

RESEARCH NOTE

FIRST DESCRIPTION OF THE MALE OF *PHILOMETRA FILIFORMIS* (NEMATODA: PHILOMETRIDAE), A GONAD-INFECTING PARASITE OF THE MARINE FISH *PAGELLUS ERYTHRINUS* (SPARIDAE) IN MEDITERRANEAN

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Abstract. The male of the gonad-infecting nematode *Philometra filiformis* (Stossich, 1896) (Philometridae) is for the first time described, based on specimens from the ovary of the marine fish *Pagellus erythrinus* (Linnaeus) from the Tyrrhenian Sea off Sicily, Italy. It is mainly characterized by the testis extending anteriorly nearly to the anterior end of body, the oesophagus without a usual anterior inflation, the absence of a dorsal barb or distinct transverse lamellae on the tip of the gubernaculum, the measurements of the spicules and the gubernaculum, and a fairly long body.

Stossich (1896) poorly described *Ichthyonema* (= *Philometra*) *filiformis* from the Adriatic Sea (Triest, Italy), based on young female specimens collected in the ovaries of *Pagellus erythrinus* (Linnaeus) (Sparidae) and those of *Trachinus draco* Linnaeus (Trachinidae). Later it was reported by Kostina (1961) from *Spicara smaris* (Linnaeus) (Centrarchidae) from the Black Sea and by Orecchia and Paggi (1978) from *Trachinus draco* from Italy, but no species description was given. Moravec and Genc (2004) questioned the identifications of specimens from *S. smaris* and *T. draco* and provided an incomplete redescription of *P. filiformis* based on body fragments of a single gravid female found in the ovary of the type host (*P. erythrinus*) from North-East Mediterranean (Iskanderun Bay) near Turkey. A more complete redescription of *P. filiformis* gravid and subgravid females, based on specimens from *P. erythrinus* in the Tyrrhenian Sea off Sicily, Italy, was given by Moravec et al. (2008a). The male of this species has not been described to date.

A total of 14 specimens of *P. filiformis* (8 males and 6 non-gravid females) was found in the ovary of one common pandora, *Pagellus erythrinus* (total body length 19.5 cm, weight 83 g), from the Tyrrhenian Sea off Sicily, Italy, examined in June 2009. Their light microscopy examination made it possible to describe, for the first time, the previously unknown male of this insufficiently known species. Males and females of gonad-infecting *Philometra* spp. are known to have the same location (gonads) in the host; considering a high degree of host specificity of philometrids, it is apparent that the males of the present material belong to *P. filiformis*. A voucher specimen is deposited in the Helminthological Collection of the Institute of Parasitology, BC ASCR, České Budějovice (Cat. No. N-808).

Description of *Philometra filiformis* male (based on 2 specimens) (Fig. 1): Body filiform, whitish, 5.22–5.40 mm long, maximum width at middle 87–90 µm, somewhat tapering at both

ends. Width of cephalic end 27–30 µm, of caudal end 24–27 µm. Cuticle smooth. Cephalic end rounded, cephalic papillae indistinct. Oesophagus 366–405 µm long, forming about 7% of body length, not inflated at anterior end; posterior part of muscular oesophagus overlapped by well-developed oesophageal gland with large cell nucleus in middle. Oesophageal nucleus and nerve ring 249–279 µm and 147–168 µm, respectively, from anterior extremity. Excretory pore 222–240 µm from anterior end. Testis reaching anteriorly to short distance (27 µm) posterior to anterior extremity, overlapping thus major part of oesophagus. Posterior end of body somewhat narrowed, blunt, with slightly lobular, U-shaped mound; 1 pair of preanal, 1 pair of adanal, and 1 pair of postanal, very flat and hardly visible caudal papillae present. Spicules slender, needle-like, nearly equally long, with somewhat expanded proximal and sharply pointed distal ends; length of spicules 90–93 µm, representing 1.7% of body length. Gubernaculum narrow, smooth, 69–81 µm long, with its nearly proximal half somewhat dorsally bent; length of anterior bent part 30–36 µm, representing 43–44% of entire gubernaculum length; distal end of gubernaculum without dorsal barb or distinct transverse lamellae. Length ratio of gubernaculum and spicules 1:1.15–1.30. Spicules and gubernaculum well sclerotized; spicules orange-brown, gubernaculum colourless.

It has recently been indicated that the male morphology is substantial for the correct species identification of gonad-infecting species of *Philometra* (see Moravec et al. 2008b, c, 2009a, Moravec and Justine 2008, 2009, Quiazon et al. 2008a, b and Moravec and de Buron 2009a). Despite that these widely distributed parasites of marine and brackish-water fishes are severely pathogenic and can affect fish reproduction (Clarke et al. 2006, Quiazon et al. 2008b), most species are known only by large-sized, morphologically rather uniform females, whereas the very small conspecific males, which may be helpful for species identification, have not yet been discovered; this also concerns other philometrids (e.g., Moravec 2006, Moravec and de Buron 2009b, Moravec et al. 2009a, b, c).

As found in this study, characteristic morphological features of *P. filiformis* are the testis extending anteriorly nearly to the anterior end of body, overlapping thus a major part of the oesophagus, the oesophagus without a usual anterior inflation (characteristic also of conspecific females), the absence of a dorsal barb or distinct transverse lamellae on the tip of the gu-

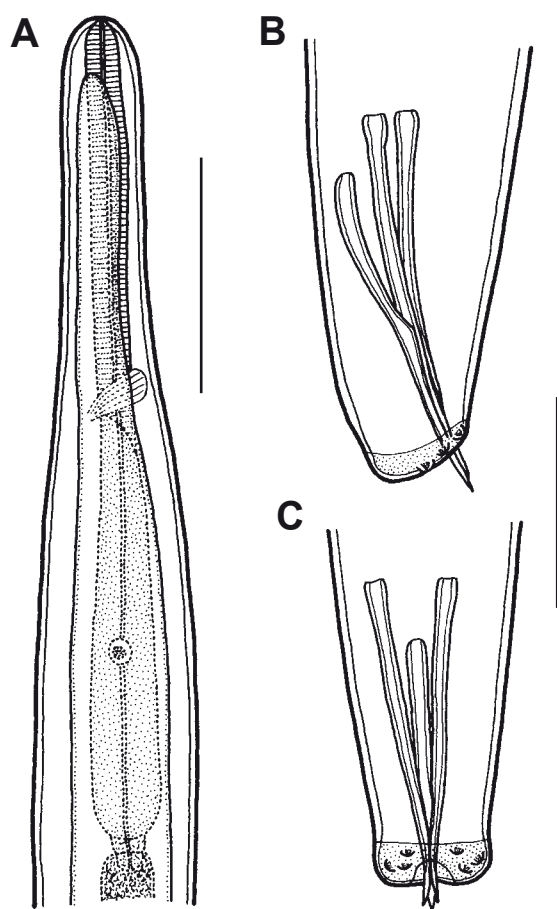


Fig. 1. *Philometra filiformis* (Stossich, 1896), male. **A** – anterior end of body, lateral view; **B**, **C** – caudal end, lateral and ventral views, respectively. Scale bars: **A** = 100 µm; **B**, **C** = 50 µm.

bernaculum, the measurements of spicules and gubernaculum, and a fairly long body. By the combination of these features, *P. filiformis* males can be distinctly distinguished from those of other congeneric species in which the male is known.

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