

## BLOOD PARASITES OF MALAYSIAN FISH

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### Introduction

The blood pathogens of Malaysian fish have been identified and studied. They comprised pathogens from two parasitic groups that is blood trypanosomes and sanguinicolid trematodes. The blood flagellates were *Trypanosoma sp* from the Malaysian swamp eel *Monopterus albus*. The morphological description, prevalence and mean intensity of these blood flagellates were described and recorded. The sanguinicolid trematodes were studied from both freshwater and marine fish. In the case of freshwater blood fluke *Sanguinicola armata* has been studied from the bulbous arteriosus of the grass carp *Ctenopharyngodon idella* while the marine blood fluke was studied from the sea bass *Lates calcarifer*. The morphology and life cycle of these trematodes have been elucidated and documented. The objectives of the study were to elucidate taxonomic and life cycle of these blood trypanosomes and sanguinicolid trematodes in freshwater and marine fish of Malaysia and to develop preventive and therapeutic measures.

### Materials and Methods

Blood was obtained from 150 *Monopterus albus*, centrifuged and giemsa-stained smears prepared. The morphology, prevalence and mean intensity of the trypanosomes were documented. Blood parameter values were also compared between infected and uninfected eels. For freshwater sanguinicolid trematodes infection experiments were carried out on both snails and fish. For marine blood flukes the determination of the intermediate host was carried out by taking box type grab samplings from cage culture sites, invertebrates were sorted out from sand and mud, identified and examined for presence of sporocysts and cercariae. Electrophoresis was carried out on bivalve larva which contained cercaria and also on *Gelonia sp* in order to determine if the bivalve spat was from *Gelonia sp*.

### Results and Discussion

The prevalence of *Trypanosoma sp* were 8%, 60.8% 60% and mean intensity were 9, 337 and 16.63 from Perak, Kelantan and Terengganu. The morphological studies showed three different sizes of *Trypanosoma sp* (micrometers) the large size ( $101.79 \pm 6.60$ ;  $6.96 \pm 1.21$ ), the intermediate size ( $70.16 \pm 6.0$ ;  $4.24 \pm 0.72$ ) and the small size

( $56.89 \pm 7.26$ ;  $2.93 \pm 0.63$ ). Haematological studies also indicated that plasma protein, haemoglobin red and white blood cell counts and mean cell hemoglobin concentration counts were slightly lower in infected eels. Two new species of marine sanguinicolid trematodes have been described and histopathology studied (Herbert and Shaharom-Harrison, 1995 a; Herbert et al. 1995b) The morphological features of these trematodes were also studied under scanning electron and confocal microscopy. As for freshwater sanguinicolid trematodes the morphology and scanning electron microscopy of *Sanguinicola armata* have also been carried out (Ong and Shaharom-Harrison 1994; 1995). The life-cycle of this freshwater blood fluke has been described and the morphological features of the cercaria have been studied under compound and scanning electron microscopy). The snail *Gyraulus convexiusculus* has been identified as the intermediate host and it can be controlled by the molluscicide saponin. The study on the life-cycle of the marine blood fluke *Cruoricola lates* has yielded the discovery of the bivalve Tellinidae as the potential intermediate host. Initially the bivalve was thought to be *Gelonia sp* but electrophoresis experiments indicated otherwise.

### Conclusions

Three different sizes of *Trypanosoma sp* were found in blood of *Monopterus albus* and blood parameters showed differences between infected and uninfected eels. Two new sp of marine sanguinicolid trematodes were discovered. *Gyraulus convexiusculus* has been identified as intermediate host of *Sanguinicola armata* while the bivalve Tellinidae has been identified as intermediate host of *Cruoricola lates*. The freshwater snail can be controlled by the molluscicide saponin.

### References

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