

STUDIES OF EUROPEAN FRESHWATER SPECIES OF BUCEPHALIDAE (DIGENEA) BASED ON DNA SEQUENCES

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Three species of bucephalid digeneans are known in European freshwater habitats until now. The existence of two distinct bucephalid species in the freshwater hosts in Europe, i.e. *Bucephalus polymorphus* von Baer, 1827 and *Rhipidocotyle campanula* (Dujardin, 1845) [= *R. illense* (Ziegler, 1883)] was recognized after a long and complicated taxonomic survey. A study by Taskinen et al. (1991) showed that another freshwater cercaria that resembled *B. polymorphus* developed to an adult belonging to *Rhipidocotyle*. Subsequently the third European bucephalid species, *Rhipidocotyle fennica* n. sp. was described from Finland (Gibson et al. 1992).

In this study parthenitae of *R. campanula* and *R. fennica* infecting *Anodonta anatina* gathered from freshwater bodies in Finland, Lithuania and Ukraine and adult *Bucephalus polymorphus* from perch were investigated using DNA sequencing. The data obtained were compared with previous data on larval *B. polymorphus* from *Dreissena polymorpha* (Stunžėnas et al. 2004).

Ribosomal ITS2 and 28S DNA sequences were used to estimate the phylogenetic relationships of three bucephalid species. Very close phylogenetic affinity between investigated species was revealed; sequence difference between two *Rhipidocotyle* spp. (3.78 % based on 28S) was comparable with intergeneric differences revealed by comparing *B. polymorphus* with *R. campanula* and *R. fennica* (3.43% and 4.49 % based on 28S, respectively). On the basis of molecular data both *Rhipidocotyle* spp. can't be recognised to be more closely related to each other than to *B. polymorphus*. Our findings of unionid mussels infected with *R. fennica* in Lithuanian and Ukrainian populations evidence that this species occurs not only in Finland but also Central and Eastern Europe. Previous reports of *B. polymorphus* in unionids in these regions are equivocal because of possible confusion with *R. fennica*.

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