

## ERRATA

Only part of the typographic corrections requested by the author have been made ; therefore, there are still some forty mistakes. Fortunately, most of them are not prejudicial to the understanding of the text.

Therefore, we mention only :

- .19, last line : see Moosa (Mar. Res. Indonesia, (24) : 1-6)
- .23, line 11 : St. IIII
- .33, line 19 : impossible to make any comparisons.
- .34, line 18 : in Madagascar specimens
- .39, line 24 : (the end of dactyl does not reach as far as the end of the scaphocerite in the female).
- .43, line 8 : is about 1 : 1.15 to 1 : 1.30.
- .43, line 24 : But considering individual variations, it is not practical to separate the species on rostral comparisons.
- .44, line 6 : omit (fig.6b)
- .46, line 1 : Sicyonia
- .46, line 2 : Eusicyonia

Crosnier, A. 1984

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Mar. Res. Indonesia, No. 24, 1984: 19 — 47

**PENAEOID SHRIMPS (BENTHESICYMIDAE, ARISTEIDAE,  
SOLENO CERIDAE, SICYONIIDAE) COLLECTED IN INDONESIA  
DURING THE CORINDON II AND IV EXPEDITIONS**

by

ALAIN CROSNIER<sup>1)</sup>

**INTRODUCTION**

During the CORINDON II and IV expeditions, the former in the Makassar Strait and the latter in Piru Bay and Ambon Bay, Molluccas, 47 species of penaeoid shrimps were collected. They include 2 species belonging to the Benthescymidae, 5 to the Aristeidae, 19 to the Solenoceridae, 2 to the Sicyoniidae and 19 to the Penaeidae.

The twenty eight species of the first four families are considered in this study; the Penaeidae will be presented in a separate publication.

Most of the species treated in this work occur in deep water, with only a few samples taken in shallow water. Two species *Cryptopenaeus clevai* and *Solenocera moosai* are new; eight others have not been recorded previously in the waters of Indonesia. Several specimens of *Solenocera unnectens* (Wood Mason, 1891) have been collected; this species has not been reported since its description and additional figures, particularly of genitalia, are included in this paper. One species of the genus *Pseudaristeus* and one of the genus *Solenocera* both probably new, are recorded but not named as only a single specimen of each was collected.

In addition to the description of *Solenocera moosai*, the original drawings of two closely related, but little known species, *S. faxoni* De Man, 1907 and *S. spinajugo* Hall, 1961, are published.

The bibliography is restricted to literature on Indonesian material. For each species, one or two references, each with comprehensive bibliographies, are provided.

For station lists and expedition details, see Moosa.

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In the species descriptions the carapace length is the distance from orbital margin to posterior dorsal margin of the carapace.

Part of the material examined during this study will be registered at the Lembaga Oseanologi Nasional in Jakarta, and part at the Muséum National d'Histoire Naturelle in Paris.

The material for this study was kindly entrusted to me by Professor J. Forest of the Muséum National d'Histoire Naturelle, who participated in the CORINDON II expedition, and Dr. M. Kasim Moosa of the Lembaga Oseanologi Nasional, who was in charge of the scientific trawling programme during the CORINDON IV expedition.

Dr. R.W. Ingle and Miss Ann Gurney assisted me at the British Museum and arranged the loan of the *Solenocera* specimens.

Dr. D. Platvoer of the Zoölogisches Museum of Amsterdam, Mrs. van der Merwe of the South African Museum, Dr. B.C. Ivanov of VNIRO and Professor Hoo Soon Kim of the University of Seoul also kindly loaned material.

M.M. Gaillard prepared the illustrations.

Dr. I. Pérez Farfante reviewed the manuscript.

I am grateful to all of them.

#### Family BENTHESICYMIDAE

##### Genus *Benthesicymus* Bate, 1881

##### *Benthesicymus investigatoris* Alcock & Anderson, 1899

*Benthesicymus investigatoris*, De Man, 1911, p. 14; 1913, pl. 1, fig. 1, 1 a — b. — Crosnier, 1978, p. 21, fig. 7c - d, 8c - d, 9, 10.

**Material:** CORINDON II — St. 321, 1080 m: 1 ♂ 24 mm env.; 1 ♀ 22 mm. — St. 240, 675 m: 1 ♀ 16.8 mm.

Thelycum in female 22 mm cl, with posterior border of plate of sternite XIII with distinct median notch as figured by DE MAN (1913, pl. 1, fig. 1a); notch hardly noticeable on the other female.

This species has a very wide distribution in the Indo-West Pacific and has been collected from off Japan to Hawaii and the East African coast. It has been recorded previously in Indonesia (DE MAN, 1911).

##### Genus *Gennadas* Bate, 1881

##### *Gennadas scutatus* Bouvier, 1906

*Gennadas scutatus*, Crosnier, 1978, p. 43, fig. 17a, 19c.

*Gennadas clavicarpus*, De Man, 1907, p. 144 (partly); 1911, p. 19 (partly); 1913, pl. 1, fig. 3f, 3g; pl. 2, fig. 3K.

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*Material*: CORINDON II — St. 286, 1710 m: 1 ♂ 6 mm.

This widespread species occurs in the Atlantic, Indian and Pacific oceans. It has been recorded from Indonesia by De Man as *G. clavicornis*. Specimens were probably collected during the ascent of the trawl.

### Family ARISTEIDAE

Genus *Aristaeomorpha* Wood Manson, 1891

*Aristaeomorpha foliacea* (Risso, 1827)

*Aristaeomorpha foliacea*, Crosnier, 1978, p. 54, fig. 23 - 24.

*Aristaeomorpha rostridentata*, Balss, 1925, p. 221, fig. 1 - 2.

*Material*: CORINDON IV — St. IV 1, 400 - 300 m: 2 ♂ 18.2 and 28.5 mm; 4 ♀ 29.9 to 32.8 mm. — St. VI 1, 504 m: 1 ♂ 26.6 mm.

This widely ranging species has been recorded from Indonesia as *A. rostridentata*. It has been collected in the Indo-West Pacific at depths between 61 and 750 - 810 m.

Genus *Aristeus* Duvernoy, 1840

*Aristeus virilis* (Bate, 1881)

*Aristeus virilis*, De Man, 1911, p. 27; 1913, pl. 2, fig. 6, 6a. — Crosnier, 1978, p. 61, fig. 25a - b, 26a - b.

*Material*: CORINDON II — St. 209, 487 - 497 m: 6 ♂ 27.2 to 33.6 mm. — St. 214, 592 - 595 m: 5 juv.; 7 ♂ 27.9 to 32.8 mm; 4 ♀ 25.9 to 45.2 mm. — St. 217, 447 - 470 m: 1 ♂ 31.4 mm. — St. 240, 675 m: 1 ♀ 44.2 mm. — St. 276, 395 - 450 m: 16 ♂ 24.5 to 33.6 mm; 24 ♀ 24.5 to 48.4 mm.

CORINDON IV — St. II 1, 550 - 546 m: 1 ♂ 18.0 mm; 1 ♀ 20.7 mm. — St. VI 1, 504 m: 1 ♂ 29.0 mm; 2 ♀ 36.8 and 37.5 mm.

In the 12 specimens examined the fifth pereopods bear several photophores, their number varying from 11 to 14 on the carpus, 12 to 15 on the propodus and 6 to 8 on the dactyl. In this respect the Indonesian specimens are similar to those from Japan and not much different from the Madagascar specimens (see CROSNIER 1978, p. 65).

This species has a very wide distribution in the Indo-West Pacific; it has been found off Madagascar, Japan and New Caledonia; and has been reported previously from Indonesia. Specimens have been collected at depths between 238 and 900 m, but the species seems to occur mostly between 450 and 700 m.

*Aristeus mabahissae* Ramadan, 1938

*Aristeus mabahissae*, Crosnier, 1978, p. 65, fig. 25c - f, 26c - f.

*Aristeus semidentatus*, Balss, 1929, p. 224 (partly). *Non* Bate, 1881.

*Material*: CORINDON IV — St. VI 1, 504 m: 1 ♂ 31.2 mm; 1 ♀ 42.8 mm.

The fifth pereopods bear 9 photophores on the propodus, 11 or 12 on the carpus and from 4 to 6 on the dactyl.

This species is known from off Madagascar, Maldives, Indonesia and New Caledonia, at depths between 366 and 1097 m.

*Aristeus semidentatus* Bate, 1881

*Aristeus semidentatus*, De Man, 1911, pp. 6, 29; 1913, pl. 2, fig. 7. — Crosnier, 1978, p. 68, fig. 26g.

*Material*: CORINDON IV — St. I 1, 562 - 525 m: 6 ex. 11.5 to 16.0 mm. — St. I 2, 547 - 507 m: 14 ex. 12.5 to 20.5 mm. — St. III 1, 550 - 546 m: 7 ex. 14.0 to 21.5 mm.

All the specimens are small and damaged. They are identified as *seudentatus* from the arrangement of photophores on the remaining pereopods.

This species has been reported off Indonesia, Madagascar, India, Kermadec Islands and Hawaii, and has been found at depths between 350 and 1100 m.

Genus *Pseudaristeus* Crosnier, 1978

*Pseudaristeus* sp.

*Material*: CORINDON II — St. 286, 1710 m: 1 ♀ 37.8 mm.

This specimen seems to be different from *crassipes* (Wood Mason, 1891) and from *sibogae* (De Man, 1911). It can be distinguished by the following characters:

- body without setae (this is unlikely to have been caused by rubbing in the trawl during sampling);
- median plate of sternite XIII without setae and narrower than those of *crassipes* and *sibogae*;
- pereopods without setae. Ocular peduncles robust, closer to those of *crassipes*.

This specimen probably belongs to a new species. The genus *Pseudaristeus* needs to be revised; it is necessary, for example, to define the status of *P. gracilis* (Bate, 1888) and to check, as KEMP & SEWELL (1912)

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have suggested, if the material from the Indian Museum, identified as *crassipes*, contains two different forms. Dr. I. Pérez Farfante has begun working on a revision of this genus and the Corindon specimen will be sent to her.

### Family SOLENOCERIDAE

#### Genus *Haliporus* Bate, 1881

#### *Haliporus taprobanensis* Alcock & Anderson, 1899

*Haliporus taprobanensis*, Crosnier, 1978, p. 97, fig. 34 - 35, 39a, 40a, 42a.

*Hymenopenaeus kannemeyeri*, Kensley, 1977, p. 27, fig. 7A - F.

*Material*: CORINDON II — St. 240, 675 m: 1 ♀ 57.5 mm.

CORINDON IV — St. III 1: 1 ♂ 34.2 mm.

To date, this species has been collected in the south of India at depths between 700 and 1200 m, off Madagascar between 700 and 1200 m and Natal (as *Hymenopenaeus kannemeyeri*).

#### Genus *Hadropenaeus* Pérez Farfante, 1977

#### *Hadropenaeus lucasi* (Bate, 1881)

*Haliporus lucasii*, De Man, 1911, p. 43.

*Hadropenaeus lucasii*, Pérez Farfante, 1977, p. 327, fig. 9, 16, 44c, 53 - 55.

*Hymenopenaeus lucasi*, Crosnier, 1978, p. 115, fig. 37f - h, 39c, 40c, 42d, 44, 46a.

*Material*: CORINDON IV — St. VI 1, 400 - 300 m; 2 ♀ 29.0 and 32.2 mm.

— St. V 2, 250 - 244 m: 4 ♂ 14.3 to 26.1 mm; 5 ♀ 25.0 to 29.6 mm.

This species has a very wide distribution in the Indo-West Pacific; it has been reported from off Madagascar to Japan, Hawaii and Indonesia, and collected at depths between 180 and 600 m.

#### Genus *Haliporoides* Stebbing, 1914

#### *Haliporoides sibogae* (De Man, 1907)

*Haliporus sibogae* De Man, 1907, p. 138; 1911, pp. 7, 38; 1913, pl. 3, fig. 10a - b, pl. 4, fig. 10c - q.

*Hymenopenaeus sibogae*, Crosnier, 1978, p. 104, fig. 36a, 38d, 41a.

*Material*: CORINDON II — St. 209, 487 - 497 m: 1 ♀ 29.4 mm. — St. 276, 395 - 450 m: 8 ♂ 29.3 to 31.9 mm; 5 ♀ 36.8 to 43.5 mm.

CORINDON IV — St. I 1, 562 - 525 m: 2 ♀ 44.0 and 44.5 mm. — St. I 2, 547 - 507 m: 3 ♀ 40.3 to 42.2 mm. — St. II 1, 483 - 315 m: 1 ♂ 30.0 mm. — St. III 1, 550 - 546 m: 2 ♂ 31.5 and 32.2 mm; 4 ♀ 36.0 to 39.6 mm. — St. III 2, 500 - 375 m: 1 ♀ 39.5 mm. — St. IV 1, 400 - 300 m: 2 ♀ 41.0 and 43.5 mm. — St. VI 1, 504 m: 1 ♂ 24.3 mm; 2 ♀ 42.0 and 42.0 mm.

This species, described from specimens collected in Indonesia, has been found in the South China Sea, off Japan, Australia and New Zealand, at depth between 100 and 1463 m. It seems to occur mostly between 350 and 600 m.

Genus *Hymenopenaeus* Smith, 1882

*Hymenopenaeus neptunus* (Bate, 1888)

*Haliporus neptunus* Bate, 1888, p. 291, pl. 42, fig. 3 - ? De Man, 1911, p. 37.

*Hymenopenaeus neptunus*, Crosnier & Forest, 1973, fig. 86e - f, 87d.

*Material*: CORINDON II — St. 231, 1080 m: 1 ♂ 16.5 mm; 3 ♀ 14.3, 19.1 and 23.2 mm. — St. 241, 1525 - 1550 m: 1 ♀ 11.1 mm.

Comparison of this material with the type specimens of *H. furiei* Crosnier (1978, p. 127, fig. 39f, 40f, 42f, 43d, 46f - h) confirms the validity of *furiei* which is closely related to *neptunus*.

Identification of the Siboga specimen, described as *neptunus* by De Man (1911, p. 37) has been discussed by CROSNIER (1978, p. 129).

This species is known from the Philippines, Indonesia and India (Bay of Bengal) at depths between 1463 and 3197 m.

*Hymenopenaeus halli* Bruce, 1966

*Hymenopenaeus halli*, Crosnier, 1978, p. 120, fig. 39d, 40d, 42c, 43b, 45a - d, 46b - c.

*Haliporus obliquirostris*, De Man, 1911, p. 36, *Non* Bate, 1881.

*Material*: CORINDON II — St. 276, 395 - 450 m: 1 ♂ 16.8 mm.

This species is known from the South China Sea, Indonesia (Great Kei Island: specimen misidentified by De Man, 1911, p. 36, as *H. obliquirostris* — see CROSNIER, 1978, p. 123) and Madagascar, at depths between 540 and 910 m.

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*Hymenopenaeus propinquus* (De Man, 1907)

*Haliporus propinquus* De Man, 1907, p. 140; 1911, p. 33; 1913, pl. 3, fig. 9.  
*Hymenopenaeus propinquus*, Crosnier, 1978, p. 124, fig. 39c, 40c, 42e, 43c, 45e - h, 46d - e, 47a.

*Material*: CORINDON II — St. 276, 395 - 450 m: 1 ♀ 20.3 mm. — St. 290, 779 - 798 m: 1 ♀ 17.9 mm.

CORINDON IV — St. I 2, 547 - 507 m: 1 ♀ 22.6 mm. — St. III 1, 550 - 546 m: 3 ♀ 20.7 to 21.8 mm.

Only female specimens of this species have been collected which makes it difficult to distinguish from *H. aequalis*. A distinguishing character is the shape of the transverse protuberance between the fourth pereopods, being rounded from front to back and regularly covered with setae in *propinquus*, while angular and without setae on the posterior half in *aequalis*.

*H. propinquus* has been previously recorded from Indonesia. It was collected off the Maldives, in the Gulf of Aden, off Zanzibar, Madagascar and Reunion Island, at depths between 510 and 1200 m.

*Hymenopenaeus aequalis* (Bate, 1881)

*Haliporus aequalis* Bate, 1888, p. 285, pl. 41, fig. 1 — De Man, 1911, p. 32; 1913, pl. 2, fig. 8, 8a.

*Hymenopenaeus aequalis*, Crosnier & Forest, 1973, fig. 86c - d, 87h.

*Material*: CORINDON II — St. 209, 487 - 497 m: 2 ♂ 13.2 and 13.3 mm; 9 ♀ 13.0 to 15.4 mm. — St. 214, 592 - 595 m: 2 ♂ 12.5 and 13.1 mm. — St. 217, 447 - 470 m: 1 ♀ 13.6 mm. — St. 276, 395 - 450 m: 5 ♂ 13.5 to 14.7 mm; 3 ♀ 14.5 to 15.7 mm.

CORINDON IV — St. I 1, 562 - 525 m: 1 ♂ damaged; 1 ♀ 12.3 mm. — St. III 1, 550 - 546 m: 4 ♂ 13.0 to 18.0 mm; 22 ♀ 13.5 to 23.5 mm. — St. IV 1, 400 - 300 m; 3 ♂ 14 to 18 mm; 8 ♀ 19.9 to 23.4 mm. — St. IV 1, 504 m: 1 ♂ 19.0 mm; 5 ♀ 20.1 to 21.5 mm.

This species has been previously reported from Indonesia; it is also known from the Arabian Sea, Shri Lanka, the Andaman Sea, Hawaii and Japan, at depths between 200 and 1367 m.



Genus *Cryptopenaeus* de Freitas, 1979

*Cryptopenaeus elevai* sp. nov.

Figures 1a - b, 2a - e, 3a

*Material*: CORINDON IV — St. IV 1, 400 - 300 m: 1 ♀ 53.8 mm holotype.

*Description*: Carapace apparently smooth but showing some small widely separated depressions near the dorsal margin of rostrum and orbital border, the pterygostomian area and the anterior part of branchial area; these depressions correspond with the insertion of short setae, most of which have been torn out, probably during trawling.

Rostrum rather short, not quite reaching end of second antennular segment; dorsal margin strongly concave with 3 teeth; 4 teeth situated at regular intervals behind orbit; ventral margin strongly convex.

Postorbital carina high and conspicuous, almost reaching posterior border of carapace; without any notch behind last postrostral tooth, and dorsal border without any depression, longitudinal sulcus or bifurcation.

Carapace with antennal, postorbital, hepatic and pterygostomian spines. Antennal spine small; the three others longer, subequal. Cervical sulcus accompanied by sharp carina posteriorly, ending far before dorsal border of carapace. Hepatic carina interrupted by broad hepatic sulcus, with anterior end strongly curved, forming a prominent lobe on anterior part of pterygostomian area. No vertical sulcus, nor carina, behind hepatic sulcus, except a short branchiocardiac carina.

Eyes well developed with peduncles slightly wider than long when seen from above.

Antennular peduncle almost as long as the scaphocerite. Antennular flagella cylindrical; only one superior flagellum undamaged, its length equal to 1.25 that of carapace and 2.75 that of antennular peduncle.

Stylocerite not reaching to distal margin of eye.

Mouth parts (fig. 2a - e) typical for Solenoceridae. Endopodite of third maxilliped longer than scaphocerite by length of last segment.

Distribution of branchiae, epipodites and exopodites summarized in Table 1; same as for the genera *Haliporoides*, *Hadropenaeus* and *Hymenopenaeus*.

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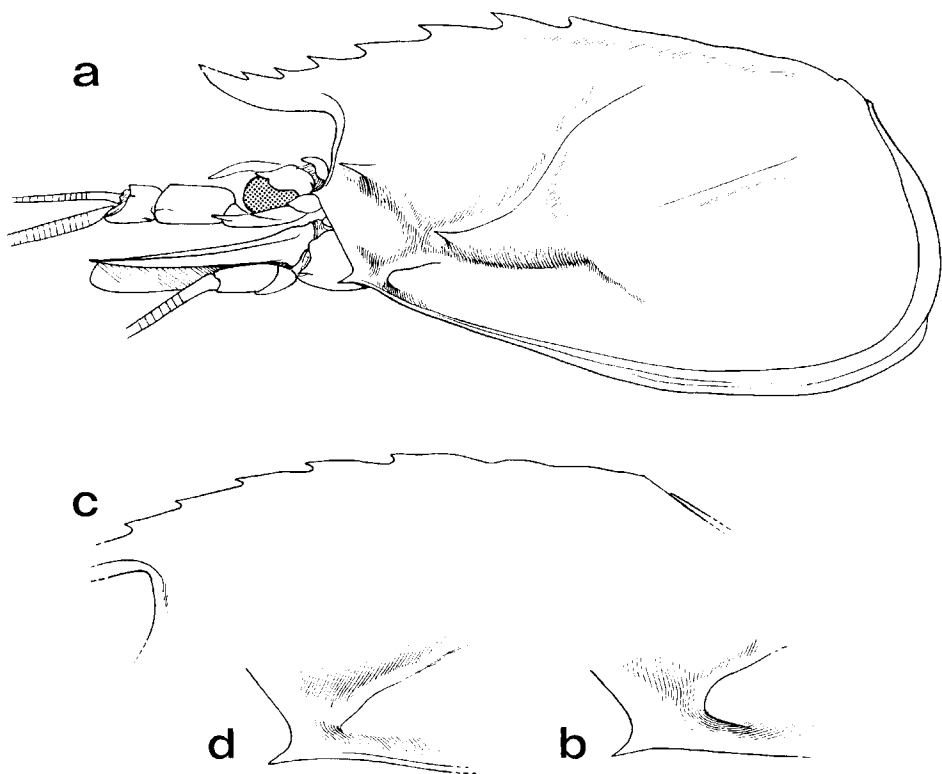


Figure 1a - b. *Cryptopenaeus clevai* sp. nov., ♀ 53.8 mm, *holotype*, CORINDON IV, st. IV 1: a, cephalothorax, lateral view; b, anteroventral part of carapace.

Figure 1c - d. *Cryptopenaeus catherinae* de Freitas, 1979, ♀ 68.2 mm, *holotype*, 25°00'S — 35°21'E (Mozambique), 500 m: c, dorsal border of carapace; d, anteroventral part of carapace.

Table 1. Distribution of branchiae, epipodites and exopodites in *Cryptopenaeus clevei*.

	Maxillipeds			Pereopods				
	I	II	III	I	II	III	IV	V
Pleurobranchiae	—	—	1	1	1	1	1	1
Arthrobranchiae	1	2	2	2	2	2	2	—
Podobranchiae	—	1	—	—	—	—	—	—
Epipodites	1	1	1	1	1	1	1	—
Exopodites	1	1	1	1	1	1	1	1

First pereopod reaching slightly beyond first segment of antennular peduncle; basis and ischium armed with a long subterminal spine on ventral border. Second pereopod with only one shorter spine on basis, not quite reaching extremity of scaphocerite. Third pereopod incomplete, without spines on basis or ischium; no spines on these segments in pereopods 4 and 5. Fourth pereopod reaching about middle of scaphocerite. Fifth pereopod not complete.

Third through sixth abdominal segments with a well marked dorsal carina along the entire length, except on third segment where the carina is 0.80 of the length. Carina on sixth segment ending posteriorly in a spine, and on the other segments with a notch. Second segment with a rounded dorsal elevation along posterior 0.66 of its length, that can be considered a forerunner of carina. Ventral border of sixth segment armed with a small spine distally. Abdominal sternites with a tooth situated between paired pleopods; this tooth is very strong on the first sternite, considerably smaller but very sharp on the second, becoming progressively smaller and rounded on the posterior sternites.

Telson broken.

Thelycum (fig. 3a) with pentagonal elongated plate, on major part of sternite XIV, with two double protuberances covered with setae situated on each side of median axis. Behind these, a smooth, median raised tubercle present. Posterior part of pentagonal plate with two transverse ridges, raised vertically and separated from each other by a semicircular depression. Proximal to pentagonal plate, there are two protuberances covered with setae, transversely elongated on extreme anterior part of sternite XIV. They are situated just next to the two double protuberances on the pentagonal plate, separated from them by a simple split.

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General coloration more or less deep pink; some parts whitish (especially rostrum, scaphocerite, and proximal parts of pereopods and pleopods).

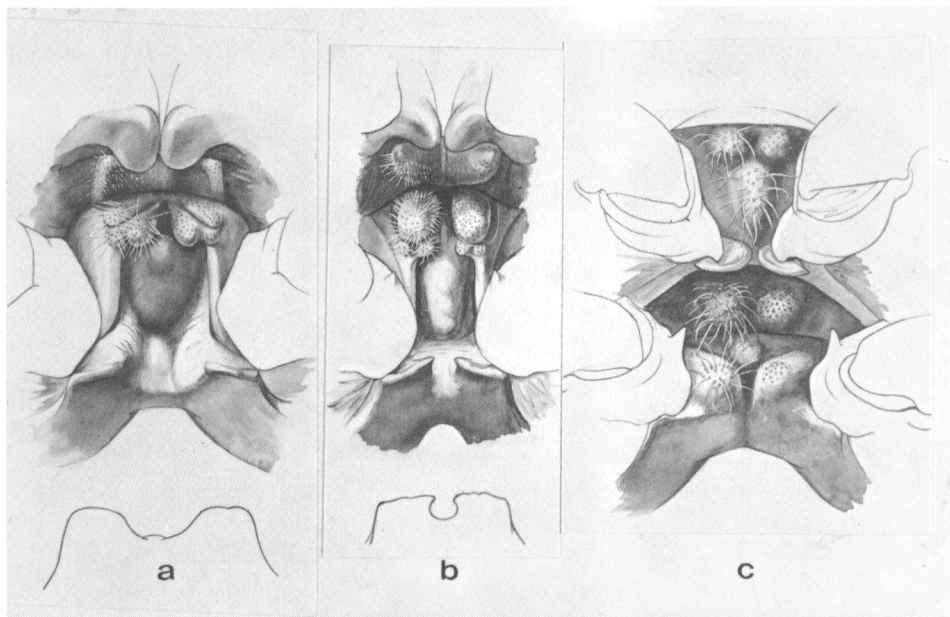


Figure 3. Thelyca, ventral views.

- a, *Cryptopenaeus clevai* sp. nov., ♀ 53.8 mm, CORINDON IV, st. IV 1;
- b, *Cryptopenaeus catherinae* de Freitas, 1979, ♀ 68.2 mm, holotype, 25°00'S — 35°21'E (Mozambique), 500 m;
- c, *Solenocera* cf. *phuongi* Starobogatov, 1972, ♀ 11.6 mm, CORINDON II, st. 208, 149 - 154 m.

*Remarks:* Until now the genus *Cryptopenaeus* was represented by just one species *catherinae* de Freitas, 1979. Only 5 males and 1 female were recorded, all of them collected off Mozambique, at depths between 310 and 500 m.

We were able to compare our specimen with the female allotype of *catherinae*.

*Cryptopenaeus clevai* may be distinguished from *catherinae* by the anterior part of the hepatic carina, which is relatively straight in *catherinae* (fig. 1d), strongly curved in *clevai* (fig. 1b).

There are other differences that separate these two species, but to confirm them it would be necessary to examine many more specimens. These additional characters are as follows:

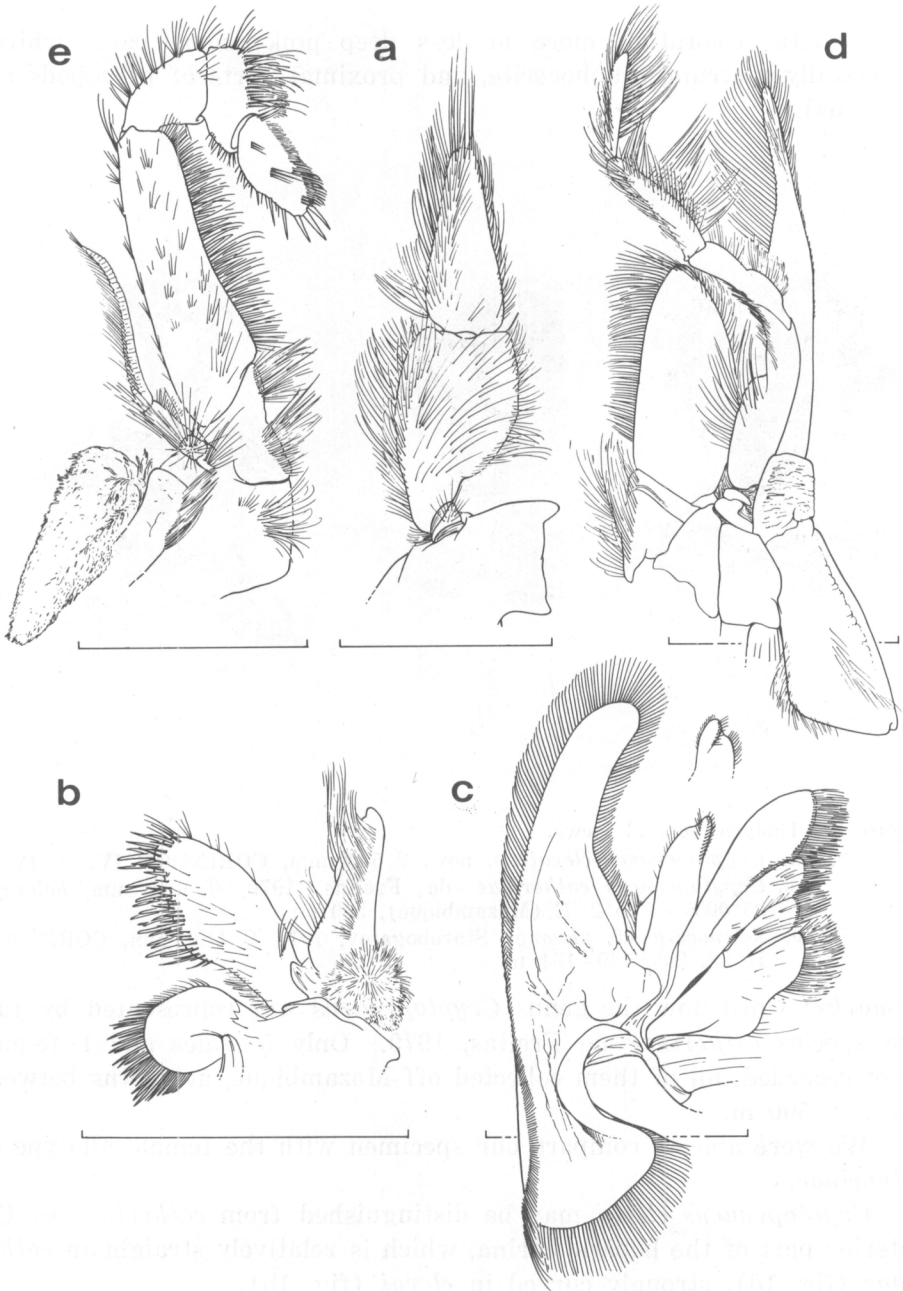


Figure 2. *Cryptopenaeus clevai* sp. nov., ♀ 58.8 mm, holotype, CORINDON IV, st. IV 1: a, right mandible; b, right first maxilla; c, right second maxilla; d, right first maxilliped; e, right second maxilliped. Scale: 1 cm.

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- distinct notch on postrostral carina behind the last tooth in *catherinae*, absent in *clevai*. However this notch is pronounced in *catherinae* males, according to de Freitas' figure, but feeble in the female (fig. 1c);
- antennular flagella longer in *catherinae* than in *clevai* (length equal to 3 times that of antennular peduncle in *catherinae*, and 2.75 in *clevai*);
- third maxilliped reaching to the end of scaphocerite in *catherinae*, but surpassing it by entire length of dactyl in *clevai*;
- spine present on basis of third pereopod and coxa of fifth pereopod in *catherinae*, absent in *clevai*;
- dorsal carina pronounced on second abdominal segment in *catherinae*, just visible (weak and rounded) in *clevai*;
- thelyca very similar in both species; however that of *catherinae* differs from that of *clevai* in bearing a longitudinal crest with rounded tip on pentagonal plate (instead of a raised tubercle); smaller setose protuberances in front of pentagonal plate; anteriormost protuberances of sternite XIV larger and rounder; vertical lateral elevations on posterior border of trapezoid plate bearing a tooth in the internal angle (fig. 3a - b).

This species is dedicated to Mr. R. Cleva, a technician at the Laboratory of Zoology, at the Muséum National d'Histoire Naturelle, who, in the course of his laboratory duties, undertakes with great devotion and competence, much essential but often tedious work.

Genus *Solenocera* Lucas, 1849

*Solenocera comata* Stebbing, 1915

*Solenocera comata*, Crosnier 1978, p. 138, fig. 48b, 49b, 50d - f, 51b - c, 52b, 55b, 58b, 59e.

*Material*: CORINDON IV — St. V 2, 250 - 244 m: 3 ♂ 12 mm.

This species has been reported off Madagascar, in the south of China Sea and off Japan, at depths between 55 - 97 m and 348 - 360 m. It does not seem to have been recorded previously in Indonesia.

*Solenocera chopraei* Nataraj, 1945

*Solenocera chopraei*, Crosnier, 1978, fig. 49g, 51d - e, 52c, 53a - c, 54a - b, 55c, 56a - c, 58c, 59f.

**Material:** CORINDON II — St. 273, 120 - 200 m: 1 ♂ 30.2 mm; 2 ♀ 12.2 and 31.0 mm.

This species is known from off Madagascar, the Gulf of Suez, the Arabian Sea and the Andaman Sea, the Malacca Strait and the South China Sea, at depths between 50 m and 170 - 175 m.

Specimens cited above are very similar to those reported by Hall (1962, fig. 75) from the Malacca Strait; their postrostral carina is not very high and the posterior border of sternite XIV is slightly sinuous in females (see CROSNIER, 1978, pp. 143 - 144).

STAROBOGATOV (1972, pp. 363, 384, pl. 2, fig. 6a - c) described *S. vietnamiensis*, a species closely related to *chopraei*. Dr. B.G. Ivanov from VNIRO loaned us three of the type specimens to examine (Pelamida St. 33, n°53241; St. 34, n°53241). These 3 specimens are, in our opinion, *S. koelbeli* De Man, 1911. The postrostral carina is divided into two branches, not joining posteriorly as described by Starobogatov for *vietnamiensis* in figure 6a. It would appear that either Starobogatov has two species present in his type collection, or *vietnamiensis* is a synonym of *koelbeli*. The holotype would need to be examined in order to resolve this question, but we believe the latter explanation is correct.

If *koelbeli* and *vietnamiensis* are synonyms, the female specimen that STAROBOGATOV (1972, p. 361, pl. 2, fig. 9c) has identified as *koelbeli* probably belongs to an another species.

*Solenocera melantho* De Man, 1907

*Solenocera melantho* De Man, 1907, p. 137; 1911, p. 48; 1913, pl. 5, fig. 12, 12a - i. — Starobogatov, 1972, p. 34, pl. 2, fig. 8a - d. — Pérez Farfante & Grey, 1980, p. 427, fig. 3b - c, 6a - b, 7a - b.

*Solenocera prominentis* Kubo, 1949, p. 231, fig. 8V, 14C, 16C, 20M, 27Q - S, 45A, 66G - H, 72F and L, 80E, 94D - G, 95, 100. — Hoon Soo Kim, 1977, p. 99, fig. 12A - F, 13A - J, pl. 41, fig. 1. — Lee & Yu, 1977, p. 47, fig. 29 - 30.

*Non Solenocera melantho*, Lee & Yu, 1977, p. 45, fig. 27 - 28 = probably *S. koelbeli* De Man, 1911.

## PENAEOID SHRIMPS

*Material:* CORINDON II — St. 273, 120-200 m: 1 ♂ 26.8 mm; 1 ♀ 32.3 mm.

De Man's type specimens were collected in Indonesia and the material described here agrees closely with them although the pereopods are a little shorter than those of the type figured by DE MAN (1913, pl. 5, fig. 12), and the dorsolateral lobules of the petasma are armed with 3 or 4 spines, not 9 to 13 as in the holotype (see DE MAN, 1913, fig. 12g-h, and PÉREZ FARFANTE & GREY, 1980, fig. 6a-b).

The specimens of *S. prominentis* Kubo (1949) from Japan can be distinguished from those of typical *melanthero* by the shorter pereopods and smooth dorsolateral lobules of the petasma. Prof. Hoon Soo Kim, University of Seoul, kindly allowed us to examine one male and one female of *prominentis* collected in Korea, which confirmed these differences. It is interesting to notice that all the lobules of the petasma in the Korean male are less spiny than that of the Indonesian male: the Korean male have 13 and 14 spines on the ventromedian lobules while the Indonesian specimen has 16 and 17, 9 and 11 spines on the ventrolateral lobules instead of 13. The antennulae are damaged and, therefore, it is impossible to make my comparisons.

The Korean and Indonesian specimens are alike in all other respects and I consider the cited differences may characterize geographically separated populations, but that they do not correspond to different new species or subspecies. I agree with STAROBOGATOV (1972, p. 361) on the synonymy of *prominentis* and *melanthero*.

It should be noted that specimens of *S. halli* Starobogatov, 1972, collected in the Malacca Strait, were misidentified by HALL (1962, fig. 74) as *S. melanthero*. *S. halli* is closely related to *melanthero*, *koelbeli* De Man, 1911, and *australiana* Pérez Farfante & Grey, 1980.

Taking into account the confusion between these species, it is difficult to define the geographical distribution of *melanthero*. This species is definitely known from off Korea, Japan and Taiwan (as *prominentis*), Philippines and Indonesia, occurring at depths between 150 and 400 m.

*Solenocera cf. waltairensis* Georges & Muthu, 1970

Figures 4a, 7a.

*Material:* CORINDON II — St. 205, 49 m: 1 ♂ 6.9 mm; 3 ♀ 6.9 to 8.1 mm.  
— St. 295, 51-54 m: 1 ♂ 7.1 mm.



All the collected specimens are damaged, all having lost their antennulae and most of their legs. They are also very small.

We have compared these specimens with those from Madagascar identified as *waltairensis* (CROSNIER, 1978, p. 165, fig. 49f, 52g, 55g, 57d, 59c, j, 62d - f, 63e - f). They are similar but show some small differences; the following characters are found in the Indonesian specimens:

- anterior part of hepatic carina slightly more vertical;
- 6 to 8 spines on accessory lobules of petasma (9 to 11 in Madagascan specimens), 19 to 21 on dorsolateral lobules (instead of 13 to 17). In the Indonesian specimens the spines are spread over a wider area, reaching to below apex of ventrolateral lobules (not in Madagascan specimens). Ventromedian lobules less angular (more curved); one male with 15 spines; another with 24. In the Indonesian specimens the spines on the accessory and dorsolateral lobules are more like those in the types of *waltairensis* (GEORGES & MUTHU, 1970, p. 292, fig. 1 - 4), than the Madagascan specimens although they are stronger and spread over a wider area on the dorsolateral lobules;
- sternite XIV in the female is produced posteriorly to form two large protuberances, and anteriorly forms four transverse elevations. There does not appear to be a median elevation anterior to the large protuberances as is found in the Madagascan specimens and the *waltairensis* holotype (this character, however, is difficult to ascertain in our small specimens).

The Indonesian specimens have 7.8 or 9 rostral and postrostral teeth. The second pereopod surpasses the scaphocerite by the entire length of the dactyl.

*Solenocera cf. phuongi* Starobogatov, 1972

Figures 3c, 4b.

*Material*: CORINDON II — St. 208, 149 - 154 m: 1 ♀ 11.6 mm.

This specimen is close to *bedokensis* HALL (1962, pl. 3, fig. 78, 78a - c) and *phuongi* STAROBOGATOV (1972, p. 366, pl. 3, fig. 12a - b) by the possession of 7 rostral and postrostral teeth and also the hepatic carina which runs in an almost straight line with the inferior part of hepatic sulcus. It seems to be closer to *phuongi* by the arrangement of protuberances and tubercles on the thelycum, but the pereopod lengths

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are different: the first extends as far as 0.68 the length of the scaphocerite compared to 0.33 in *phuongi*. The second pereopod extends beyond the scaphocerite by the length of the dactyl (unlike that in *phuongi* where it reaches only to the end of the scaphocerite). The third pereopod also extends beyond the scaphocerite by a little more than twice the length of the propodus, instead of 2.5 times in *phuongi*.

The inferior antennular flagellum is composed of 78 segments. The superior antennular flagellum is 1.8 times the length of the carapace. Only the basis and ischium of the first pereopod are armed with a spine.

*S. bedokensis* and *S. phuongi* were both described from single, damaged, females (without antennulae) and the illustrations for both were poor. It is therefore difficult to identify specimens until the two species have been adequately redescribed.

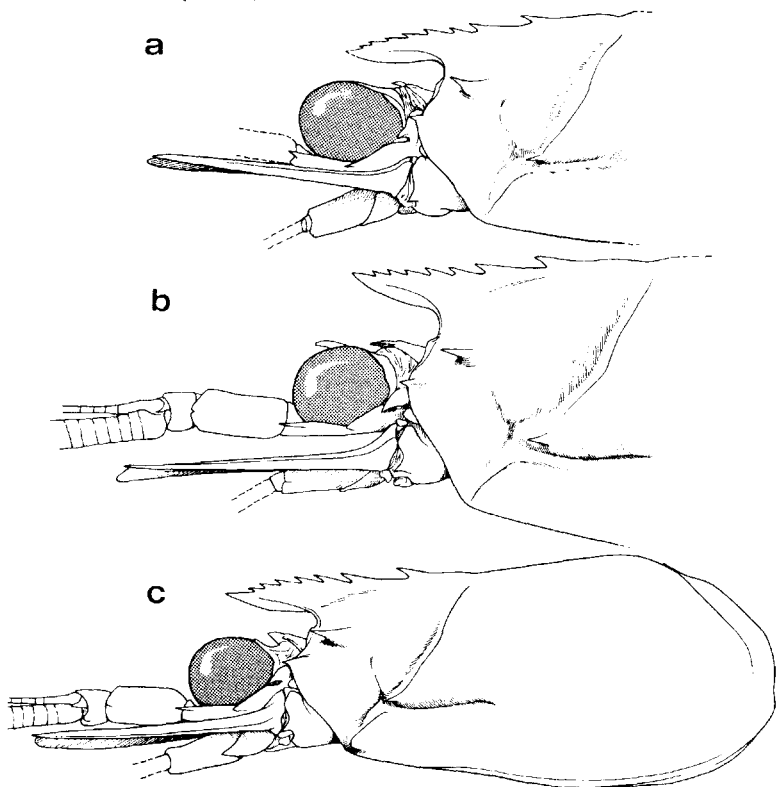


Figure 4. Cephalothoraxes, lateral views.  
a, *Solenocera cf. waltirensis* George & Muthu, 1970, ♂ 6.9 mm, CORINDON II, st. 205, 49 m;  
b, *Solenocera cf. phuongi* Starobogatov, 1972, ♀ 11.6 mm, CORINDON II, st. 203, 149-154 m;  
c, *Solenocera* sp., ♂ 9.1 mm, CORINDON II, st. 273, 120-200 m.

This is also the case for *gurjanovae* Starobogatov, 1972, and *zarenkovi* Starobogatov, 1972, two species closely related to the preceding ones. A total revision of the *Solenocera* group from the Indo-West Pacific, characterized by the presence of the postorbital, antennal and hepatic spines, and an hepatic carina that is straight anteriorly, would be ideal. This group also includes *rathbuni* Ramadan, 1938, and *waltairensis* Georges & Muthu, 1970. For specific identification the range of variation must be compared and geographical localities taken into consideration.

*Solenocera pectinata* (Bate, 1888)

*Solenocera pectinata*, Crosnier, 1978, p. 162, fig. 49d, 52e, 55e, 57b, 59a, h, 60d - f, 61c - d.

*Material*: CORINDON II — St.295, 51 - 54 m: 2 ♂ 9.5 and 10.0 mm; 1 ♀ 11.8 mm.

These specimens possess all the diagnostic characters described by BATE (1888). Two specimens have 63 - 65 segments in the inferior antennular flagella and the ratio of antennular flagella/carapace length is 1: 1.58 (in male 10 mm cl) and 1: 1.5 (in female 11.8 mm cl).

This species has been often misidentified as *S. pectinulata*, but has been correctly identified from the South China Sea, the Gulf of Tonkin, off Indonesia, Burma, the Arabian Sea, off Kenya, Tanzania and Madagascar. It has been collected from shore to a depth of 200 m.

*Solenocera pectinulata* Kubo, 1949

*Solenocera pectinulata* Kubo, 1949, p. 251, fig. 8, 27A - B, 66K - L, 72N - T, 83B, 101, 102A - C. — Crosnier, 1978, p. 151, fig. 49c, 52d, 55d, 57, 58d, 59g, 60a - c, 61a - b.

*Material*: CORINDON II — St. 206, 79 - 85 m: 1 ♂ 8.4 mm; 1 ♀ 14.4 mm. — St. 216, 96 m: 1 ♀ 15.2 mm.

The specimens have 54 - 53 segments in the inferior antennular flagella, the ratio of the superior antennular flagella/carapace length is 1: 0.95 and 1: 1.02 in the two females, and 1: 1.3 in the small male. This male is similar to the holotype, a male 10 mm cl that possesses inferior antennular flagella with 55 segments and superior antennular flagella the length of which is about 1.3 that of the carapace.

The thelycum was figured by CROSNIER in 1978 (fig. 60a) and it should be noted that the two protuberances on the trapezoid plate of sternite XIV often have a larger longitudinal extension than shown in the illustration.

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This species has been reported from off Japan, Indonesia, west coast of India, Kenya, Mauritius Island and Madagascar, from depths between 75 and 350 m, but usually seems to occur mostly above 175 m.

*Solenocera* sp.

Figures 4c, 7b.

*Material*: CORINDON II — St. 273, 120 - 200 m: 1 ♂ 9.1 mm.

This species falls within the *pectinata-pectinulata* group. It is probably a new species but with only one male specimens this cannot be confirmed.

The rostrum of this specimen suggests it is close to *pectinulata*, but the elongate antennular flagella (length equal to 1.65 that of the carapace), the 66 segments in the inferior antennular flagella and the shape of the branchiostegal lobe, place it close to *pectinata*. The third pereopod is longer than the scaphocerite by 0.33 of the length of the carpus, unlike that of *pectinulata* in which it is a little more than 0.25, or that of *pectinata* in which it is 0.20 of the length of the carpus.

The petasma is similar to that of *pectinulata* in the shape of the ventromedian lobes, length of setae on the dorsolateral lobes and number of spines (10 to 12) on the accessory lobes; but the ventrolateral lobes have just one tooth on the distal border of their curved extremity as in *pectinata*; the remaining length of the curved end is pectinated, a character not present in *pectinata* or *pectinulata*.

*Solenocera moosai* sp. nov.

Figures 5a, 6a, 7c, d, h, i,

*Material*: CORINDON II — St. 273, 120 - 200 m: 2 ♂ 15.1 and 17.0 mm; 1 ♀ 21.8 mm. The male specimen 17.0 mm cl is the holotype. The other specimens are paratypes.

*Description*: Carapace glabrous, lacking setae except for some setae close to the superior margin of the rostrum. Rostrum well developed and rather high, with a subhorizontal dorsal margin and a convex ventral margin that is sometimes slightly sinuous at end. Extremity of rostrum very distinct, reaching about 0.80 the length of the cornea. Six rostral and postrostral teeth. First, epigastric, tooth separated from preceding one and situated farther from it than from the cervical sulcus at 0.33 of the distance between the cervical sulcus and orbit. Three teeth behind the orbit, fourth tooth above the orbit.

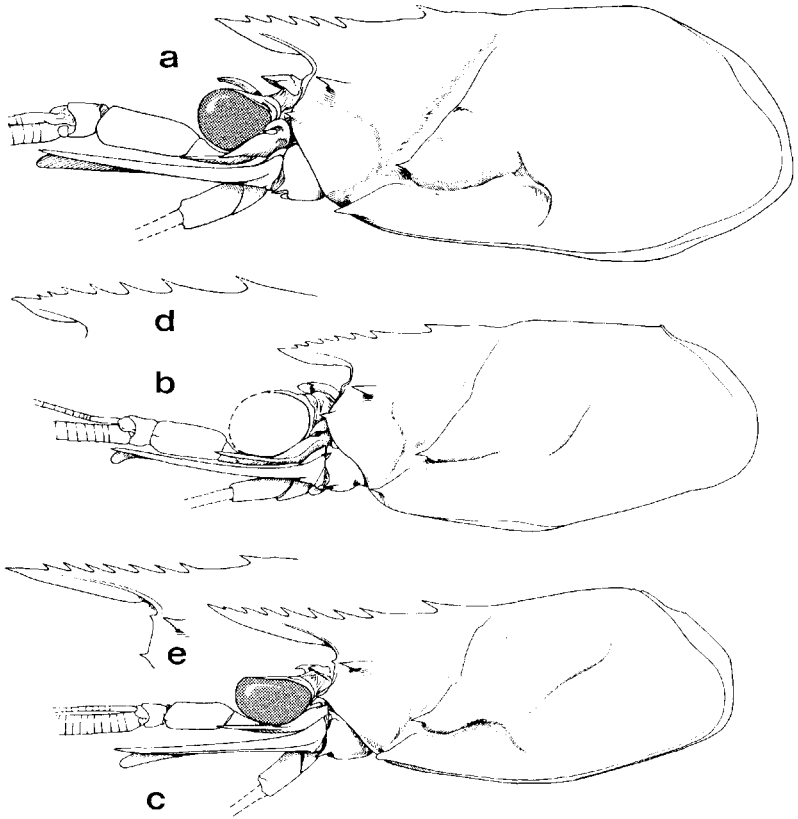


Figure 5a - c. Cephalothoraxes, lateral views:

- a, *Solenocera moosai* sp. nov., ♂ 17.0 mm, *holotype*, CORINDON II, st. 273, 120-200 m;
- b, *Solenocera spinajugo* Hall, 1961, ♀ 12.1 mm, MUSORSTOM I Philippines, st. 45, 13°16.0'N — 120°23.8'E, 100-180 m. (eye damaged);
- c, *Solenocera annectens* (Wood-Mason, 1891), ♂ 15.8 mm, CORINDON II, st. 276, 395-450 m.

Figure 5d - e. Rostrums:

- d, *Solenocera jasoni* De Man, 1907, ♀ 18.5 mm, *holotype*, Siboga Exp., st. 254, 5°40'S — 132°26'E, 310 m;
- e, *Solenocera annectens* (Wood-Mason, 1891), ♀ 20.7 mm, MUSORSTOM II Philippines, st. 25, 13°39.0'N — 120°42.6'E, 550-520 m.

Postrostral carina only slightly overreaching the dorsal extremity of the cervical sulcus that extends to the dorsal border but does not interrupt the postrostral carina which is only barely depressed at ist level.

## PENAEOID SHRIMPS

Carapace with antennal, hepatic and postrostral spines.

Hepatic carina ending anteriorly in a very sharp lobe projecting beyond the carapace border. Hepatic sulcus clearly distinct and hepatic area above sulcus and behind spine strongly elevated, posteriorly defined by a conspicuous transverse sulcus. Eyes large.

Antennulae with prosartema almost reaching the apex of the rostrum; antennular peduncle slightly shorter than scaphocerite. Superior antennular flagella ending as a filament, with the last 12 segments not flattened but cylindrical, and little longer than the inferior flagella. Ratio of superior flagella/carapace length 1 : 1.65 in male 15.1 mm cl, and 1 : 1.60 in male 17.0 mm cl; 1 : 1.42 in female 21.8 mm cl. These specimens have 92.80 and 77 segments respectively the inferior flagellum.

External border of scaphocerite with distal spine reaching the distal margin of lamella.

Third maxilliped surpassing the scaphocerite by the length of the dactyl which is equal to 0.75 the length of the male propodus and 0.66 the length of the female propodus.

First pereopod overreaching the base of scaphocerite by entire length of propodus; basis and ischium armed with a rather long subdistal spine on inferior border. Second pereopod with a spine on basis only, extending to end of scaphocerite. Third, fourth and fifth pereopods without spine. Third pereopod surpassing scaphocerite by entire length of propodus and 0.25 that of carpus. Fourth pereopod exceeding scaphocerite by 0.33 length of dactyl in male (the end of the female). Fifth pereopod very long (length close to 2.85 that of carapace).

Coxae of the five pairs of pereopods each armed with tooth that is well developed on the fifth coxa only.

First two abdominal segments without dorsal carina; third segment with a well marked carina on 0.80 to 0.90 of its posterior length. Last three segments with a carina along their entire length. Carina of third, fourth and fifth segments ending posteriorly in a notch; carina of sixth segment ending in a spine. Abdominal sternites with a tooth between pleopods. Inferior borders of sixth segment armed with a small posterior spine.

Telson length equivalent to 1.3 that of sixth abdominal segment, barely longer than internal uropodal rami and barely shorter than external uropodal rami. External border of external uropodal rami ending in an indistinct tooth. Telson dorsally depressed to form a groove anteriorly,

then convex, and armed with a pair of strong, fixed, lateral spines at posterior 0.70 of its length.

Thelycum (fig. 6a) with a pair of small elevations covered with setae on the anterior part of sternite XIV. Posterior part of sternite XIV trapezoid, entirely smooth with a central protuberance flanked posteriorly by broad, rounded ridges separated caudally by a longitudinal median sulcus.

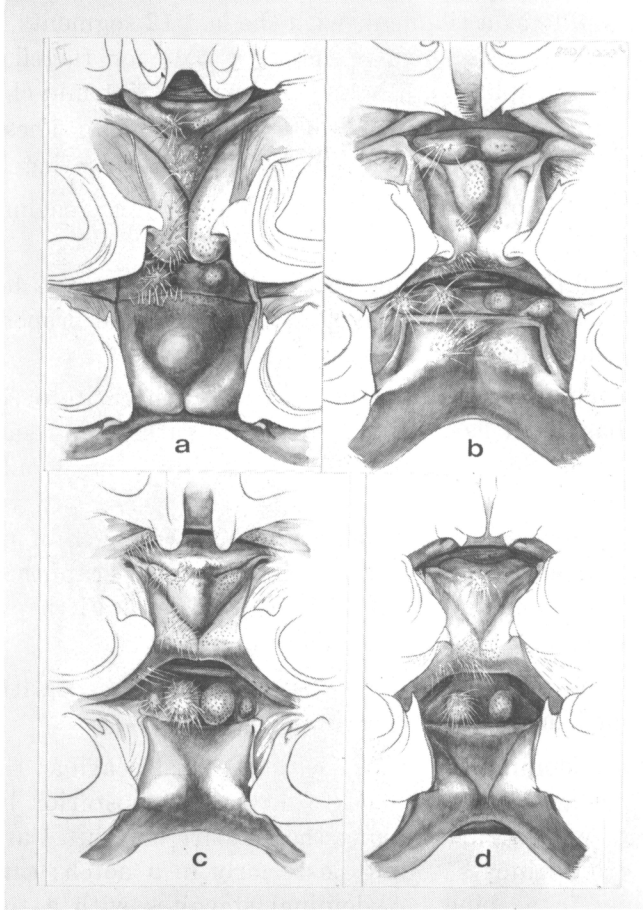


Figure 6. Thelycum ventral views.

- a, *Solenocera moosai* sp. nov., ♀ 21.8 mm, paratype, CORINDON II, st. 273, 120-200 m;  
 b, *Solenocera spinajugo* Hall, 1961, ♀ 12.1 mm, MUSORSTOM I Philippines, st. 45, 13°46.0'N — 120°23.8'E, 100-180 m;  
 c, *Solenocera annectens* (Wood-Mason, 1891), ♀ 20.7 mm, MUSORSTOM II Philippines, st. 25 13°39.0'N — 120°42.6'E, 550-20 m;  
 d, *idem*, ♀ 13.6 mm, CORINDON IV, st. I 1, 562-525 m.

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*Petasma* (fig. 7c - d) with ventromedian, dorsolateral and ventrolateral lobules deeply pectinated. Ventromedian lobules bilobed with 11 to 16 spines on part adjacent to dorsomedian lobules, and 15 to 18 on opposite part. Dorsolateral lobules with 22 to 25 spines and ventrolateral lobules with about 40. Accessory lobules not well developed, consisting of a membranous fold and unarmed.

Appendix masculina represented on figure 7h - i.

*Remarks:* This species is very closely related to *S. faxoni* DE MAN (1907, p. 136; 1911, p. 52; 1913, pl. 5, fig. 13) described from a badly damaged female collected in Kei Island (Indonesia). Since De Man's description, this species has only been recorded by KUBO (1949, p. 241; fig. 8U, 20P, 27C - E, 45F, 66A - B, 72R and 'X, 80C, 97, 98E - G, 100) from off Japan at the depth of 250 m.

I was able to examine the type specimen of *faxoni* as well as a male and female from Tosa Bay, Japan, and a male misidentified as *S. spinajugo* Hall, 1961, collected at 19° 02'N — 112° 49'E in the collections of the British Museum (Natural History), registration number 1969 - 862.

*S. moosai* and *S. faxoni* have the following characters in common:

- anterior part of hepatic carina forming a sharp branchiostegal lobe with apex extending beyond carapace border;
- hepatic area elevated and limited, apart from hepatic sulcus, by a more or less vertical sulcus starting close to posterior end of hepatic sulcus;
- six rostral and postrostral spines, the last situated far behind the others;
- pereopodal lengths;
- extremity of superior antennular flagellum ending in a cylindrical filament composed of about 12 segments (De Man's figure 13c represents a superior antennular flagellum with a broken end as observed in a *faxoni* specimen from the British Museum which had one entire superior antennular flagellum).



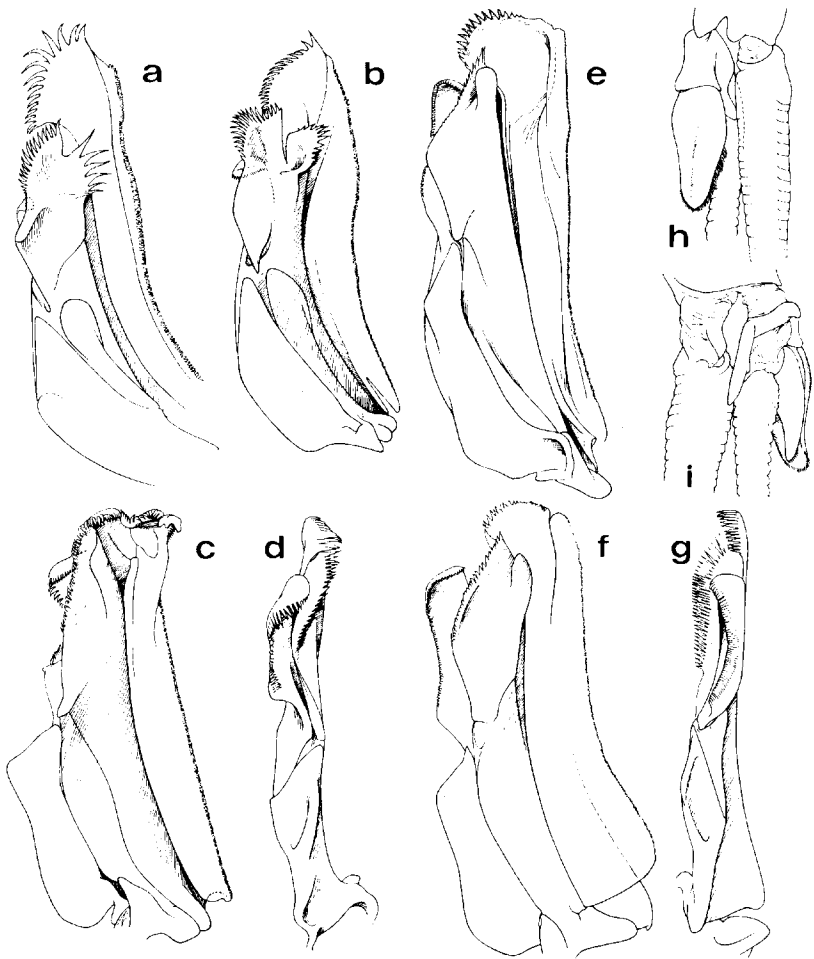


Figure 7a - f. Petasmata, right half, lateral and ventral views.

- a, *Solenocera* cf. *waltairensis* George & Muthu, 1970, ♂ 6.9 mm, CORINDON II, st. 205, 49 m;
- b, *Solenocera* sp., ♂ 9.1 mm, CORINDON II, st. 273, 120-200 m;
- c-d, *Solenocera moosai* sp. nov., ♂ 17.0 mm, holotype CORINDON II, st. 273, 120-200 m;
- e, *Solenocera faconii* De Man, 1907, ♂ 13.7 mm, Tosa Bay, Japan;
- f, *Solenocera annectens* (Wood-Mason, 1891), ♂ 15.8 mm, CORINDON II, st. 276, 395-450 m.

Figure 7g. Petasma, left half, ventral view. *Solenocera annectens* (Wood-Mason, 1891), ♂ 17.2 mm, CORINDON IV, st. I 1, 562-525 m.

Figure 7h - i. Left appendix masculina. *Solenocera moosai* sp. nov., ♂ 17.0 mm, holotype, CORINDON II, st. 273, 120-200 m.

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*S. moosai* differs from *S. faxoni* by the following characters:

- distinct dorsal carina on third abdominal segment (totally lacking in *faxoni*);
- antennular flagella much longer. It is difficult to measure precisely the total length of the antennula because of the damaged flagella in most specimens. However it seems probable that in *faxoni* the ratio of superior antennular flagella/carapace length is about 1: 15 to 1: 1.30 and in *moosai* to about 1: 1.40 to 1: 1.65, this ratio decreasing with the size of the specimens. So it is 1: 1.3 in a male *faxoni*, 11.8 mm cl, and 1: 1.65 in a male *moosai*, 15.1 mm cl. There are 52 to 64 segments on inferior antennular flagella in *faxoni*, and 77 to 82 in *moosai*.
- eyes normal in size (rather small in *faxoni*);
- petasma armed with more developed spines and bilobed ventro-median lobules (entire in *faxoni*, fig. 7e); accessory lobules not separated and without rounded tips but forming a simple membranous fold.

Detailed comparison of thelyca is not possible with the material available (the *faxoni* type specimen is partially damaged) but they appear very similar in the two species: both exhibit paired protuberances covered with setae on anterior part of sternite XIV.

The rostrum exhibit some differences (fig. 5a, 5d); in *faxoni* the tip is not raised as high and the inferior margin is more sinuous at the extremity. But considering individual variations.

Finally *moosai* seems to occur at slightly shallower depths than *faxoni* (120 - 200 m compared with 250 - 310 m).

*S. spinajugo* HALL (1961, p. 81, pl. 17, fig. 1 - 3) is also closely related to *moosai* (and so to *faxoni*). To date this species is known from the type specimen, a female collected in the north Malacca Strait, at a depth of 75 m. A second female specimen from a depth between 100 and 180 m was collected during the Musorstom I expedition in the Philippines. *S. spinajugo* is distinguished by the following characters:

- branchiostegal lobe ending in a distinct spine just reaching the anterior border of carapace (fig. 5b);

- 7 rostral and postrostral spines, rostrum not sharply pointed and with inferior margin convex along its entire length;
- well developed antennular flagella: ratio of superior flagella/carapace length is 1: 1.8 in female 12.1 mm cl. Flagella with 77 segments in our specimens and filamentous distally on a short distance only (fig. 6b);
- no spine on basis of second pereopod;
- dorsal carina on third abdominal segment (less marked than in *moosai*);
- thelycum (fig. 6b) with two conspicuous protuberances on anterior part of sternite XIV covered with setae and partially subdivided; trapezoid posterior part of sternite XIV showing posteriorly two large protuberances covered with setae and anteriorly a very small median elevation also covered with setae.

Finally this species has normal sized eyes and the cervical sulcus, unlike HALL's observation (1961, p. 82) does not continue from one side of the carapace to the other, but is interrupted near the dorsal line as in the other species described in this study. Postrostral crest is indistinct and therefore does not constitute a distinguishing character.

*Solenocera annectens* (Wood Mason, 1891)

Figures 5c, e, 6c - d, 7f - g.

*Parasolenocera annectens* Wood Mason in Wood Mason & Alcock, 1891, p. 276. — Alcock & McArdle, 1901, pl. 49, fig. 6. — Alcock, 1901, p. 21.

*Material*: CORINDON II — St. 276, 395 - 450 m: 1 ♂ 15.8 mm.

CORINDON IV — St. I 1, 562 - 525 m: 1 ♂ 17.2 mm; 1 ♀ 13.6 mm. — St. II 1, 483 - 315 m: 1 ♂ 15.2 mm; 1 ♀ 13.1 mm. — St. III 1, 550 - 546 m: 2 ♂ 15.5 and 15.6 mm.

MUSORSTOM II, Philippines, St. 25, 13°39.0'N — 120°42.6'E, 550 - 520 m: 1 ♀ 20.5 mm.

This species was described from a single female collected in the Andaman Sea at a depth of 823 m. It does not seem to have been reported since and the male was previously unknown. For these reasons we have figured our material.

In our specimens the rostrum is more or less raised upward. The length of the antennular flagella is equal or slightly longer than that of the carapace; the inferior flagellum is composed of 55 to 62 segments. The second abdominal segment bears an indistinct carina.

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There is great similarity between the petasma of this species and that of *faxoni* De Man, 1907. However these two species clearly differ in the rostral shape, length of the antennular flagella, presence of an orbital spine in *annectens* (absent in *faxoni*), a very sharp carina on third abdominal segment in *annectens* (lacking in *faxoni*).

### *Solenocera alfonso* Pérez-Farfante, 1981

*Solenocera alfonso* Pérez-Farfante, 1981, p. 631, fig. 1 - 5.

*Material*: CORINDON II — St. 273, 120 - 200 m: 1 ♂ 17.4 mm; 1 ♀ 12.3 mm.

This species was reported only from off the Philippines, at depths between 176 and 546 m. It can be distinguished from all the other species of the genus by the spine on the postrostral carina, behind the cervical sulcus (similar in this respect to *Haliporus steindachneri* Balss, 1914).

## Family SICYONIIDAE

Genus *Sicyonia* H. Milne Edwards, 1830

*Sicyonia lancifer* (Olivier, 1811)

*Sicyonia lancifer*, Bate 1888, p. 297, pl. 43, fig. 4. — De Man, 1911, p. 123. — Hall, 1962, p. 37, fig. 124, 124a - b.

*Material*: CORINDON II — St. 201, 21m: 1 ♂ 10.2 mm. — St. 205, 49 m: 1 ♀ 10.3 mm. — St. 292, 46 m, 1 ♀ 11.9 mm. — St. 295, 54 - 51 m: 1 ♂ 10.8 mm; 1 ♀ 10.8 mm.

Number and size of spines on abdominal pleura rather variable. Usually their distribution from the first to the fifth abdominal segment is 1, 1, 3, 3 and 3, but two of our specimens have two spines on the pleuron of the second abdominal segment (making them close to *cristata* de Haan), and another one has only two spines on the pleuron of the fifth abdominal segment. It should be noted that on BATE's figure (1888, pl. 43, fig. 4) the third abdominal pleuron has only two spines which, according to DE MAN (1911), is also true for the specimen examined by him. This species was previously reported from Indonesia; it has a very wide distribution in the Indo-West Pacific, occurring at shallow depths.

*Sicyonnia inflexa* (Kubo, 1949)

*Sicyonia inflexa* Kubo, 1949, p. 458, fig. 80, 48D, 77C and 1, 79G, 159, 160A - F.

*Material*: CORINDON II — St. 217, 470 - 447 m; 1 ♂ 8.0 mm. — St. 229, 445 - 411 m; 2 ♀ 10.3 and 12.4 mm.

Our specimens agree with Kubo's description. However, it is necessary to distinguish between Kubo's species *S. longicauda* RARHBUN (1906, p. 908, pl. 20, fig. 6) and *S. fallax* DE MAN (1911, p. 115; 1913, pl. 9, fig. 38, 38a - c).

*S. fallax* was described from a single female collected in Indonesia, and *S. longicauda* from many specimens from off Hawaii. *S. inflexa*, described from 8 females does not seem to have been reported elsewhere except off Japan.

All these species occur in rather deep waters (*inflexa* at about 300 - 450 m; *longicauda* at 450 to 550 m; *fallax* at 275 m).

## REFERENCES

- ALCOCK, A. 1901. A descriptive Catalogue of the Indian Deep-sea Crustacea Decapoda Macrura and Anomala, in the Indian Museum. Being a revised Account of the Deep-sea Species collected by the Royal Indian Marine Survey Ship "Investigator". Calcutta: I - IV 1 - 286, pl. 1 - 3.
- ALCOCK, A. and A.F. MCARDLE 1901. Crustacea. Part IX. *Illustrations of the Zoology of the Royal Indian Marine Surveying Steamer "Investigator"*, pl. 49 - 55.
- BALSS, H. 1925. Macrura der Deutschen Tiefsee-Expedition. 2. Natantia, Teil A. *Wiss. Ergebn. dt. Tiefsee-Exped. "Valdivia"*, 20: 217 - 315, fig. 1 - 75, pl. 20 - 28.
- BATE, C.S. 1888. Report on the Crustacea Macrura Collected by H.M.S. "Challenger" during the Years 1873 - 76. In: Report scient. Res. Voyage H.M.S. "Challenger", *Zoology*, 17: I - XC, 1 - 942, fig. 1 - 76, pl. 1 - 150.
- CROSNIER, A. 1978. Crustacés Décapodes Pénéides Aristeidae (Benthescymninae, Aristeinae, Solenocerinae). *Faune Madagascar*, 46: 1 - 197, fig. 1 - 63.
- CROSNIER A. and J. FOREST 1973. Les crevettes profondes de l'Atlantique oriental tropical. *Faune Tropicale*, ORSTOM, 19: 1 - 409, fig. 1 - 121.
- FREITAS, A.J. de 1979. A new genus and species of the penaeoid family Solenoceridae (Crustacea, Decapoda) from south-east African waters. *Ann. S. Afr. Mus.*, 77 (7): 123 - 131, fig. 1.

## PENAEOID SHRIMPS

- HALL, D.N.F. 1961. The Malayan Penaeidae (Crustacea Decapoda) Part II. Further taxonomic notes on the Malayan species. *Bull. Raffles Mus.*, 26: 76-119, pl. 17-21.
- HALL, D.N.F. 1962. Observations on the taxonomy and biology of some Indo-West-Pacific Penaeidae (Crustacea, Decapoda). *Col. Office Fish Publ.*, 17: 1-229, fig. 1-125, pl. 1, 4 pl. h.t.
- KIM, H.S. 1977. *Macrura*. In: Illustrated Flora and Fauna of Korea, 19: 1-414, fig 1-162.
- KUBO, I. 1949. Studies on the Penaeids of Japanese and its adjacent waters. *J. Toxyo Coll. Fish.*, 36 (1): 1-467, fig. 1-160.
- LEE, D.A. and H.P. YU 1977. The Penaeid shrimps of Taiwan. *JCRR Fish. Ser.*, 27: 1-110, fig. 1-74.
- MAN, J.G. de 1907. Diagnoses of new species of macrurous Decapod Crustacea from the "Siboga Expedition". II. *Notes Leyden Mus.*, 29: 127-147.
- MAN J.G. de 1911. Family Penaeidae. The Decapoda of the Siboga Expedition. Part I. *Siboga Exped.*, monogr. 39a, 1-31.
- MAN, J.G. de 1913. Family Penaeidae. The Decapoda of the Siboga Expedition. Part I. *Siboga Exped.*, Suppl. Monogr. 39a, pl. 1-10.
- PÉREZ FARFANTE, I. 1977. American Solenocerid shrimps of the genera *Hymenopenaeus*, *Haliporoides*, *Pleoticus*, *Hadropenaeus* new genus and *Mesopenaeus* new genus. *Fishery Bull. Fish Wildl. Serv. U.S.*, 75 (2): 261-346, fig. 1-63.
- PÉREZ FARFANTE, I. 1981. *Solenocera alfonso*, a new species of shrimps (Penaeoidea: Solenoceridae) from the Philippines. *Proc. biol. Soc. Wash.*, 94 (2): 631-639, fig. 1-5.
- PÉREZ FARFANTE, I. and D.I. GREY 1980. A new species of *Solenocera* (Crustacea: Decapoda: Solenoceridae) from Northern Australia. *Proc. biol. Soc. Wash.*, 93 (2): 421-434, fig 1-7.
- STAROBOGATOV, Y.I. 1972. Penaeidae (Crustacea Decapoda) du golfe du Tonkin. In: Fauna tonkinaskava zaliva i ouslovia io southchestvovania. *Akad. Nauk. SSSR. Zool. Institut. Isledovaniya Faune Morei, X (XVIII) Isdatelstvo "Naouka" Leningrad*: 359-415 pl. 1-11. (in Russian).
- WOOD-MASON, J. and A. ALCOCK 1891. Natural History Notes from H.M. Indian Marine Survey Steamer "Investigator", Commander R.F. Hoskyn, R.N. Commanding. Series II. N°1. On the Results of Deep-sea Dredging during the Season 1890-91. *Ann. Mag. Nat. Hist.*, (6) 8: 268-286, 353-362.

