



# Larval stages of trematodes in *Limnaea stagnalis* (Gastropoda, Pulmonata) snails from Madatapa Lake (South Georgia)

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## ABSTRACT

For the first time *Limnaea stagnalis* is investigated in the ecologically important and parasitological uninvestigated region. Lake Madatapa is located on the Javakheti plateau and is one of the richest areas in Caucasus in terms of its waters and marshy lands. In September 2014, 192 individuals of *L. stagnalis* were investigated. 97.3% of mollusks were invaded by larval forms of trematodes on different stage of development (sporocysts, rediae, cercariae, metacercariae). Immature forms of three trematoda species were found: *Moliniella anceps* (Echinostomatidae Dietz, 1909); *Diplostomum spathaceum* (Strigeidae Railliet, 1919); *Notocotilus attenuatus* (Notocotylidae Lühe, 1909). As for dominant parasites larval forms of *M. anceps* are regarded that were frequently found together with *D. spathaceum*. On the Madatapa Lake 36 species of water birds and numerous migratory birds are found which represent definitive hosts for trematodes. The lake's fish population considered only of *Carassius gibelio* which serves as additional host for *D. spathaceum*. Parasitological investigation of *C. gibelio* showed high percent of invasion by *D. spathaceum*. High percent of invasion of the population of *L. stagnalis* is provided by high number of mollusks, also by high number of definitive and additional hosts. It was found that *L. stagnalis* plays a significant role as an intermediate host in the life cycles of trematodes in the region Javakheti.

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## INTRODUCTION

*Limnaea stagnalis* pond snails are the intermediate hosts for many trematode species; they also may have an important impact on the digeneans abundance. Their large size enables the digenean parasites to produce high numbers of cercariae and supports further transmission. For the first time *L. stagnalis* from Madatapa Lake is investigated in the ecologically important and parasitological uninvestigated region of South Georgia.

## METHODS AND MATERIALS

In September 2014, 192 individuals of *L. stagnalis* were investigated from Madatapa Lake. L. Madatapa is located on the Javakheti plateau and is one of the richest areas in Caucasus in terms of its waters and marshy lands. On the Madatapa Lake 36 species of Water birds and numerous migratory birds are found which represent definitive hosts for trematodes. The lake's fish population is represented by only *Carassius gibelio* which serves as an additional host for *Diplostomum spathaceum*.

Snails were collected and determined by Dr. L. Mumladze.

The study of the morphology of parthenitas and larval stages was provided mostly on live objects. For laboratory treatment methods accepted in helminthology were used.



Figure 1 - 2



Figure 3

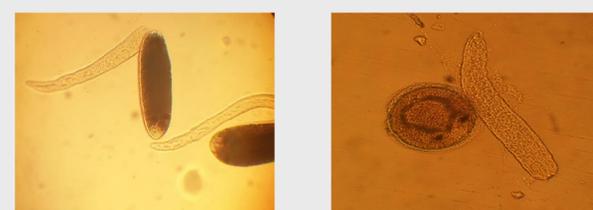


Figure 4 - 5.

## RESULTS and DISCUSSION

A total 97.3 % of *L. stagnalis* were invaded by larval forms of trematodes on different stage of development: sporocysts, rediae, cercariae and metacercariae (Figure 1-5). Immature forms of three trematoda species were found: *Moliniella anceps* (Echinostomatidae Dietz, 1909); *Diplostomum spathaceum* (Strigeidae Railliet, 1919); *Notocotilus attenuatus* (Notocotylidae Lühe, 1909). As for dominant parasites larval forms of *M. anceps* are regarded that were frequently found together with *D. spathaceum* and *M. anceps*.

High percent of invasion of the *L. stagnalis* population is provided mainly by high number of mollusks, but also high numbers of definitive and additional hosts are present.

## CONCLUSIONS

High percent of invasion (97, 3%) of *L. stagnalis* proof that *L. stagnalis* plays the significant role as an intermediate host in the life cycles of trematodes in the Javakheti region.

## REFERENCES

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