

Progress in cestode systematics & phylogeny since PBI monograph (2017): Proteocephalidae (Onchoproteocephalidea I)

Tomáš SCHOLZ¹, Alain DE CHAMBRIER², Philippe Vieira ALVES³, Anindo CHOUDHURY⁴, Jan BRABEC¹

1 Institute of Parasitology, Biology Centre of the Czech Academy of Sciences, České Budějovice, CZECH REPUBLIC
e-mail: tscholz@paru.cas.cz

2 Department of Invertebrates, Natural History Museum, Geneva, SWITZERLAND

3 São Paulo State University (UNESP), Institute of Biosciences, Department of Parasitology, Botucatu, São Paulo, BRAZIL

4 Division of Natural Sciences, St. Norbert College, 100 Grant Street, De Pere, Wisconsin, USA

The results of studies on the systematics and phylogeny of the proteocephalid tapeworms (Onchoproteocephalidea I, formerly order Proteocephalidea) since 2017 are briefly summarised. An analysis of papers published in the last seven years shows that particular attention has been paid to taxonomic revisions of species groups and individual genera, most of which are poorly known. Several new species have been described and new genera established. Most studies dealt with Neotropical proteocephalids of freshwater fishes and with Nearctic tapeworms of teleosts, colubrid and viperid snakes, and ranid frogs. Narrow, mostly strict (oioxenous) host specificity and high, inadequately described species diversity were confirmed for proteocephalids of herptiles and several groups of fish parasites. The most serious omission is the lack of a solid phylogenetic hypothesis for the entire group, as available molecular markers do not provide suf-

ficient resolution, especially for the most recently diverging groups (so-called Neotropical superclade). However, the phylogenetic relationships of several lineages have been clarified, including those of the two most basal groups, the Acanthotaeniinae of monitor lizards (Varanidae) and other reptiles, and the Gangesiinae of Old World catfishes (Siluriformes). Future research efforts will focus on poorly studied proteocephalids in North America, including a proposal for a new classification of individual lineages of the polyphyletic Ophiotaenia, the most speciose genus of the group, with about 100 taxa recognised as valid. Further progress also depends on the appropriate quality of new material, because most museum specimens and tapeworms provided by other parasitologists are generally of poor quality and therefore unsuitable for morphological and molecular evaluation.