

VETERINARY AND SANITARY EXPERTISE OF THE MEAT OF CARP-LIKE FISH WITH LIGULOSIS DISEASE

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ANNOTATION:

The article provides information about the epizootological status of fish ligulosis in water bodies in Pastdargom, Akdarya and Kattakurgan districts of Samarkand region and veterinary-sanitary expertise of fish meat affected by this disease.

Keywords: veterinary-sanitation expertise, ligulosis, Ligula intestinalis, invasion of the intensive league, inasia of the extensive league, pH, vitamin, reaction peroxidase, test reductase, crucian carp, carp, ok amur, dungpeshona.

RELEVANCE OF THE TOPIC:

Fish in vertebrates are of particular importance, today 84 species of fish are recorded in the reservoirs of the Republic. In the reservoirs of Uzbekistan, carp-like fish are widely distributed and contain more than 45 species and subspecies (Mirabdullaev and others., 2001.; Shernazarov and the head will remain., 2006.). The establishment of state control over the quality and safety of products, the production of products whose population meets quality, environmentally friendly, regulatory standards is one of the important tasks of today[1]. Fish farming is an important branch of the national economy, it provides for the production of food products that are an important source of protein, characterized by

high biological and taste characteristics. The author notes the prevalence of rabies, phyloidosis, botriocephalous pathogens in the conditions of the Republic in the pool farms, fish nurseries, as well as in some natural reservoirs. The partial destruction of young people in infected fish, a decrease in water basin weight by 15 - 20%, depletion of the product of strongly damaged fish accounted for economic damage [11].

The size, chemical composition and nutritional value of the fish directly depend on its type, age, sex, physiological state and living conditions. Parasites living in the water basin of fish can also be dangerous species for humans and animals, as well as those that alter the physico-chemical properties and microbiological indicators of raw materials, disrupt the brand appearance of fish. Therefore, it is important to evaluate the qualitative indicators of fish in terms of organoleptic, clinical, parasitological, physico-chemical, microbiological and toxicological studies and veterinary-sanitary expertise. All this makes it possible to objectively assess the safety of these raw materials and products when these parasites are detected. Fish have a significant effect on the activity of digestive enzymes in the intestine and the content of glycogen in muscle tissue, when damaged by Ligular intestinal plerocercoids. At the same time, decrease in the activity of enzymes associated with the abdominal cavity and

intestinal mucosaradi [5]. Ligulose causes a significant decrease in the number of fish, the quality of their products. This causes great economic damage [3]. The research of several authors showed that Ligulosis. The larvae of the intestinal tract affect the pituitary gland of the host organism, and after that, fish with parasites lose their reproductive function [13]

Such diseases are transmitted from fish to people and animals. Therefore, veterinary specialists should examine the fish before consumption in terms of Veterinary sanitation expertise and give the appropriate summary.

Veterinary sanitary examination of fish is complex studies, observations and activities. It begins with the observation of the fish caught in the fishing areas and ends with the release of finished products that must meet the requirements of safety and quality [2; 10; 12].

RESEARCH MATERIALS AND METHODS:

In some fish farms of the Samarkand region, we studied the effect of fish cysts on the veterinary and sanitary characteristics, depending on the epizootic state of the ligament, the intensity of the Invasion (II). As a research material, karas, carp, white Amur, Vulture fish were used. The caught healthy and damaged fish were examined.

As research methods, organoleptic (color, odor, consistence, boiling test); physico-chemical (determination of hydrogen sulfide, determination of hydrogen ion concentration (pH), determination of primary decomposition products of proteins in the broth (reaction with copper sulfate), peroxidase reaction (benzidine test, reductase test); methods were used.



1-Figure. The presence of fish-eating birds in fish farms as the main host of *Ligula intestinalis*.

RESULTS OF THE RESEARCH:

The distribution of ligulose from fish cysts in water basin of Pastdargom, Akdarya and Kattakorgon districts of Samarkand region was studied. It was found out that in fish farms located in these regions there are favorable conditions and factors for the spread of ligulosis (Figure 1), the degree of invasion of the disease is directly related to the season of the year. In the course of our studies, the incidence of fish lesions was more frequent in the fall than in the spring.

Organoleptic, chemical composition changes of carp fish meat, damaged by ligulids, were determined. Thus, even when the fish is weakly damaged by parasites, the organoleptic properties of the meat (the muscles adhere tightly to the bones, the color of the body, the smell, the elasticity of the muscles, the consistency of which is characteristic for fresh fish, the patterns of muscle fibers, the transparency of the broth, a pleasant natural smell and taste possession) change.

To assess the degree of spoilage of meat, the sample is made by baking. When the sample is boiled, the broth from quality fish meat is transparent, fragrant. With a deterioration in the quality of fish, the broth becomes cloudy and gradually acquires a specific smell of meat spoilage. Laboratory tests on innovation and safety are carried out

in accordance with the instructions that come from the results of organoleptic studies [8].

During the organoleptic examination of the fish, its appearance, fat content, the presence and quantity of mechanical damage to the body, the integrity of the Tangerines, the amount and transparency of the mucus, the color of the victim, the location of the eye color and the degree of orbits, the smell and consistency of the meat were determined [7].

When the intensity of the invasion (Figure 2) is moderate (from 5 to 10 parasite), the muscles are divided into separate fibers, the muscle strength becomes less elastic, and the muscle fibers pattern is smoothed. When there was a strong degree of damage to the fish (more than 10 parasites), the muscles easily separated from the bones, the consistency of the muscles became soft, the broth became turbid, a sharp smell appeared.



2-Figure. The process of determining the intensity and extensiveness of invasion in fish infected with ligulosis

In the process of studying the physico-chemical properties of fish carcasses, the concentration of hydrogen ions (pH) increases with the increase in the intensity of the invasion, the content and activity of peroxidase (this reaction has its own peculiarity: in it, an extract is prepared from fish victims in a ratio

of 1:10. Cause spoilage is observed first of all in the victims of Pisces. Since oxidation processes occur in them actively, the peroxide ferment is formed there along with the blood. According to the activity of this enzyme, the degree of purity of fish is assessed) was determined to decrease [4]. When the intensity of the invasion was low, it was determined that the indicators of the physico-chemical composition of fish meat practically did not differ from that of healthy fish (Table 1).

(Table 1) Physico-chemical composition of fish meat damaged by ligulosis, depending on the intensity of the invasion

Indicators		II*			Healthy
		Low	Middle	High	
pH		6,8±0,31	7,0±0,24	7,1±0,32	6,6±0,27
Peroxidase reaction,%	Negative	8	22	48	-
	Positive	45	18	12	87
	Suspicious	38	52	28	13
Hydrogen sulfide reaction,%	Negative	70	60	45	90
	Positive	10	10	14	-
	Suspicious	10	18	32	10
Reaction with copper sulfate, %	Negative	20	20	30	85
	Positive	10	25	40	-
	Suspicious	75	55	30	15
Reductase test		3,9±0,32	2,5±0,35	0,5±0,11	5,0±0,46

With the increase in the intensity of the invasion, it was found that the content of fish meat increased in moisture, fat, protein and ash decreased. As for the mineral composition of fish meat, no significant changes were observed (Table 2). Caloric content of fish meat is determined by the total content of fat, protein and carbohydrates (the total amount of carbohydrates in the fish does not exceed 1%, so they do not significantly affect the energy value of the fish) [9].

(Table 2) Changes in the chemical composition of damaged fish meat with ligulosis, depending on the intensity of the invasion

Indicators	II*			Healthy
	Low	Average	High	
Humid condition, %	76,9±1,27	80,2±1,35	86,3±1,17	74,4±1,18
Amount of Protein,%	16,5±1,62	15,4±0,55	12,9±0,96	18,8±0,98
Amount of Fat,%	4,1±0,51	2,5±0,34	1,3±0,57	5,3±0,45
Ash content,%	1,3±0,19	1,2±0,16	1,2±0,23	1,5±0,32
Amount of Calcium,%	0,44±0,035	0,48±0,081	0,46±0,083	0,56±0,071
Amount of Phosphorus,%	0,47±0,069	0,48±0,108	0,48±0,094	0,50±0,059

Fish is consumed in love with antiquity as a curative dish, which suppresses the human organism, strengthens bones and teeth. Especially rapid digestion and dietary intake further increase the relative biological value of fish. Due to the fact that fish meat contains a lot of vitamins and microelements, its biological value is also higher than that of beef and mutton. In 100 gramm of fish meat, 0,2 milligrams of iodine is stored per day, which is necessary for human health[6]. It was observed that the quality indicators of the meat of fish caught with ligulosis decreased with an increase in the intensity of the invasion.

CONCLUSIONS:

1. It was found that the change in the chemical composition and quality of fish meat, affected by the disease, is directly related to the fact that the fish is damaged by a weak, medium and strong degree with Ligular intoxication.
2. Cases such as increased concentration of hydrogen ions (pH), decreased peroxidase content and activity were detected when the intensity of the invasion was high in fish infected with *Ligula intestinalis*.

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