

The number of pathological samples and results obtained by mycologically examined fish Saprolygniosis in Samarkand and Jizzak regions

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Abstract. The epizootic condition of saprolygniasis among fish was studied in Samarkand and Jizzakh regions, and the prevalence of the disease in all districts of the region was determined in the studies. The disease was identified by clinical signs in fish and pure culture isolation of the causative agent. Studies have shown that the level of infection with saprolygniosis in two regions during 2022-2024, i.e., 3 years, was 138 out of 187 fish that were checked, and the average rate was 73.79%. Means used in the prevention of the disease are presented, and it was observed in experiments that no diseases were encountered during these years when they were used.

1 Introduction

Relevance of the topic. At the same time, the demand of mankind for fish and fish products is increasing, the sharp reduction of natural water bodies is leading to a decrease in the number of fish. Therefore, there is a need for intensive development of fisheries. This, in turn, is widely applied to the rapid development of fisheries based on new innovative technologies and the production of innovative methods of fish farming based on intensive technologies in the field. As an example of this, a number of decisions and orders by our honorable President are being put into practice. In particular, this year, the President of the Republic of Uzbekistan on August 29, 2020 In accordance with the Decision No. PQ-4816 "On measures to support the fishing network and increase its efficiency", support the fishing network in the Republic, increase the efficiency of the activities of fisheries and fishing farms, in order to ensure rational and efficient use of land and water resources and intensive use and wide introduction of intensive technologies in this area:

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In 2021-2022, in the conditions of water shortage, the practice of wide use of new resource-saving intensive technologies and secondary water sources was gradually introduced in artificial water basins by fisheries that take water from rivers and canals.

According to the decision, intensive development of the fishing industry in our Republic based on a scientific approach, increasing efficiency by introducing modern and innovative methods of production of fish products to the sector is determined.

Today, most of the dangerous diseases have been thoroughly studied, recommendations for their prevention and treatment have been developed. However, there are problems in preventing and reducing the damage caused by certain diseases due to the insufficient number of qualified personnel in the required level and the failure to carry out appropriate and economically effective measures in a timely manner under specific conditions. This, in the breeding of fish and fish products, causes fish diseases, including infectious and non-infectious diseases of fish, to some extent hinder the development of the industry.

Level of study of the problem. Infectious and non-infectious diseases of fish are widespread in nature and mainly affect young, one- and two-year-old fish. The fact that saprologniosis and protozoosis are more common among diseases requires timely prevention and treatment of diseases. In this regard, it has been mentioned that regularly carrying out fishery improvement, veterinary-sanitary and treatment measures will have a good effect in preventing the disease.

The purpose of the study. In the course of the research work, in the intensive water reservoirs of Samarkand, Pastdargom, Kattakorgan districts of Samarkand region, i.e., in fish infected with diseases such as chylodinilliosis and saprologniosis for 1-2 years belonging to the carp family, the effectiveness of the spread, prevention and treatment of the disease was high. The purpose of testing the methods was taken.

2 Materials and methods

In order to study the clinical signs of diseases, first of all, fish suspected of having the disease were separated, specially prepared aquariums and small tanks were prepared, and they were constantly monitored. In order to determine the hydrogen content of water and to diagnose, treat and prevent infected fish, at the Samarkand State University of Veterinary Medicine, Animal Husbandry and Biotechnology and the Samarkand State University of Veterinary Medicine, Animal Husbandry and Biotechnology The MEGA project "Scientific Business Incubator of Intensive Training of Scientific Personnel for the Development of Veterinary, Biotechnology and Animal Husbandry in Uzbekistan" was conducted in the "Fish" experimental room and in the laboratory of the "Poultry, fish, bee and fur animal diseases" department. department, mycological examinations were conducted in the inter-departmental OPTATECh laboratory, diagnosis was made based on the finding of hyphae of the causative agent, by conducting parasitological examinations. In addition, general, ichthyopathological, organoleptic, mycological, microscopic and pathologoanatomical, hanging and crushed drop examination methods were also used in fish.

Young carp fish kept in fisheries were selected as the object of the research.

Through clinical and organoleptic examinations, the clinical condition of the fish, appearance, movement coordination, response to external environmental influences, body position in the water, body weight, color of the mucous membranes, color of the scales, vision, and the condition of the flaps are evaluated. studied.

3 Results and Discussion

In the course of research, pathological materials suspected of fish saprologniasis were obtained from fish farms in all three regions and fish under the care of the population. The number of samples submitted for examination is very large, due to which many fish deaths were observed and clinical signs were clearly visible, however, saprologniasis is a conditionally pathogenic agent, as the organism's resistance decreases, the causation of the disease by the agent may increase. In this case, the death rate from the disease may not be high, only low resistance and death is observed in young fish. Therefore, the bodies of all fish infected with saprologniasis and dead may not be mycologically examined. In addition, the chronic course of the disease without clinical symptoms in adult fish leads to suspicion of saprologniasis. In this case, conditionally healthy fish are not subjected to special inspections.

In some fisheries, the disease is wrongly diagnosed by pathological examination or treated with antibiotics and antiseptics before the diagnosis is completed. Antibiotics are used indiscriminately to fight the disease. Sometimes this can work, but because it is an opportunistic pathogen, it cannot be completely eradicated. Of course, when the next wave of the disease occurs, the pathogen becomes resistant to the antibiotic, so the antibiotic does not effectively affect them. In addition, many households do not turn to departmental veterinary services in order to hide the existing disease, taking into account the fact that they will suffer economic losses due to the restrictions on the sale of their products produced due to the ban on saprologniasis. Taking these circumstances into account, the results of examination of pathological materials suspected of saprologniasis brought to laboratories over the years may not fully represent the epizootic situation of this disease in the region.

Samples for mycological tests were taken from sick and freshly dead fish. In the laboratory, the pad material was examined under a microscope, and smears prepared from various wounds were examined. Smears were examined by dripping from a solution of 0.9% NaCl and 50% glycerol in water without staining. In order to determine the type of fungus, it was planted in the nutrient medium (5) and examined. Primary sowing was carried out in a dense agar medium, depending on the clinical symptoms, the type of pathogen and the structure of the medium were determined.

Mold-forming fungi were grown in the nutrient medium by serially diluting and serially inoculating pure (specific) strains of various bacteria in the investigated litter material and adding 0.5 mg/ml of 2% actidion solution. growth of pathogenic fungi was carried out.

Depending on the cultural characteristics of the fungal colonies in the environment and the location of the spores, their type is determined.

Therefore, during the years 2022-2024, in order to continuously control the spread of the disease from some fishing farms of the Samarkand, Pastdargom, Kattakorgon districts of the Samarkand region, pathological materials suspected of saprologniasis were examined, and based on the results, the spread of the disease in the fishing farms was determined.

Over the past 3 years, the following epizootological situation was noted during the examination of the pathological materials brought from fisheries in the Samarkand, Pastdargom, and Kattakorgan districts of the Samarkand region.

From the data of Table 1, it is known that in 2022, 24 pathological fish brought from the "Kattakurgan jaikhuni" farm of the Kattakurgan district of Samarkand region, suspected of saprologniasis in 20 samples (83.3%) saprologniasis was detected according to the results of mycological examination, by applying hypochlorite calcium 65% solution per hectare at the rate of 14 kg per day every two days, after applying 100 kg of lime per hectare the disease was cured. In 2023, when a veterinary sanitary measure was carried out using a mixture of 5 kg of copper sulfate per 100 kg of unslaked crushed lime in the farm before fishing, none

of the 16 samples taken for inspection from this farm showed a positive result for saprologniasis. In 2024, 12 samples were taken for mycological examination from the same farm, in 9 of them (75%) the causative agent of saprologniasis was isolated. In total, during the years 2022-2024, pathological samples were taken from 52 head chickens from this farm and 29 of them (55.76%) were isolated from 29 of them (55.76%). Almost a similar situation was observed at the farm "Jahongir zoghora fish" in the Kattakorgan district of the province. Saprologniasis was detected as a result of mycological examination in 16 (88.89%) of the 18 pathological samples brought to this farm in 2022 with suspicion of saprologniasis. None of the 5 samples taken for inspection from this farm in 2023 showed a positive result for saprologniasis. In 2024, 5 samples were taken from this farm for mycological examination, in 3 of them (60%) the causative agent of saprolognia was isolated. During the years 2022-2024, when pathological samples were taken from a total of 28 fish and mycologically examined, saprolognia causative agents were isolated from 24 of them (85.71%). As a result of mycological examination, saprologniasis was detected in 25 of 42 pathological samples (59.52%) brought from the farm "Sohibjon zoghora fish" in Kattakorgan district of Samarkand region with suspicion of saprologniasis in 2022. A similar situation was recorded in this farm in 2024. In the same year, 6 out of 10 pathological samples (60.00%) brought to this farm with suspicion of saprologniasis were found to have saprologniasis as a result of mycological examination. Saprologniasis was recorded at the highest level among fish (40.38%) during 2022-2024. When pathological samples were taken from a total of 52 large fish and mycologically examined, pathogens of saprolognia were isolated from 31 of them (59.61%).

In 3 more fishing farms of this region: "Otabek Dustov", "Rustamov Ibrahim Khasanovich" and Kattakurgon fish M.Ch.J. Suspected saprologniasis was investigated only in 2024. In 22 out of 32 pathological samples brought from "Otabek Dustov" farm with suspected saprologniasis (68.75%), in 12 out of 18 pathological samples brought from "Rustamov Ibrahim Khasanovich" farm with suspected saprologniasis (66.67 %), Kattakurgon fish M.Ch.J. saprologniasis was detected as a result of mycological examination in 4 (80.00%) of 5 pathological samples brought from the farm suspected of saprologniasis.

Almost the same situation was noted in the farms of Jizzakh region, where the epizootic situation among fish was studied. In 5 out of 7 pathological samples (71.43%) brought from the "Zomin waterfall fish" farm of this region with suspicion of saprologniasis, in 2023 - in 8 out of 12 samples (76.67%) and in 2024 in 15 pathological samples. in 11 samples (73.33%), saprologniasis was detected as a result of mycological examination.





Fig. 1. Clinical signs of fish and the process of planting in a nutrient environment.

Table 1. The level of saprolognia in fish in the fisheries of Samarkand and Jizzakh regions.

Province name	Name of farms	2022- year			2023- year			2024- year			2022-2024 years		
		Total number of samples tested	Number of positive results	%	Total number of samples tested	Number of positive results	%	Total number of samples tested	Number of positive results	%	Total number of samples tested	Number of positive results	%
Samarkand region, Kattakorgan district	"Kattaqo'rg'on jayxuni"	24	20	83.33	16	-	-	12	9	75.00	52	29	55.76
	"Jahongir zog'ora baliqlari"	18	16	88.89	5	-	-	5	3	60.00	28	24	85.71
	"Sohibjon zog'ora baliqlari"	42	25	59.52	20	-	-	10	6	60.00	52	31	59.61
	"Otabek Dustov"	-	-	-	-	-	-	32	22	68.75	32	10	31.25
	"Rustamov Ibroxim Xasanovich"	-	-	-	-	-	-	18	12	66.67	18	12	66.67
	Kattaqo'rg'on baliq M.Ch.J	-	-	-	-	-	-	5	4	80.00	5	4	80.00
	Total	84	61	82.43	21	-	-	82	56	68.3	187	138	73.79
Jizzakh region	Zomin sharsharasi baliq'i	7	5	71.43	12	8	76.67	15	11	78.26	34	24	70.59
	"Ergash Bekzod"	4	3	75.00	-	-	-	6	4	66.67	10	7	70.00
	Total	11	8	72.73	12	8	66.67	21	15	71.43	44	31	70.45
Samarkand region, Pastdargom district	"Pulat baliq havzasi"	5	4	80.00	12	9	75.00	8	6	75.00	25	19	76.00
	"Do'monsoy baliqlari"	8	5	62.50	8	6	75.00	15	12	80.00	31	23	74.19
	Total	13	9	69.33	20	15	75.00	23	18	78.26	56	42	75.00
Everything		108	78	72.22	53	23	43.40	126	89	70.63	287	211	73.52

Also, in the "Ergash Bekzod" fishery farm of this region, in 3 out of 4 pathological samples (75.00%) brought in suspected of saprologniasis in 2022, in 4 out of 6 pathological samples in 2024 (66.67%). Saprologniasis was registered as a result of mycological examination.

Saprologniasis was recorded as a result of complete mycological examinations in 2 fisheries farms in Pastdargom district of Samarkand region, in total 69.23% of fish in 2022, 75.00% in 2023 and 78.27% in 2024. A total of 287 large fish suspected of having this disease were brought from 2022-2024 in the two regions mentioned above, and as a result of careful clinical, pathologoanatomical and mycological examinations in special veterinary laboratories, a total of 287 large fish were brought. At the beginning of 2011, an average of 73.52% of trees were found to have saprologniasis. According to the data presented in Table 1, that is, if we take into account that 43.40%, in some cases, 78.26% of the pathological samples brought for mycological examination from Samarkand and Jizzakh regions during 2022-2024 were suspected of fish saprologniasis, we are once again convinced that the timely treatment of this disease and its prevention measures are the most urgent problem of

the present day. It was experimentally observed that the incidence of the disease is increasing in fisheries where preventive measures were not implemented in time. According to the researchers, the most effective solution to prevent the disease is to correctly control the hydrochemistry of water by carrying out preventive measures and the level of seasonal occurrence of the disease. In the experiments, it was found that saprolognia mixta is mainly distributed within the borders of the Republic.

Table 2. Disinfectants used in aquaculture.

Disease	Medicinal substances	Concentration	Exposure	Place of processing
Protozoa, Saprologniosis	Sodium chloride	4-5% solution	5 minute	Pools, intensive ponds to the areas where carp are located
	Sodium chloride	0.3-0.6% li	3-5 day	Artificial winter pools, aquarium
	Fioletoviy "K"	0.3-0.4 g/m ³	4-5 hour	Pool or aquarium
	Malachite blue	0.3-0.5 g/m ³	4-5 hour	Pool, boats
	A mixture of formalin, copper sulphate and oxytetracycline	100 liter/5 ml mixture	1-5 until the day	Artificial intensive and polyculture ponds, swimming pools or aquariums

Since the drugs and methods used are similar, decontamination is carried out according to strict rules and guidelines.

4 Conclusion

A total of 287 large fish suspected of having this disease were brought from 2022-2024 in the two regions mentioned above, and as a result of careful clinical, patho-anatomical, and mycological examinations in special veterinary laboratories, at the beginning of 211, an average of 73, Saprologniasis was found in 52% of trees. It was justified that chemotherapeutic agents play a key role in the prevention and treatment of diseases.

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