**PHYLOGENY OF ZOONOTIC PARASITES IN FRESH AND BRACKISH WATER FISH IN VIETNAM**

***Dang Thuy Binh****1, Arne Levsen2, Nguyen Nguyen Thanh Nhon3, Vu Dang Ha Quyen1, Tran Quang Sang1*

*1Institute for Biotechnology and Environment, Nha Trang University, Nha Trang, Vietnam, binhdt@ntu.edu.vn*

*2National Institute of Nutrition and Seafood Research, Bergen, Norway*

*3Institute of Aquaculture Research N03, Nha Trang, Vietnam*

Trematode metacercariae were examined from 5 fish species (striped catfish *Pangasianodon hypophthamus*, climbing perch *Anabas testudineus*, java barb *Barbodes gonionotus*, greater lizardfish *Saurida tumbil*, and mullet *Mugil cephalus* by morphological and genetic characters. A total of 14 trematode species were found, of which 5 species (*Clonorchis sinensis, Centrocestus formosanus*, *Haplorchis yokogawai*, *H. taichui* and *Bucephalus* sp. ) were in striped catfish, 5 unidentified species (*Centrocestus* sp., *Haplorchis* sp., *Metagonimoides* sp. Heterophyidae sp1., and Heterophyidae sp2.) in climbing perch, *Haplorchis taichui* in *Carassus auratus*, 1 unidentified species *Tormopsolus* sp. in *Saurida tumbil*, and 3 unidentified species (*Procerovum* sp., *Stellachasmus* sp., *Clonorchis* sp.) in *Mugil cephalus*. Sequence differences of species ranged from 2.3% to 10.6% of 28S rDNA and from 1.5% to 35.7% of ITS1 rDNA. A phylogenetic tree was constructed based on 28S and ITS1 genes of ribosomal DNA using Maximum Parsimony, Maximum Likelihood and Bayesian Inference algorithms. The 28S rDNA phylogram showed the monophyly of studied metacerarian genera, except *Haplorchis* and *Procevorum.* Species of Opisthochidae (*Clornochis* spp.) were placed in the same clade as those from Heterophyidae*.* 2 unidentified species (Heterophylidae sp1. and Heterophyidae sp2.) showed close relationship with *Haplochis* and *Procevorum* species. The ITS1 phylogenetic tree resulted in the same unclear branching for *Haplorchis* and *Procevorum*. *Bucephalus* sp. (Bucephalidae) was clearly distinguished from all Heterophyidae species. Morphological and phylogenetic analyses are necessary for species identification and taxonomic positions of unidentified species.

Keywords: metacercaria, 28S rDNA, ITS1 rDNA, Heterophyidae