

Various Diseases in fish

Dr. S.K. Nirala

**Department of Rural Technology and Social Development
Guru Ghasidas Vishwavidyalaya, Bilaspur**

- **(1) Diseases caused by bacteria and viruses:**
- **(a) Dropsy (Abdominal dropsy):** It is caused by bacteria *Aeromonas hydrophilla* and *Pseudomonas punctata*. Accumulation of fluid occurs in the internal organs causing swelling of the belly. Intestine, liver and kidney are badly affected. Other fish also get infected due to contact of fluid containing bacteria escaped from the body of already infected fish. It is suggested that dropsy occurs primarily due to infection of virus and then secondarily infected by bacteria.
- Fish can be treated with chloromycetin (60 mg/gallon) for 3-7 days. Food is not given during treatment.



Dropsy conditions in fish

(b) Furunculosis: Common in Salmon and Trout.

It is caused by *Aeromonas salmonicida*. Infected fish develops swellings or boils (furuncles) on the sides of the body. These swellings contain pus like substances formed by necrosis of the musculature and haemorrhage, severe infection is fatal to the fish. Fishes are treated with oxytetracycline and sulfamerazine.



Furunculosis Disease in fish

(c) Tail rot or Fin rot: It is caused by gram negative *Aeromonas* and *Pseudomonas*.

-it causes putrefaction of tail and other fins.

-A white line appears on the surface of fin which later becomes torn the fin and ultimately the entire fin is lost.

-Fishes are treated with 1:2000 solution of CuSO_4 for two minutes.

-in heavy infection, fin is removed and wound is disinfected with 1% solution of silver nitrate. The fish is kept in dilute solution of $\text{K}_2\text{Cr}_2\text{O}_7$ for healing of the wound, which may require 7-10 days.



Tail rot or Fin rot:



(2) Diseases caused by fungi:

(a) Gill rot or skin disease: It is caused by *Septolegnia* in fresh water fishes.

Eggs are highly susceptible to the infection, hence removed quickly. Infected fishes are characterized by the appearance of “Tufts of Wool” on the skin. Root like hyphae grow into the sub-cutaneous parts causing death of the host. Gills are also affected causing gill rot. Infection spreads quickly.

Affected part is treated with iodine solution or mercurochrome or 1% solution of potassium dichromate. The fish is then kept in a 1:25000 solution of $K_2Cr_2O_7$ for a week. Or dip the fish in 3% solution of salt for some time. About 1% phenoxythol can also be used to kill the fungus.



(3) Disease caused by protozoans:

(a) Costiasis: It is caused by ectoparasite flagellate *Costia*, which attacks skin and gills, destroy epidermal cells and feeds on them. It causes excessive secretion of mucous and body is covered with bluish or grayish mucus. The fish losses appetite, becomes weak and dies after sometime. Another protozoan ciliate, Chilodon also attack skin and gills causing sliminess.

Both the protozoan parasites can be controlled by treating the fish with 1:500 solution of acetic acid or 1:4000 solution of formalin. Solutions of methylene blue, potassium permanganate and copper sulphate can also be used to kill the parasites.



(b) White spot or itch: It is caused by ciliated protozoan *Ichthyophthirius* sp. The parasite attacks the skin of fresh water fish and bores into epidermis coming to rest between epidermis and dermis. Several white spots appear on skin and fins due to rapid proliferation of epidermal cell, which form a covering over the parasites. Movement of parasites cause irritation to the fishes.

No effective treatment during encysted or nodule stage but can be killed during the short free swimming stage. About 3% salt solution or 1:4000 solution of formaline or 1:500000 solution of methylene blue is effective in killing the parasites and can be kept the fishes in it for along time. The optimum temperature for itch is 21-24⁰ C, hence the parasites can be killed by raising temperature of water from 29 to 31⁰C.



White spot or itch



(4) Diseases caused by helminthes: Following are the common parasites which cause diseases; however, infection is not severe as to cause any major problem for culturists:

(a) *Clinostomum*: It is a trematode called yellow grub about 5-6 cm long, enclosed in a cyst below skin, seen as colored nodules on head, body and fins of fresh water fishes, intermediate host is snail. The parasite can be controlled by removing snails from the pond. The cyst can be cut out and wound is then disinfected by mercurochrome.

(b) *Gyrodactylus*: On the body, gills and fins of carps and trout, effected part is bluish due to slime. Fins gradually become torn and frayed.

(c) *Dactylogyrus*: Attached to the gills. Fish can be treated by placing it in 1:500 solution of acetic acid for two minutes or in 1:2000 solution of ammonia for 5 minutes or by 5ppm KMnO_4 or 20 ppm $\text{K}_2\text{Cr}_2\text{O}_7$. The method is to keep the fish in 1:4000 solution of formalin for 2-3 days.

(d) *Diplozoon paradoxum* (Twin worm): Infects several fresh water carps, larvae attached to each other forming twins. Found on gills and can be detached by treating the fish with a dilute solution of methylene blue.

(e) *Bucephalus*: On gills of fish and called Ox head worm due to peculiar shape of the cercaria. Parasites are removed by treating with 1-25 salt solution.

(5) Diseases caused by copepod parasites: Following parasites cause various diseases:

(a) Anchor worm (*Lernea*): It attacks on the several species of fresh water fishes. Female worm makes wounds and holes in the host body, then wounds become infected with bacteria and fungus causing death of the fishes.

-Parasites are removed by strong solution of potassium permanganate or exposed to acid water for 30 minutes.

-Pond water can be disinfected with KMnO_4 .

(b) Fish louse (*Argulus*): Ectoparasites, attacks a number of fishes, mature larvae attacks the fishes, causes anaemia, poor growth.

-Parasites are paralysed by strong salt solution.

-Secondary infection of bacteria occurs in louse infected fish.

-Ponds can be disinfected with weak KMnO_4 solution.

(c) *Eragasilus*: Found on the gills of fishes, infected fish suffers from anaemia, respiratory difficulties and poor growth. Secondary infection caused by bacteria and others.

(6) Diseases caused by annelids and molluscs: Following are the parasites:

(a) Fish leech (*Piscicola*, a common leech), attacks fish and causes wounds which receive secondary infection of fungus. The fishes can be treated with 3% salt solution for few minutes.

(b) *Glochidium*: Found on gills and fins of the fishes, cysts on the body contain glochidium.

-If infection is severe, laceration of the gills of the fish causes death.

(7) Parasites of the visceral organs: Infects internal organs, specially gut.

-*Diphyllobothrium latium* (Tape worm): In viscera and muscles of fish.

-*Clinostomum*, *Diplostomum* and *Neodiplostomum* (Trematodes): Occur in internal organs of the fish.

-Round worms also found in flesh and viscera.

-*Echinorhynchus* (Acanthocephala): It is found in large number in the intestine.

-*Ligula intestinalis* (common tape worm): It is found in intestine causes swelling of the abdomen and ultimately death.

Control of fish diseases and parasites:

- Fish should be treated as soon as the disease is detected.
- Pond should be dried periodically and disinfected with quick lime.
- Avoid high stocking density, over feeding and pollution of water.
- Artificial food should be of good quality and rich in vitamins.
- Fishes should be treated with specific medicines.
- Control of external parasite by treating fish with 3% salt solution or dilute solution of copper sulphate (1:2000), potassium permanganate (1:4000), acetic acid (1:500) or formalin (1:4000).
- Malachite green has been found very effective against fungal infection @ 1mg/lit