KHV (KOI HERPES VIRUS) or CyHV3

Distribution

KHV was first reported in 1998 in Israel and in the US. Then numerous cases were reported from a lot of countries with carp industry. Today KHV has been recorded in almost 20 countries in Europe as well as in Asia.

KHV has now been recognized by the OIE organization and the cases has to be reported to the local authorities

Agent

KHV etiological agent, an herpes virus, was first isolated in 2000 in Great Britain. It's an herpes virus belonging to the herpesviridae family and characterized by a double strand linear DNA fragment in an icosahedric capsid. The genome size is estimated to 270-290 Kbp. The virus is isolated from grass carps as well as fancy carps (Koi carp).

Pathology

Mortality starts within 2 days following the outset of clinical signs and can reach up to 100% of the infected population. Temperature is an important factor in the disease process. It has been shown that the mortality occurs between 16°C and 28°C.

At higher or lower temperatures, no mortality occurs and fishes raised to this temperature can survive the disease. However, KHV DNA can still be detected in survivors so that they should be considered as potential infection sources for other fishes.

Transmission of the disease can occur horizontally and is presumed to occur vertically. The virus can survive off the fish for weeks. It has been detected in sediment, in faeces as well as in river water. Direct (from fish to fish) as well as indirect transmission via material can occur.

Clinical signs

Clinical signs are often non-specific. The most typical signs are pale and necrotic gills, patch or skin lesions, and sunken eyes. Affected fishes may also suffer from increased respiratory frequency, lethargy and erratic swimming. KHV is associated with mass mortality in common carp and koi carp. High mortality level (up to 80%-100%) can be reached in affected populations.

Diagnosis

KHV suspicion relies first on clinical signs as described above. Virus isolation on specific cell line can also be used for the confirmation of the infection. However virus cultivation is mostly dedicated to dead fishes and can sometime lead to false negative results for technical reasons and due to the quality of the sample. Elisa tests have been published (antigen and indirect antibody ELISA test) but they are not, for the moment, commercially available. The most reliable method for the virus detection is PCR. Numerous tests have been now published. The advantage of PCR is the ability of detecting the virus from frozen samples as well as the ability of detecting low viral particle levels.

Order analysis