

Viral diseases in fish

Hello! Did you know that viruses also can infect aquatic animals? In this video we will see how viruses affect fish and some interesting aspects of the diseases they cause.

It should be remembered that the temperature of the fish, unlike that of mammals, is not constant but varies according to the environment, that is, the temperature of the water. In other words, they are poikilothermal animals. In addition, some fish live in fresh water and others in salt water, and even some species live in one or other type of water at different moments of their development, such as salmon and eel. All this can influence the types of viruses which may affect them, their mode of transmission, etc.

Viruses that affect fish are included in different families. The majority are RNA viruses. Some of these viruses cause diseases of great importance, either because they affect species of cultivated fish, such as the salmon, the trout, the turbot, the gilt-head bream, etc., or ornamental fish, such as the koi carp. In fact, due to their severity and potential to disseminate, some of them are included in the List of Notifiable Diseases of the World Organization for Animal Health (OIE).

The host spectrum of these viruses is varied, even for viruses of the same family. For example, within the family Rhabdoviridae, the infectious hematopoietic necrosis virus or IHNV affects salmonids, such as trout and salmon. However, the viral hemorrhagic septicemia virus or VHSV infects a large number of fish species, including both freshwater and marine.

One aspect to emphasize is that, due to the adaptation of viruses to the physiological conditions of the fish, and especially to their temperature, they are not transmitted to domestic animals or people.

Viral diseases in fish are often severe and the course is fast, with a high mortality rate. Their effects can be devastating, mainly in fish farms, since the high density of animals helps viruses to spread very easily. One example is infectious pancreatic necrosis, caused by a Birnavirus, or infectious salmon anemia, produced by an Orthomyxovirus.

Sometimes the disease may not be very serious from the sanitary point of view, but relevant in terms of the economic losses it causes. This is the case of infections by lymphocystis virus, which causes a series of pustules or lumps in the fish, preventing their marketing. In addition, viral infections may cause the establishment of secondary infections by other pathogens, such as bacteria, fungi or parasites.

Control of viral diseases in fish involves mainly avoiding exposure to the virus, along with good hygiene and biosecurity practices. This is more feasible in the case of ornamental fish, in which we can control more easily the entry of potential pathogens. In any case, and mainly in farms of fish intended for consumption, it is essential to ensure that the animals introduced come from disease-free sites, and also apply quarantine measures.

Fish have a less effective immune system than that of higher vertebrates, but it already has immune memory. Therefore, effective vaccines have been developed against certain viral infections, which are usually applied in fish farms for consumption. These vaccines are always from inactivated viruses which, as you know, are safer. Depending on the formulation and on the age of the animals to be vaccinated, they can be applied by injection, orally, along with the feedstuff, or also by immersion. However, the number of effective vaccines against viruses available is limited.

And you? Will you have enough memory to remember everything that we have learned about fish viruses? I'm sure you will!