



***Parapetalophthalmus suluensis*, a new genus and species  
(Crustacea: Mysidacea: Petalophthalmidae)  
from the Sulu Sea**

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*Abstract.*—A new genus, *Parapetalophthalmus*, is established for the new species *P. suluensis*, collected from the Sulu Sea. It is closely related to *Pseudopetalophthalmus*, but easily distinguished from this genus by the sixth to eighth thoracopods in which the endopods are small, 1- or 2-segmented rudiments.

During a cruise to southeastern Asian seas (KH-72-1) by the R/V *Hakuho Maru* of the Ocean Research Institute, University of Tokyo, mysid specimens belonging to the family Petalophthalmidae were collected from the Sulu Sea. They resemble species of the genus *Pseudopetalophthalmus* in appearance, but are distinctly different from it by the rudimentary endopods on the sixth to eighth thoracopods. *Parapetalophthalmus suluensis*, new genus, new species, is established for these specimens.

The type specimens are deposited in the National Science Museum, Tokyo (NSMT), Japan.

*Parapetalophthalmus*, new genus

*Diagnosis.*—Body slender. Carapace very short, leaving posterior 5 or 6 thoracic somites exposed dorsally; rostrum very short, rounded, without acute process, flanked by pair of small denticles. Eye developed and elongate; cornea spherical, broader than stalk; eyestalk elongate, without papilla. Antennular peduncle very long, slender. Antennal scale lanceolate, proximal  $\frac{2}{3}$  of outer margin naked, ending in 1 jointed spine, distal  $\frac{1}{3}$  of outer margin setose; apex and inner margin setose. Mandibular palp long, powerful and prehensile; third

segment short and robust, with 9 long spines. Thoracopods: first pair without exopod, endopod terminating in claw, with inner lobe on ischium; second pair without exopod, endopod robust, terminating in strong, curved claw, with quadrangular, large, inner lobe on ischium; third to fifth pairs with endopod slender, without terminal claw; sixth to eighth pairs with endopod rudimentary. Pleopods of male biramous, natatory; of female biramous, exopod very slender, endopod fused with sympod. Uropod: exopod 2-segmented, proximal segment with outer margin naked except for 2 spines and 1 seta at distal end, margin of distal segment setose; endopod without spines but with setae, statocyst absent. Telson rectangular; apex with 9 spine groups and 8 plumose setae between them, each spine group composed of 3 spines with middle spine longest, spines of outermost group barbed, longer, stouter, articulated at base.

*Type species.*—*Parapetalophthalmus suluensis*, new genus, new species.

*Etymology.*—The generic name is derived from the close resemblance to *Pseudopetalophthalmus* and *Petalophthalmus*; it is a masculine gender.

*Remarks.*—The new genus is closely re-

Table 1.—Morphological differences between *Pseudopetalophthalmus* Bravo & Murano, 1997, and *Parapetalophthalmus*, new genus.

|                                    | <i>Pseudopetalophthalmus</i> | <i>Parapetalophthalmus</i>                   |
|------------------------------------|------------------------------|--|
| Eyestalk                           | With small papilla           | Without papilla                              |
| Third segment of mandibular palp   | With 7 long and strong setae | With 9 long and strong setae                 |
| Endopods of 3rd to 5th thoracopods | Terminating in a strong claw | Terminating in 2 short setae                 |
| Endopods of 6th to 8th thoracopods | Long and multi-segmented     | Reduced to 1- or 2-segmented, small rudiment |

lated and morphologically similar to *Pseudopetalophthalmus*, which was recently established by Bravo & Murano (1997). The most distinctive difference between the two genera is found in the thoracopods. In *Pseudopetalophthalmus* the endopods of the third to eighth thoracopods are long, multi-segmented, and bearing a terminal claw, whereas in the new genus those of the sixth to eighth thoracopods are small, 1- or 2-segmented rudiments, and those of the third to fifth thoracopods terminate in 2 setae but not in a claw.

*Parapetalophthalmus* and *Pseudopetalophthalmus* can also be separated by differences in the eyestalk and mandibular palp. In the new genus the eyestalk is not armed with a papilla, and the third segment of the mandibular palp is armed with 9 long spines as compared to 7 in *Pseudopetalophthalmus*. Morphological differences between *Pseudopetalophthalmus* and *Parapetalophthalmus* are summarized in Table 1. The new genus also resembles *Petalophthalmus*, but is easily distinguished from it by characteristics of the rostrum, antennal scale, mandibular palp, thoracic endopods, and telson.

*Parapetalophthalmus suluensis*,  
new species  
Figs. 1–4

*Type specimens*.—Holotype (NSMT-Cr 12168), adult male (13.0 mm); allotype (NSMT-Cr 12169), adult female (11.4 mm); paratypes (NSMT-Cr 12170), 1 immature female (9.1 mm), 1 juvenile (5.2 mm); Sulu Sea, 08°12.7'N, 117°59.6'E to 08°11.8'N,

117°58.4'E, 285–306 m, plankton net installed in mouth of 3-m beam trawl, 26 May 1972.

*Description*.—Body slender. Carapace very short, leaving posterior 5 or 6 thoracic somites exposed dorsally; frontal margin broadly rounded, upturned, not forming definite rostral projection, leaving eyes completely uncovered; small blunt process on either side of margin (Fig. 1A, B); antero-lateral corner rounded.

Eye well developed, extremely elongate, projecting laterally, slightly less than 3 times as long as width of cornea; cornea functionally normal, much wider than eyestalk; eyestalk narrow, broadened distally in distal half, without papilla (Fig. 1A, B).

Antennular peduncle slender, 3-segmented. In male first segment longer than succeeding 2 segments together, with tuft of setae on outer dorsal surface at distal end and distal fourth, 1 small spine on dorsal surface near distal end; second segment half as long as first, about 3 times as long as broad, with tuft of setae on outer dorsal surface at distal end, inner margin with 7 setae arranged at regular intervals; third segment shortest, less than 1.5 times as long as broad, armed with 4 setae arranged at regular intervals on inner margin and with 2 setae at inner distal corner. Outer flagellum twice wider than inner, projecting anterolaterally and then anteriorly, with many fine setae on proximal part of inner margin (Fig. 1A). In female antennular peduncle more slender than that of male; second segment about 5 times as long as broad; third segment about 3 times as long as broad. Outer

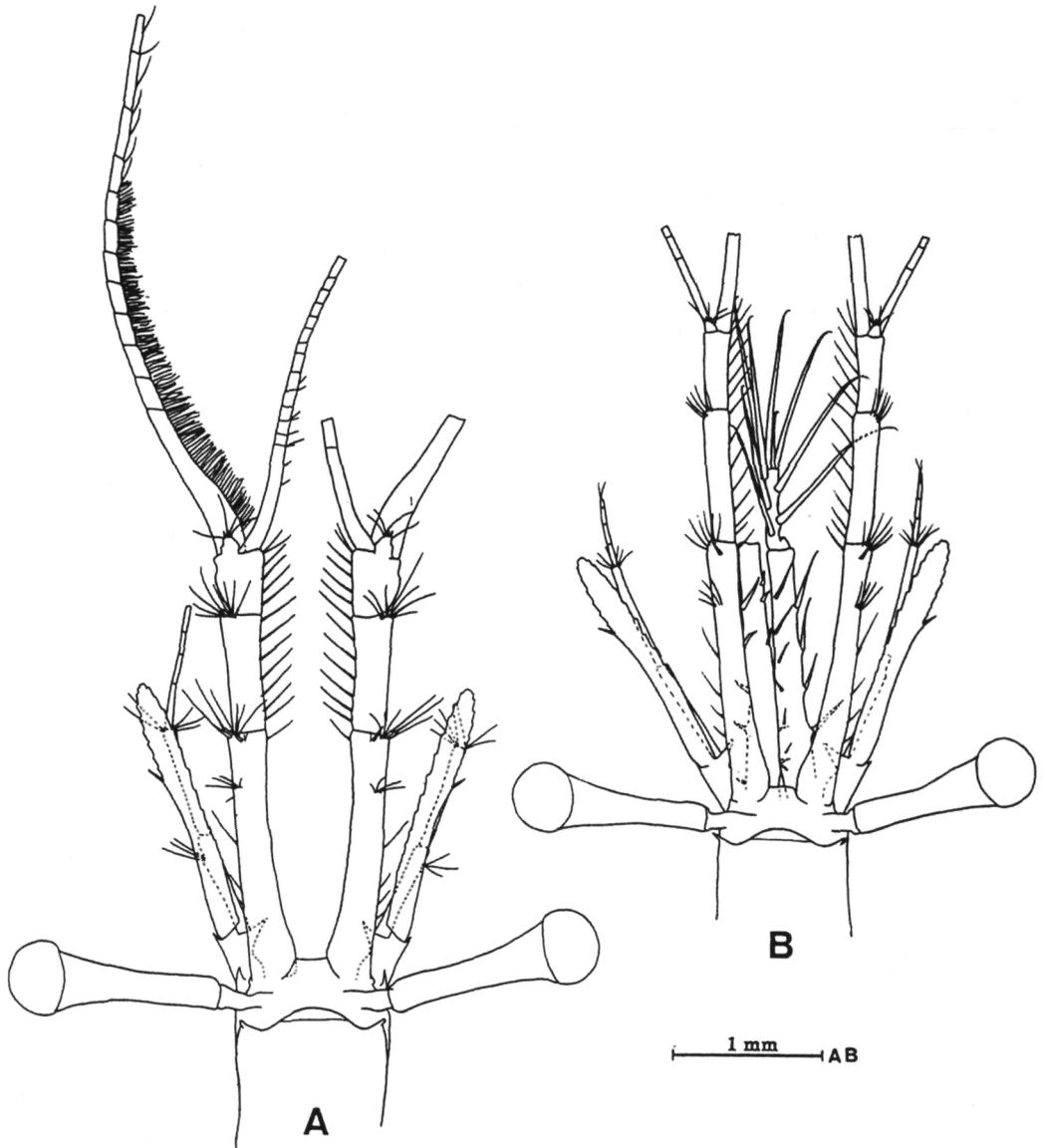


Fig. 1. *Parapetalophthalmus suluensis*, new genus, new species. A, anterior end of male (holotype); B, anterior end of female (allotype).

flagellum narrower than inner, straight, without fine setae along inner margin (Fig. 1B).

Antennal scale long, slender, extending to middle of second segment of antennular peduncle in male (Fig. 1A), extending slightly beyond anterior margin of first segment of antennular peduncle in female (Fig. 1B), about 8.5 times as long as maximum

width at position of jointed spine marking end of naked part of outer margin; outer margin naked and concave in proximal  $\frac{2}{3}$ , setose in distal  $\frac{1}{3}$ ; inner margin nearly straight, setose except proximal third naked (Fig. 2A). Antennal peduncle slightly shorter than scale; first segment very short, produced medially into triangular lobe; second segment with group of setae at distal sixth;

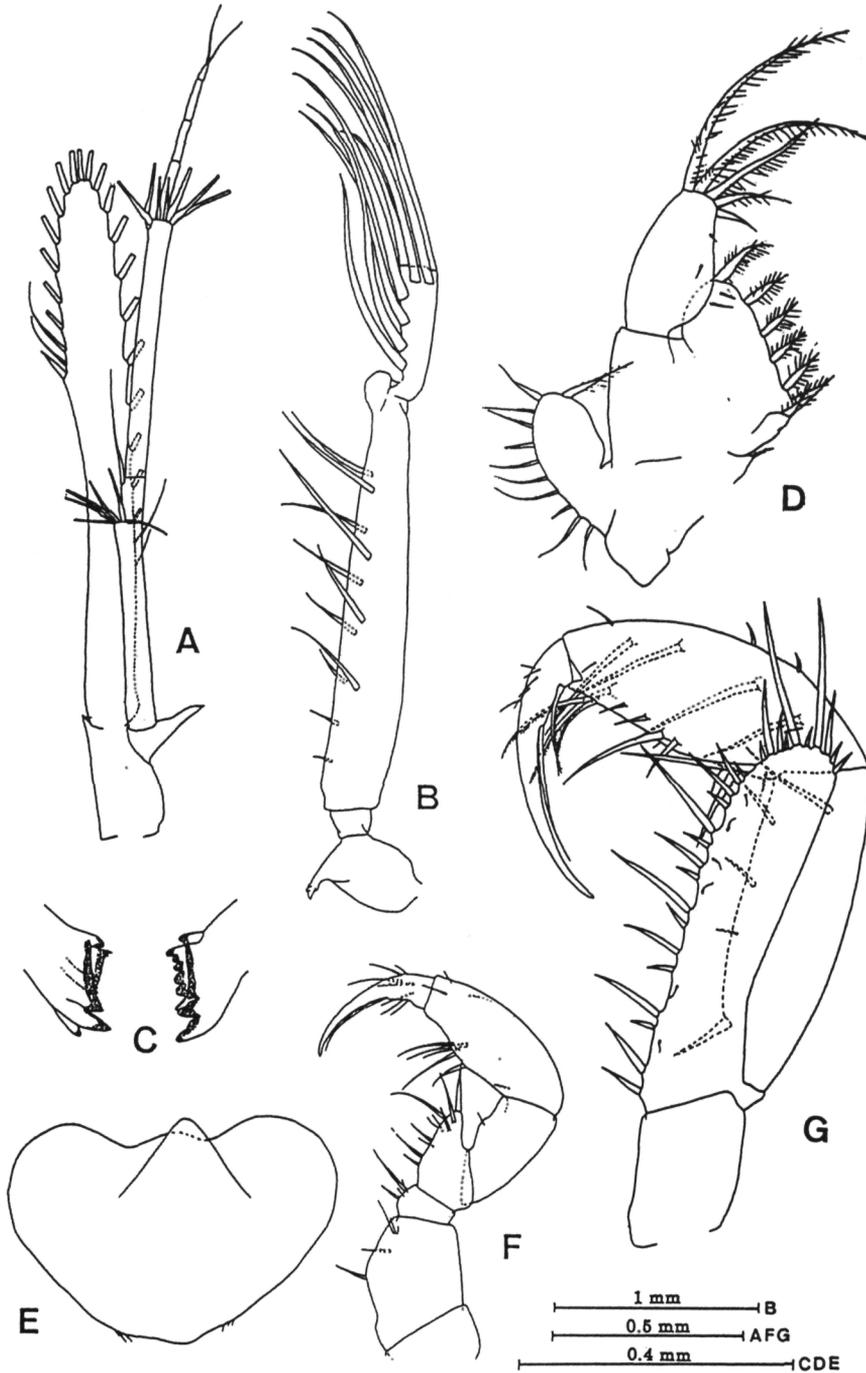


Fig. 2. *Parapetalophthalmus suluensis*, new genus, new species; A: allotype; B-G: holotype. A, antennal scale; B, mandible and mandibular palp; C, mandibles; D, maxillule; E, labrum; F, endopod of first thoracopod; G, endopod of second thoracopod.

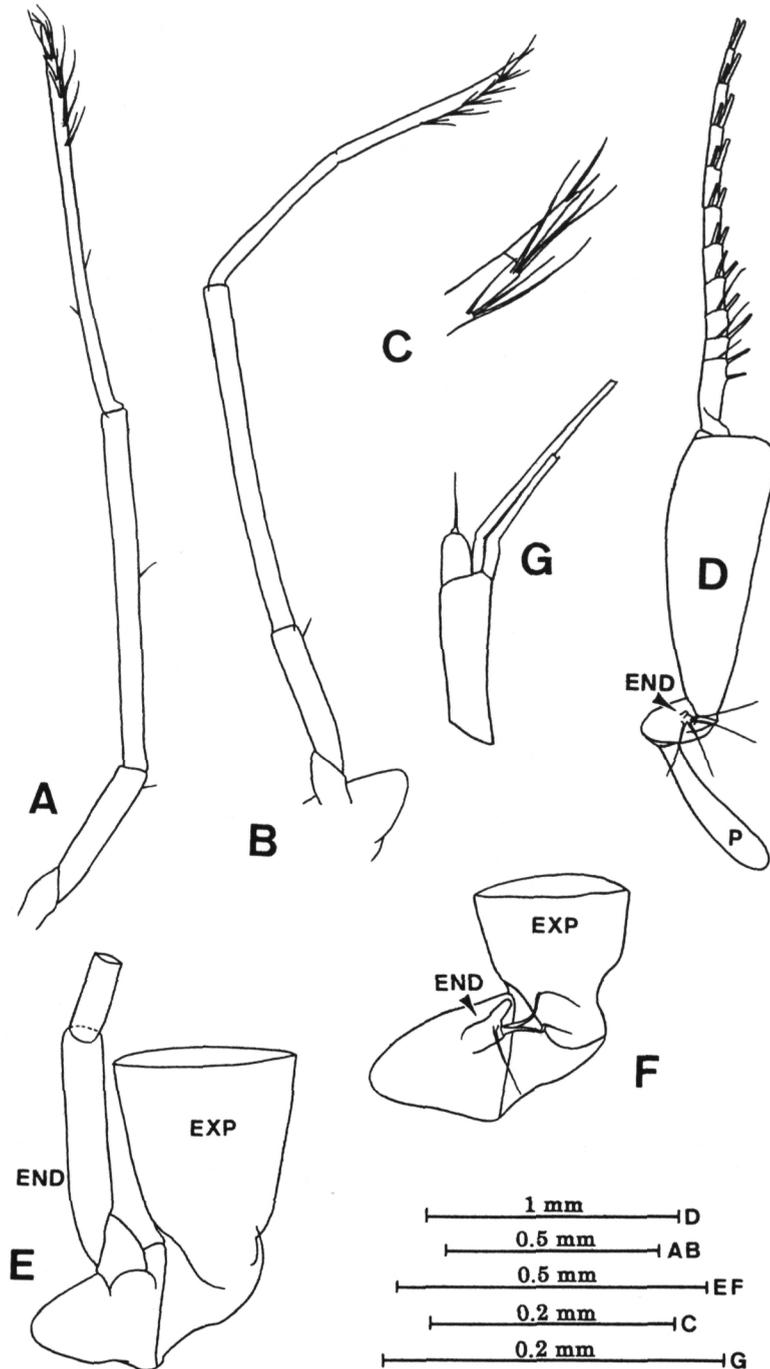


Fig. 3. *Parapetalophthalmus suluensis*, new genus, new species; A-F: holotype; G: allotype. A, endopod of third thoracopod; B, endopod of fifth thoracopod; C, distal part of endopod of fifth thoracopod; D, eighth thoracopod and penis; E, proximal part of fifth thoracopod; F, proximal part of sixth thoracopod; G, endopod of seventh thoracopod. (END: endopod; EXP: exopod; P: penis).

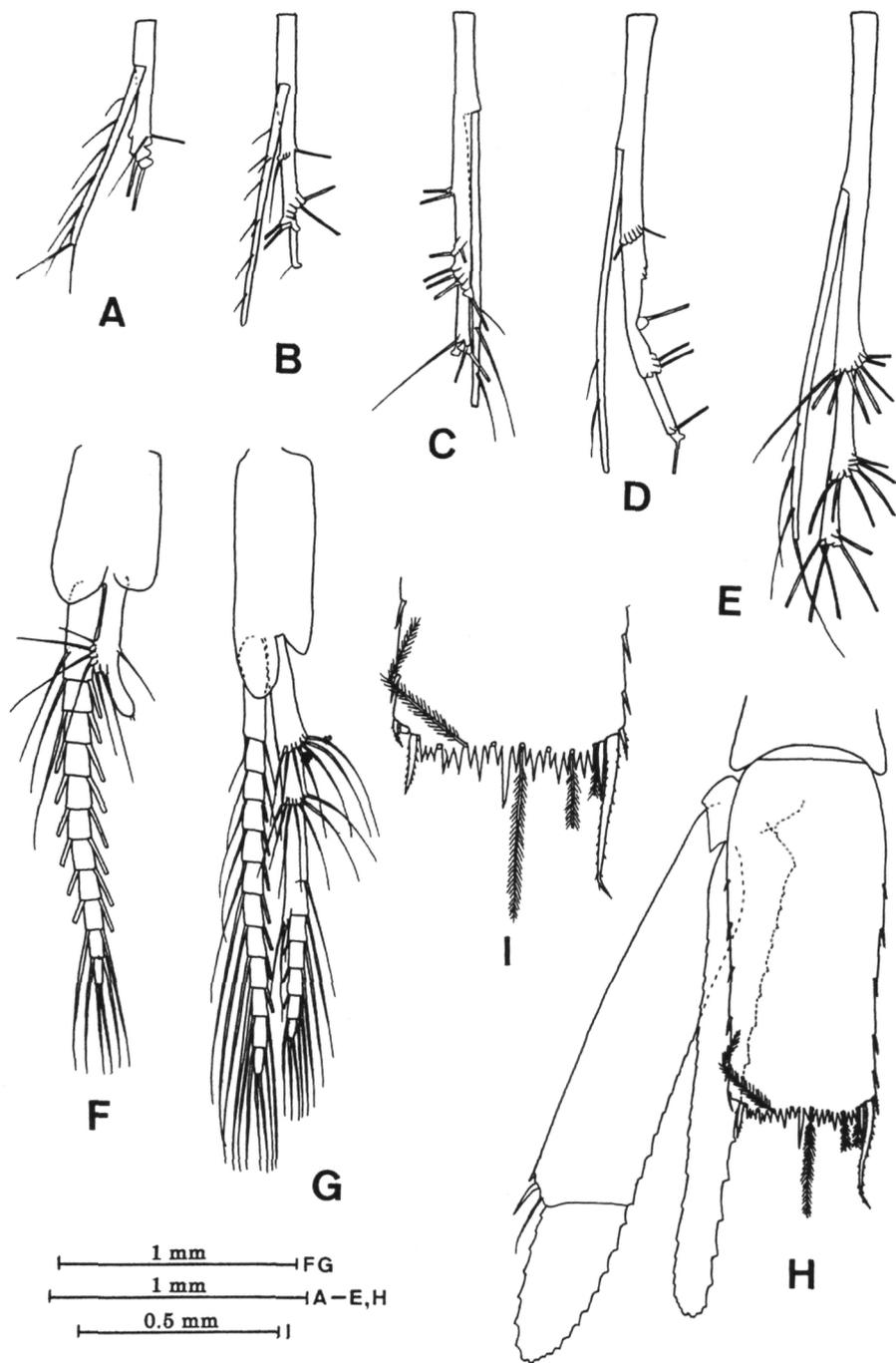


Fig. 4. *Parapetalophthalmus suluensis*, new genus, new species; A-E: allotype; F-I: holotype. A, first pleopod; B, second pleopod; C, third pleopod; D, fourth pleopod; E, fifth pleopod; F, first pleopod; G, fifth pleopod; H, uropod and telson; I, distal part of telson.

third segment equal to second in length, with group of setae at distal end. Female with flagellum 4-segmented, terminating in 2 short setae; male with flagellum about 18-segmented (Fig. 2A).

Mandible of right side with lacinia mobilis (Fig. 2C). Palp large, slender, extending anteriorly beyond anterior margin of second segment of antennular peduncle in male and slightly beyond middle of second segment in female (Fig. 1B); first segment short; second segment cylindrical, nearly 7 times longer than broad, with 4 spine-like setae along outer margin and 7 along inner margin; third segment  $\frac{1}{3}$  length of second, with flexure between second and third segments, armed with 9 strong setae, 3 on distal end, 2 on outer margin and 4 on inner margin, one of distal setae shorter than others, especially in female (Figs. 1B, 2B). Maxilla and labrum as in Fig. 2D, E, respectively.

Endopod of first thoracopod short and robust, with epipod; inner lobe on ischium developed, extending anteriorly to middle of merus, armed with several spine-like setae; carpopropodus longer than preceding 2 segments combined, inner margin slightly convex, with group of setae on middle; claw fused with dactylus, long, inwardly curved (Fig. 2F); exopod wanting. Endopod of second thoracopod robust; lobe on ischium very large, quadrangular, overreaching distal margin of merus, 4 times as long as broad, with about 27 long and short spine-like setae on inner and apical margins; carpopropodus elliptical, shorter than preceding segment; claw fused with dactylus, robust, inwardly curved (Fig. 2G); exopod wanting.

Endopods of third to fifth thoracopods extremely slender; carpopropodus as long as merus, undivided, with 5 groups of setae arranged at regular intervals on distal fourth of inner margin, each group composed of 2 or 3 setae; dactylus short, terminating in 2 short setae, without claw (Fig. 3A-C, E). Endopods of sixth to eighth thoracopods reduced to 1- or 2-segmented, small rudiments with several setae (Fig. 3D, F, G). Penis elongate, gradually thicker distally,

ending in hemispherical apex, without setae (Fig. 3D). Flagelliform part of thoracic exopods 9-segmented in third and fourth pairs and 10-segmented in fifth to eighth; basal plate narrow, with outer distal corner rounded (Fig. 3D).

Abdominal somites increasing in length posteriorly, their length ratios are 1:1:1.4:1.5:1.6:2.5; last abdominal somite more than 3 times as long as maximum breadth at posterior end; anterior 5 somites with pair of small blunt projections on posterior end of lateral margin.

Pleopods of male biramous, well developed; first pleopod with unsegmented endopod and 11-segmented exopod (Fig. 4F); second to fifth pleopods similar to each other, without modified setae; exopod 12-segmented; endopod 6- or 7-segmented, slightly shorter than exopod; first segment long, with 2 groups of setae arranged transversely, without definite pseudobranchial lobe (Fig. 4G). Pleopods of female biramous, increasing in length posteriorly; exopod very slender, not segmented or segmented indistinctly, with 2 to 6 setae on outer margin and 1 or 2 setae on apex; endopod fused with sympod, shorter than exopod in first to third pleopods, subequal in fourth and slightly longer in fifth (Fig. 4A-E).

Exopod of uropod 2-segmented. Proximal segment more than 4 times as long as broad, with both margins parallel; outer margin very slightly convex, naked except for distal end armed with 1 seta and 2 spines, proximal spine very small; inner margin very slightly concave, setose. Distal segment twice as long as broad at base, 0.28 of proximal segment in length, whole margin setose (Fig. 4H). Endopod of uropod unsegmented, extending to middle of distal segment of exopod, gradually narrowing distally (Fig. 4H).

Telson rectangular, more than twice as long as broad, 0.7 of last abdominal somite in length. Lateral margins parallel, with 5 small, slender, equal-sized spines on each side. Distal margin armed with 9 grouped spines, each group consisting of 3 spines

with middle one usually longest; spines of outermost groups longer, barbed, jointed at base, 8 plumose setae present between 9 spine groups (Fig. 4H, I).

*Etymology.*—The name *suluensis* is derived from the locality where the specimens were collected; it is an adjective agreeing in gender with the generic name.

*Remarks.*—As previously discussed in the remarks section of the genus, the new species is easily distinguished from two species of the most closely related genus *Pseudopetalophthalmus*, *P. japonicus* Bravo & Murano, 1997, and *P. australis* (Panampunnayil, 1982).

*Parapetalophthalmus suluensis* was collected in the depth of 285–306 m which was deeper than habitats of two species of *Pseudopetalophthalmus*, 74–130 m deep in *P. japonius* and subsurface in *P. australis*.

#### Literature Cited

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