozor Delfin (2) fish farms in Narpay district. Observations were made on African squid and squid of the same age. The conditions of storage and feeding of fish on the farm were studied. The body weight of the experimental fish and pathological changes in them were determined. In fisheries, the parenchymatous organs of cattle and poultry are given in minced form, and wheat bran is given to cornfish. For the sample, 30 heads of fish of each species were taken, and when we measured the body weight of the fish obtained, the body weight of 5 fish was more than 5.5 kg, of 8 fish up to 3-5.5 kg, of 10 fish up to 2-3 kg, and 7 was found to have a body weight of less than 1kg per fish. The most

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important part is that although the fish were fed under the same conditions at the same age, it was found that their body weight was different. 30 head of fish were also taken from the sturgeon for the experiment. When the body weight of the fish was measured, it was found that 6 of them were over 4kg, 10 of them were 2.5-4kg, and 14 of them were 0.8-1.2kg. The examinations revealed clinical signs of protein metabolism disorders in fish: clinical signs such as differences in body size, sharp differences in trick weight, slowed motility of underdeveloped fish, low appetite, despite the fact that the tested fish were grown under the same conditions at the same age.

As a result of the protein-type feeding of African trout, it was found that among fish there are clinical signs that appear due to an increase in protein content along with a deficiency in the fish organism. Pathological examination revealed accumulation of fat in the liver, visceral dystrophy, impaired fat metabolism and accumulation of large amounts of fat, as well as an increase in the thickness of the stomach wall as a result of impaired protein metabolism in African trout.

Disorders of protein metabolism are common among fish fed intensively. Impairment of protein metabolism in fish is mainly due to malnutrition, lack or excess of protein in the diet. Lack of vitamins in the diet also has a negative effect on the synthesis of proteins.

Of the fish sampled, 23% were found to be stunted, with an average body weight of less than 1kg, and 16% had accumulated excess fat in the liver tissue and internal organs and thickened the stomach wall. This means that clinical signs of protein metabolism disorders have been identified in 39% of fish. Examination of the sturgeon species revealed that 48% of the fish had stunted growth, decreased appetite, low body weight with age (average 0.8-1.2 kg) and internal organ dystrophy.

Hypovitaminosis A (retinol) deficiency in fish. Clinical signs: crusted fish move poorly, appetite slows down, growth and development slows down, there is a decrease in visual acuity , wheezing of the cornea of the eye, the formation of wings.Resistance to infectious musculature decreases. Blood laying in the eye tissue exophthalmia, improper growth of bone tissue, its formation loss of skin pigment and changes in the skin layer disruption and destruction of the liver and spleen be characterized by.On an empty stomach, exudate accumulates and covers the eye with a veil .

Pathological changes.When examining fish pathologoanatomic rupture is characterized by keratinization of epithelial tissue, dystrophic changes in the liver and kidneys, benign development of cartilage and bone tissue, as well as scleroflomia. Diagnosis: the diagnosis was made on the basis of clinical signs, pathological changes, blood composition and laboratory tests on the amount of retinol and carotene in the liver.

Hypavitaminosis C (Ascorbic acid) deficiency in fish. Clinical symptoms. There is a violation of the formation of tendons and cartilage, there is a curvature of the spine, detachment of cartilage and leaves, damage to the white membrane of the eyes, blood clots are observed in the skin and internal organs. Wound healing slows down, tumors are formed in the skin, tumors appear on the skin of the tail ,abdomen and chest fins,pucheglazy as a result of a violation of the formation of congenital ligaments and tendons,hemorrhage of the liver, as well as white spots are formed in the kidneys and intestines, victims,

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sometimes necrosis of the liver cell, a decrease in.

Patalogoanatomic regressions.In pathological rupture, blood clots in the skin, scurvy and internal organs, deformation of bone and cartilage tissues, as well as the presence of a tumor in the skin are detected.

Hypovitaminosis B12 (siancabalamin) deficiency in fish Clinical symptoms. With loss of appetite,stay from growth, anemia, disruption of intestinal activity,the integrity of erythrocytes deteriorates, the fish quickly becomes resistant to infectious diseases.

Pathological changes. Anemia, catarrhal enteritis, hypotrophy are noted. In the mixed form of hypovitaminosis A and V , the number of hemognanitis and polymorphic-nucleated agranulocytes in the body is increased, deformation and accumulation of fat in the liver were observed, the content of proteins decreases with the content of a lot of amino acids and their proportions change. As a result of a lack of vitamins of Group B, a violation of the nervous system of various manifestations is observed.

Vitamin mesoinositis is one of the main factors in the growth of fish. As a result of its deficiency, the growth of fish slows down, the appetite disappears, the state of anemia occurs , the fragility of the tail and other fins increases, sores appear on the skin stomach with blood clots, the death rate increases, and as a result of the deficiency of choline, the digestion of nutrients becomes worse. Blood clots in the kidneys and intestines accumulation of fat in the liver as a result of a deficiency of aminobesoic acid, a decrease in appetite, swelling of the victim, convulsions and whiteness of the body are observed.

Diagnosis. In hypavitaminosis diseases, it is much more complicated to make an accurate diagnosis, because their clinical symptoms are very similar to each other, therefore, even according to the indication of the quality of food, the nutrient saturation of the diet is diagnosed on the basis of changes in clinical signs and patanatomic it is necessary to distinguish from some infectious cassities.

CONCLUSION

Disorders of protein metabolism in intensively bred fish 23% of fish lag behind in growth, average body weight is being less than 1kg, and in 16% of fish excess fat accumulates in the liver tissue and internal organs, and thickening of the stomach wall, as well as, dystrophy of the internal organs.

In the Prevention of hypavitaminosis, it is desirable to introduce natural vitamin-rich nutrients into the ration of fish.For the intensive development of fish farming , the cultivation of high-quality and nutritious fish and fish products, various vitamin supplements, premixes, Drogs, fish oil, blue mass of animal origin, Blue Grass and others are included in their diet.In the Prevention of giovitaminosis in fish, their diet should be balanced by composition, appetite and biological active substances.

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