



Answers

Q1/A

1. Bacteria: e.g. *Mycobacterium marinum*.
2. Trematodes: e.g. *Heterophyes heterophyes*.
3. Cestodes: e.g. *Diphyllbothrium latum*.
4. Nematodes: e.g. *Anisakis simplex*.

B/ Write briefly on the Spring Viremia of Carp (SVC)?

- Rhabdovirus carpio (RNA) -Disease occurs in carp and other cyprinids.
- Loss of coordination and equilibrium. -Exophthalmus and abdominal distension.
- hemorrhage in many organs. -inflammation and hemorrhage of swim bladder.

Transmission: Virus shed in feces and found in contaminated eggs. Has been experimentally transmitted by fish lice (*Argulus* sp.) and leeches.

C- Compare between infectious diseases and non-infectious diseases?

infectious diseases: due to the action of microorganisms Can be passed from one fish to another.

Caused by germs or pathogens. non-infectious: diseases due to non-living causes (environmental, other) Can't be spread from one fish another. Not caused by germs or pathogens.

Q2/1. Temperature 2. Host specificity. 3. Younger fish are usually the most susceptible

2- pathology

3- 1-Isolation in cell culture Confirmation by PCR (Polymerase chain reaction).

2-Direct detection by PCR

4-capsid

5-Acute disease, Chronic disease, Latent disease, Incurable disease, Terminal disease.

6- Avoidance Quarantine Clean water with UV, ozone. Prevention of secondary bacterial infections Good nutrition Disinfect eggs. Vaccines under development. Elevated water temperature.

Q3/A Scientific classification: Kingdom: Animalia Phylum: Platyhelminthes

Class: Trematoda Order: Opisthorchiida Family: Heterophyidae Genus: Heterophyes

Species: *H. heterophyes*

B- Write host factors, environmental factors and agent factors in fish diseases?

Host factors: 1- Resistance and immunity factors 2- Genetic factors 3- Physiological factors

4- Age factors 5- Sex factors 6- Socio-cultural and habitual factors

Agent factors: 1- Type of agent (Agents causing disease) 2- Number of agent (Dosage of infection) 3- Spore formation 4- Viability 5- Host specificity 6- Antagonism

7- Pathogenicity 8- Toxicity 9- Tissue selectivity

Environmental factors: 1- Physical environment: Geographical, geological and climatic factors

2- Biologic environment 3- Socio- cultural environment 4- Economic environment

C- Why the study of fish diseases and parasites is necessary and important?

1- Increase the production of pond farms.

2- Improve the stocks of valuable commercial fisheries in the natural waters.

3- The possibility of fish adaptation or acclimatization in new sites or localities.

4- Fish parasites can be used as pollution indicators with some heavy metals.

Best wishes for all

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