

CYSTOCERCOUS CERCARIAE IN SPHAERIID BIVALVES AND NOTES ON THE LIFE CYCLES OF *PHYLLODISTOMUM UMBLAE* (FABRICIUS, 1780)

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Introduction

Cystocercous cercariae developing in sphaeriid bivalves are common to most species of the genus *Phyllodistomum* Braun, 1899. Our previous molecular studies proved that cystocercous cercariae of the type-species *P. folium* (Olfers, 1816) develop in sphaeriid bivalves and disproved the life cycle of *P. folium* described by Sinitsin (1905) with a microcercous cercaria from *Dreissena*. *Phyllodistomum umblae* (Fabricius, 1780) is most closely related to *P. folium* in the phylogenetic analysis (Petkevičiūtė et.al 2015). Life cycle of *P. umblae* is not yet elucidated.

Material and methods

Sequences of entire nuclear 5.8-ITS2-28S rDNA and 28S rDNA from *P. umblae* parasitising *Thymallus thymallus* were obtained for a comparison with sequences of cystocercous gorgoderid cercariae developing in sphaeriid bivalves in Norway. Morphology of cercariae and their chromosome sets were compared with that of related species.

Results

Comparative karyological and sequence analysis revealed the conspecificity of cercariae emitted from *Pisidium hibernicum* and *Sphaerium corneum* with adult *P. umblae*. The cercariae of *P. umblae* and *P. folium* are similar morphologically with main differences in the structure of tail. These species has obvious interspecific karyotypic difference. Diploid set of *P. folium* is composed of 18 chromosomes while diploid set of *P. umblae* contain 16 chromosomes with pair of large metacentrics, presumably arisen from Robertsonian fusion.

Conclusion

Species with cystocercous cercariae developing in sphaeriid bivalves clusters together and comprises a well-supported clade in both ITS2 and 28S rDNA based dataset analyses and supports Cribb's (1987) axiom that 'cystocercous group' represent a phylogenetic unit distinct from the remaining gorgoderines.

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