

# First results of diets containing lemon balm extract (*Melissa officinalis* L.) or rosmarinic acid against Cyprinid herpesvirus 3 (CyHV-3) infections in koi carp (*Cyprinus carpio koi*)

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## Introduction

CyHV-3 induces a highly contagious disease associated with a high mortality rate in koi carp. *Melissa officinalis* L. is known for its antiherpetic effects in vitro as well as in vivo.

In feeding trials lemon balm extract (LB) and its component rosmarinic acid (RA) were tested as phytoprophylactic feed additives against CyHV-3 infections in koi carp, which were subsequently subjected to a challenge infection with CyHV-3, versus control groups (CG).

## Material and Method



4 groups (10 fish each, 1-year old) were fed diets containing RA 0.16% or LB 1.62% (w/w), respectively, while the CG (2 x 10 fish) got a commercial feed.

After a one week feeding period challenge groups (LB, RA group, and CG without any feed additive) were exposed to CyHV-3.

After challenge infection, the feeding procedure was continued and mortality was compared during consecutive 30 days.

Blood plasma of RA-treated fish without contact to CyHV-3 was analysed for its RA-content by LC/MS.

DNA of CyHV-3 was detected in organ pools from each dead koi by PCR assay.

## Results

LB group showed lowest mortality rate (30%), compared to CG and RA group (50-70%).

27.5 ng ml<sup>-1</sup> RA was found in pooled plasma samples by LC/MS after SPE using silibinin as internal standard.

## Conclusion

LB reduced mortality in fish challenged with CyHV-3 compared to CG without any feed additive.

RA does not appear to be the main active principle in extracts of *Melissa officinalis* against CyHV-3.



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