Some ascaridoid nematodes of fishes: Heterocheilinae

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Abstract

Ascaridoid nematode species reported from fishes and relegated to genera listed by Sprent (1983) within the Heterocheilinae are reviewed. The following species are considered to belong in this category: Dujardinascaris malapteruri (Baylis, 1923) [= D. graberi] from Malapterurus electricus, and possibly Mormyrops engystoma, in Africa; Brevimulticaecum regoi n. sp. from Potamotrygon motoro in South America; Brevimulticaecum heterotis (Petter, Vassiliadès & Marchand, 1979) from Heterotis niloticus in Africa; Brevimulticaecum scleropagi Khalil, 1984 from Scleropages leichardti and S. jardini in Papua New Guinea and Australia. The view is expressed that these heterocheiline species are secondarily derived from related species in crocodilians. It is proposed that Gedoelstascaris Sprent, 1978 is a synonym of Brevimulticaecum Mosgovoy, in Skrjabin et al., 1952 and two new combinations are proposed: Brevimulticaecum vandenbrandeni (Baylis, 1929) and Brevimulticaecum australiensis (Baylis, 1931).

Introduction

The subfamily Heterocheilinae Railliet & Henry, 1912 sensu Sprent (1980) contains genera whose species have been reported as adults mainly from aquatic higher vertebrates, such as crocodilians, freshwater tortoises and sirenians (Sprent, 1983). There are, however, some species, identified and relegated within these genera, which have been reported as occurring as adults in fishes. The purpose of this paper is to assess the evidence for retaining these various species within genera of the subfamily Heterocheilinae.

Dujardinascaris malapteruri (Baylis, 1923) Baylis, 1947 (Figs 1–7)
Syn. Dujardinascaris graberi Troncy, 1969

This species was recorded and described by Baylis (1923) from Malapterurus electricus in the Sudan. D. graberi Troncy, 1969 was originally reported from M. electricus in Lake Chad, but was later reported by Vassiliadès & Troncy (1974) from Heterotis niloticus from Lake Chad and Mormyrops engystoma in the nearby Chari River. Although Troncy (1969) regarded this species as distinct from D. malapteruri, the features whereby he differentiated it leave considerable doubt as to whether it is different from D malapteruri. The features upon which D. graberi was distinguished from D. malapteruri were the form of the anterior prolongations of the dorsal lip, the presence of cuticular swellings bordering the cloaca, 10 pairs of caudal papillae on the male tail, the absence of any hook on the anterior end of the gubernaculum, and shorter body length.

Baylis' (1923) description of D. malapteruri was too brief to determine whether these differentiating features were valid. Re-examination of Baylis' specimens (BMNH 1923.10.17.68-70) (two female and one male) provided the following description.
Description

Slender worms of even width. Lips with interlocking processes present, as in other *Dujardinascaris* spp. (Figs 1, 2). Dorsal lip with 2 convex processes articulating with subventral lips. Right subventral lip with concave process fiting right convex process of dorsal lip and ventral convex process articulating with left subventral lip. Left subventral lip with 2 concave processes. Pulp of subventral lips with rounded lobe extending towards amphid and forked lobe extending towards anterior border. Dorsal lip with symmetrical pulp with 2 forked anteriorly directed prolongations. Dentigerous ridges absent. Cervical alae absent. Oesophagus relatively long, slender, terminating in smooth oval ventriculus (Fig. 3). Intestinal caecum present, more than half length of oesophagus.

Male of even width, with sharp probular tail (Fig. 4). Slight cuticular swelling around cloaca present. Gubernaculum with expanded anterior process; tip bifid (Fig. 5AB). Spicules slender with slightly expanded anterior extremity (Fig. 4). Two subventral post-cloacal papillae on each side, 3 lateral to cloacal region situated on ridge. [As pointed out by Baylis (1923) there are probably additional precloacal papillae; these were not visible on Baylis’ specimen].

Immature female contained no eggs; vulva situated at 49% of body length from anterior end. In mature female vagina slender and sinuous, passing posteriorly to fusiform undivided uterus and 2 uterine branches, both extending posteriorly. Eggs present in uterus, but without shells and too misshapen for measurement. Vulva opened on slight mound at point 39% of body length from anterior end. Tail long and sharply pointed (Fig. 7). Measurements of these specimens are given in Table I.

Comments

In all respects these specimens appeared to be very similar to the description and figures of Troncy (1969).

Further specimens collected from *Malapterurus electricus* (MNHN 19KG) in Gabon comprised three immature females, two almost mature females and one immature male. Measurements of these specimens are shown in Table I. They appear identical to the type-specimens from Khartoum (BMNH 1923.10.17.68-70). It is proposed that *D. gruberi* is a synonym of *D. malapteruri*.

There was less certainty about the identity of specimens from *Mormyrops engystoma* (MNHN 299 BA). There was only one broken and distorted female in which the lips resembled *D. malapteruri*, but the vulva had more prominent lips and the uterine structures extended anterior to the vulva. There were also two fourth stage larvae and two males. The latter appeared identical with *D. malapteruri*, except that the tip of the gubernaculum was curved anteriorly and was not bifid and there were three pre-cloacal papillae (Fig. 6). Measurements of these specimens are shown in Table II. The specimens from *Heterotis niloticus* recorded by Vassiliadès & Troncy (1974) have not been re-examined.

*D. malapteruri* is evidently an established parasite of the electric catfish (*M. electricus*): Khalil (1969) found it in 10% of specimens examined, each catfish harbouring 6–10 specimens. But whether the same species occurs in other freshwater fishes is open to question.

**Type-material:** BMNH 1923.10.17.68-70.
**Other material:** MNHN 19KG, ?299BA.
**Type-host:** Malapterurus electricus.
**Other hosts:** ?Heterotis niloticus; ?Mormyrops engystoma.
**Type-locality:** Khartoum, Sudan.
**Other localities:** Lake Chad, Chari River; Ivindo River, Gabon.
**Site:** Stomach.

**Dujardinascaris cenotae** (Pearse, 1936) Baylis, 1947

Pearse (1936) described *Dujardinascaris cenotae* from some immature female specimens from the catfish *Rhamdia guatemalensis decolor* in Yuca-