

Integrative taxonomy of some digenean Platyhelminthes, parasites of marine fishes of Sweden

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Our project based at the Swedish Natural History Museum aims to significantly increase the number of digeneans known from Sweden through an intensive survey of the most important host group for these parasites: the teleost fishes. During an ongoing effort to explore the diversity of trematodes parasites of fishes off Sweden, we collected 335 marine fishes from Skagerrak, North Sea through collaboration with SLU-Aqua. The examined fishes belong to 4 families: Pleuronectidae; Scombridae; Gadidae and Clupeidae. The digestive system was carefully examined for parasitic flatworms using the quick washing method. In a first attempt to evaluate the digenean fauna of Swedish fishes with an integrated morphological and molecular approach, we generated sequences of four genetic markers for the collected trematodes: partial 28S ribosomal RNA, Cytochrome c oxidase subunit COI, and Internal transcribed spacers ITS1 and ITS2. Five species of Digenea attached to five different families were identified. 1. Within Fellodistomidae Nicoll, 1909, we collected *Steringophorus furciger* (Olsson, 1868) from the witch flounder *Glyptocephalus cynoglossus* for which the latest morphometric and morphoanatomical data were provided over 40 years. 2. Within Lepocreadiidae Odhner, 1905, we collected *Lecithocladium excisum* (Rudolphi, 1819) from the Atlantic mackerel, *Scomber scombrus* from Skagerrak and from the southwestern Mediterranean to verify the occurrence of this trematode in two distinct localities. 3. The Opecoelidae Ozaki, 1925 are represented by *Bathycreadium elongata* (Maillard, 1970) from the Norway pout *Trisopterus esmarki*. Our trematodes from *T. esmarki* were similar to *B. elongata* in most characteristics such as the extension of vitellaria and position of posterior testis whereas a phylogenetic analysis using our newly generated sequences of internal transcribed spacers 1 and 2 showed that our sequences of *B. elongata* from *T. esmarki* were distinct from those reported on another host forkbeard *Phycis phycis* questioning the occurrence of this trematode on several gadid fishes. Our report represents a new host record of *Bathycreadium* cf. *elongata* on *T. esmarki*. 4. Within Hemiuridae Looss, 1899, we collected few specimens of *Hemiurus levinseni* Odhner, 1905 on one Clupeidae, possibly *Clupea harengus* for which we will provide a modern redescription using morphological data supplemented with four genetic markers. 5. The Lepocreadiidae Odhner, 1905 *Opechona bacillaris* (Molin, 1859) known for its large geographic distribution was collected on *Scomber scombrus* and we report it for the first time from the coasts of Sweden.

Keywords: Digenea; Taxonomy; COI; ITS; Teleosts