

A new species of *Lernaeenicus* (Copepoda: Siphonostomatoida) from southern Africa

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The pennellid genus *Lernaeenicus* Le Sueur, 1824 is a small group of approximately 26 nominal species. Of these, only one, i.e. *L. gonostomae* Kensley & Grindley, 1973 has been recorded from the southern African coast. The present study has shown that another species occurs further south in the Indian ocean, in the vicinity of the Kowie River estuary in the Cape Province, South Africa. This species can be distinguished from all existing species and is described below.

Die genus *Lernaeenicus* Le Seur, 1824 van die Familie Pennellidae, is 'n klein taksonomiese groep, bestaande uit 26 nominale spesies. Hieruit is slegs een, nl. *L. gonostomae* Kensley & Grindley, 1973, vanaf die suider Afrikaanse kus beskryf. Die huidige studie het aangetoon dat 'n verdere spesie verder suid in die Indiese Oseaan, in die omgewing van die Kowieriviermond, Kaaprovinsie, Suid-Afrika, voorkom. Dit kan van alle bestaande spesies onderskei word, en word hieronder beskryf.

Introduction

The pennellid genus *Lernaeenicus* Le Sueur, 1824 has a cosmopolitan distribution, although no single species has thus far been found to occur in more than one ocean (Kabata 1979). The number of species has grown steadily since a comprehensive checklist of 12 was compiled by Wilson (1917), to an estimated number of 26 valid species recognized by Kabata (1979), although Yamaguti (1963) listed no less than 31 representatives of this genus. Only one species, *Lernaeenicus gonostomae* Kensley & Grindley, 1973, has been reported from the south-western Indian ocean off the coast of Africa. The species described here was taken even further south from the southern shore of the continent.

Lernaeenicus kabatai n. sp.

Description

Postmetamorphosis female: Average total body length (excluding egg sacs) 14,1 mm (13,8–15,1). Body elongated (Figure 1a), consisting of an anteriorly rounded cephalothorax (0,55 mm [0,51–0,56] × 0,53 mm [0,52–0,54]), an approximately equally long thoracic neck (3,66 mm [3,28–3,72] × 0,20 mm [0,18–0,24]) and trunk regions (3,93 mm [3,87–3,97] × 0,60 mm [0,54–0,68]), followed by an extended abdomen (2,46 mm [2,42–2,49] × 0,33 mm [0,30–0,34]) constricted to approximately half the diameter of the trunk directly posterior to the oviduct orifices (Figure 1e). These regions are not clearly segmented or distinguishable. The neck extends to the initial widening of the trunk region. Cephalothorax suborbicular in dorsal view, with two postero-ventrally projecting lateral digitiform processes extending to or just beyond the level of the fourth thoracic legs (Figures 1b & d). An additional process is situated medially extending postero-ventrally at an angle to the lateral processes (Figures 1c & d). Two lateral bulges occur antero-ventrally on the cephalothorax (Figure 1b), which flank the centrally situated mouth tube.

First and second antennae situated on anterior extremity of cephalothorax. First antenna (Figure 2c) three-segmented, basal segment twice as long as two equally long other segments. The three segments each bear 7–10 setae successively. The terminal segment bears one bifid seta. Second antenna three-segmented (Figure 2a). Basal segment stout and about twice as long as second segment. Third segment transformed into a stout, sclerotized hook articulating laterally with second

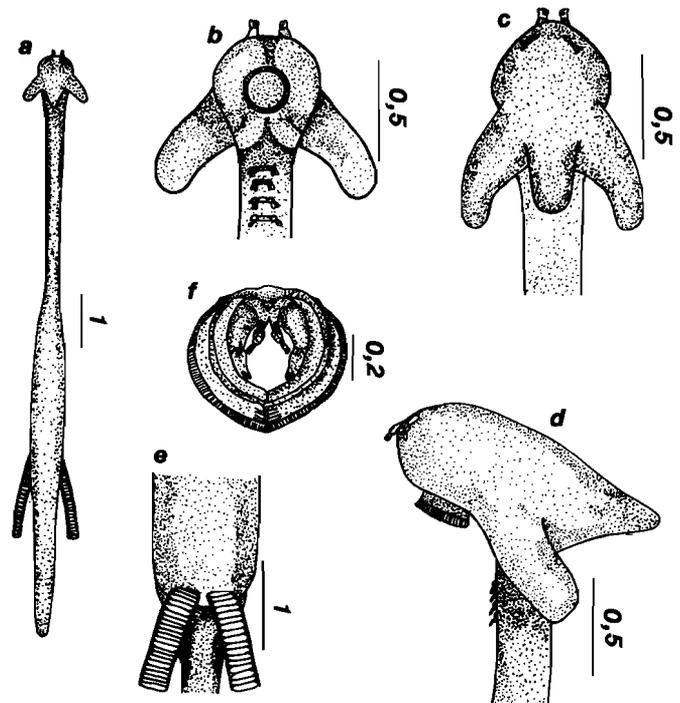


Figure 1 *Lernaeenicus kabatai* n. sp. (a) adult female, dorsal, (b) cephalothoracic region, ventral, (c) cephalothoracic region, dorsal, (d) same, lateral, (e) attachment of egg sacs and constriction of abdomen, ventral, (f) mouth tube showing intrabuccal stylets. (Measurements in mm.)

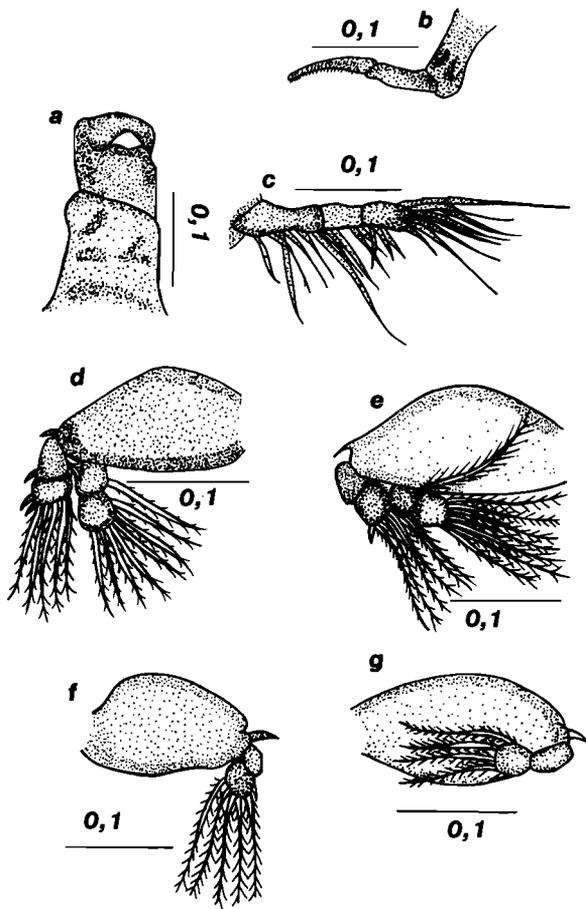


Figure 2 Appendages of *Lernaenicus kabatai* n. sp. (a) second antenna, (b) second maxilla, (c) first antenna, (d) - (g) swimming legs one to four. (Measurements in mm.)

segment thus producing a pincer-like appendage. Tip of subchela rests on a smooth, rounded ridge on basal segment, which bears a seta.

Mouth parts typical for the genus. Mouth tube cylindrical, extending ventrally from anterior region of cephalothorax. Distal edge typically, superficially denticulated (Figure 1f), except for the anterior extremity. Anterior edge of the tube gives rise to a chitinous plaque and a central aperture. Directly interior to this occurs a pair of bifurcated, terminally tufted intra-buccal stylets. Stylet (Figure 1f) unsegmented, flat and terminally frayed. Second maxilla simple, consisting of three smooth, terminally tapering segments with two unciform processes on lacertus and two rows of bristles on terminal segment (Figure 2b).

First and second swimming legs (Figures 2d, e) biramous, third and fourth (Figures 2f, g) uniramous. All rami two-segmented. One seta present on first and subsequent sympods of swimming legs. Situation of legs typical for this genus. All setae on rami are pinnate. The number of setae on the various rami are given in Table 1.

Abdomen bears two laterally projecting setules on the posterior extremity. Egg sacs uniseriate, containing 69 to 87 eggs per string.

Material examined: Holotype No. CL 8710221 and one paratype No. CL 8710222 and 13 other specimens

Table 1 The number of setae on the various rami of *L. kabatai*

Leg	Endopod segment		Exopod segment	
	1	2	1	2
1	1-0	7-0	1-I	5-II
2	1-0	7-0	1-0	6-I
3	-	-	0-0	5-I
4	-	-	0-0	4-I

deposited in the collection of the Department of Zoology at the Rand Afrikaans University.

Hosts: *Carangoides equula* (Temminck & Schegel, 1844).

Locality: Coast off Kowie River mouth, southern coast of South Africa, 33°36'S / 26°58'E.

Location on host: In viscera, trunk extending through muscle and skin to external environment.

Etymology: The specific name is derived from that of Dr Z. Kabata, whose papers have been a constant source of inspiration in our study of the piscine parasitic copepods.

Remarks

Lernaenicus kabatai n. sp. can be distinguished from the majority of existing species by the shape of the cephalothorax and its three digitiform processes, as well as the relative lengths of the neck, trunk and abdomen. Nine species bear some resemblance to *L. kabatai* by virtue of having three processes on the holdfast, i.e. *L. hemirhamphi* Kirtisinghe, 1956, *L. sayori* Yamaguti, 1939 and *L. procerus* (Leidy, 1889), *L. cerberus* Leigh-Sharpe, 1927, *L. encrasicoli* (Turton, 1807), *L. longiventris* Wilson, 1917, *L. polynemi* (Basset-Smith, 1898), *L. stromatei* Gnanamuthu, 1953 and *L. vorax* Richairdi, 1877.

It differs from *L. stromatei* as the abdomen is relatively longer in relation to the trunk. The neck region is significantly longer (in relation to the total body length) in *L. longiventris*, *L. stromatei*, *L. sayori*, *L. hemirhamphi*, and *L. polynemi*.

Lernaenicus procerus and *L. polynemi*, differ from the new species by the total length of the adult females reaching 70 mm and 34 mm respectively, as opposed to 14 mm in the new species. Also, the attachment site is the head of the host in both *L. procerus* and *L. polynemi* (Basset-Smith 1898; Wilson 1917), as opposed to the viscera in the new species. The neck region is significantly longer and the three cephalothoracic outgrowths shorter in *L. procerus* and *L. polynemi* than in the new species.

In *L. encrasicoli* the circumference of the trunk and abdomen is significantly greater than in *L. kabatai*. This species can thus be distinguished from all the above-mentioned by means of its morphology and relative sizes and shapes of body parts.

Acknowledgements

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