

**EUROBOWMANIELLA PHUKETENSIS N. GEN. N. SP.  
(CRUSTACEA : MYSIDACEA) FROM THE INDIAN COAST OF THAILAND I**

By Masaaki Murano

Department of Aquatic Biosciences, Tokyo University of Fisheries

**ABSTRACT**

*Eurobowmaniella phuketensis*, new genus and new species belonging to the subfamily Gastrosaccinae of the family Mysidae, is described based on specimens collected from the intertidal zone of sandy beaches on Phuket Island, located in the Indian coast of Thailand. The new genus is related to *Bowmaniella* in having a complicated copulatory organ in the distal part of the exopod of the third male pleopod, but is distinguished from the latter genus in the endopod of the second male pleopod which is multisegmented and the second to fifth female pleopods which are uniramous.

**INTRODUCTION**

The present material was collected by Professor Deborah M. Dexter, San Diego State University, from sandy beaches in Phuket Island, located in the Indian coast of southern Thailand and sent me for the identification. This mysid species belonging to the subfamily Gastrosaccinae of the family Mysidae is not in agreement with any of eight known genera of the subfamily: *Anchialina*, *Archaeomysis*, *Bowmaniella*, *Gastrosaccus*, *Haplostylus*, *Iiella*, *Paranchialina* and *Pseudanchialina*, in the structure of the third male pleopod. I describe it herein as a new genus and a new species. The type specimens are deposited in the Phuket Marine Biological Center.

*Eurobowmaniella* n. gen.

**DIAGNOSIS**

Carapace produced anteriorly in triangular rostrum, posterodorsal margin emarginate, with 6-8 spines.

Antennular peduncle with second segment armed with 4 spines on lateral margin.

Labrum with median strong process and pair of subsidiary spines on frontal margin.

Third to eighth thoracic endopods with carpopropodus jointed to 7-11 subsegments.

Pleopods in male biramous; first, fourth and fifth endopods unsegmented, second and third endopods multisegmented, third exopod extremely elongated, modified as complicated copulatory organ. Pleopods

in female: first pair biramous, second to fifth pairs uniramous.

Exopod of uropod with spines along almost entire lateral margin, endopod with 4 spines on inner margin.

Telson cleft distally, lateral margin with 6-8 strong spines.

**REMARKS**

The new genus *Eurobowmaniella* is characterized by the exopod of the third male pleopod modified to a complicated copulatory organ in the distal part. In this character it is related to *Bowmaniella*, which was established by Bacescu in 1968, but the modification is considerably different in structure and simpler than that of the latter genus. Besides the above, *Eurobowmaniella* is distinguishable from *Bowmaniella* by the labrum with a pair of subsidiary spines in addition to a median long process, the endopod of the second and third male pleopods are multisegmented, and the second to fifth female pleopods are uniramous.

Furthermore, *Eurobowmaniella* is different from *Bowmaniella* in biogeographically. All species of *Bowmaniella*, which now includes 14 species, have been found from the Atlantic and Pacific coasts of the North and South American continents and West Indies (Da Silva, 1971a, 1971b, 1972; Mauchline and Murano, 1977), whereas *Eurobowmaniella* is distributed in the Southeast Asia, and only the present species is known.

Differences from related genera are summarized in Table 1.

Table 1. Comparison among genera *Gastrosaccus* Norman, *Hapiostylus* Bacescu, *Iiella* Bacescu, *Archacomysis* Czerniavsky, *Bowmaniella* Bacescu and *Eurobowmaniella* n. gen. (revised and enlarged from Brategard 1970, Table 6).

	<i>Gastrosaccus</i> Norman	<i>Hapiostylus</i> Bacescu	<i>Iiella</i> Bacescu	<i>Archacomysis</i> Czerniavsky	<i>Bowmaniella</i> Bacescu	<i>Eurobowmaniella</i> n. gen
Anterior margin of labrum	long median spine	long median spine	long median spine and shorter lateral spines	long median spine	long median spine	long median spine and shorter lateral spine
Second male pleopod: - exopod segments - endopod segments	many many	many one or many	many many	many many	many one	many many
Third male pleopod: - exopod segments  - endopod segments	styliform, many  many, no curved spines at tip	styliform, many  one, no curved spines at tip	styliform, many  many, no curved spines at tip	styliform, many  many, no curved spines at tip	ending in complicated copulatory organ, 2-to 3(4?)-jointed  one, with 2 curved spines at tip	ending in complicated copulatory organ, 4-jointed  many, no curved spines at tip
Pleopods of female	1 <sup>st</sup> biramous 2 <sup>nd</sup> -5 <sup>th</sup> uniramous	1 <sup>st</sup> biramous 2 <sup>nd</sup> -5 <sup>th</sup> uniramous	1 <sup>st</sup> -5 <sup>th</sup> uniramous	1 <sup>st</sup> -5 <sup>th</sup> uniramous	1 <sup>st</sup> -5 <sup>th</sup> uniramous	1 <sup>st</sup> biramous 2 <sup>nd</sup> -5 <sup>th</sup> uniramous

### Etymology

The name *Eurobowmaniella* is derived from "Euro" meaning eastern, plus "bowmaniella", the most related genus *Bowmaniella*.

### *Eurobowmaniella phuketensis* n. gen. n. sp. (Figs. 1-3)

### Type specimens

Holotype (11452), adult male, 6.4 mm; allotype (11455), gravid female, 6.8 mm; paratypes (11453), 17 adult males, 5.5-6.3 mm (aver. 6.1 mm) and 16 gravid females, 6.0-7.6 mm (aver. 6.6 mm), of which 2 males and 1 female dissected for drawings; Patong Beach, west coast of Phuket Island, Thailand; 29 June 1994.

Other material. All the specimens mentioned below were collected from sand beaches in the west coast of Phuket Island, Thailand.

41 adult males (5.5-6.5 mm), 34 gravid females (6.0-7.5 mm), 3 adult females, 81 immature males, 69 immature females, 25 juveniles; same as type specimens.

1 gravid female (damaged), 1 adult male (6.8 mm), 1 immature female, 6 juveniles; Kata Beach; 24 June 1994.

1 gravid female (7.2 mm), 2 immature males, 6 immature females, 1 juvenile; Kamala Beach; 12 August 1994.

1 adult male (6.5 mm), 3 gravid females (7.3-8.2 mm), 14 immature males, 20 immature females, 1 juvenile; Surin Beach; 12 August 1994.

1 adult male (6.7 mm), 3 gravid females (7.5-8.4 mm), 1 immature female; Had Sai Gao; 8 September 1994.

3 adult males (6.3-7.2 mm), 2 gravid females (7.0-8.1 mm), 2 adult females (7.6-8.0 mm), 1 immature male, 1 immature female; Mai Khao Beach; 8 September 1994.

1 adult male (7.7 mm), 3 gravid females (8.3-8.5 mm), 3 immature males, 7 immature females, 16 juveniles; Karon Beach; 9 September 1994.

3 adult males (6.2-7.4 mm), 9 gravid females (6.0-7.8 mm), 4 adult females (6.8-7.8 mm), 8 immature males, 9 immature females, 7 juveniles; Bang Tao Bay; 19 September 1994.

*Mysidacea from the Indian Coast of Thailand I*

1 adult male (6.6 mm), 5 gravid females (6.8-8.0 mm), 4 immature males, 6 immature females, 2 juveniles; Naithon Beach; 19 September 1994.

2 adult males (6.8, 7.0 mm), 16 gravid females (7.4-8.5 mm), 49 immature males, 28 immature females, 92 juveniles; Kata Beach; 21 September 1994.

1 adult male (6.6 mm), 1 gravid female (7.1 mm), 3 immature males, 1 immature female, 20 juveniles; Nai Harn Beach; 21 September 1994.

**DESCRIPTION**

Carapace produced anteriorly in triangular rostrum with narrowly rounded apex, apex not extending to base of antennular peduncle and somewhat bent downward; lateral margin of rostrum evenly concave, covering basal part of eyestalks (Fig. 1A,B); anterolateral corner of carapace rounded; posterior dorsal margin of carapace deeply concave, with 7-8 equal spines (Fig. 1C), leaving last thoracic somite exposed, posterolateral lobe broadly rounded, extending posteriorly to anterior margin of first abdominal somite.

Eye moderate in size, rather closely set, less than twice as long as broad, cornea as eyestalk in male and slightly narrower in female, well pigmented, occupying less than half of whole eye (Fig. 1A,B).

Antennular peduncle thick and long, in male, first segment 1.5 times as long as broad, second segment short, about 1/3 length of first segment, with 3 long and 1 short spines on dorsolateral margin and 1 long seta on distomedial margin, third segment as long as first, narrower than second, with 1 spine on dorsal surface near distolateral corner; basal part of outer flagellum with elliptical lobe hirsute (Fig. 1A). In female, more slender than in male, first segment as long as second and third segments combined, second segment shorter than broad, with 4 spines on dorsolateral margin and 1 short and 1 long setae at distomedial corner, third segment twice longer than second, with 1 spine on dorsal surface near distolateral corner and 2 short setae at distomedial corner; basal part of outer flagellum with elliptical lobe smaller than that of male (Fig. 1B).

Antennal peduncle shorter than antennular peduncle, second segment 2.5 times longer than broad, with 5 long and several short setae on medial margin, third segment about 1/3 of second segment in length, with 1 long and several short setae at

distomedial corner. Antennal scale extending to middle of antennal third segment, more than 3 times longer than broad, lateral margin very slightly convex, naked, termination in triangular spinous process, apex of scale extending slightly beyond terminal spine of lateral margin, distal suture distinct (Fig. 1D)

Mandibular palp slender, with third segment being 4/5 of second segment in length (Fig. 1E). Maxillule with inner lobe armed with 3 long setae on distal margin, 1 long seta on inner margin and 3 short setae on outer margin, outer lobe with 11 spines on distal margin, 2 plumose setae on inner margin and 3 plumose setae on dorsal surface (Fig. 1F). Maxilla as in Fig. 1G. Labrum longer than wide, with long and pointed median process and pair of short spines on frontal end (Fig. 1H).

First and second thoracic limbs with endopod rather slender (Fig. 2A,B). Endopods of third to eighth limbs similar in shape to each other but relative length of segments changing with limbs: ischium and merus shortened and capopropodus lengthened toward posterior pairs, capopropodus subsegmented into 7 in third limb, 8 in fourth, 9 in fifth and sixth, 11 in seventh and eighth, each subsegment with slender spine with bifurcate tip on distal margin (Fig. 2C-H). Exopods of first to seventh thoracic limbs with pointed distolateral corner of basal plate, flagella of thoracic exopods 10-segmented in first 11-in second and 12-in third to eighth limbs (Fig. 2A-C,H). Penis elliptical, with 4 plumose setae on lateral margin and 1 plumose seta, 1 very short spinous seta and 1 papilliform projection on apical margin (Fig. 2I). Marsupium composed of 2 pairs of oostegites, oostegite on seventh thoracic limb reduced to small lobe.

Abdomen with sixth somite with 2 transverse folds just behind anterior dorsal end (Fig. 3A); in male, first somite with developed and rounded pleural plate, covering basal half of sympod of first pleopod in lateral view, pleural plates of remaining somites more or less developed; in female, pleural plate of first somite very developed, being probably useful in protection of marsupium.

All pleopods of male biramous. First pleopod with exopod 8-segmented; endopod unsegmented, reaching second segment of exopod, with 2 long setae on transverse distal end, sympod with 8 setae on lateral margin (Fig. 3B). Second pleopod, exopod 8-

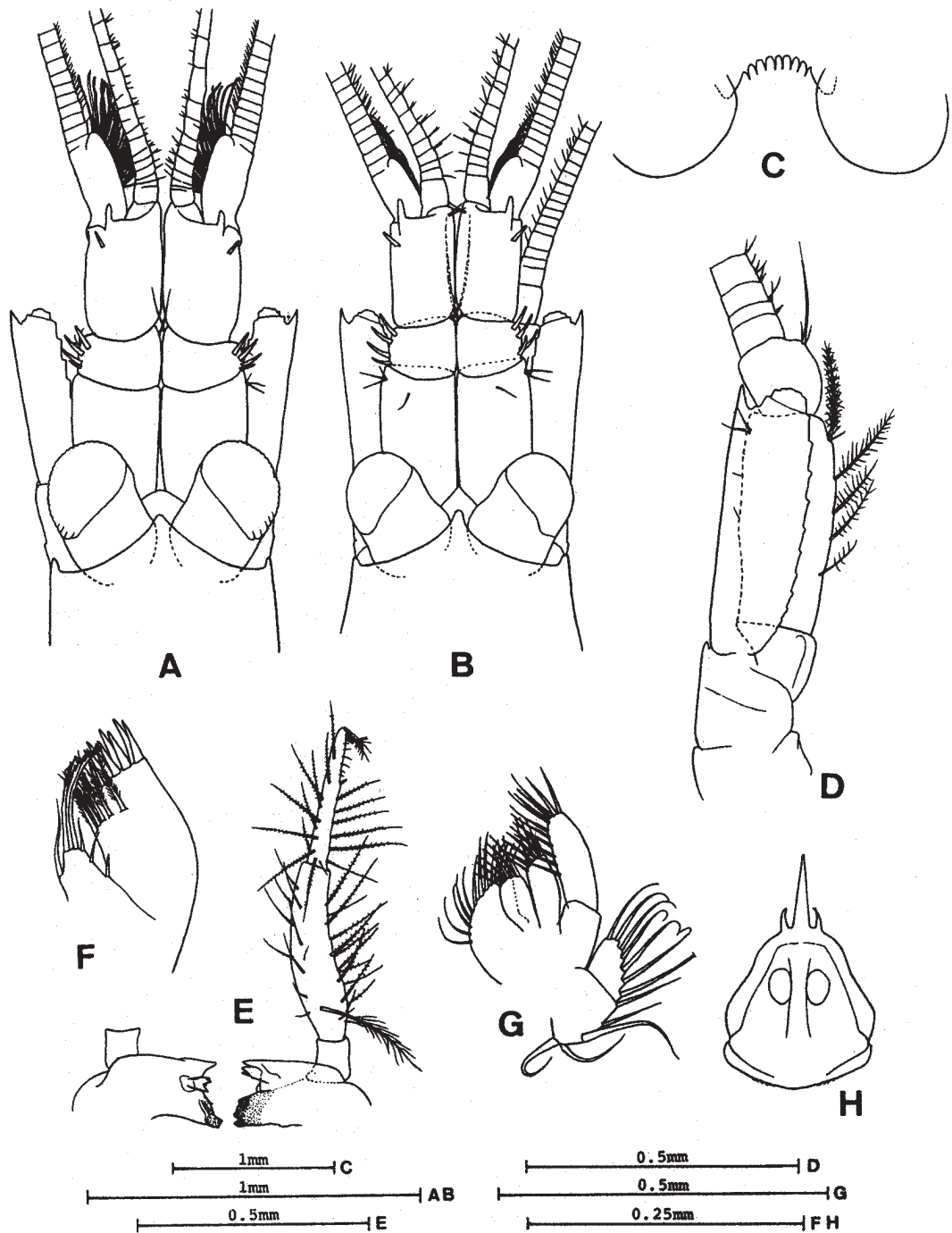


Figure 1. *Eurobowmaniella phuketensis* n. gen. n. sp., A, anterior end of adult male; B, anterior end of adult female; C, posterior end of carapace; D, antenna; E, mandibles and mandibular palp; F, maxillule; G, maxilla; H, labrum.

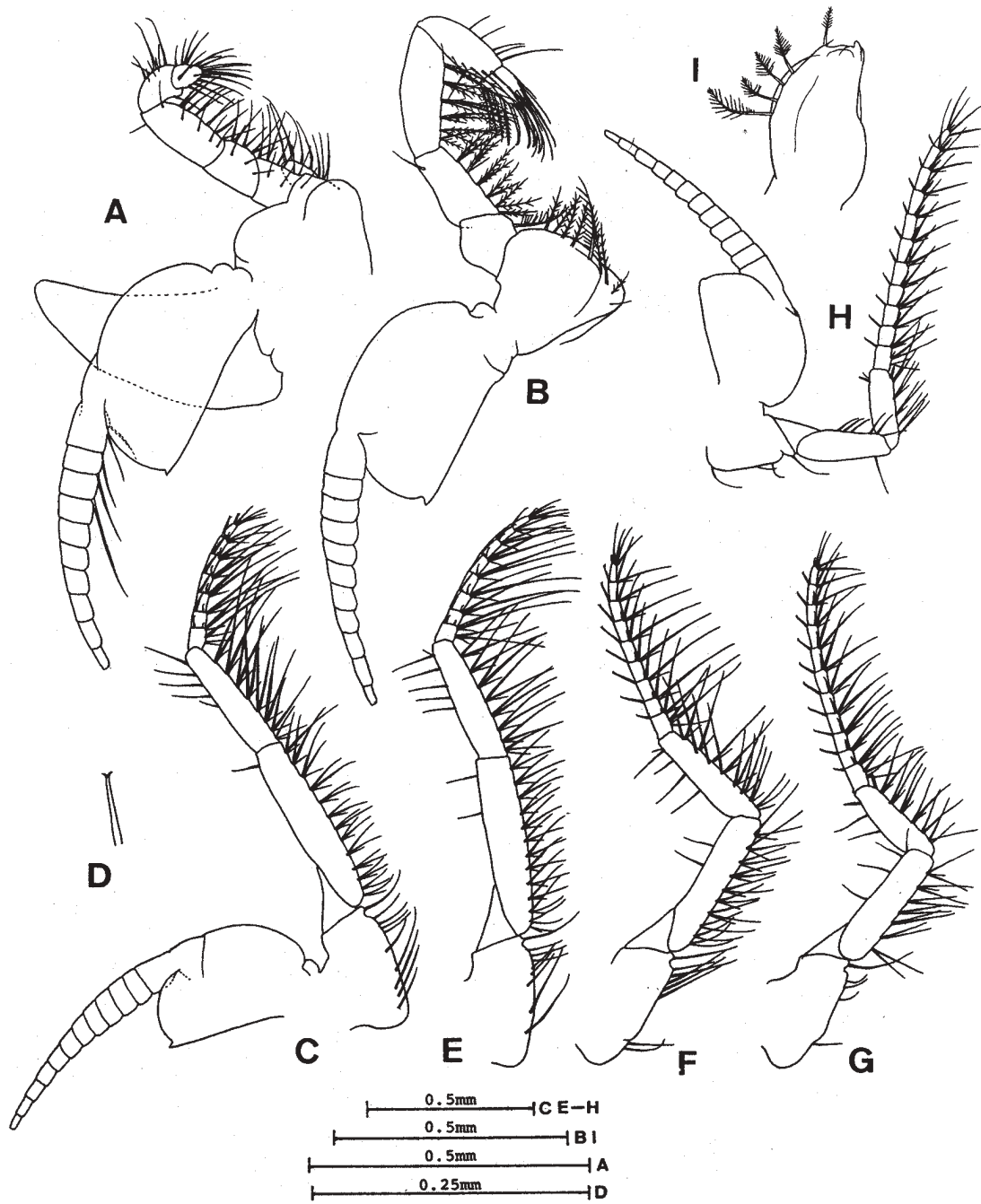
*Mysidacea from the Indian Coast of Thailand I*

Figure 2. *Eurobowmaniella phuketensis* n. gen. n. sp., A, first thoracic limb; B, second thoracic limb; C, third thoracic limb; D, bifurcated spine on distal end of penultimate segment of carpopropodus of third thoracic limb; E, endopod of fourth thoracic limb; F, endopod of sixth thoracic limb; G, endopod of seventh thoracic limb; H, eighth thoracic limb; I, left penis in posterior view.

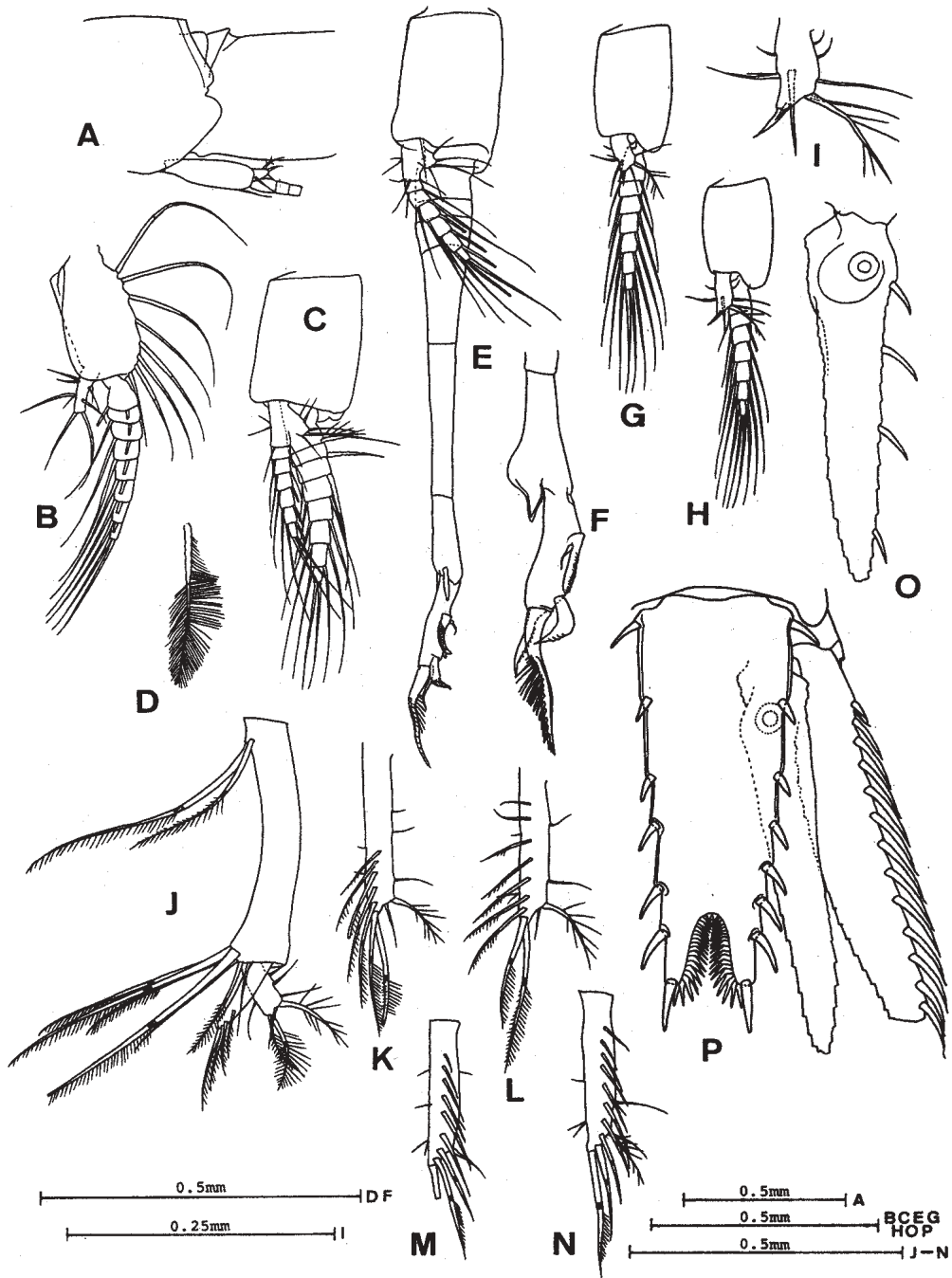


Figure 3. *Eurobowmaniella phuketensis* n. gen. n. sp., A, articulation between fifth and sixth thoracic somites in lateral view; B, first male pleopod; C, second male pleopod; D, lateral seta on third segment of exopod of second male pleopod; E, third male pleopod; F, distal part of exopod of third male pleopod in lateral view; G, fourth male pleopod; H, fifth male pleopod; I, endopod of fifth male pleopod; J-N, first to fifth female pleopods; O, endopod of uropod; P, uropod and telson.

*Mysidacea from the Indian Coast of Thailand I*

segmented, broad, proximal 3 segments armed on each distolateral corner with thick seta, margin of which is crenurated in proximal part (Fig. 3D); endopod 7-segmented, about half width of exopod, not reaching distal end of sixth segment of exopod (Fig.3C). Third pleopod, exopod extremely elongated, reaching posterior end of last abdominal somite, modified complicatedly, 4-segmented; first segment broadened in proximal part and subsegmented into about 4, unarmed, second segment unarmed, third segment with prominent triangular process, terminal segment armed with 1 short seta and 1 stick and furrowed process in middle part, distal part with subterminal curved and thick spine and 2 terminal spines, inner one of which is short and serrated and outer one twice as long as inner, furnished with slender spines along distal 2/3 of margin; endopod normal, 7-segmented (Fig.3E,F). Fourth and fifth pleopods similar to each other, exopod 7-segmented, unarmed with modified setae, endopod unsegmented, terminating into spine (Fig.3G,H,I)

Female pleopods, first pair biramous, endopod slightly narrower and longer than exopod, with 4 setae in distal part; exopod rectangular, armed with 2 thick and 2 slender setae on distal margin, 3 setae on medial margin and 1 seta on lateral margin; sympod elongated rectangular, armed with 5 long setae at distolateral corner and 2 long setae near proximal end of lateral margin (Fig.3J); second to fifth pairs uniramous (Fig. 3K-N).

Uropod with endopod slightly longer than exopod and 4 strong spines on medial margin, exopod armed along lateral margin with 13 strong spines arranged

regularly and 1 thin spine between proximal 2 strong spines, strong spines armed with feeble setae along margins (Fig. 3O,2P).

Telson 1.2 times longer than last abdominal somite, 2.7 times as long as broad; distal cleft deep, anteriorly extending beyond level of distalmost spine of lateral margin (not apical spine on terminal lobe), 0.18 as long as telson, armed with 18-19 spines on each side; each apex of terminal lobes with single strong spine; lateral margin straight, armed with 6-8 strong spines (usually 7,6 and 8 spines in rare case) increasing in length posteriorly except for basal one big (Fig. 3P).

**REMARKS**

As discussed in the paragraph of the genus the new species is different from all the known species of the subfamily Gastrosaccinae.

**Habitat**

This species inhabits intertidal zone of sandy beaches in which substantial waves come surging in during the southwest monsoon (June-November) and in a lesser degree during the northwest monsoon (December-May). The highest density of the mysids is at the low tide level, but mysids are found at mid tide, and even a few at high tide level, although they are mostly the smallest specimens (Dexter, personal communication). More ecological information is forthcoming (Dexter, ms. in preparation).

**Etymology**

This species is named after the locality where it was collected.

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