AMERICAN JOURNAL OF APPLIED MEDICAL SCIENCE
ISSN: 2996-5101 (online) | ResearchBib (IF) = 10.81 IMPACT FACTOR
Volume-4| Issue-6| 2026 Published: |30-06-2026

UDC: 639.3:619

DIAGNOSIS AND PREVENTION OF FEED POISONING IN FISH

https://doi.org/10.5281/zenodo.20800641

Khurramova Sevinch
talented student
Usmonov Diyorbek
talented student
Kurbanov Feruz Enatillayevich
Scientific supervisor

Annotation

Daily feed given to fish, rich in various nutrients, vitamins and minerals, must meet the needs of the fish organism and must not adversely affect their health, growth and development, product quality.

Key words

Aseton, Fosfor, Simob, Alkaloidlar, Aflatoksin, Patulin, Zearalenon, Oxratoksin, Ergoalkaloid, Fumonizin.

Relevance of the Topic. Today, the demand of our population for fish and fish products is steadily increasing. Therefore, great importance is being attached to the development of fisheries in our Republic. The priority of fish production in our country lies in the fact that, while strengthening food security, it provides an opportunity to supply the population with complete and high-quality proteins contained in fish. It is recommended that fish products constitute an average of 12–16 kg per person per year in the general food ration. Fish products are of great importance in improving brain function and in the metabolic processes of the human body. In human life, proteins, carbohydrates, fats, vitamins, minerals such as phosphorus, iron, calcium, and trace elements are essential for providing the body with complete nutrients. It is scientifically proven that fish products contain sufficient amounts of these substances.

In the fish farms of our Republic, including fish raised in artificial water bodies, feeding fish with low-quality feeds containing various microflora, fungi, and toxic substances leads to the development of various pathological processes and mortality among fish.

These constitute a group of non-infectious diseases characterized by disturbances of various physiological conditions and pathological-anatomical changes, disrupting all functions of the organism and leading to mass mortality of fish. This, in turn, indicates the importance of taking into account the economic capacities of fish farms, the climate and local conditions of our Republic, as well as the ecological situation, by conducting comprehensive inspections of water bodies inhabited by fish, feed storage facilities, and feed composition, identifying sources of poisoning and contamination, and preventing these diseases in a timely manner.

AMERICAN JOURNAL OF APPLIED MEDICAL SCIENCE
ISSN: 2996-5101 (online) | ResearchBib (IF) = 10.81 IMPACT FACTOR
Volume-4| Issue-6| 2026 Published: |30-06-2026

The development and implementation of measures for the prevention of feed poisoning in fish is one of the urgent problems of the present day.

Level of Study of the Problem. Poisoning is one of the important problems of veterinary medicine, since the environment always contains substances of various origins possessing toxic properties. To date, this problem has become particularly relevant due to the improper use and storage of feed, which can cause both acute and chronic poisoning. An analysis of the literature data shows (Sklyarov V.Ya., Studentsova N.A.) that one of the most serious problems associated with fish feeding is the issue of feed quality. Fish feed has a limited storage period, and after three months of storage, its quality may deteriorate to such an extent that it becomes hazardous to fish.

Purpose of the Study. The purpose of this study is to identify feed-related poisoning in fish at fish farms of the Samarkand region and to develop preventive measures for its control and prevention.Tadqiqot materiallari va uslublari.

Scientific research and laboratory examinations were carried out during 2021–2023 in the laboratory of the Department of Poultry, Fish, Beekeeping and Fur-Bearing Animal Diseases of SamSVMALBTU, as well as at the **"Kamolaxon Baliqchilik"** fish farm located in Jomboy district of Samarkand region and the **"Charog'on Bog'bon Dalasi"** private fish farm located in Payshanba town, Kattaqurgan district. Sources of feed-related poisoning in fish were investigated, and general clinical as well as pathological-anatomical examinations were conducted on the caught fish.

Results Obtained and Their Analysis. The total area of the **"Charog'on Bog'bon Dalasi"** fish farm, located in Payshanba town, Kattaqurgan district, is 5.3 hectares. The water reservoir is divided into three sections. The head of the farm is Uktam Fayziyev. In this fish farm, 4,500 common carp, 3,700 black and pestro silver carp (bighead carp), 500 grass carp, and 500 local catfish are reared using the polyculture method.

The **"Kamolaxon Baliqchiligi"** fish farming enterprise, located in Gazira village of Jomboy district, Samarkand region, has three ponds. The dimensions of Pond No. 1 are 8 × 6 m, Pond No. 2 are 7 × 6 m, and Pond No. 3 are 9 × 6.5 m, with a depth of 1.5 meters. During the sanitary assessment of mold-contaminated feed, toxicity testing revealed the presence of chemical compounds and mycotoxins in the feed. We extracted fat-soluble and water-soluble fractions from feed, processed feed products, and compound feed using acetone, and subsequently determined the effects of these fractions on fish.

The toxicity of concentrated feed was determined within 24 hours, excluding the time required for preparation of test samples. A 50 g feed sample was thoroughly ground in a laboratory mill (bran and compound feed were used without grinding) and placed in a flat-bottom flask. It was then mixed with 150 ml of acetone and shaken on a mechanical shaker for two hours.

The extract was filtered through a paper filter into a porcelain dish and evaporated to dryness in a water bath at 55–60°C. The dry residue was dissolved in 5 ml of acetone and transferred at room temperature (17–20°C) into a beaker

AMERICAN JOURNAL OF APPLIED MEDICAL SCIENCE
ISSN: 2996-5101 (online) | ResearchBib (IF) = 10.81 IMPACT FACTOR
Volume-4| Issue-6| 2026 Published: |30-06-2026

containing 500 ml of aquarium water (capacity 700–800 ml, diameter 11–15 cm). After dissolution of the compound feed extracts in water, they were placed in a refrigerator at 6–7°C for 40–45 minutes. After this period, the extracts were filtered through a small layer of cotton wool and warmed to the initial temperature of 17–20°C.Five fish, regardless of sex and age, were placed into the prepared water containing the extract and observed. Fish mortality was recorded after 24 hours.

If toxicity was detected in cereal crops, their processed products, or compound feed, they were immediately excluded from the diet, and additional differential studies were conducted to identify organochlorine and organophosphorus compounds, mercury preparations, alkaloids, and mycotoxins.

Grains Most Commonly Affected by Mycotoxins

Table 1

Mycotoxins	**Grains**
Aflatoxin	Corn (maize), wheat, soy, and barley
Patulin	Silos, legumes, and maize (corn)
Zearalenone	Barley, maize (corn), wheat, and silaged plants
Ochratoxin	Barley, sorghum, wheat, and rye
Ergoalkaloids	Rye, wheat
Fumonisin	Maize (corn)

The hexane fraction and chloroform fractions (lower layer) were poured into a porcelain dish and evaporated in a water bath (55–60°) under reduced pressure until the chloroform was completely removed. The dry residue was dissolved in 5 ml of acetone and transferred into a beaker containing 500 ml of water (17–20°) taken from an aquarium. Five guppy fish, regardless of sex and age, were placed into the solution of the extract, and their death was recorded after 24 hours, while the fish in the control group did not die.

Assessment of the Toxicity Level of the Studied Feed

Table 2

Toxicity Level of the Feed	Number of Dead Guppy Fish	Time of Death (in hours)
Non-toxic	Not more than 1	Within 24 hours
Low toxicity	2 - 4	- " -
Toxic	5	- " -

Depending on the toxicity level of the studied feed, fish mortality was observed within the time intervals shown in the table.

Conclusion

Daily feed given to fish should be rich in various nutritious substances, vitamins, and minerals, and must meet the physiological needs of fish without negatively affecting their health, growth, development, and product quality. This is because daily feed provided to fish primarily influences their productivity, fertility, health status, growth, and development.

REFERENCES:

1. Haqberdiyev, P. S., Qurbonov, F. I., & Qarshiyeva, B. (2018). Fish and Bee Diseases. Educational-methodical manual. Samarkand..

2. Daminov, A. S., Nasimov, S. N., Gerasimchik, V. A., Eshburiyev, S. B., & Qurbonov, F. I. (2022). Fish Diseases..

3. Inatillaevich, K. F., & Suvonovich, D. A. (2020). Test results of separate anthelmintic preparations against the helminths of fish in the carp. Asian Journal of Multidimensional Research (AJMR), 9(2), 192–197.

4. Kurbanov, F. I., & Daminov, A. S. Effectiveness of anthelmintic drugs used against fish helminthosis. International Journal for Innovative Engineering and Management Research. Elsevier SSRN, Volume 10, pp. 101–105.

5. Muhammadiyev, Z. N., & Qurbonov, F. I. (2022). Helminth fauna of carp fish living in artificial water bodies of Samarkand and their ecological characteristics. Theoretical Aspects in the Formation of Pedagogical Sciences, 1(1), 18–22.

6. Kurbanov, F. E. (2022). Epizootiology of fish saprolegniosis and control measures. Educational Research in Universal Sciences, 1(7), 152–158.