

## COMMON DISEASES OF FRESHWATER ORNAMENTAL FISHES AND ITS MANAGEMENT (Ref.ICAR)

Health management of aquarium fish is gaining more importance in ornamental fish sector due to the financial investments involved in it. Awareness and knowledge on fish health management is the need of the hour to sustain the industry without major economic loss. Diseases are associated with the complex interactions of host, pathogen and environment. Further, the diseases are categorized into two major types such as infectious and non-infectious diseases. Infectious diseases spread from one animal to another and caused by any of the pathogenic organisms such as virus, bacteria, fungi and parasites. Non-infectious diseases are confined to a particular individual animal and may be caused due to environmental stress and nutritional factors.

### (D). INFECTIOUS DISEASES

#### 1) Viral diseases

S. No.	Name of the disease	Cause	Clinical signs	Treatment
1.	Koi Herpes Virus Disease (KHVD)	Koi Herpes Virus	<ul style="list-style-type: none"> <li>● Gill infection with red and white patches.</li> <li>● Sunken eyes.</li> <li>● Pale patches or blisters on the skin.</li> </ul>	<ul style="list-style-type: none"> <li>● No effective treatment is available for viral diseases except few vaccines.</li> <li>● Follow the better management practices.</li> <li>● Separate the affected fish.</li> <li>● Avoid unnecessary stress.</li> <li>● Maintain good water quality.</li> <li>● Provide good quality feed.</li> </ul>
2.	Lymphocystis disease	Iridovirus	<ul style="list-style-type: none"> <li>● Cauliflower like nodular white swellings on body surface and fins.</li> </ul>	
3.	Spring Viraemia of Carp Virus (SVCV)	Rhabdovirus	<ul style="list-style-type: none"> <li>● Haemorrhages in the skin and gills.</li> <li>● Dark skin.</li> <li>● Swollen belly.</li> <li>● Exophthalmia.</li> <li>● Protrusion and inflammation of the vent.</li> </ul>	
4.	Herpesvirus disease or Carp pox	Herpesvirus	<ul style="list-style-type: none"> <li>● Ulcerated lesions.</li> <li>● Presence of plaques on the skin surface.</li> </ul>	

## 2) Bacterial diseases

S. No.	Name of the disease	Cause	Clinical signs	Treatment
1.	Ulcer or Aeromoniasis	<i>Aeromonas</i> sp.	Skin lesion with blood. Shallow open sores. Eroded fins and mouth.	Disinfection of pond with KMnO <sub>4</sub> @ 5mg/l.
2.	Fin and tail rot	<i>Aeromonas</i> sp. and <i>Pseudomonas</i> sp.	Whitish margin of fins. Putrefaction of fins. Reddened areas at base of fins.	Fish feed mixed with antibiotics terramycin @ 100 mg/ kg or sulphadiazine @ 100 mg/ kg.
3.	Columnaris disease	<i>Flavobacterium columnare</i>	Grayish patches over head and dorsal surface. Grayish discolouration in outer margin of fins.	Dip treatment in 500 ppm KMnO <sub>4</sub> for 2 min.
4.	Mycobacteriosis	<i>Myobacterium fortuitum</i>	Anorexia Emaciation Loss of equilibrium Exophthalmia Dropsy Grey-white nodules on internal organs	Bath treatment with antibiotics such as Oxytetracycline @ 50 mg/ l for 15 minutes.  Nifurpirinol @66 mg/ l for 15 minutes.
5.	Dropsy	<i>Aeromonas hydrophila</i>	Distended abdomen. Scale protrusion. Mild ulceration.	Dip in 5 mg/l KMnO <sub>4</sub> for 2 min. Disinfection of pond with KMnO <sub>4</sub> @ 1mg/l.
6.	Bacterial gill disease	<i>Myxobacteria</i> sp.	Necrotic gill tissues. Fusion of gill filaments.	Bath treatment of fishes with alkyl benzalkonium chloride @ 2 mg/l for 1 hour.

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### 3) Fungal diseases

S. No.	Name of the disease	Cause	Clinical signs	Treatment
1.	Cotton wool disease or Saprolegniasis	<i>Saprolegnia parasitica</i>	Cotton wool like outgrowth over injury site and haemorrhage.	Bath treatment in NaCl @ 3-4%. KMnO <sub>4</sub> bath treatment @ 160 mg/l for 5 days. Long term bath in 3 ppm methylene blue.
2.	Gill rot	<i>Branchiomyces demigrans</i> and <i>Branchiomyces sanguinis</i>	Gill necrosis. Discolouration & disintegration of gill tissues.	Bath treatment in NaCl @ 3-4% for 5-10 min. KMnO <sub>4</sub> bath treatment @ 5 mg/l for 5-10 min.

### 4) Parasitic diseases

S. No.	Name of the disease	Cause	Clinical signs	Treatment
<b>Protozoan parasites</b>				
1.	White spot disease or Ichthyophthiriasis	<i>Ichthyophthirius multifiliis</i>	Erratic swimming. Parasites visible as white spots on skin, gills and fins.	Bath treatment in malachite green oxalate at 0.15-0.20 mg/l for 4-6 hours. Bath treatment can also be given in sodium chloride solution for 7 days or more.
2.	Trichodiniasis	<i>Trichodina</i> sp.	Darkening of skin. Excessive mucus production. Pale gills.	Bath treatment in formalin at 15-25 mg/l concentration. Bath treatment in KMnO <sub>4</sub> solution for 7 days or more.

3.	Oodiniasis (Velvet disease)	<i>Oodinium</i> sp.	Clamped fins. Skin shows gray patches which look like dust giving velvet appearance to skin. The fish may show signs of irritation.	Bath treatment in malachite green or formalin.
<b>Monogenetic trematodes</b>				
1.	Gill fluke and skin fluke infestation	<i>Dactylogyrus</i> sp. (infecting gills) and <i>Gyrodactylus</i> sp. (infecting skin)	Fishes grasp air. Faded gills. Gills covered with thick mucus layer. Body covered with bluish grey mucus layer.	Permanent bath treatment in dipterex @ 0.25-0.50 mg/l. Formalin bath treatment @ 100 mg/l.
<b>Crustacean parasites</b>				
1.	Lernaeasis or Anchor worm infestation	<i>Lernaea</i> sp.	Emaciation. Inflammation and necrosis at the site of attachment. Small hemorrhagic spots.	Permanent bath treatment in Dipterex at 0.25-0.50 mg/l. Bath treatment in NaCl @ 0.8- 1.1% fo 3 min.
2.	Argulosis or Fish lice infestation	<i>Argulus</i> sp.	Haemorrhagic ulcerative lesions around bite wounds. Visible as a small button like structure on body surface.	Prolonged bath treatment in Trichlorphon @ 0.2 mg/l for 24 hr. Prolonged dip treatment in 5% salt. Bath treatment in 10-20 mg/L of KMNO4 for 30 minutes alternatively for 3 days.

## (II). NON-INFECTIOUS DISEASES

S. No.	Name of the disease	Cause	Clinical signs	Treatment
<b>Nutritional deficiency diseases</b>				
1.	Scoliosis and Lordosis (Skeletal deformation)	Deficiency of the essential amino acid namely tryptophan and vitamin C deficiency.	Scoliosis is the lateral curvature of the spinal cord and lordosis is the vertical curvature of the spinal cord.	By supplementing required quantities of tryptophan and vitamin C in fish diet.
2.	Pin head disease	Deficiencies in protein, carbohydrate and lipids.	Poor & stunted growth. Sluggish movements.	Administer nutritionally balanced feeds and proper feeding management.
3.	Constipation	Imbalanced or poor quality diet.	Appearance of a long thread like structure attached to vent. Fish becomes sluggish. Swelling of belly.	Feeding with Daphnia helps as they act as mild laxative. Salt treatment.
<b>Environmental factors</b>				
1.	Brown blood disease	Presence of excessive nitrite in water (>0.1 mg/L).	Darker gills. Excessive pumping of gills. Piping at the surface of water.	Flushing of gills under increased flow of water.
2.	Gas bubble disease	Super saturation with either oxygen or nitrogen in water.	Gas emboli in fins, opercula, eye or gills.	Agitate water. Increase water temperature.

The most important approach to control the disease is to manage the culture unit by following better management practices to reduce predisposing conditions of the disease. This can be achieved by optimum stocking density, preventing the introduction of pathogens, maintenance of good water quality, avoiding stress and through the provision of adequate nutrition.

