

TITLE: HERPESVIRAL INFECTION ASSOCIATED WITH MORTALITY IN ORNAMENTAL FISH FROM SAO PAULO, BRAZIL

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ABSTRACT:

Cyprinid herpesvirus 3 (CyHV-3), a double-stranded DNA virus with an icosahedral capsid, is a member of family *Alloherpesviridae* and genus *Cyprinivirus*. CyHV-3 is very pathogenic and is responsible for a high rate of morbidity and mortality in common carp (*Cyprinus carpio carpio*) and koi carp (*Cyprinus carpio Koi*) causing large-scale losses in worldwide aquaculture. The skin is the main organ affected by CyHV-3 and therefore, it is believed that the direct contact is the main route of transmission for this virus. In addition to the carp, CyHV-3 infections have been detected in specimens of other 8 fish families from temperate and tropical waters involving more than 25 species, as Tenca (*Tinca tinca*) and Cascudo (*Ancistrus* sp.) found in Brazil. The main goal of this study was to investigate the occurrence of CyHV-3 in fish samples from a wholesale of ornamental fishes in São Paulo city after a mortality outbreak. For this purpose, 100 ornamental fishes of 24 different species were collected. Fragments of liver, intestine, kidney and spleen were sampled and aliquots of 50mg (pool of tissues) were submitted to DNA extraction followed by polymerase chain reaction (*nested*-PCR) for sequential amplification of 409bp- and 348bp-fragments of the thymidine kinase (TK) gene of CyHV-3. Six samples were positive for CyHV-3 and four out of them were sequenced. The *nested*-PCR products showed a high nucleotide similarity to corresponding sequences deposited in GenBank. Phylogenetic reconstruction based on the TK gene using 348bp-sequences revealed the existence of 2 distinct clades: a clade grouping one Brazilian sample in association with samples belonging to the European and Asian genotypes of CyHV-3 and the other clade contained only Brazilian samples sequenced in this study. This report represents the first detection of CyHV-3 in Brazilian ornamental fish.

Keywords: *Cyprinid herpesvirus 3*, nested-PCR, molecular diagnostics, fish

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