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SERGESTES PREHENSILIS BATE, 1881

With 9 Text-figures

Katsushi SAKAI and Terumi NAKANO

サクラエビ属(十脚甲殻類)の研究

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Introduction

Two species of the pelagic shrimps brought by R/V Kaiyomaru of the Tokai regional Fisheries Research Laboratory in Tokyo between 23th May and 10th June 1980, *Sergestes seminudus* HANSEN and *prehensilis* BATE are studied. The specimens of *S. seminudus* collected from Indonesia by the Snellius Expedition are also used for making a comparison with the Japanese specimens. It seems that *Sergestes fujiyamaensis* NAKAZAWA 1932 from Suruga Bay is synonymous with *S. prehensilis* BATE.

STIMPSON (1860: 46) established the genus *Sergia* with the definition that "*Pedes quarti quintique paris sat longi et dactylo palmiformi instructi*" (=fourth and fifth pereopods very long, and their dactyla palm-formed). However this definition is not always characteristic and tends to be confused with the character of *Sergestes* H. MILNE-EDWARDS, 1830. So far as these two genera are concerned, YALDWYN (1957: 7) mentioned that "the genus *Sergestes* may be divided into two subgenera (*Sergestes* s. str. and *Sergia* s. str.) on both morphological and physiological grounds", and defined that *Sergestes* s. str. possesses organs of Pesta (=luminescent organ inside the cephalothorax) and is lacking cuticular pigmentation and that *Sergia* s. str. has no organs of Pesta, but cuticular pigmentation and often possesses dermal photophores. However he admitted that his systematical division may not be enough to explain the differences between two subgenera adequately. It seems that the characters of the luminescent organs or dermal photophores are not always related to those of petasma, so that two species described in this paper are treated under the genus *Sergestes*.

Abbreviations are as follows: BLT (Biological Laboratory in Tokushima), RMNH (Rijksmuseum van Natuurlijke Historie in Leiden), TL (total length), UMK (Universitetes Zoologiske Museum in Kobenhavn), ZMA (Zoölogisch Museum, Universiteit van Amsterdam).

Sergestes seminudus HANSEN 1919

text-figs 1-5

1919 *Sergestes seminudus* HANSEN, Siboga Exped. **38** : 18, pl I, figs 7a-7c, pl II, figs 1a-1f.

Non :

1957 *Sergestes (Sergestes) cf. seminudus*,YALDWIN, Zool. Pub. Victoria Univ. Wellington **22** : 14, fig 10.

Material examined : Japan Trench, Kaiyo St. MT1A, 150 m (1 ♂ TL 46.0 mm, BLT1268 : 1 ♀, TL 46.5 mm, BLT 1269 ; 1 ♀, TL 46.0 mm, BLT 1270 ; 13 ♂, TL 40.5-50.0 mm, 9 ♀, TL 39.5-47.0 mm, BLT 1271).Kaiyo St. MT1B, 150 m (1 ♂, TL 43.0 mm, 6 ♀, TL 38.0-52.0 mm, BLT 1293).Kaiyo St. MT5B, 800 m (5 ♂, TL 38.5-52.5 mm, 4 ♀, TL 43.0-52.0 mm, BLT 1300).Kaiyo St. MT6A, 800 m (1 ♂, TL 42.5 mm, BLT 1309 ; 20 ♂, TL 37.0-51.0 mm, 23 ♀, TL 37.5-53.5 mm, BLT 1310).Kaiyo St. MT6B, 800 m (10 ♂, TL 36.5-47.5 mm, 12 ♀, TL 32.0-54.5 mm, BLT 1353).Kaiyo St. MT8B, 1600-1700 m (1 ♀, TL 50.5 mm, BLT 1375).Kaiyo St. MT9B, 2900-3300 m (1 ♂, TL 36.0 mm, BLT 1376).Kaiyo St. MT10B, 2600-2700 m (1 ♀, TL 42.5 mm, BLT 1377).Kaiyo St. MT14B, 4000-4500 m (1 ♀, TL 44.0 mm, BLT 1378).Kaiyo St. MT16B, 4100-4400 m (1 ♂, TL 32.5 mm, 2 ♀, TL 35.0-36.0 mm, BLT 1379).Kaiyo St. MT18B, 4100-4500 m (1 ♂, TL 32.0 mm, BLT 1382).Kaiyo St. MT23B, 500-5200 m (1 ♀, TL 41.5 mm, BLT 1383).

0°17'.6S, 129°14'.5E, Siboga-Exp. St. 148, 0-1000 m (1 ♂, TL 35.0 mm, 2 ♀, TL 27.0-29.0 mm, Syntypes. ZMA 102.459).Manipa Strait, 3°20'S, 127°22'.9E, Siboga-Exp. St. 185, 0-1536 m (appendages labelled as types for figures and 1 Acanthosoma, Syntypes, ZMA 102.459). 3°58'S, 128°20'E, Siboga-Exp. St. 230, 0-2000 m (1 ♂, TL 39.5 mm, Syntype, ZMA 102.459).Manipa Strait, 3°20'S, 127°22'.9E, Siboga-Exp. St. 185, 0-1536 m (1 ♂, TL 39.5 mm, Syntype, UMK).

1°52'.0N, 125°41'.0E, Snellius Exp. St. 79, 0-2500 m (1 ♂, TL 48.0 mm, 1 ♀, TL 38.5 mm, RMNH). 1°06'.5S, 126°46'.5E, Snellius Exp. St. 80, 0-4000 m (1 ♀, TL 40.0 mm, RMNH). 8°39'.0S, 130°35'.0E, Snellius Exp. St. 112, 0-1500 m (1 ♀, TL 41.0 mm, RMNH). 8°51'.5S, 129°01'.5E, Snellius Exp. St. 115, 0-2000 m (1 ♀, TL 42.0 mm, RMNH). 10°49'.5S, 123°59'.0E, Snellius Exp. St. 127, 0-1800 m (1 ♀, TL 40.0 mm, RMNH). 8°51'.5S, 124°24'.5E, Snellius Exp. St. 163, 0-3000 m (2 ♂, TL 38.0-41.0 mm, RMNH). 4°44'.0N, 129°17'.0E, Snellius Exp. St. 272*, 200 m wire (1 ♂, TL 36.0 mm, 1 ♀, TL 36.0 mm, RMNH). 0°44'.5S, 118°26'.5E, Snellius Exp. St. 310*, 222 m wire (1 ♂, TL 42.5 mm, RMNH).

Diagnosis : Anterodorsal surface of body with a lot of orange stellate chromatophores. Luminescent organ inside cephalothorax. Processus ventralis of petasma distally expanded ; lobus armatus straightly elongated and armed with a row of ten to fifteen hooks on inner margin ; lobus connectens in a short broad triangle, laterally bearing a row of six to thirteen hooks in distal half. In adult females, sixth thoracic sternite bilaterally concave on posterior margin, bearing a subacute process at each posterolateral corner ; the genital cavity of coxa of third pereopods outsides with an acute process. This species measuring 52.5 mm in males and 54.5 mm in females.

* BOSCHMA 1936, p. 6

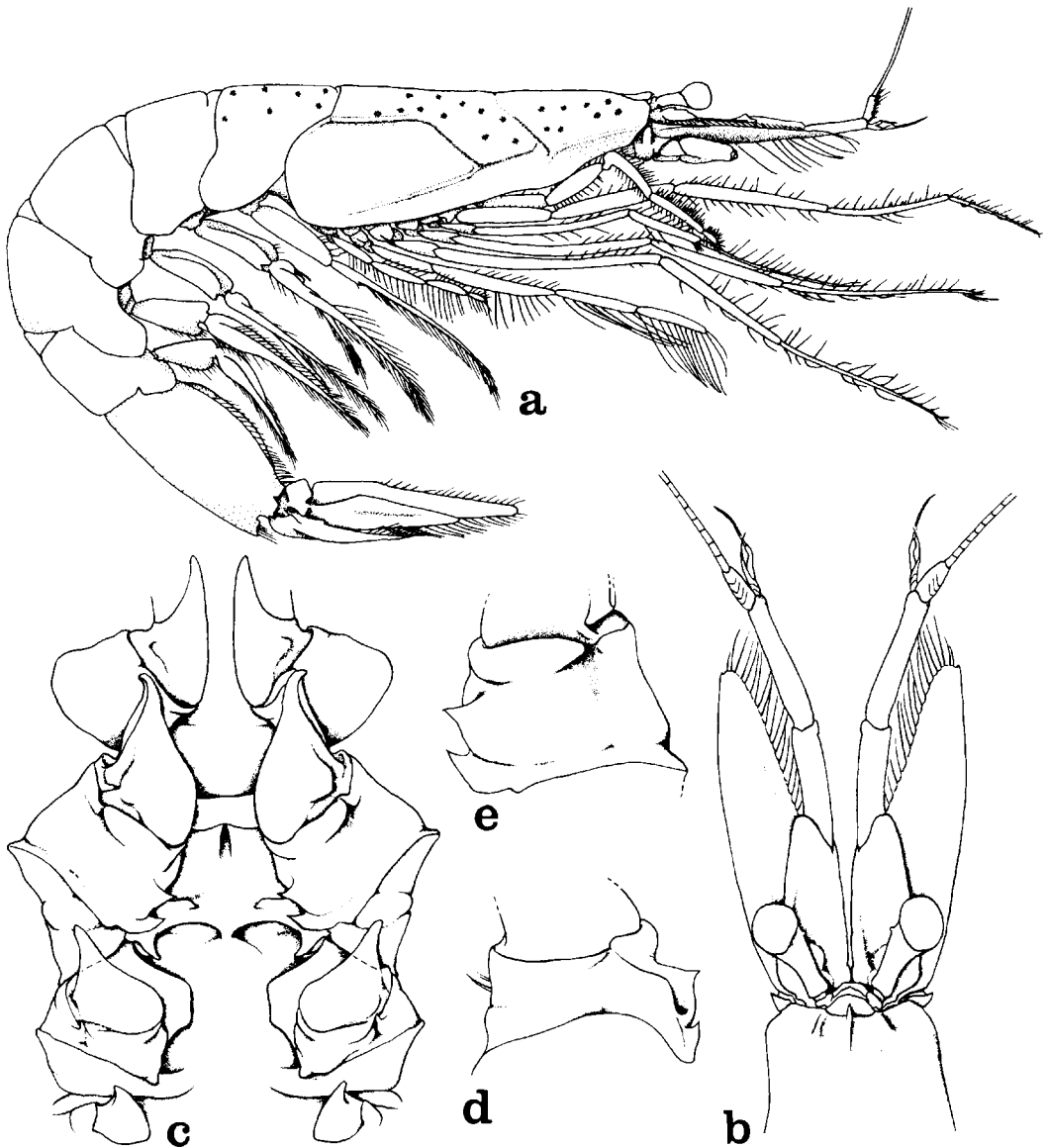


Fig 1. *Sergestes seminudus* HANSEN. a, habitus lateral, male measuring 42.5 mm in total length, BLT 1309; b, anterior part of cephalothorax in dorsal view, same specimen; c, 5th, 6th and 7th thoracic sternites and their proximal parts of pereopods, female measuring 46.5 mm, BLT 1269; d, coxa of third pereopod on left side, anteromedian view, female measuring 46.0 mm, BLT 1279; same, posterior view, same specimen.

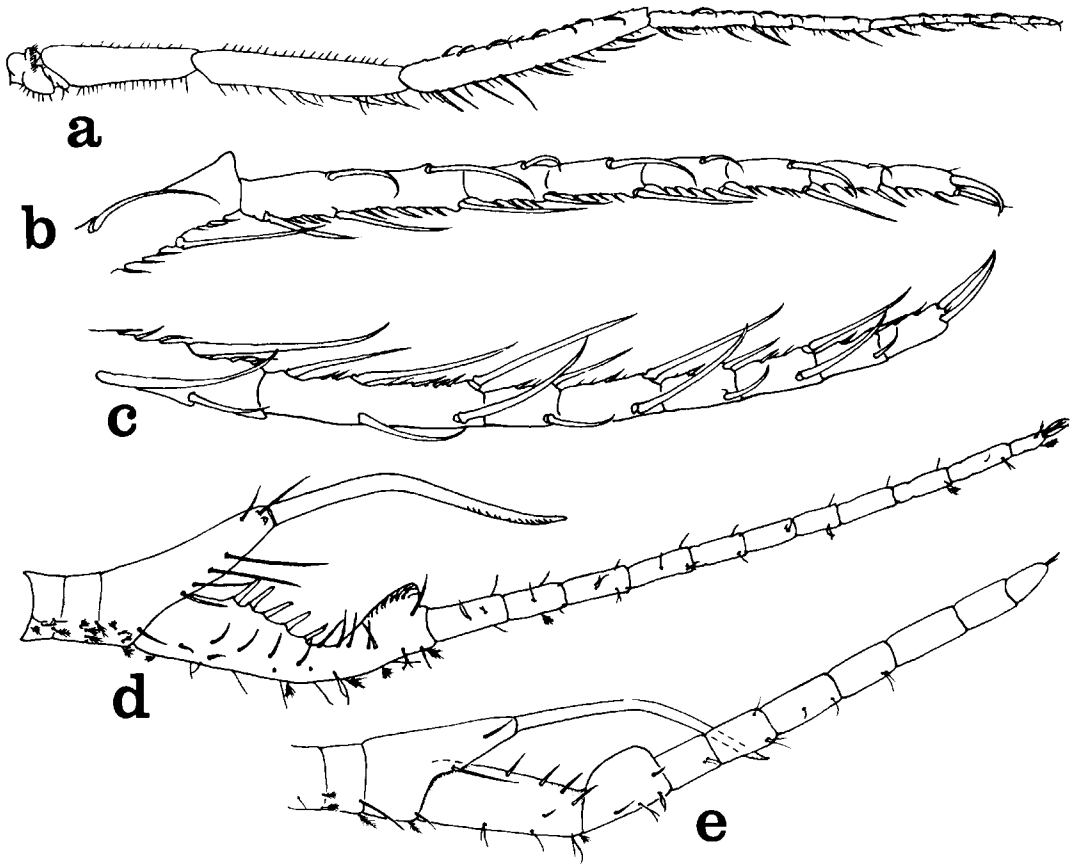


Fig 2. *Sergestes seminudus* HANSEN. a, third maxilliped in inner view, male measuring 46.0 mm, BLT 1268 ; b, ductylus of third maxilliped in inner view, same specimen ; c, same, syntype from Siboga St. 185 ; d, antennular ventromesial flagellum on left side, male measuring 46.0 mm, BLT 1268 ; same, male measuring 32.0 mm, BLT 1382.

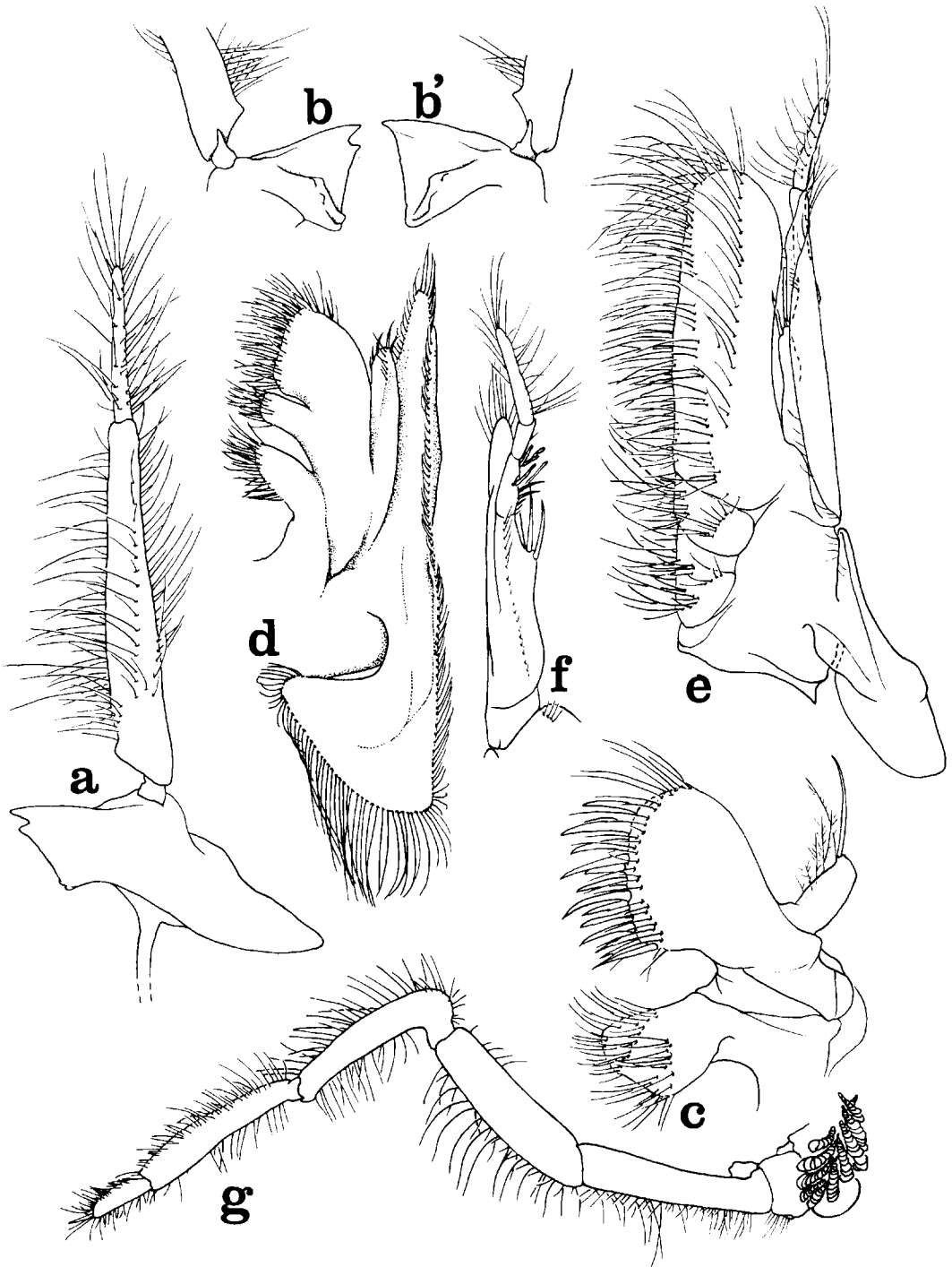


Fig 3. *Sergestes seminudus* HANSEN. a, mandible on left side, male measuring 46.0 mm, BLT 1268; b-b', masticatory edge of mandible in inner view, same specimen; c, first maxilla on left, same specimen; d, second maxilla on left, same specimen; e, first maxilliped on left, same specimen; f, palp and exopod of first maxilliped on left, same specimen; g, second maxilliped on left, same specimen.

Description: The rostrum is slightly forwarded as an acute tip. The supraorbital crest is well defined without any spine. The cervical groove is deep. The hepatic spine is well developed, and posterior to it there is a groove stretching backward to the suprabranchial groove. From the middle of the groove mentioned above a ridge is extended posteriorly above the lower margin of the branchial region. Anterior to the hepatic spine, another ridge clearly extends forwards to the anterolateral margin of the carapace.

The cornea is of a moderate size, and broader than the ocular peduncle. The inner margin of the ocular peduncle bears a ocular tubercle near the cornea.

The antennular peduncle is slender and about two-thirds as long as the dorsal length of the carapace; the third segment is shorter than the first, and longer than the second along the outer margin. The antennular ventromesial flagellum in males is bifurcated; the third segment is produced outside, and terminated with a long flagellum. In large males (Fig 2d), the fourth and fifth segments of the ventromesial flagellum are merged with each other, showing a considerably elongated segment which is proximally provided with four or five short and thick bristles on the outer margin. In immature males (Fig 2e), the fourth and fifth segments are not merged with each other. In females, the antennular ventromesial flagellum is simple and about 12-segmented.

The scaphocerite reaches the middle of the third segment of the antennular peduncle, and bears a small denticle at the outer distal angle.

The mandibles (Fig 3a) possess the three-segmented palp; the proximal segment is conspicuously short. The masticatory edge of the mandible (Fig 3b, b') is asymmetrical.

The palp of the first maxillae (Fig 3c) terminates in a long bristle. The proximal and the distal endites are armed with numerous stiff setae. In the second maxillae (Fig 3d), the palp bears five bristles on its distal margin. The distal endite is bilobed; the distal lobe is conspicuously broader than the proximal. The proximal endite is a simple lobe. The distal margin of the scaphognathite surpasses that of the distal endite.

In the first maxillipeds (Fig 3e), the palp consists of four segments, proximally concealed by the exopod; the proximal segment is armed with two long bristles on its inner margin; the second segment bears several thick flagella with an obtuse tip. The exopod is lamellate, proximally merged with the palp. The epipod is a simple lobe. Three endites are thickly setose. The second maxillipeds (Fig 3g) are of pediform, deflected at the base of carpus. The coxa is provided with an epipod and a podobranch. The ischium, the merus, the carpus and the propodus are about the same in length, while the dactylus is one-third of the propodus. The third maxillipeds extend beyond the antennular peduncle by the half of the propodus; the ischium is shorter than the merus, and the dactylus is divided into seven or eight subsegments (Fig 2b).

The second and the third pereopods are minutely chelate; the fixed finger remarkably provided with a row of hairs. The two distal segments of the fifth pereopods are setose on both upper and lower margins.

The exopod of the uropods is setose on the distal two-thirds of its outer margin, and without

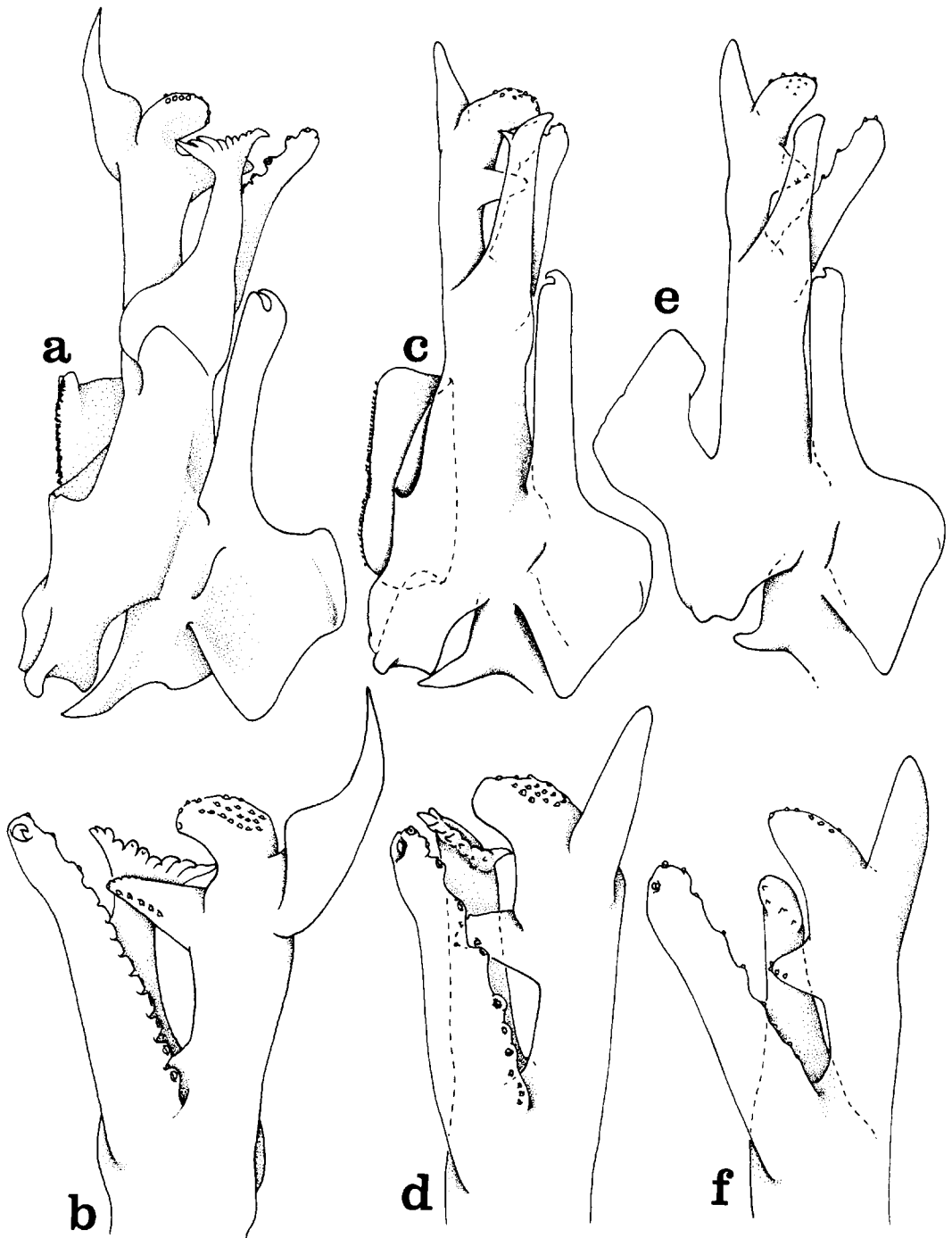


Fig 4. Petasma in *Sergestes seminudus* HANSEN from Japan Trench. a, on left side, male measuring 46.0 mm, BLT 1268 ; b, distal part on left, same specimen ; c, on left, male measuring 32.0 mm, BLT 1382 ; d, distal part on left, same specimen ; e, on left, male measuring 36.0 mm, BLT 1376 ; f, distal part on left, same specimen

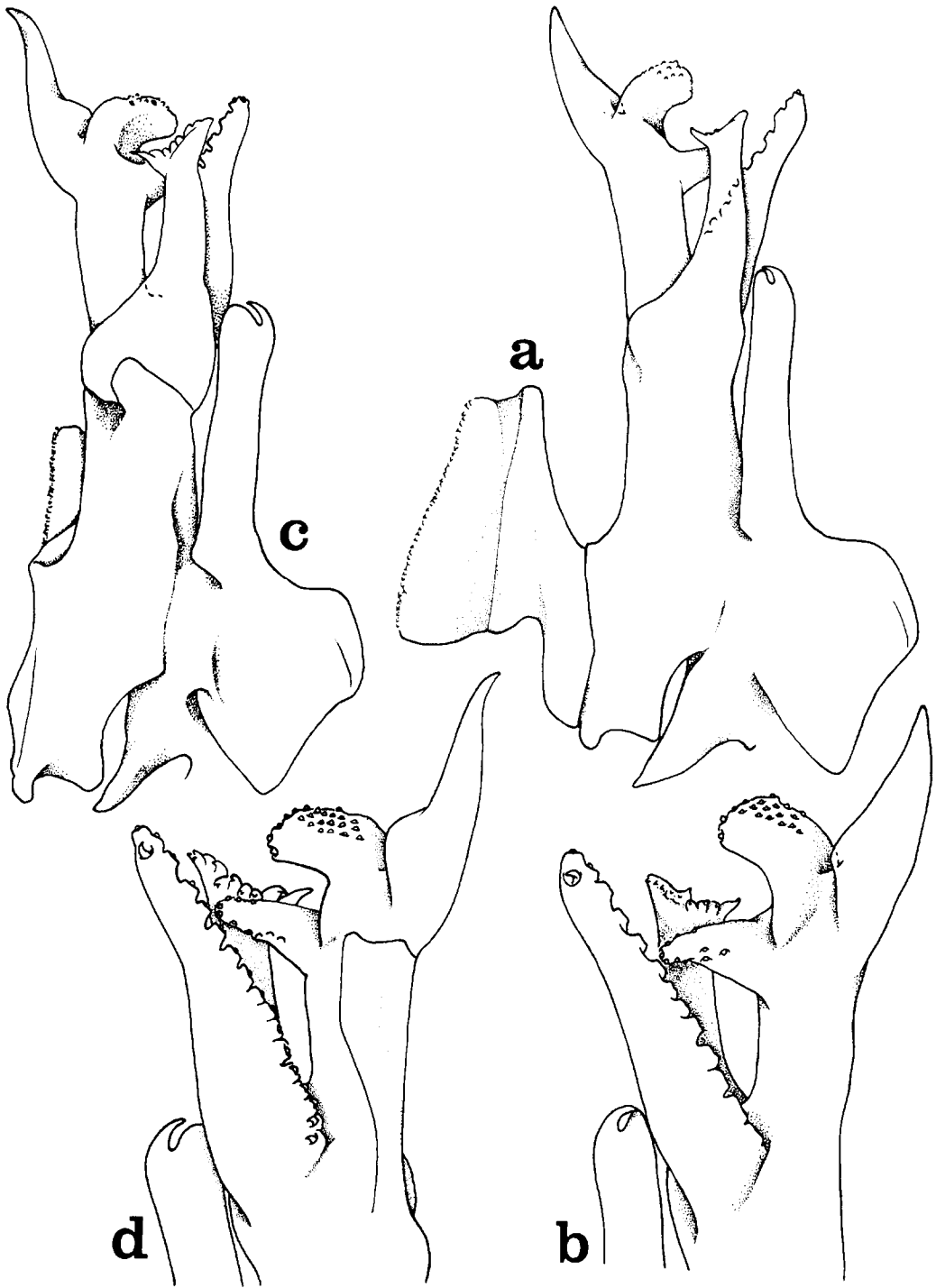


Fig 5. Petasma in *Sergestes seminudus* HANSEN from Indonesian Area. a, on left side, syntype from Siboga St. 185; b, distal part on left, same; c, on left, male measuring 48.0 mm from Snellius St. 79; d, distal part on left, same specimen.

any tooth.

The petasma in large males is jointed together with the pars astringens. The processus unicus is hooked at the tip. The processus basalis is slender, and terminated by a subacute distal tip. The processus ventralis is distally expanded to form a broad terminal edge furnished with a row of seven to eleven acute papillae. The lobus armatus is straightly elongated and reaches beyond the distal margin of the processus ventralis; the inner margin is laterally armed with a row of ten to fifteen hooks, and distally with a large anterior hook. The lobus connectens is a short and broad triangle, laterally bearing a row of six to thirteen hooks in the distal half. The lobus terminalis is lamellated with a rounded tip, and curved outwards; the distal part of the anterior surface is scattered with many small hooks. The lobus inermis considerably surpasses other lobes, and tapers distally.

In the small male (Fig 4e-f), measuring 36.0 mm in total length (BLT 1376), the right and the left petasmata are not coupled with each other. The processus ventralis is terminated with a rounded tip bearing a few small papillae; the lobus armatus is laterally provided with some small hooks; the lobus connectens is slightly protruded, and armed with a few small hooks; the lobus terminalis is a stout process with several small hooks; the lobus inermis is produced into a simple process with an obtuse tip.

In the small male measuring 31.0 mm in total length (BLT 1382), the petasma is much more grown in size than that of the above mentioned male regardless of the smaller male (Fig 4c-d). The right and the left petasmata are coupled with each other; the processus ventralis distally broadended, provided with small papillae on the terminal edge; the lobus inermis is still obtuse at the tip.

In the thelycum (Fig 1c), the operculum is short in length, and rectangular, slightly concave medially on the posterior margin. The posterior margin of the sixth thoracic sternite is bilaterally concave, projected posteriorly in the middle part, and each outer lateral corner is provided with a subacute process. The coxa of the third pereopod in females (Fig 1d-c) is armed with a proximal and a median processes; the median process lies outside on the genital cavity.

The anterior dorsal part of the body bears many orange spots of stellate chromatophores which almost disappear in alcohol, but some are kept as feeble white spots. The luminescent organ is observed inside the cephalothorax.

Remarks: HANSEN (1919) enumerated many specimens from Indonesian Waters as the syntypes. Referring to his specimens still preserved in Amsterdam, it is known that the specimens from Siboga St. 148 consist of one male and two females instead of four specimens including one adult male, those from Siboga St. 185 are composed of appendages labelled as the types for figures and one individual of *Acanthosoma* instead of three males and one large female, though one male is still deposited in Copenhagen separately, and those from Siboga St. 205 are lost.

Compared the present specimens from Japan Trench with HANSEN's type-series from Indonesian Waters, the authors noticed that there are no fundamental differences between

them. As to the features of petasma, it is found that in the syntypes the lobus armatus reaches remarkably beyond the processus ventralis, and the lobus inermis shows an elongated triangle, while in the Japanese specimens the lobus armatus is slightly protruded from the level of the processus ventralis, and the lobus inermis is largely concave on the outer margin and distally attenuated in an acute tip. However, in Japanese specimens the relative length of the lobus armatus and the processus ventralis is much varied by individuals, and the form of the lobus inermis is varied by growth, in smaller specimens the lobus inermis forms a simple protrusion with an obtuse tip, while in larger specimens it is elongated, largely concave on the outer margin. The specimens from Indonesian Area brought by the Snellius Expedition show the same characters as Japanese specimens on the development of the lobus inermis.

YALDWYN (1957:14) described a female from Cook Strait, New Zealand as *seminudus*, however his specimen is seemingly different from the present species because he mentioned that "the 4th (pereopods) reaching to the distal end of the antennal peduncle" and "Setose portion of external margin of uropodal exopodite half as long again as non-setose portion", while in the present species the 4th pereopods fail to reach the distal end of the antennal peduncle and setose portion of uropodal exopod is twice as long as non-setose.

It seems that the present species is closely related to the species *paraseminudus* CROSNIER & FOREST, 1973 from the eastern tropical Atlantic, however differs from the latter by the features that in *paraseminudus* the lobus armatus is not extended beyond the processus ventralis.

Distribution: Indonesian waters (HANSEN 1919). Japan Trench.

Sergestes prehensilis BATE, 1881

text-figs 6-9

- 1881 *Sergestes prehensilis* BATE, Ann. Mag. nat. Hist. (5)8 : 193.
 1888 *Sergestes prehensilis*,BATE, Rep. Voy. Challenger Zool. 24 : 385, pl 71.
 1896 *Sergestes prehensilis*,HANSEN, Proc. zool. Soc. London 1896 : 949.
 1903 *Sergestes prehensilis*,HANSEN, Proc. zool. Soc. London 1903 : 56, pl XI, figs 4a, 4b.
 1905 *Sergestes gloriosus* STEBBING, Mar. Invest. S. Afr. 4 : 84, pls 22-23. (non vidi)
 1914 *Sergestes prehensilis*,BALSS, Abh. Bayer. Akad. Wiss. math. -phys. Kl. Supple 2 : 17.
 1919 *Sergestes prehensilis*,HANSEN, Siboga Exped 38 : 5.
 1925 *Sergestes gloriosus*,HANSEN, Rep. Fish mar. biol. Surv. Cape Town 4 : 24.
 1932 *Sergestes fujiyamaensis* NAKAZAWA, Zool. Mag. Tokyo 44 : 32.
 1935 *Sergestes prehensilis*,GORDON, J. Linn. Soc. London (Zool) 39 : 314, text-figs 1a, 3b, 6c, 6d, 8a-c, 9a-d.
 1950 *Sergestes gloriosus*,BARNARD, Ann. S. Afr. Mus. 38 : 642, text-figs 120 h-j.
 1957 *Sergestes (Sergia) prehensilis*,YALDWYN, Zool. Pub. Victoria Univ. Wellington 22 : 9.
 1965 *Sergestes fujiyamaensis*,KUBO, Macrura. In : New Illust. Encycl. Fauna Japan, Tokyo : 595.
 1969 *Sergestes prehensilis*,AIZAWA, Bull. Plankton Soc. Japan 16 : 60.
 1969 *Sergestes prehensilis*,OMORI, Bull. Ocean Res. Inst. Univ. Tokyo 4 : 10.
 1969 *Sergestes prehensilis*,OKUTANI, Bull. Tokai Reg. Fish Res. Lab. 57 : 30.
 1971 *Sergestes (Sergia) prehensilis*,KENSLEY, Ann. S. Afr. Mus. 57(10) : 253, text-fig 20.

Non :

- 1915 *Sergestes prehensilis*,NAKAZAW & TERA0, Zool. Mag. Tokyo **27** : 622 (= *S. lucens*).
 1916 *Sergestes prehensilis*,TERAO, Zool. Mag. Tokyo **28** : 220 (= *S. lucens*).
 1617 *Sergestes prehensilis*,TERAO, Annotnes zool. jap. **9** : 299, text-figs 1-3 (= *S. lucens*).
 1927 *Sergestes prehensilis*,NAKAZAWA, Macrura. In : Figuraro de Japanaj Bestoj. Tokyo : 1004, text-figs 1931-1933 (= *S. lucens*).
 1933 *Sergestes prehensilis*,YOKYA, J. Coll. Agric. Univ. Tokyo **12** : 12 (= *S. lucens*).

Material examined: Japan Trench, Kaiyo St. MT1A, 150 m (4♂, TL 38.5-46.5 mm, 1♀, TL 44.5 mm, BLT 4399).Kaiyo St. MT5A, 800 m (1♂, TL 47.5 mm, BLT 4404).Kaiyo St. MT5B, 800 m (1♂, TL 61.0 mm, BLT 4405; 1♀, TL 58.5 mm, BLT 4406; 12♂, TL 45.2-59.5 mm, 6♀, TL 41.0-54.5 mm, BLT 4407).Kaiyo St. MT6A, 800 m (1♂, TL 43.0 mm, BLT 4425; 19♂, TL 30.7-53.0 mm, 19♀, TL 25.0-56.0 mm, BLT 4426).Kaiyo St. MT6B, 800 m (1♂, TL 32.5 mm, BLT 4464; 1♂, TL 40.0 mm, BLT 4465; 1♂, TL 53.0 mm, BLT 4466; 1♂, TL 68.0 mm, BLT 4467; 1♀, TL 59.0 mm, BLT 4468; 15♂, TL 26.0-64.0 mm, 20♀, TL 24.0-40.0 mm, BLT 4469).Kaiyo St. MT7B, 1400-1600 m (1♀, TL 33.0 mm, BLT 4504).Kaiyo St. MT9B, 2900-3300 m (4♂, TL 31.5-51.5 mm, 6♀, TL 19.0-57.5 mm, BLT 4505).Kaiyo St. MT10B, 2600-2700 m (3♂, TL 50.5-53.0 mm, 2♀, TL 35.0-46.0 mm, BLT 4515).Kaiyo St. MT13B, 2300-2600 m (1♂, TL 37.5 mm, BLT 4520).Kaiyo St. MT17B, 3700-4400 m (2♂, TL 46.0-52.0 mm, 1♀, TL 55.5 mm, BLT 4521).Kaiyo St. MT18B, 4100-4500 m (1♀, TL 25.0 mm, BLT 4524).

Diagnosis: Body and appendages with dermal photophores. In adult males processus ventralis of petasma tapering in an acute tip; lobus armatus strongly incurved, distally armed with three to four hooks on the anterior margin; lobus accessorius shortly developed; lobus connectens and lobus terminalis bifurcated. In adult females the posterior margin of the sixth thoracic sternite bilaterally convex; the genital cavity of the coxa of third pereopods bearing an acute inner process. A large-sized species, measuring 68.0 mm in males, and 59.0 mm in females.

Description: The rostrum is clearly forwarded from the level of the anterolateral margin of the carapace and is raised above from the dorsum; its terminal portion is produced into a spiniform process. The cervical groove is distinctly defined laterally, but fades out dorsally. The postcervical groove is indicated across the dorsal surface of the carapace. The hepatic spine is replaced by a hepatic knob. The supraorbital spine is not present.

The sixth abdominal somite ends posteriorly in a spinule.

The exopod of uropod bears an acute distinct tooth at the distal fourth of the outer margin.

The cornea of the eyes is large; the outer margin is as long as the ocular peduncle. There is no ocular tubercle.

The antennular peduncle is robust and about two-thirds of the length of the carapace; the third segment is about half as long as the first, and slightly shorter than the second along the outer margin. The antennular ventromesial flagellum in males (Fig 6d) is bifurcated; the third segment is prolonged outside and terminated in a short flagellum; the fourth segment is armed with about five thick serrated bristles on the outer margin, which, in small males, are few in number (Fig 6c). The antennular ventromesial flagellum in females is simple and about 12-

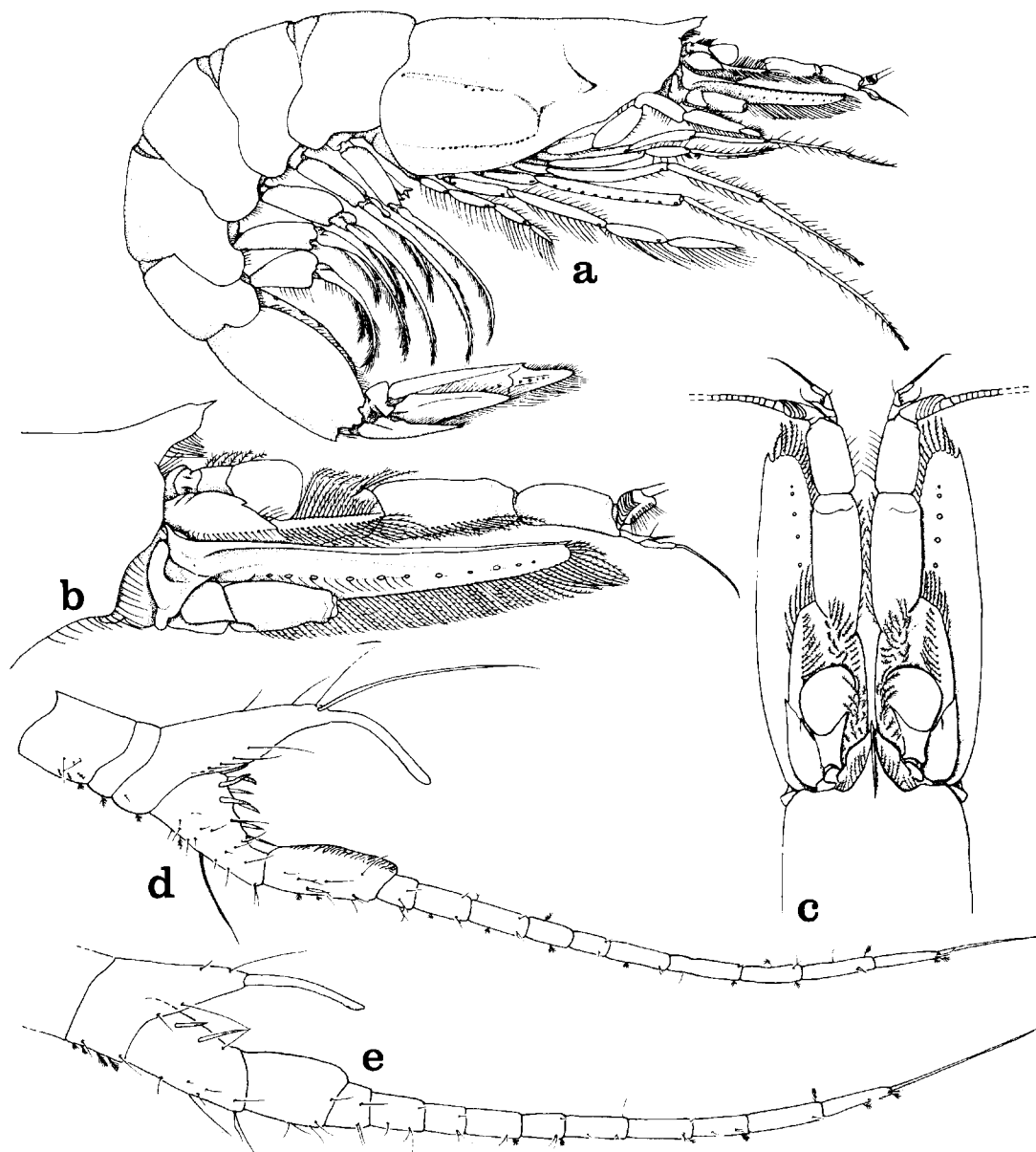


Fig 6. *Sergestes prehensilis* BATE. a, habitus lateral, male measuring 68.0 mm in total length, BLT 4467 ; b, anterior part of cephalothorax in lateral view, same specimen ; c, same in dorsal view, same specimen ; b, antennular ventromesial flagellum on left side, same specimen ; e, same, male measuring 53.0 mm, BLT 4466.

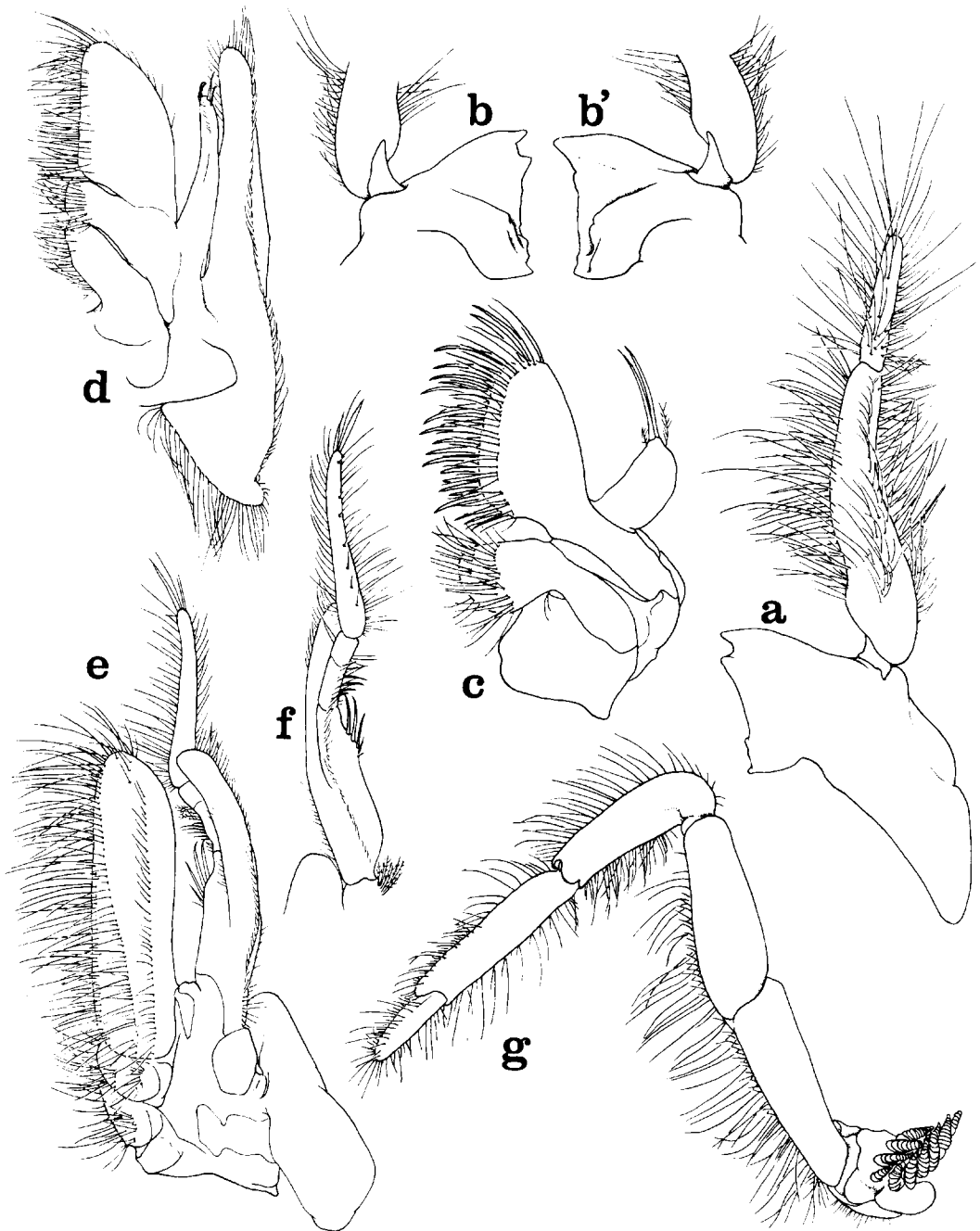


Fig 7. *Sergestes prehensilis* BATE. a, mandible on left side, male measuring 61.0 mm, BLT 4405 ; b-b', masticatory edge of mandible in inner view, same specimen ; c, first maxilla on left, same specimen ; d, second maxilla on left, same specimen ; e, first maxilliped on left, same specimen ; f, palp and exopod of first maxilliped on left, same specimen ; g, second maxilliped on left, same specimen.

segmented.

The scaphocerite reaches the middle of the third segment of the antennular peduncle, and bears an acute tooth at the outer distal angle.

The mandibles (Fig 7a) possess a three-segmented palp; the proximal segment is conspicuously short. The masticatory edge of the mandible (Fig 7b, b') is asymmetrical; the right one is armed with a single acute tooth, while the left one has two short teeth.

The palp of the first maxillae (Fig 7c) bears two long bristles distally. The proximal and the distal endites are heavily setose. In the second maxillae (Fig 7d), the palp is anteriorly armed with four short distal bristles. The endites are thickly covered with numerous setae; the distal endite is distinctly divided into a large distal and a small proximal lobe, while the proximal endite is a simple lobe. The distal margin of the scaphognathite reaches that of the distal endite.

In the first maxillipeds (Fig 7e), the palp consists of four segments; the first segment carries four stout bristles on its inner margin; the joint between the second and the third segments is obscure; the fourth segment is elongated and laterally fringed with fine setae. The exopod is lamellate, narrow, and proximally merged with the palp; three endites are heavily covered with setae. The second maxillipeds (Fig 7g) are of pediform; ischium, merus, carpus and propodus are about the same in length respectively, while the dactylus is half the length of the propodus. The coxa is provided with an epipod and a podobranch. The third maxillipeds reach a short distance beyond the antennular peduncle; the ischium is a little longer than the merus.

The first pereopods extend to the middle of the second segment of the antennular peduncle. The third pereopods exceed the second pereopods by dactylus. The two distal segments of the fifth pereopods are setose on both margins.

The petasma varies with ages. In large males (Fig 8a-b) the processus unicifer is terminally hooked. The processus basalis is thick. The processus ventralis tapers in an acute tip. The lobus armatus is strongly incurved; the anterior margin distally bears three to four hooks including one at the tip. The lobus accessorius is shortly developed at the base of the lobus armatus, distally bending proximally; the posterior surface is basally provided with several hooks. The lobus connectens is bilobed; the distal lobe is elongated distally, exceeding the other lobes, and bears several hooks on the tip, the lateral one distally tends to curve anteriorly, armed with a series of hooks on the posterior surface, and with one hook at the tip. The lobus terminalis is short and bilobed terminally. The lobus inermis apically tends to curve posteriorly.

In the small specimen measuring 32.5 mm in total length (Fig 8g), the petasma is undeveloped. In the larger specimen measuring 43.0 mm in total length (Fig 8e-f), the right and left petasma is not conjugated with each other; the processus unicifer is elongated and distally hooked; the processus ventralis is elongated; both of the lobus armatus and the lobus inermis are developed as a short process; the lobus connectens is already bilobed. In the specimen measuring 53.0 mm in total length (Fig 8c-d), the petasma is almost developed in mature.

The operculum of thelycum (Fig 9d) is narrow and flat on surface; the posterior margin is

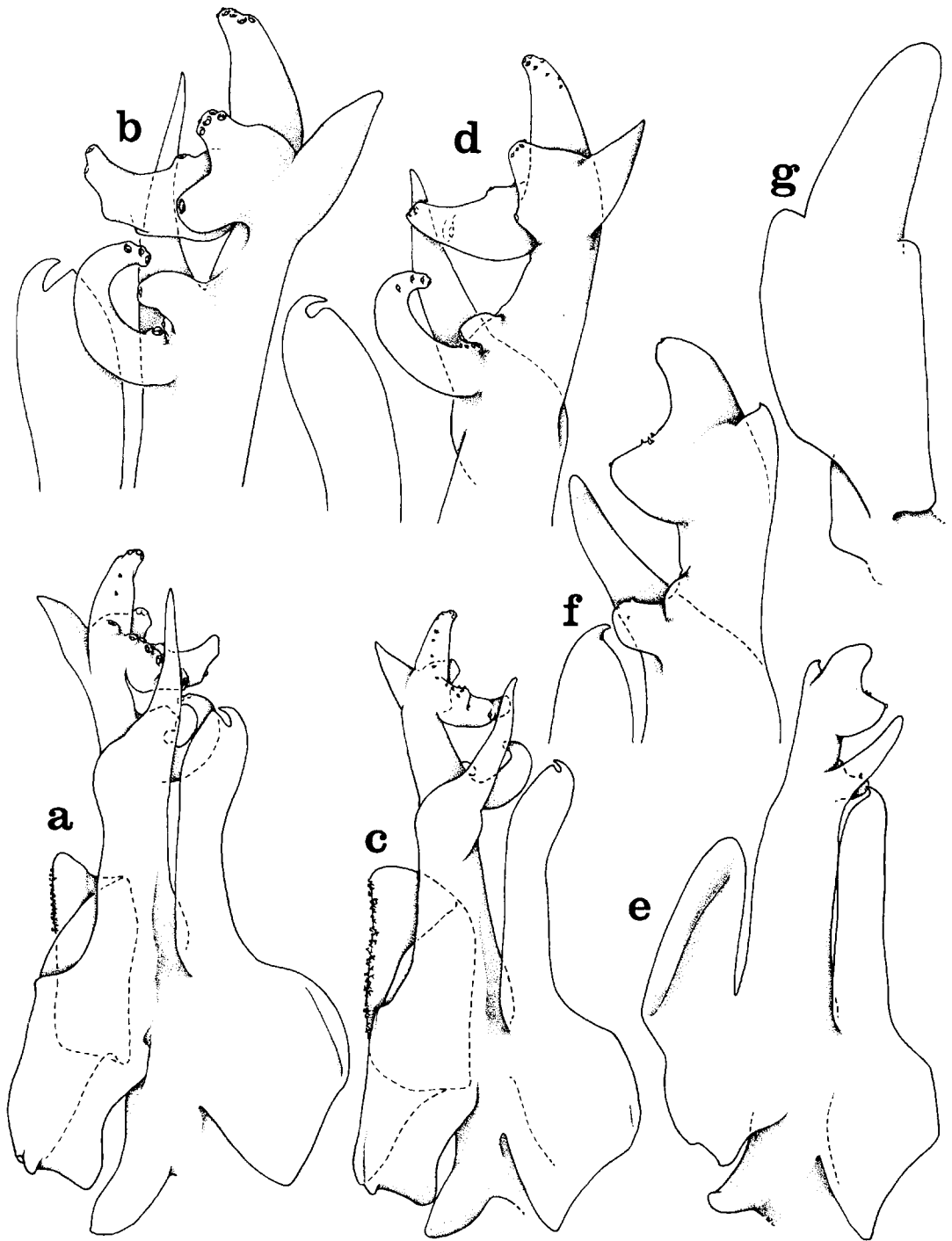


Fig 8. Petasma in *Sergestes prehensilis* BATE. a, on left side, male measuring 68.0 mm, BLT 4467 ; b, distal part on left, same specimen ; c, on left, male measuring 53.0 mm, BLT 4466 ; d, distal part on left, same specimen ; e, on left, male measuring 43.0 mm, BLT 4425 ; f, distal part on left, same specimen ; g, on left, male measuring 32.5 mm, BLT 4464.

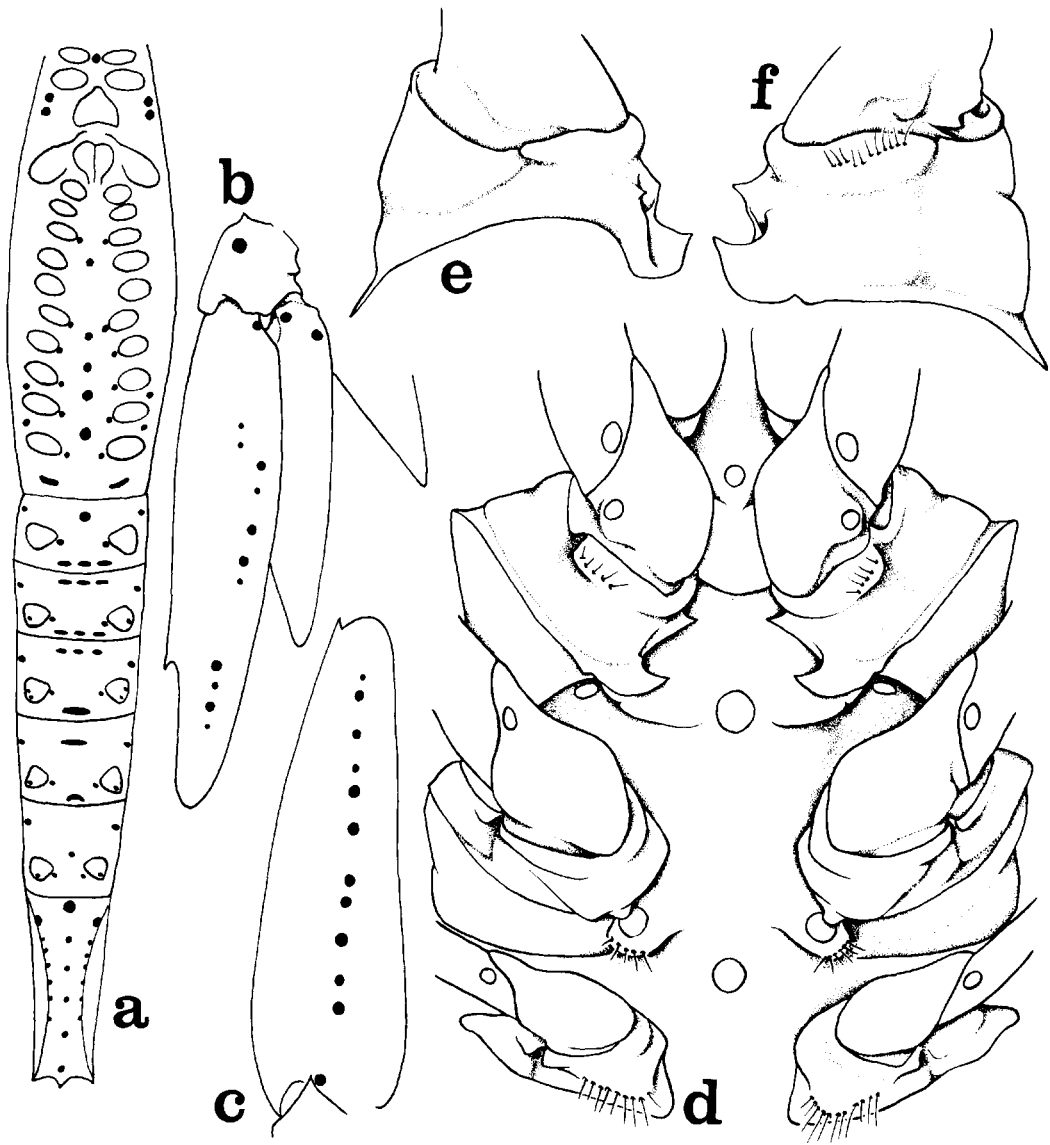


Fig 9. *Sergestes prehensilis* BATE. a, distribution pattern of photophores on ventral surface, male measuring 68.0 mm, BLT 4467 (diagram is modified from GORDON 1935); b, uropod on right side, same specimen; c, scaphocerite on right, same specimen; d, 5th, 6th, 7th and 8th thoracic sternites and their proximal parts of pereiopods, female measuring 59.0 mm, BLT 4468; e, coxa of third pereiopod on left, anteromedian view, female measuring 58.5 mm, BLT 4406; f, same, posterior view, same specimen.

convex. The sixth thoracic sternite is bilaterally convex on the posterior margin. The coxa of the third pereopods in females (Fig 9e-f) bears a proximal and a median processes on the medial surface, the median lies inside on the genital cavity.

This species possess numerous dermal photophores with much developed cuticular lenses. The photophores on the ventral surface of the body are arranged as in Fig 9a, while these on the carapace and appendages are as follows: The inner surface of carapace is provided with an irregular row of about four photophores below the suprbranchial ridge, while the outer surface with another row of about twenty minute photophores at a short distance above the lower margin of the branchial region. The inner margin of the first segment of antennular peduncles with two photophores. In the antennae the basal segment is provided with two photophores, and the scaphocerite basally with one photophore, and separated from it, medially with a row of eleven photophores (Fig 9c). In the mandibles the second segment of the palp has distally one photophore. The penultimate segment of the second maxillipeds is arranged distally with one photophore. In the third maxillipeds the distal parts of the ischium, merus, carpus and propodus are provided with one photophore respectively. In the first pereopods the ischium bears one photophore at the proximal parts, and the merus is proximally arranged with two or three, and distally with one photophore. In the second pereopods the ischium is provided with one photophore at both the distal and the proximal parts, and the merus with two at the middle, and with one at the distal part. In the third pereopods the basis bears one photophore, the ischium is provided distally and proximally with one photophore, and the merus with a row of ten photophores. In the fourth pereopods the ischium is arranged distally and proximally with one photophore, the merus and the carpus distally with one photophore. In the fifth pereopods the coxa bears one photophore at the inner part, the ischium distally and proximally with one photophore, the merus and the carpus distally with one. The uropods represented as in Fig 9b.

Remarks: This species was recorded for the first time from Sagami Bay, Japan by BATE (1881). In 1935, GORDON referred in details to the arrangement of the photophores and the morphology of the petasma on the base of the holotype from off Japan as well as the materials from off Cape Town, and designated that *S. prehensilis* described by NAKAZAWA & TERAO (1915), TERAO (1916, 1917), NAKAZAWA (1927) and YOKOYA (1933) is identical with *S. lucens* HANSEN, 1922.

NAKAZAWA (1932) described *S. fujiyamaensis* from Suruga Bay. The authors have not examined his type specimen(s), but his species is presumably identical with the present species, because he described in Japanese that the processus ventralis of the petasma is straight and tapering, the lobus armatus is strongly incurved, the lobus inermis is ligulate, and the lobus connectens is bilobed; the photophores is observed on the carapace, the scaphocerite, the merus of the third pereopods and each abdominal somite as in *prehensilis*.

Distribution: Off Japan (BATE 1881; AIZAWA 1969; OKUTANI 1969). Off South Africa (STEBBING 1905 as *S. gloriosus*; HANSEN 1925 as *S. gloriosus*; GORDON 1935; BARNARD 1950 as *S. gloriosus*; KENSLEY 1971).

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要 約

東海区水産研究所所属の開洋丸によって日本海溝から採集された *Sergestes* サクラエビ属の2種, *S. seminudus* HANSEN, 1919 及び *S. prehensilis* BATE, 1881 について再検討を行なった。*S. seminudus* についてはインドネシア産の模式標本と直接比較検討を行ない、日本海溝の標本が同種であることを確認した。同じくインドネシアから採集された Snellius Expedition の標本についても一致をみた。また、*S. fujiyamaensis* NAKAZAWA, 1932 について、雄のペタズマの形態、発光器の分布の記載から、*S. prehensilis* のシノニムであると考えられる。

