

ABSTRACT

Migration within the body of an infected host is one of the most important parts in the life cycle of flukes, including schistosomes. Migration of avian and mammalian visceral schistosomes has been a quite well studied topic (Haas a Haeberlein, 2009), which became more attractive after the discovery of *T. regenti*, an avian schistosome which is able to migrate through the nervous tissues of infected birds and mammals as well.

Migration of *T. regenti* and *T. szidati* schistosomula within the definitive (duck) and the accidental (mouse) hosts is the main topic of the diploma thesis. This work continues with the research of K. Blažová (Faculty of Science, Charles University in Prague) who studied migration of *T. regenti* within the definitive hosts infected perorally with cercariae or hepatopancreases of the infected intermediate snail, *Radix lagotis* (unpublished). She proved that *T. regenti* schistosomula are able to use the central nervous system for migration to the nasal mucosa of infected birds. In our work, we focused on the early phase of migration within the perorally infected birds and mice.

Invasion of esophagus by *T. regenti* cercariae *in vitro* is not conditioned by secretion of glandular products, including cathepsin B2 of *T. regenti* (TrCB2). Activity of TrCB2 against mucins, the main components of esophageal mucus, was studied in this work by incubating TrCB2 with substrate gels: TrCB2 was not able of proteolytically cleave mucins of the type I or III. Inside of esophageal epithelium, about 50% of cercariae still keep the tails attached to the bodies at least for 3 hours after penetration. *Trichobilharzia regenti* schistosomula use peripheral nervous system to migrate from esophagus to the spinal cord (schistosomula reach the spinal cord 2 days post infection) of ducks and mice infected perorally. At least in some cases, *T. regenti* schistosomula may probably migrate to the spinal cord via blood veins. Lungs of ducks (also infected perorally with hepatopancreases of the snail *Lymnaea stagnalis*) and mice were invaded by 2 days post infection. *Trichobilharzia regenti* and *T. szidati* schistosomula migrating within the ducks and mice were surrounded by granulocyte infiltration, but were not eliminated before 24 hours post infection.