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**A new species of the genus *Paraleptosphaeroma*  
(Crustacea: Isopoda: Sphaeromatidae)  
from the rocky shore of Miyakojima, Okinawa, southwestern Japan \***

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**沖縄県宮古島岩礁で発見されたヒラタウミセミモドキ属  
(甲殻亜門,等脚目,コツブムシ科)の1新種\***

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**キーワード :** ヒラタウミセミモドキ, コツブムシ科, 等脚目, 新種, 分類学

沖縄県宮古島市城辺友利の岩礁海岸潮間帯から*Paraleptosphaeroma*属(ヒラタウミセミモドキ属)の1種が発見された。本属には今迄に世界中各地の熱帯・亜熱帯水域から互いによく似た3種が知られている。今回発見された種は、そのうち、インド洋から知られている*Paraleptosphaeroma indica* Müllerに最も似ているが、(1)腹尾節後端が丸みを帯びて尖り、へこみがないこと、(2)オスの第2腹肢の交尾針がまっすぐなこと、(3)生殖突起(ペニス)が短く太いこと、(4)胸脚全体に剛毛数少なく、特に内側の長い剛毛が無いこと、(5)体の周縁の皮膜状の構造とともに見られる長短の2タイプの剛毛があること、(6)第1腹肢の周縁の剛毛が少ないこと、(7)第3腹肢の周縁の剛毛が多いこと、(8)オスの第2腹肢外肢周縁の剛毛が少ないこと、(9)大顎鬚の第2節の剛毛数が多いこと、(10)第1小顎基節内葉の歯の数が多いこと、(11)触角の剛毛数が多いことで区別され、新種*Paraleptosphaeroma japonica*(和名:ニホンヒラタウミセミモドキ:新称)として記載した。本属の発見は日本では最初である。

Hitherto, three species of the genus *Paraleptosphaeroma* (Crustacea: Isopoda : Sphaeromatidae) have been known as valid in the world, and they are very closely allied similar to one another. In 2009, I happened to collect some specimens of the genus from the upper part of intertidal zone of rocky shore of Gusukube-tomori, Miyakojima, Okinawa, southwestern Japan. As a result of examination of mine, they proved to represent a new specimen of the genus. This is the first record of the genus in Japan.

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\*Contributions from Toyama Science Museum, No. 509

**Oder Isopoda**

**Suborder Sphaeromatidea**

**Family Sphaeromatidae**

**Genus *Paraleptosphaeroma* Buss & Iverson, 1981**

**(Japanese name: Hirata-umisemi-modoki-zoku)**

This genus is similar to the genus *Leptosphaeroma*, in dorsal view; especially strongly depressed oval body, lacking of transverse folds in pleopods 4 and 5 and strongly expanded and thickened proximal 2 peduncular segment of antennule. But the most conspicuous difference of the two genera are as follows: lacking of suture line of pleonal somite, lateral margin of whole body fringed with setule-like structures embedded in a translucent membrane-like structure called cingula, lacking of endopod of pleopod 1 and longer penes, and reduction of endopod of pleopods (Buss and Iverson, 1981).

Type species: *Paraleptosphaeroma glynni* Buss & Iverson, 1981: 4, 8, by monotypy.

***Paraleptosphaeroma japonica* n.sp.**

**(Japanese name: Nihon-hirata-umisemi-modoki, new)**

**(Figs. 1-2)**

*Material examined*: 10♂♂ (1♂ holotype, 2.3 mm in body length, 9♂♂ paratypes, 1.8-2.8 mm in body length), 8♀♀ (1♀ allotype, 2.4 mm in body length, 7♀♀ paratypes 1.7-2.4 mm in body length), intertidal zone of rocky shore, near "Imugya Marine Garden." (24°43. N in latitude, 125°21. E in longitude), Gusukube-tomori Miyakojima-shi (Miyako Island), Okinawa Prefecture, Ryukyu Archipelago, Southern Japan 27, May 2009, coll. Noboru Nunomura.

Type series is deposited as follows: holotype (TOYA Cr-23735), allotype (TOYA Cr-23736) and 9 paratypes (TOYA Cr- 23737~237465) at Toyama Science Museum; 7 paratypes (KMNH IvR 500936~500942) at Kitakyushu Museum of Natural History and Human History, Kitakyushu.

*Description of male*: Both sexes similar in shape in dorsal view. Body (Fig. 1A) oval and strongly depressed in outline, exceedingly flattened, only slightly convex dorsally in the central region, 1.5 times as long as wide. Dorsal surface with small tubercles sparsely. Whole body fringed with setule-like structures (including some longer ones) embedded in a translucent membrane-like structure called cingula. Antennule forming a rounded broad rim in front of cephalon; inner margin of the expansion of a peduncle touches that of the opposite peduncle in the mesial line. Cephalon 3 times wider than long, with a small median process and strongly sinuous frontal margins. Eyes relatively small, each eye with 15-25 ommatidea. Epimere of pereonites 1-7 well developed and quadrangular in outline. Penes (Fig. 1J) tapering toward narrowing tip, both sides contact on the inside, 5 times as long as the basal width. Pleotelson about 1.4 times wider than long, with a relatively acute angle tip, almost completely surrounded by long endopod of uropod.

Antennule (Fig. 1B): peduncle 3-segmented: two proximal peduncular segments strongly expanded, third one slender and narrow. Flagellum with 5 segments; distal segment with 2 aesthetascs. Antenna (Fig. 1C) composed of 5 peduncular segments and 5-7 flagellar segments.

Right mandible (Fig. 1D): pars incisiva lacinia with 4 teeth; mobilis processus molaris palp 3-segmented and each almost equal in length; second segment with 4-7 setae and terminal segment with 5-6 setae. Left mandible (Fig. 1E): pars incisiva lacinia with 3 teeth; lateral molaris with 2 setae.

Maxillula: mesial endite (Fig. 1F) with 4 long plumose setae and an acute spine; lateral endite (Fig. 1G) with 9 teeth, including a serrated one. Maxilla (Fig. 1H): mesial endite with 5 setae, middle endite with 3 setae; lateral endite with 3 setae on distal margin. Maxilliped (Fig. 1I): endite rectangular, with a long coupling hook on lateral margin and 6-7 plumose setae on distal area; palp five-segmented, inner margin not markedly protruded into lobes; second segment long, with 5-6 setae on inner margin; third segment with 5-6 setae; fourth segment with

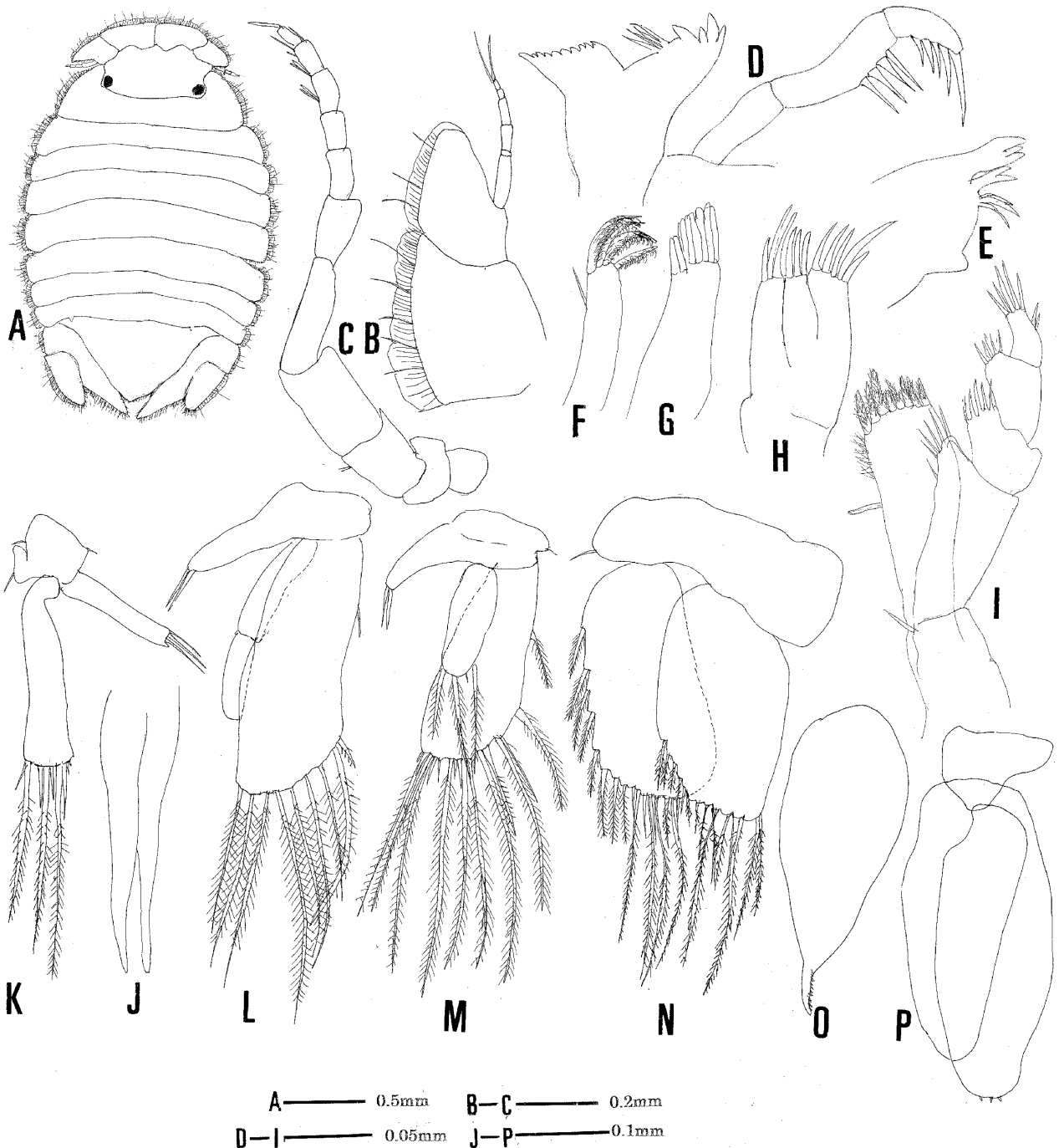


Fig. 1 *Paraleptosphaeroma japonica* n.sp.

A: Dorsal view; B: Antennule, C: Antenna, D: Left mandible, E: Right mandible, F: Mesial endite of maxillula; G: Lateral endite of the same, H: Maxilla, I: Maxilliped, J: Penes, K: Pleopod 1, L: Pleopod 2 of male, M: Pleopod 2 of female, N: Pleopod 3, O: Endopod of pleopod 4, P: Pleopod 5 (A-L, N-P: Male holotype, M: female allotype).

5 setae; fifth palpal segment with 5 setae at the tip and 2 setae on outer margin.

Pereopod 1 (Fig. 2A): basis with 1-2 setae at inner distal end; ischium with a seta on outer margin; merus with a long simple seta at inner distal angle and another long one at outer distal angle; carpus triangular, with a long seta at inner distal angle; propodus rectangular, with sinuate distal margin.

Pereopod 2 (Fig. 2B): basis with a simple seta of inner distal area and, with a group of short setae on middle area of outer margin; ischium with a few of short setae on both margins; merus a little longer than half length of ischium, with relatively long seta at outer distal area; carpus as long as merus, with 2 setae on distal margin; propodus 1.3 times longer than carpus, with 1-2 short setae on inner margin.

Pereopod 3 (Fig. 2C): basis with 1-2 setae on distal margin; ischium with 1-2 distal setae and a seta on inner margin; merus with a seta at outer distal margin; carpus with 3 setae on inner margin 5-6 setae on outer distal area; propodus with 2 setae on inner margin.

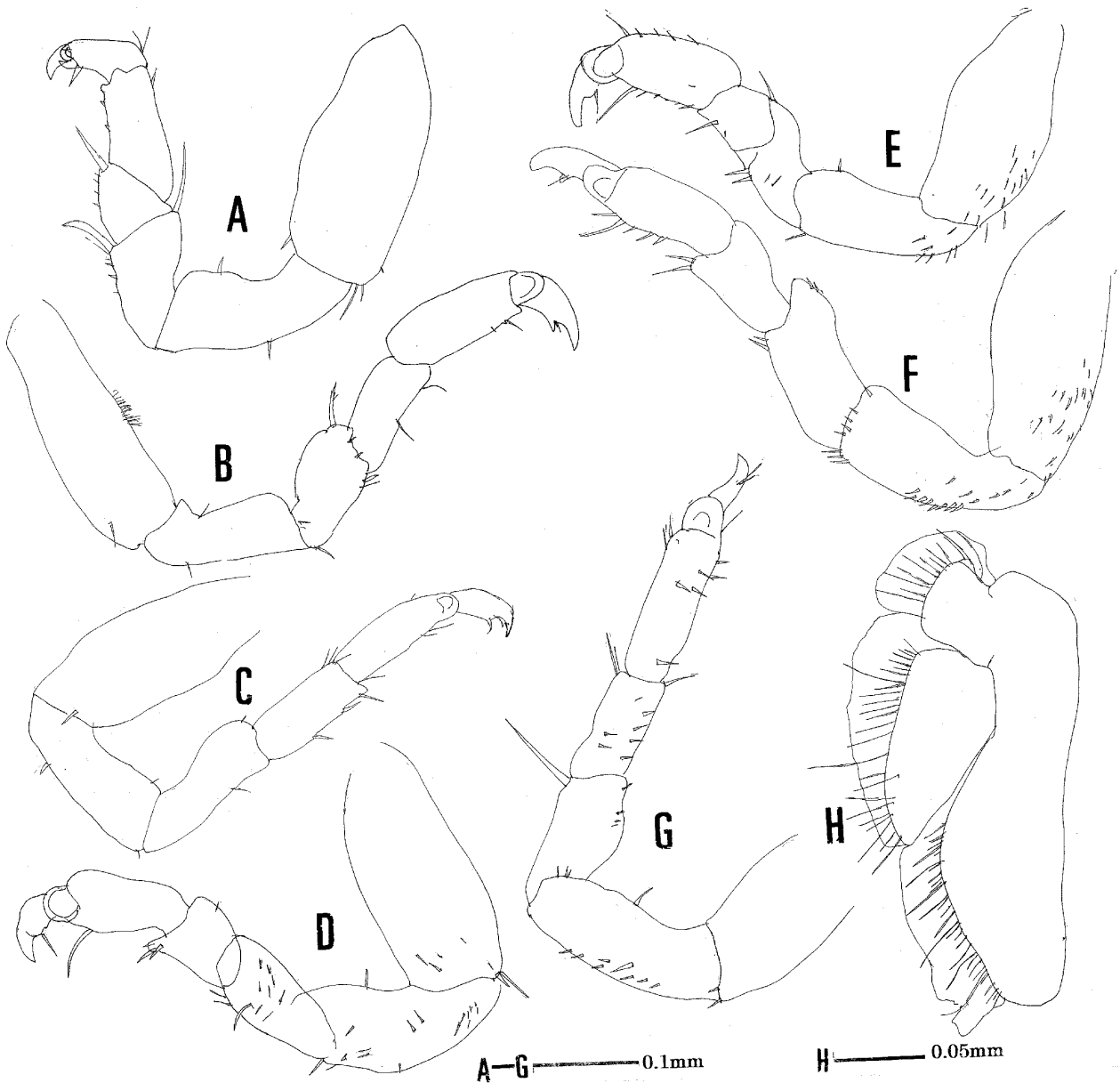


Fig. 2 *Paraleptosphaeroma japonica* n.sp.

A-G: Pereopods 1-7, H: Uropod (All: male holotype).

Pereopod 4 (Fig. 2D): basis with 2 setae at inner distal angle and several short setae on lateral surface; ischium 0.7 times as long as basis, with more than a dozen setae on lateral surface; merus with 2-3 setae on outer margin setae and 9-10 setae on lateral surface; carpus a little shorter than merus, with 2 long setae at inner distal angle and on outer distal angle margin and setae; propodus rather short, twice longer than carpus, with a long seta near the inner distal angles.

Pereopod 5 (Fig. 2E): basis with more than 20 setae on lateral surface; ischium a little shorter than basis, with a seta at in distal angle of half part of inner side; merus half-length of ischium, with 2 setae at inner distal angle and a seta at outer distal angle; carpus almost as long as basis, with a seta at inner distal angle; propodus rather short twice longer than carpus, with a long seta near the inner distal angle.

Pereopod 6 (Fig. 2F) slightly longer than pereopod 5: basis with more than 25 setae on distal half of inner surface; ischium with more than 20 setae on inner surface and 8-10 setae on distal area; merus with 2 setae on inner margin and a seta at distal margin; carpus with 1-2 setae at distal margin; propodus with 5 setae on distal area and several setae on distal angle.

Pereopod 7 (Fig. 2G): basis with 2 short setae on inner distal area; ischium with more than 8 setae on inner surface and a few of short setae on outer side; merus with a long seta on inner margin and some setae on outer margin; carpus with 2 setae at inner distal angle and several seta on lateral surface; propodus with 2 setae near the distal end of inner margin and 5-6 setae on lateral surface.

Pleopod 1 (Fig. 1K) sympod tipped with 2-3 setae; endopod totally reduced; exopod as long as wide, with 3 long setae and 4 short ones setae.

Pleopod 2 (Fig. 1L and M): sympod tipped with 2 setae; endopod small without seta in male but with 3 setae in female; exopod lanceolate, twice as long as wide, with 8-9 setae around the margin; appendix masculina rounded and only slightly curved toward margin of endopod.

Pleopod 3 (Fig. 1 N): sympod rectangular, tipped with 2 setae; endopod rectangular, with about 9-14 setae around the margin; exopod oval, twice as endopod, with about 14-15 setae around the margin.

Pleopod 4 (Fig. 1O): sympod both rami lanceolate and subequal in length, without transverse folds: endopod tapering to a small process bearing many small spinules; exopod 2.2 times as long as wide, without seta.

Pleopod 5 (Fig. 1P): both rami lanceolate and subequal in length; exopod with 3 denticles on outer margin.

Uropod (Fig. 2H): both rami with cingula and many setae; endopod lanceolate, 2.7 times as long as wide; exopod trapezoid, 0.7 times as long as wide, with cingula and many setae.

Female: Similar to male in general habitus, except for sexual feature. Gravid female with about 20 eggs in her marsupial.

*Remarks:* Hitherto, three species of the genus *Paraleptosphaeroma* from tropical and subtropical waters: *P.glynni* Buss & Iverson, 1981 from Panama (Pacific side), *P.brucei* Kussakin and Malyutina from South China Sea, and *P.indica* Müller, from Reunion Island, southern Indian Ocean. These are morphologically closely allied to one another in their general habitus and shape of appendages.

Among them, the present new species is most closely similar to *P. indica* in having tapering penis with a narrow tip and having 6-7 setae around the margin of exopod of male second pleopod. However, it differs from *P. indica* in the following features: (1) entire and slightly protruded apex of pleotelson (concave in *P. indica*), (2) shorter and straight shape of endopod of male second pleopod, (3) shorter penes, (4) less numerous number of

setae of pereopods, especially lack of long seta on inner margin on pereopods, (5) presence of 2 kinds (long and short) setae in membrane like structure around the margin, (6) less numerous setae exopod of first pleopod, (7) more numerous number of setae on third pleopod, (8) numerous number of exopod of male second pleopod, (9) numerous number of setae on second palpal segment of mandible more number of teeth on lateral endite of maxillula, (10) numerous teeth on mesial endite of maxillula and (11) less numerous aesthetascs on antennule.

### References

- Buss, L.W., Iverson, E.W., 1981. A new genus and species of Sphaeromatidae (Crustacea: Isopoda) with experiments and observations on its reproductive biology, interspecific interactions and color polymorphisms. *Postilla*, (184): 1-24.
- Kussakin, G. and Malyutina, M. V., 1993. Sphaeromatidae (Crustacea: Isopoda: Flabellifera) from the South China Sea. *Invertebrate Taxonomy*, 7, 1167-1203.
- Müller, H. G., 1990. Sphaeromatidae from Reunion Island, southern Indian Ocean, with Description of a new species of *Paraleptosphaeroma* Buss & Iverson, 1981 (Crustacea: Isopoda). *Revue Suisse de Zoologie*, 97(3): 635-645.
- Nunomura, N. and Shimomura, M., 2017. Isopoda from Japan(44): Suborder Sphaeromatidea-Family Sphaeromatidae, Cassidininae. *Aquabiology*, 39(2): Seibutsu- Kenkyusha Co.LTd. Tokyo (In Japanese, in press.).