

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/31467383>

Description of *Labidocera farrani* sp. nov., a pontellid copepod known from eastern and northern Australian waters, (Crustacea, Copepoda)

Article in *Journal of Plankton Research* · October 1979

DOI: 10.1093/plankt/1.3.231 · Source: OAI

CITATIONS

9

READS

161

2 authors, including:

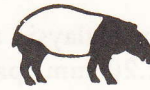


Othman Ross

Universiti Malaysia Terengganu

90 PUBLICATIONS 858 CITATIONS

SEE PROFILE



A new species of *Labidocera* (Copepoda, Calanoida) from Peninsular Malaysia

B.H.R. OTHMAN

Dept. Zoology, Faculty of Life Sciences, Universiti Kebangsaan Malaysia, 43600 Bangi, Selangor, Malaysia.

Abstract. A new species of copepod, *Labidocera jaafari* sp. nov., from Kuala Selangor and Pulau Besar in the Straits of Malacca is described and figured. This brings to 10 the number of species belonging to the super-species *detruncata*.

INTRODUCTION

There has been very little study on the copepods of the coastal waters of Peninsular Malaysia. Studies on copepods in this region include those of Sewell (1933), Chong & Chua (1973), and to a certain extent that of Wickstead (1961). Of these only Sewell (l.c.) worked on the calanoid copepods from samples taken in the vicinity of Penang and the Sungai Kurau estuary. Nineteen species of calanoid copepods were identified from this collection, and of these, 3 species belonged to the genus *Labidocera*.

A study of the plankton around the coast of Peninsular Malaysia was initiated. During this study a new species of copepod belonging to the genus *Labidocera* was discovered, and is described below. All specimens were collected using a plankton net with mesh aperture size of 140 μ m. Dissections of copepods were made in polyvinyl alcohol lightly stained with chlorazol black, and drawings were made from a Leitz HM-LUX with the aid of a camera lucida.

DESCRIPTION OF SPECIES

Labidocera jaafari sp. nov.

Types: Type material is deposited in the Dept. Zoology Museum, Universiti

JALAYAN NATURE JOURNAL

Kebangsaan Malaysia as follows: female holotype TL 2.43 mm, male allotype TL 2.20 mm; paratypes 10 males and 10 females, reg. nos. UKMMZ T1109–T1111. Further, 5 male and 5 female paratypes are deposited in the Rijksmuseum van Natuurlijke Historie, Leiden.

Type locality: Straits of Malacca, latitude 3° 20'N, longitude 101° 12.5'E.

Material examined: 315 males and 278 females from Kuala Selangor, latitude 3° 20'N, longitude 101° 12.5'E, 16 VIII 84. 25 males and 40 females from Pulau Besar, Melaka, latitude 2° 5.5'N, longitude 102° 19'E, 4 VIII 84.

Description of female (Fig. 1 A–G)

Size. Total length measured from the tip of the head to the extremity of the furcal rami averaged 2.42 mm (from 20 randomly selected individuals), standard deviation 0.051, ranging from 2.31–2.55 mm. The length ratio of the prosome to urosome is 5.16:1 and the prosome length to width ratio is 2.95:1.

The body appears elongated. The cephalic profile in dorsal and lateral views is rounded, and is without cephalic hooks. A distinct indentation occurs on both lateral and dorsal profiles about midlength of the cephalosome (Fig. 1A, B). The rostrum resembles *Labidocera farrani* (Greenwood & Othman 1979), is directed postero-ventrally and is bifid (Fig. 1C). The rami taper uniformly and are separated at the bases by *c.* 2/5th their own length. The eyes are small and are separated by *c.* 2½ x the eye diameter. The head is free from the thorax. The 4th and 5th thoracic segments are fused. The posterior corners of the last thoracic segment are symmetrical, and end in sharp postero-laterally directed processes (Fig. 1D, E, F). The processes extend to about 2/3rd the length of the urosome.

The urosome is short and 2-segmented. The genital segment is almost symmetrical, smooth and elongated. The length ratios of the visible segments are 66:6:28 respectively. The anal segment is symmetrical and smooth. In specimen where the spermatophore is present, the sperm chamber is mounted ventrally on the urosome. The sperm-sac is aligned along the axis of the body and is situated on the left side of the urosome extending beyond the furca by *c.* 1½ x the length of the furca (Fig. 1E). The sperm chamber is held in position by a coupler system which is confined mainly to the genital segment, and on the ventral surface where the sac is positioned. The furca is almost symmetrical, the right ramus is only marginally longer but slightly thinner than the left.

The 1st antenna is 24-segmented and reaches to the middle of the genital segment when extended. The 2nd antenna, mandible, 1st and 2nd maxillae and the maxilliped are not distinguishable from the other members of the genus.

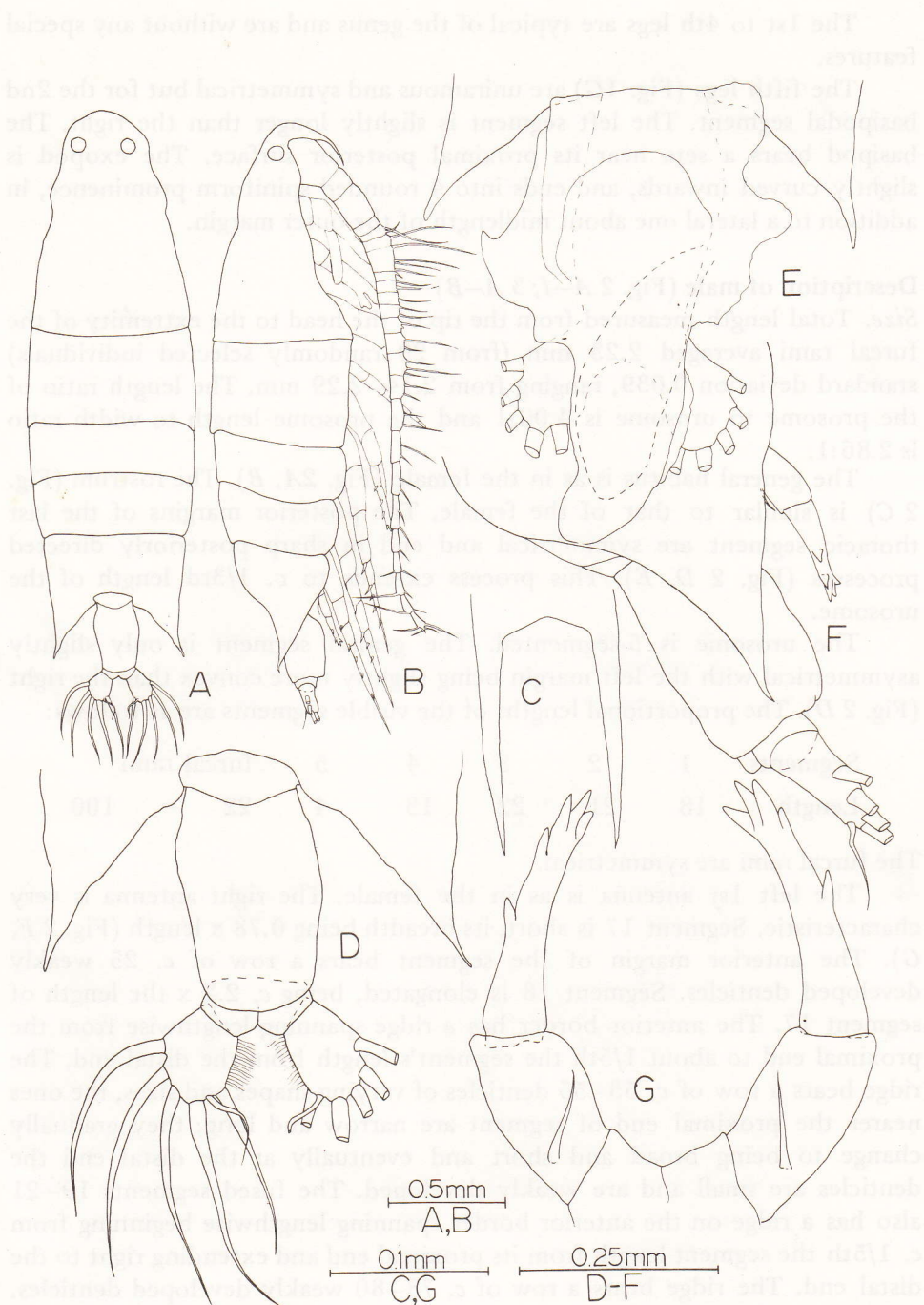


Figure 1. *Labidocera jaafari* sp. nov., female; *A* — dorsal view; *B* — lateral view; *C* — rostrum; *D* — urosome, dorsal view; *E* — urosome, with spermatophore, ventral view; *F* — urosome, lateral view; *G* — fifth legs.

The 1st to 4th legs are typical of the genus and are without any special features.

The fifth legs (Fig. 1G) are uniramous and symmetrical but for the 2nd basipodal segment. The left segment is slightly longer than the right. The basipod bears a seta near its proximal posterior surface. The exopod is slightly curved inwards, and ends into 4 rounded spiniform prominence, in addition to a lateral one about midlength of the outer margin.

Description of male (Fig. 2 A-I; 3 A-B)

Size. Total length measured from the tip of the head to the extremity of the furcal rami averaged 2.23 mm (from 20 randomly selected individuals) standard deviation 0.039, ranging from 2.14–2.29 mm. The length ratio of the prosome to urosome is 4.00:1 and the prosome length to width ratio is 2.86:1.

The general habitus is as in the female (Fig. 2A, B). The rostrum (Fig. 2 C) is similar to that of the female. The posterior margins of the last thoracic segment are symmetrical and end in sharp posteriorly directed processes (Fig. 2 D, E). This process extends to *c.* 1/3rd length of the urosome.

The urosome is 5-segmented. The genital segment is only slightly asymmetrical with the left margin being slightly more convex than the right (Fig. 2 D). The proportional lengths of the visible segments are as follows:

Segments	1	2	3	4	5	furcal rami	
Length	18	21	22	13	4	22	= 100

The furcal rami are symmetrical.

The left 1st antenna is as in the female. The right antenna is very characteristic. Segment 17 is short, its breadth being 0.78 x length (Fig. 2 F, G). The anterior margin of the segment bears a row of *c.* 25 weakly developed denticles. Segment 18 is elongated, being *c.* 2.2 x the length of segment 17. The anterior border has a ridge spanning lengthwise from the proximal end to about 1/5th the segment's length from the distal end. The ridge bears a row of *c.* 53–55 denticles of varying shapes and sizes, the ones nearer the proximal end of segment are narrow and long; they gradually change to being broad and short and eventually at the distal end the denticles are small and are weakly developed. The fused segments 19–21 also has a ridge on the anterior border spanning lengthwise beginning from *c.* 1/5th the segment length from its proximal end and extending right to the distal end. The ridge bears a row of *c.* 78–80 weakly developed denticles. Segment 22 is furnished with a rounded spiniform process extending slightly beyond segment 23.

The rest of the cephalic appendages and the 1st to 4th legs are similar to the other members of the genus.

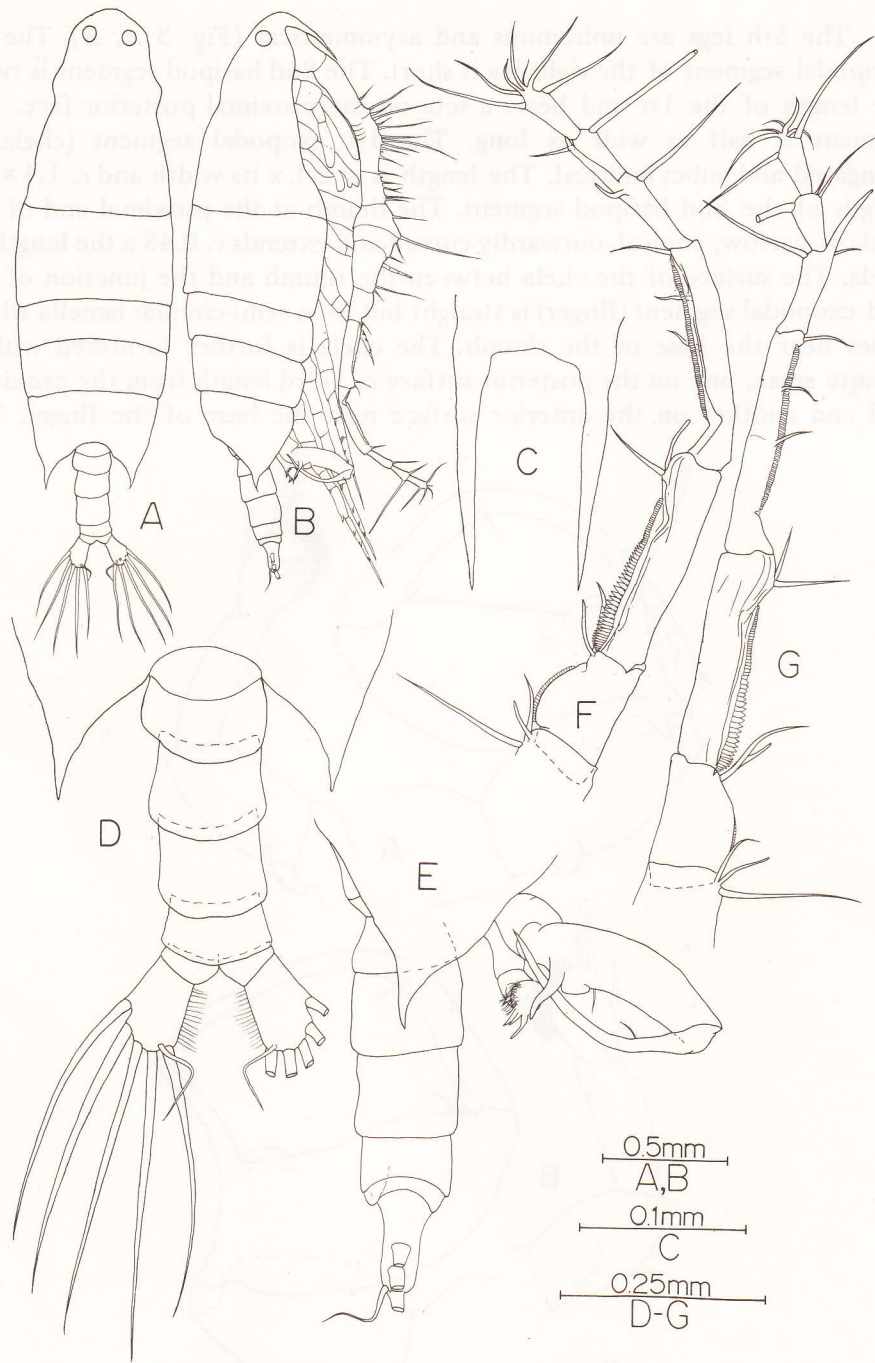


Figure 2. *Labidocera jaafari* sp. nov., male; *A* — dorsal view; *B* — lateral view; *C* — rostrum; *D* — urosome, dorsal view; *E* — urosome, lateral view; *F* & *G* — opposite views of right first antenna, segments 17 — 24.

The 5th legs are uniramous and asymmetrical (Fig. 3 A, B). The 1st basipodal segment of the right leg is short. The 2nd basipod segment is twice the length of the 1st and bears a seta on the proximal posterior face. The segment is half as wide as long. The 1st exopodal segment (chela) is elongated and subcylindrical. The length is *c.* 2.1 x its width and *c.* 1.4 x the length of the 2nd basipod segment. The thumb at the proximal end of the chela is narrow, conical, outwardly curved and extends *c.* 0.43 x the length of chela. The surface of the chela between the thumb and the junction of the end exopodal segment (finger) is straight but for a semi-circular lamella which arises near the base of the thumb. The chela is further furnished with 2 minute setae, one on the posterior surface *c.* 1/3rd length from the proximal end and another on the anterior surface near the base of the finger. The

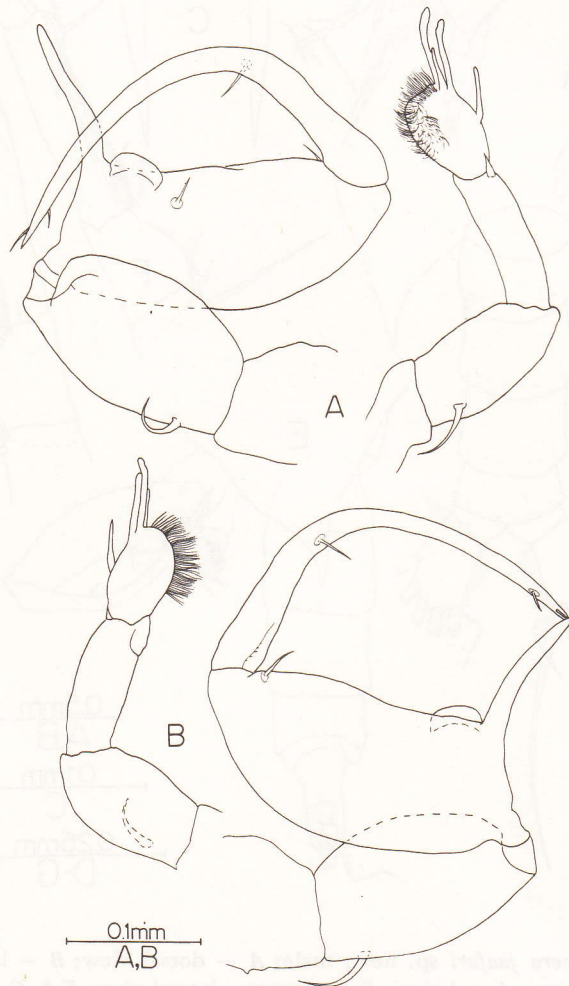


Figure 3. *Labidocera jaafari* sp. nov., male; A — fifth leg, posterior view; B — fifth leg, anterior view.

finger is narrow, cylindrical, elongated, medially curved and ends in a pointed tip. The main curvature is at about 2/5th length from the proximal end. The direct-line length is c. 1.5 x the length of chela. The finger is furnished with 3 setae, one at the area where the main curvature occurs, one at c. 1/11th length of segment from the distal end and another near the distal tip.

The left leg has a short 1st basipodal segment. The 2nd basipod is c. 2½ x the length of the 1st. It bears a plumose seta on the posterior face near the proximal end. The 1st exopod is as long as the 2nd basipod, the width is c. 0.3 x its length. A small triangular spine is borne on the outer distal corner of the segment. The 2nd exopod is bulb-shaped and with hirsute inner margin. The segment bears 4 stout, round-tipped spines; one at midlength on the outer margin, and a group of 3 spines at the apex. Of these 3 apical spines, 1 spine is conspicuously shorter than the other 2.

Etymology. The species is named in honour of the Chancellor of Universiti Kebangsaan Malaysia (DYMM Tuanku Jaafar ibni Almarhum Tuanku Abdul Rahman).

REMARKS

The species is an addition to the 9 known species belonging to a group of species within the super-species *detruncata* as proposed by Fleminger (1967). Members belonging to this group of species include *L. bataviae* A. Scott, 1909; *L. caudata* Nicholls, 1944; *L. cervi* Kramer, 1895; *L. detruncata* (Dana, 1849); *L. farrani* Greenwood & Othman, 1979; *L. madurae* A. Scott, 1909; *L. pavo* Giesbrecht, 1889; *L. sinolobata* Shen & Lee, 1963; and *L. tasmanica* Taw, 1974. *L. caudata* was described only from its female, later McKinnon & Kimmerer (1984) found both males and females of the species and redescribed them.

Members of the *detruncata* group span the tropical/subtropical Indo-West Pacific region and their distribution has been reviewed by Greenwood & Othman (1979). *L. jaafari* together with *L. bataviae*, *L. detruncata*, *L. madurae* and *L. pavo* are thus distributed within the Indo-Pacific region.

L. jaafari is readily distinguished from other members of the *detruncata* group by the structure of the 5th thoracic margin, urosome and the 5th legs of both sexes. The posterior border of the 5th thoracic margins end in very acute posteriorly directed processes extending 2/3rd length of urosome in females and 1/3rd length in the males. The spiniform extension of the 22nd segment of the right 1st antenna in the males and the uniramous nature of female 5th legs are shared only by *L. sinolobata*. The differences between *L. jaafari* and *L. sinolobata* are summarised in Table 1.

Table 1. Comparisons of some features of *Labidocera jaafari* with *L. sinolobata*.

Feature	<i>L. jaafari</i>	<i>L. sinolobata</i>
Females		
Prosome: urosome length ratio	5.16:1	4.83:1
Posterior prosomal processes		
shape	very acute	obtuse
symmetry	symmetrical	no, left margin laterally directed
extent	2/3rd length of urosome	< 1/3rd length of urosome
Urosome, dorsal aspect, symmetrical	yes	no, left margin with protrusion
Ventral margin of genital segment	not protruding	protruding till midlength of furca
Fifth legs, ratio of length of exopod: length of outer spiniform process on exopod of left leg.	1.66:1	2.20:1* 2.22:1#
Males		
Prosome: urosome length ratio	4.00:1	4.04:1* 3.75:1#
Posterior prosomal processes		
shape	very acute	obtuse
extent	beyond middle of 2nd segment	middle of genital segment
1st antenna		
segt. 17 length: breadth	1.3:1	3:1
extent of spiniform process on segment 22	beyond segt. 23	2/3rd length of segment 23
Right 5th leg		
Ratio of 'thumb': 'palm'	1.55:1	1.42:1*#
Ratio of 'finger': palm	0.46:1	0.75:1* 0.55:1#
Shape of tooth at base of thumb	semicircular	obtuse

* — from Shen & Lee (1963); # — from Chen & Zhang (1965).

Acknowledgements. I am very grateful to Mr. Talib Harun and the late Mohd. Isa Hj. Ikhsan who assisted in collecting the samples and to Dr. G.W.H. Davison who read a draft of this description. The study is supported by the UKM research grant no. 12/84 for which I am indebted.

REFERENCES

- Chen, Q. & Zhang, S. (1965). The planktonic copepods of the Yellow Sea and the East China Sea. 1. Calanoida. *Studia Marina Sinica* 7: 20–131.
- Chong, B.J. & Chua, T.E. (1973). A preliminary study of the distribution of the cyclopoid copepods of the family Oithonidae in the Malaysian waters. *Proceedings of Pacific Science Association Marine Sciences Symposium*, pp 32–36, Hong Kong, Dec. 1973.
- Dana, J.D. (1849). *Conspectus crustaceorum quae in orbis terrarum circumnavigatione, Carolo Wilkes, classe Reipublicae foederate duce, lexit et descripsit Jacobus D. Dana. Pt. 2. Proc. Amer. Acad. Arts & Sci.* 2: 9–61. Reprinted in (Silliman's) *Amer. Jour. Sci. & Arts*, Ser. 2, 8: 278–285.
- Fleminger, A. (1967). Taxonomy, distribution and polymorphism in the *Labidocera jollae* group, with remarks on evolution within the group (Copepoda: Calanoida). *Proc. U. S. Nat. Mus.* 120: 1–61.
- Giesbrecht, W. (1889). Elenco dei Copepodi pelagici raccolti dal tenente di vascello G. Chierchia durante il Viaggio della R. Corvetta "Vettor Pisani" negli anni 1882–1885. e dal tenente di vascello F. Orsini nel mar rosso nel 1884. *Atti. Accad. Lincei. Roma (4). Rend.*, 4(2) Sem. (1888); 5(1+2) Sem. (1889); 7(1+2) Sem. (1891).
- Greenwood, J.G. & Othman, B.H.R. (1979). Description of *Labidocera farrani* sp. nov. A pontellid copepod known from eastern and northern Australian waters (Crustacea, Copepoda). *J. Plankton Research* 1: 231–239.
- Kramer, A. (1895). On the most frequent pelagic copepods and cladocerans of the Hauraki Gulf. *Trans. N.Z. Inst.* 27: 214–223.
- McKinnon, A.D. & Kimmerer, W.J. (1984). Description of the male of *Labidocera caudata* Nicholls (Copepoda: Pontellidae) with remarks on the female. *Proc. R. Soc. Vict.* 96: 169–172.
- Nicholls, A.C. (1944). Littoral copepoda from South Australia. II. Calanoida, Cyclopoida, Notodelphyoida, Monstrilloida and Caligoida. *Rec. S. Aust. Mus.* 8: 1–62.
- Scott, A. (1909). The copepoda of the *Siboga* Expedition, Part 1. Free-swimming, littoral and semi-parasitic Copepoda. *Siboga Exped. Monogr.* 29a: 1–323.
- Sewell, R.B.S. (1933). Notes on a small collection of marine Copepoda from the Malay States. *Bull. Raffles Mus.* 8: 25–31.
- Shen, C. & Lee, F. (1963). The estuarine Copepoda of Chiekong and Zaikong Rivers, Kwangtung Province, China. *Acta Zool. Sinica* 15(4): 573–596.
- Taw, N. (1974). A new species of *Labidocera* (Copepoda: Calanoida) from Tasmania and its postnaupliar developmental stages. *Aust. J. mar. Freshwat. Res.* 25: 261–272.
- Wickstead, J.H. (1961). A quantitative and qualitative study of some Indo-West Pacific plankton. *Colonial Office Fisheries Publication* 16, HMSO, London.