

Lamproglena notopterae sp. nov.- a copepod parasite from a freshwater fish of Sindh, Pakistan

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Abstract

A male specimen of a new species *Lamproglena notopterae* (Lernaeidae), found on the gills of a freshwater fish, *Notopterus notopterus* is described here. The new species is characterized by two pairs of biramous, vestigial thoracic legs and a reduced second maxiliped, cylindrical abdomen which consists of a broad anterior and narrow posterior portion.

Key words: *L. notopterae*, Copepod, *N. notopterus*,

Introduction

Since the discovery of a crustacean ectoparasite of fish, about 2000 species have been described so far (Lester and Roubal 1995). Among these species, copepods are in majority. These parasites attach on gills and general body surface, causing wounds which become the sites of secondary infection by microbes (Nakajima *et al.* 1974, Paperna 1975). The damage caused by these parasite is more pronounced in culture systems such as ponds and cages (Kabata 1985, Woo 1995, Yambot and Lopez 1997).

In Pakistan very little information is available regarding the taxonomy of these parasites. *Ergasilus pakistanicus* has been reported from gills of a spiny eel, *Mastacembalus armatus* (Jafri, 1995). Similarly *Lernaea multilobosa* has been described from skin of a cyprinid fish (Jafri and Mahar 2003). Presently a new species of genus *Lamproglena* is being described here.

Materials and methods

Five specimens of feather-back, *Notopterus notopterus* were brought from Keenjhar lake (Distt: Thatta) Sindh in 2001. On the gills of one of the fishes a single specimen of this parasite was found. After careful separation from gill filaments, with the help of needle and soft brush, under a binocular microscope, the parasite was preserved in 5% formalin for further study. The drawings were made with the help of a camera Lucida. Whole specimen was photographed on a Nikon Microphotographic microscope.

Results

Suborder:	Cyclopoida
Family:	Lernaeidae (Cobbold 1879)
Species:	<i>Lamproglena notoptera</i> sp. nov.
Site:	Gill filaments
Colour:	Brownish black.
Host:	<i>Notopterus notopterus</i>
Locality:	Keenjhar lake (Distt: Thatta)
Etymology:	The name refers to the genus of host fish.

Material examined

Holotype:	Male
Paratype:	Nil

Measurements

Total length:	3.615 mm
Cephalothorax length:	0.765mm
Genital segment length:	0.15mm
Genital segment width:	0.34mm
Abdomin length:	2.7mm
Anterior abdominal length:	1.00mm
Anterior abdomen width:	0.42mm
Posterior abdomen length:	1.7mm
Posterior abdomen width:	0.16mm

Description

The specimen under study appears to be a male, as no ovisac or seminal receptacles were found on the genital segment.

Body: Cephalothorax: Cephalothorax much longer than wide, anteriorly broad and cylindrical posteriorly, length $\frac{1}{4}$ of total body length, head region separated by a distinct notch, external segmentation absent but deep notches present in anterior part, posterior part also possesses slight notches, only two pairs of vestigial thoracic legs present in the anterior half (Fig. 2).

Genital Segment: Genital segment wider than long (0.15×0.34 mm), somewhat spherical in shape (Figs. 1, 2, 3). No egg sac or seminal receptacles found (the specimen is probably a male).

Abdomen: Abdomen quite long, $\frac{2}{3}$ of total body length, consists of anterior barrel shaped part (1×0.42 mm) and posterior cylindrical narrow portion (1.7×0.16 mm), no

trace of external segmentation visible, posterior end of abdomen bi-lobed, having a pair of small lobe like caudal rami (Fig.3), which are longer than wide.

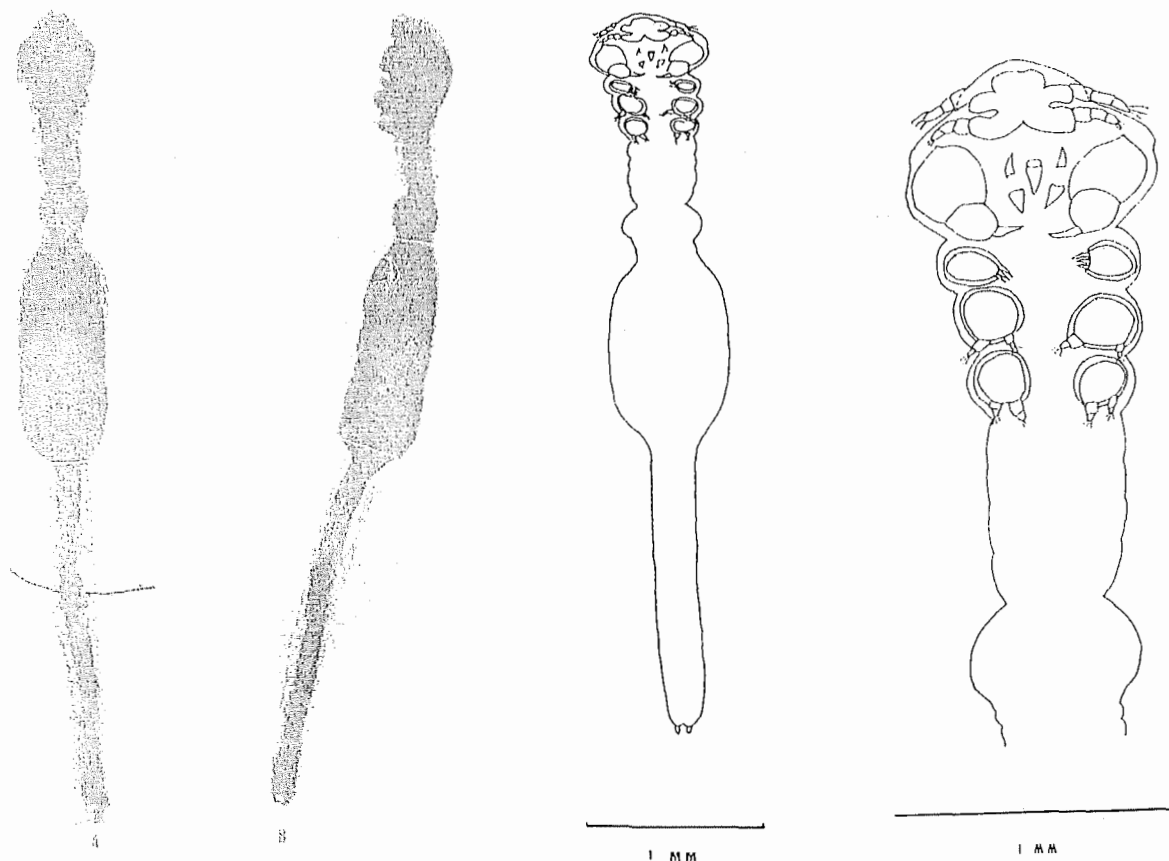


Fig. 1. Photograph of *Lamproglena notopterai* sp. nov. (x80). Fig. 2. Camera lucida drawing of *Lamproglena notopterai*. Fig. 3. Camera lucida drawing of anterior region of *Lamproglena notopterai*.

Appendages: Mouth parts cyclopoid type, first antenna larger, 3 segmented having three terminal setae, second antenna slightly smaller, 3 segmented, having two terminal setae, first maxiliped prehensile, two segmented with a claw like, slightly curved terminal spine. A central mouth tube present, no stylet visible. A pair of upward directed pointed spines present in anterior region of mouth tube, similarly a pair of strong, downwardly pointed spines present near the posterior end of mouth tube. Second maxiliped much reduced, consists of a rounded basal segment having three small pointed claws (Fig. 3).

Thoracic legs: Two pairs of unequal, biramous, vestigial legs present in the anterior portion of cephalothorax (Fig. 2, 3). Basipod of first pair slightly larger than that of the second pair. Endopod and exopod of each leg consists of two unequal segments, having two terminal setae.

Discussion

Untill now about 20 species of genus *Lamproglena* have been described (Yamaguti, 1963) from different hosts occurring in Africa and Asia. Kabata (1985) provided a key to four species of *Lamproglena* found in south-east Asia. Present new species differs from other species of this genus in many features, particularly the reduced second maxiliped and unsegmented abdomen. *L. chinensis* has four unequal claws (Kabata 1985), while in present new species, the whole structure is reduced to a short stump, to which three small claws are directly attached.

The new species *Lamproglena notopterae* shows some affinity to *Lamproglena inermis* in the sense that in *L. inermis* also the trunk is without thoracic legs and the abdomen is not externally segmented (Capart, 1943). The genital segment in present species is somewhat similar to that of *Lamproglena caleopatra* (Humes, 1947). As the ovisacs or seminal receptacles were not found, the present specimen of *Lamproglena notopterae* is probably a male. The record of a new species of this gill parasite of fish is an addition to already known parasitic copepod fauna of this region.

References

- Capart, A., 1943. Notes sur les copepods parasites. 1 Queleques copepods parasites des poissons d eau douce de Thailand. *Bull. Mus. Roy. His. nat. Belg.*, 19(8): 1-12.
- Humes, A.G., 1947. Two new calanoid copepods from Egyptian fishes. *J. Parasitol.*, 43(2): 201-208.
- Jafri, S.I.H., 1995. A new copepod parasite, *Ergasilus pakistanicus* new species (Poecilostomatoida: Ergasilidae) from a fresh water fish in Sindh. *Pakistan J. Zool.*, 27(1): 29-33.
- Jafri, S.I.H. and M.A. Mahar, 2003. Parasitic copepod, *Lernaea multilobosa* sp. nov. (f. Lernaeidae) from a cyprinid fish of Manchar lake, Sindh, Pakistan. *Pakistan J. Zool.*, 35 (1): 29-33.
- Kabata, Z., 1985. Parasites and diseases of fish cultured in the tropics. Taylor & Francis, London. pp. 242-247.
- Lester, R.J.G. and F.R. Rouble, 1995. Phylum Arthropoda, In: "*Fish Diseases and Disorders*", (ed. P.T.K. Woo). pp. 486-493. CABI Publishing Co. Singapore.
- Nakajima, K., S. Izawa and S. Egusa, 1974. Parasitic copepode *Pseudoergasilus zacconis*, Yamaguti, found on the gills on 8 cultured ayu, *Plecoglosses altivelis* 11, *Fish pathol.*, 9: 95-99.
- Paperna, I., 1975. Parasites and disease of the grey mullet, (Mugilidae) with special reference to the seas of near-east. *Aquaculture*, 5: 65-80.
- Woo, P.T.K., 1995. Fish Disease and Disorders Vol.I &II CABI Publishing Co. Singapore. pp. 475-598.
- Yamabot, A.V. and E.A. Lopez, 1997. Gill parasite, *Lamproglena monodi*, capart, infecting the Nile tilapia, *Oreochromis niloticus*, cultured in the Philippines. In: Diseases in Asian Aquaculture III (eds. T.W. Flagel and I.H. MacRac) *Asian Fisheries Society, Manila*. 175-177.
- Yamaguti, S., 1963. *Parasitic Copepoda and Branchiura of Fishes*. (part I & II) (reprinted, 1985). Int. Books and period. Suppl. Servic, New Delhi, India. pp. 164-166.

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