

Surveillance of Carp Edema Virus in the Czech Republic

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Kgs. Lyngby - Online



Common carp in Czechia

- 20 000 tones annually
- 85 % of local aquaculture
- predatory fish and other cyprinids

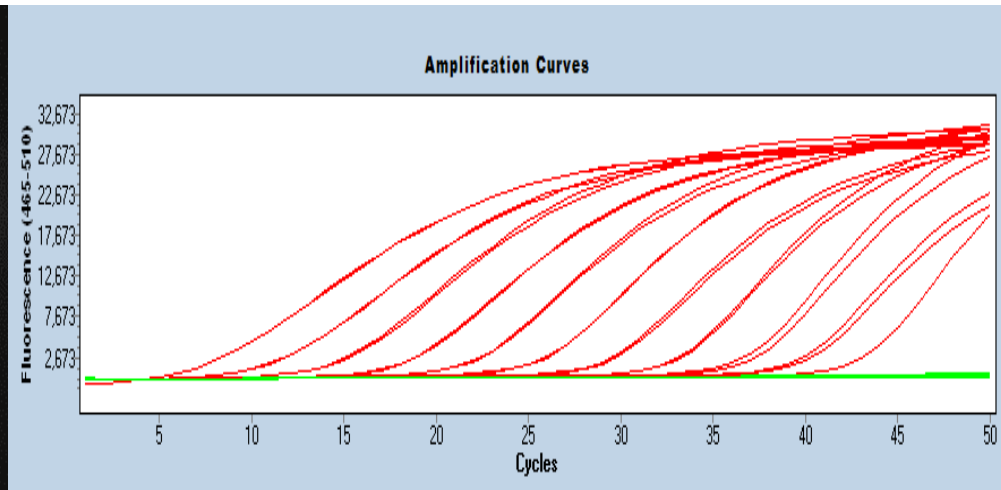
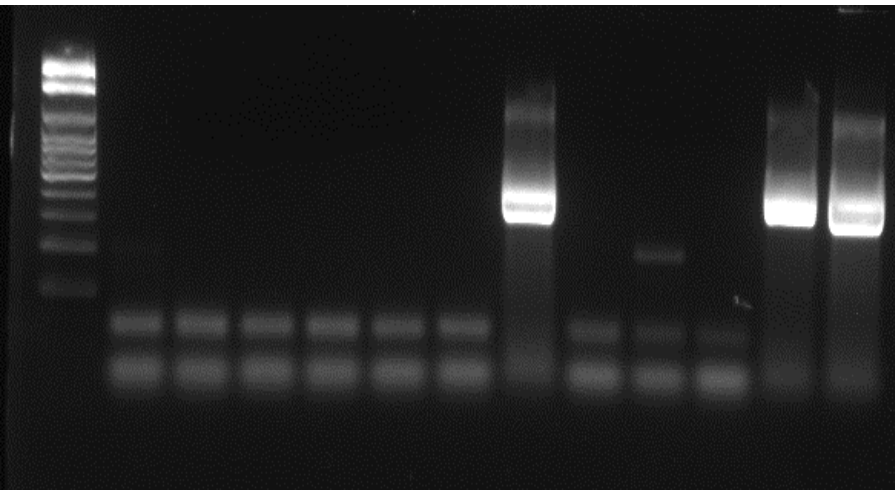
Carp Edema Virus

- poxvirus
- 1970's Japan
- specific host: koi and common carp
- koi sleepy disease/carp edema virus disease



Diagnosis (at VRI)

- 2014 – nested PCR, CEFAS primers
- 2017 – real-time PCR



2012 - 2016

- archive unexplained mortalities, KHV negative fish with clinical symptoms
- ongoing cases from farmers and koi breeders
- 42 locations overall, 9 positive
- + clinical signs
- non-target species



ORIGINAL ARTICLE

Journal of
Fish Diseases →

Carp oedema virus disease outbreaks in Czech and Slovak aquaculture

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2017 - 2018

- Ministry of Agriculture grant started
- 2017: 21 locations, 13 positive
- 2018: 22 locations, 4 positive
 - + Clinical signs

Positive cases are overrepresented, since not enough asymptomatic locations are surveilled

2019 - 2020

- State Veterinary Administration
 - Samples from KHV surveillance
- 2019: 152 locations, 17 positive
- 2020: 124 locations, 6 positive
 - Summer
 - No clinical signs

Sequencing

- P4a gene
- All genogroups by Matras et al. (2017) present
- Groups I and IIb both in koi and common carp
- Group IIa in koi only

Fish Species

- grass carp, silver carp, goldfish, ide, burbot
- pike perch, sturgeon, crucian carp and hybrids
- only **common carp** and **koi carp** positive

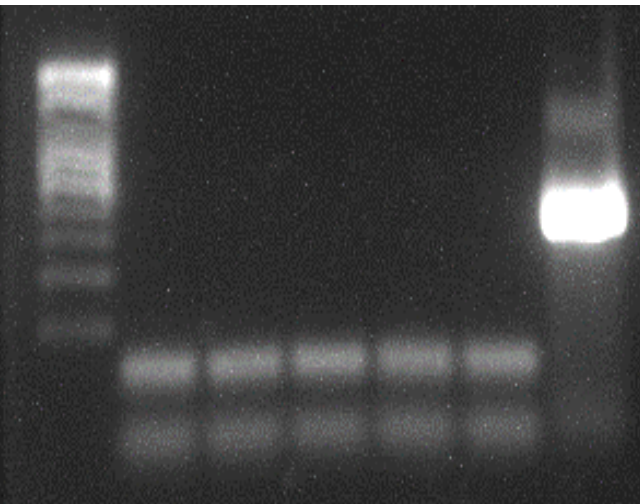
Viral Co-Infections

- one co-infection with KHV (CyHV-3)
- four sites co-infected with SVC

Viral DNA Degradation Problem

Viral load was completely lost in multiple tissue samples stored at $-20\text{ }^{\circ}\text{C}$ over 2 to 3 months

Storage at $-80\text{ }^{\circ}\text{C}$ working so far (3+ years)



Conclusions

- overall positivity of asymptomatic samples low
- but: clinical signs + no KHV = significant chance of CEV
- not detected outside of koi or common carp
- all CEV genogroups present

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