Abstract

Snails of the genus *Radix* play an important role in the transmission of many species of trematodes which can represent dangerous parasites of animals and humans. Taxonomical situation within the genus *Radix* is unclear. It is caused by morphological plasticity of the shells of particular species. In the past the shell shape was the most frequently used determination criterion for new species description. Due to new data brought by molecular taxonomy, validity of some species became doubtful. In our contribution, modern methods (phylogenetic analysis based on gene sequences) and classical approaches (determination by conchological features and anatomy of reproductive organs) were used for determination of snails belonging to the genus *Radix*. For phylogenetic analysis two genes were characterized (mitochondrial 16S rDNA and nuclear ITS2 rDNA); in the samples 5 species of the genus *Radix* (*R. auricularia*, *R. labiata*, *R. lagotis*, *R. peregra* a *R. ampla*) were confirmed. A thorough morphological determination was based on 11 conchological characters which allowed to identify all selected snails; conchological and molecular identifications were in agreement. For determination by means of reproductive organ morphology, shape and position of bursa copulatrix and its duct were used. According to these criteria, *R. auricularia* was distinguishable from *R. labiata*, *R. lagotis*, *R. peregra* and *R. ampla*. Similar characters were observed in the pairs of *R. labiata* - *R. ampla* and *R. lagotis* - *R. peregra*. In the parasitological part of this work, susceptibility of mollusks to the infections by *Fascioloides magna* and *Trichobilharzia regenti* was determined. Based on the experimental infections and observations in the field, a potential to transmit *F. magna via R. lagotis* and *R. labiata* was confirmed. *Radix peregra* was proved as the intermediate host of *T. regenti*.

Key words: *Radix*, taxonomy, DNA analysis, ITS2, 16S, morphology, host specificity, *Fascioloides magna*, *Trichobilharzia*