

ACTA PARASITOLOGICA

ISSN 1230-2821

European Federation of Parasitologists



ABSTRACTS: VIII EUROPEAN
MULTICOLLOQUIUM OF PARASITOLOGY

*Witold Stefański Institute of Parasitology
Warszawa, Poland*

G3 03 Comparative host susceptibility studies in four salmonids toward infection with an un-usual Danish *Gyrodactylus salaris* morphotype

T. Lindenstrøm, J. Bresciani, C. Cunningham*, C. M. Collins*, T. A. Mo**, K. Buchmann
 Royal Veterinary and Agricultural University, Frederiksberg C., Denmark;
 *Marine Laboratory, Aberdeen, Scotland; **Veterinary Institute, Oslo, Norway

Objectives: To conduct infection trials with a Danish isolate of a *G. salaris* morphotype to elucidate the virulence of this form against rainbow trout and three stocks of salmon being used for restocking.

Methods: Infection trials were carried out on the four salmonids using a laboratory population of the Danish *G. salaris* form propagated from one single founder specimen. Susceptibility studies were conducted on both isolated hosts with single parasite infections as well as in co-habitation systems. Parasite intensities and site selection were monitored weekly. Extended examination was carried out by SEM of opisthaptor hard parts as well as by RFLP and sequencing of the ITS region.

Results: Rainbow trout showed to be quite susceptible to infection with this *G. salaris* form, whereas the three strains of salmon exhibited very low susceptibility to infection. The same infection pattern could be observed in the cohabitation systems, although higher infection levels could be observed in the cohabitated salmon compared to isolated hosts. SEM of opisthaptor hard parts confirmed the *G. salaris* morphology whereas the molecular studies revealed some differences in the ITS region between Norwegian *G. salaris* and the investigated Danish form.

Conclusion: The unusual Danish *G. salaris* morphotype clearly exhibits low virulence towards the three salmon stocks investigated, which is in glaring contrast to Norwegian *G. salaris*, where infection of salmon lead to high mortalities.

G3 04 Host-mediated interactions between *Ichthyophthirius multifiliis* and *Gyrodactylus derjavini*

K. Buchmann, T. Lindenstrøm, J. Sigh
 Royal Veterinary and Agricultural University, Frederiksberg C, Denmark

Objectives: To investigate if responses of rainbow trout *Oncorhynchus mykiss* towards *Gyrodactylus derjavini* (Platyhelminthes, Monogenea) can interfere with subsequent infections of *Ichthyophthirius multifiliis* (Protista, Ciliophora).

Methods: Rainbow trout kept in freshwater fish tanks (11.6°C) were exposed to infection with *G. derjavini*. During the following 8 weeks the fish developed an acquired resistance against this parasite. The hosts were then exposed to infection with *I. multifiliis* and the infection monitored during the next weeks.

Results: It was seen that the *G. derjavini* immunized fish were relatively resistant to infection with *I. multifiliis*. Thus, the immunized fish survived an infection pressure which killed all naive fish. Extremely high infection pressures did also lead to mortality in hosts resistant to the *Monogeneans*. However, the survival time of these fish was increased compared to naive fish. Various immunological parameters were monitored during the experiments.

Conclusions: During an infection with *G. derjavini* a number of immune mechanisms in the fish epidermis are activated. These will confer a certain protection against subsequent infections with the ciliate *I. multifiliis*.

G3 05 Novel chemical control methods for *Ichthyophthirius multifiliis* (Fouquet, 1876) (Ciliophora)

A. P. Shinn, R. Wootten, C. Sommerville
 University of Stirling, Stirling, Scotland

Objectives: To assess the efficacy of a number of bath and in-feed treatments in both *in vitro* and *in vivo* trials against the ciliate, *Ichthyophthirius multifiliis*, using both laboratory and field tests.

Results: Chloramine T, Pyceze and monensin were 100% effective *in vitro* against trophonts, whilst Pyceze was also effective against the external reproductive cyst stage. Only chloramine T however, was 100% efficacious against the free-swimming infective theront stage within the period of chemical exposure of the *in vitro* trials.

In vivo bath treatments with Pyceze showed efficacy in treatments of fish infected with the parasite and significantly reduced infections of naïve fish co-habited with infected fish and may therefore potential as a prophylactic treatment at times of high infection. Two in-feed compounds, amprolium hydrochloride and clopidol, significantly reduced trophont numbers in infected fish as did preliminary trials with two fish feed additives.

G3 06 Infection of roach (*Rutilus rutilus*) by experimentally produced triactinospores of *Myxobolus pseudodispar*

Cs. Székely, K. Molnár, E. Eszterbauer
 Hungarian Academy of Sciences, Budapest, Hungary

Myxobolus pseudodispar Gorbunova is a common muscle parasite of the roach (*Rutilus rutilus*). Data on the intrapiscine development of this parasite of naturally infected fish were reported by Baska (1986). Recently our team experimentally clarified the intraoligochaete development of this parasite in the two oligochaete alternate hosts (Székely et al., 1999) and most recently the challenge of fish hosts has been accomplished.

M. pseudodispar spores collected from roaches of Lake Balaton were used to infect the alternate host *T. tubifex* in plastic cups. Beginning at 70 d after exposure, floating triactinospores (TAM) were filtered from the water of experimental cups. At the same time infected oligochaetes were separated by the cell-well plate method described by Yokoyama (1991). Parasite-free 1-yr-old roaches reared in tanks were used for infection with TAMs. Four experiments were conducted for the reinfection of roach. In three experiments fish were exposed to floating triactinospores, while in one experiment infected oligochaete pieces were fed to parasite-free roaches. In the first experiment, floating TAMs developed into typical *M. pseudodispar* spores in the fish muscle two months p.i. The evaluation of further experiments is in progress. Detailed information will be presented at the Symposium.

G3 07 Molecular biological studies on fish-parasitic *Myxobolus* (*Myxosporaea*) species

E. Eszterbauer, Á. Dán, M. Benkő, Cs. Székely, K. Molnár
 Hungarian Academy of Sciences, Budapest, Hungary

Members of the genus *Myxobolus* are frequent parasites of fish. Their life-cycle is peculiar and some of them possess extreme pathogenicity. We have examined the feasibility of molecular genetic methods for the identification of these parasites and for the recognition of different developmental stages of certain species which are otherwise difficult to be determined.

Our main work was focused on the parasites of the gill of common bream (*Abramis brama*) like *Myxobolus bramae*, *M. macrocapsularis*, *M. impresus*, but we have also studied several intramuscular species (*M. cyprini*, *M. pseudodispar*).

We performed the PCR amplification with primers specific for the genus *Myxobolus* and analysed 1700 bp fragments of the 18S ribosomal RNA genes. The phylogenetic tree constructed on the basis of the DNA sequences showed that these morphologically very similar species are genetically also closely related.

For diagnostic purposes the PCR method was combined with RFLP analysis using frequent cutter restriction enzymes (*MspI* and *HinfI*). Our preliminary results suggest that the RFLP offers enough information for the comparison with morphological observations.