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**A New Species of the Genus *Sphaeroma* (Isopoda
: Sphaeromatidae) from Iriomote Island, Okinawa,
southern Japan***

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八重山諸島西表島から発見されたコツブムシの1新種

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沖縄県西表島の浦内川河口干潟から発見されたコツブムシの1種を新種 *Sphaeroma mukaii* (和名: ヒガタコツブムシ: 新称) として記載した。本種はヨツバコツブムシ *Sphaeroma retrolaeve* Richardson, 1904 と類似するが, (1) 雄第2腹肢内肢に交尾針があること, (2) 第1小顎内葉上の羽毛状剛毛数が少ないこと, (3) 胸肢上の長い剛毛数が少ないこと, (4) 第3, 4胸脚が比較的長いこと, (5) 体表が比較的平滑であること, (6) 第1触角の鞭数が少ないこと, (7) 第2触角の鞭数が多いこと, (8) 顎脚の内葉が広いこと, (9) 額葉が長いこと, (10) 発達した大顎の可動葉片があることなどで区別される。また, 本邦から知られている *Sphaeroma sieboldii* Richardson Dollfus, 1889 と類似するが, (1) 雄第2腹肢内肢に交尾針があること, (2) 尾肢外肢外縁の棘数が少ないこと, (3) 胸肢上の長い剛毛数が少ないこと, (4) 第3, 4胸脚が比較的長いこと, (5) 第2小顎上の剛毛数が少ないこと, (6) 第1触角の鞭数が少ないこと, (7) 第2触角の鞭数が多いこと, (8) 顎脚の内葉が広いこと, (9) 体表が平滑なことなどで区別される。

key word : *Sphaeroma mukaii*, Sphaeromatidae, Isopoda, new species, Iriomote, Okinawa, taxonomy

During a faunal survey of tidal flat at the mouth of Urauchi-gawa River, Iriomote Island, Taketomi-cho, Okinawa Prefecture in 2004, Prof. Hiroshi Mukai, Hokkaido University, found some sphaeromatid specimens. The specimens were sent to me for identification, through the courtesy of Professor Wada of Nara Women's University. At the closer examination of mine, they proved to represent a new species of the genus *Sphaeroma*.

Hitherto, thirty-nine species of the genus *Sphaeroma* have been known in the world and 4 species have been recorded in Japan. And the discovery of the present new species described here is the fifth species from Japanese water.

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Order Isopoda
Suborder Flabellifera
Family Sphaeromatidae
Sphaeroma mukaii, n. sp.

(Jap.name: Higata-Kotubumushi: new)

Material examined: 1 ♂ (holotype, 5.2mm in body length) and 2 ♀♀ (1 ♀ allotype, 5.2mm in body length and 1 ♀ paratype, 2.2mm in body length), Mouth of River Urauchi, Iriomote-Island, Taketomi-cho, Okinawa Prefecture, July 13, 2004, coll. Hiroshi Mukai. Holotype (TOYA Cr-13163) and allotype (TOYA Cr-13164) are deposited at the Toyama Science Museum and a paratype (OPM Cr-137) at the Okinawa Prefectural Museum.

Description: Body 1.9 times as long as wide (Fig. 1A). Color black, almost smooth. Cephalon, pereonal somites and pleonal somites almost parallel. Pleotelson straight posteriorly. Eyes mediocre in size and each eye composed of about 150 ommatidia.

Antennule (Fig. 1C) composed of 3-segmented, strong peduncle and 10-segmented flagellum. Antenna (Fig. 1D)

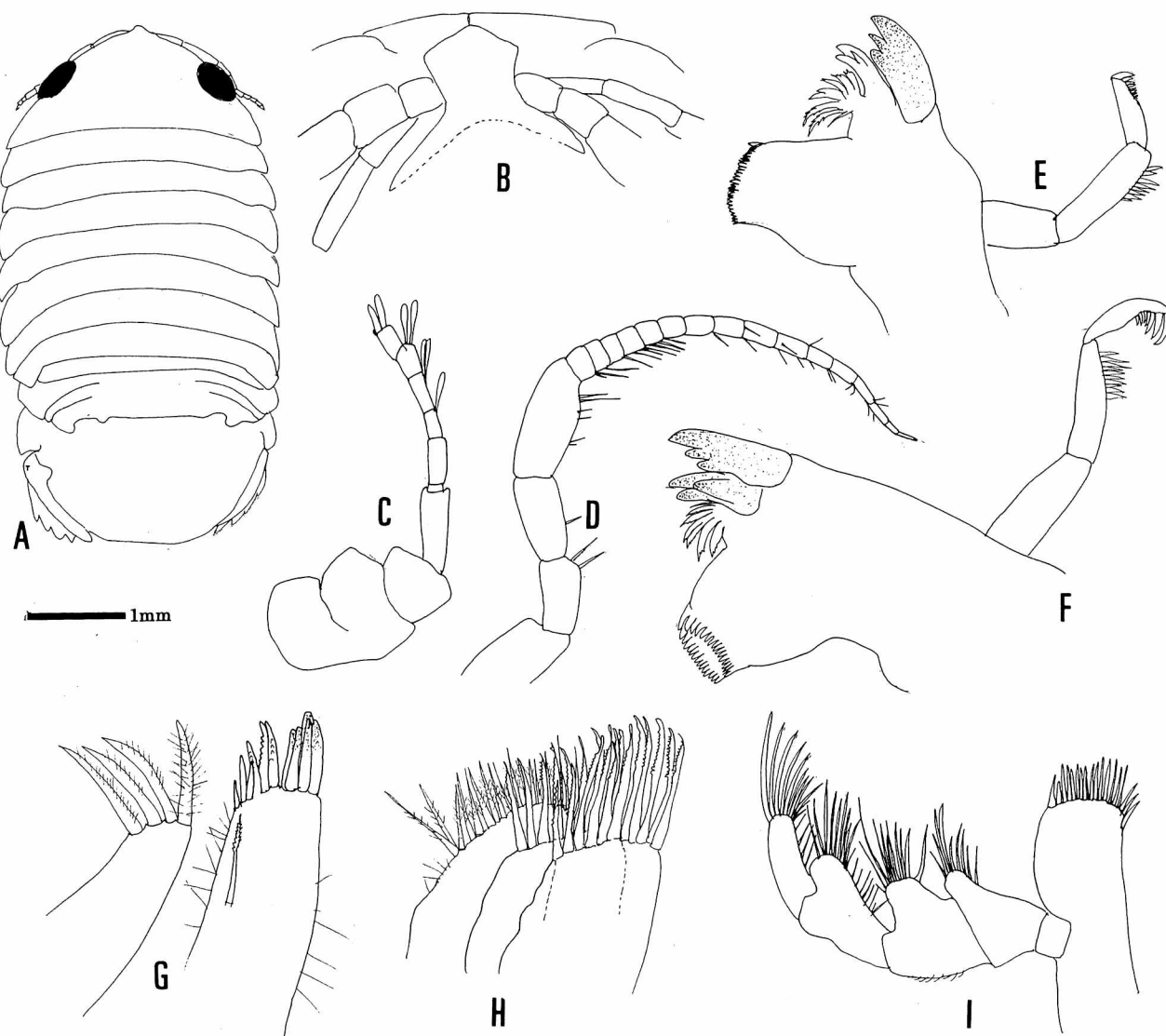


Fig.1 *Sphaeroma mukaii* n. sp.

A, Dorsal view; B, Ventral view of anterior part of cephalon; C, Antennule; D, Antenna; E, Right mandible; F, Left mandible; G, Maxillula; H, Maxilla; I, Maxilliped (All: Holotype male).

longer than the antennule; peduncle 4-segmented; flagellum 15~16-segmented. Frontal lamina and clypeus as Fig1 B.

Right mandible (Fig.1E): pars incisiva 3-toothed; lacinia mobilis not chitinized and 3-toothed; 7 to 8 serrated setae; processus molaris wide. Left mandible(Fig.1F):pars incisiva 3-toothed; lacinia mobilis 3-toothed; processus molaris wide; palp 3-segmented; first segment rectangular, without long setae; second segment as long as the first, with 13-14 setae on outer margin; terminal segment 3/5 as long as the second, with 6 setae. Left mandible (Fig.1F): pars incisiva 3-toothed; lacinia mobilis 3-toothed; 7 to 8 serrated setae; processus molaris wide. Palp 3-segmented; first segment rectangular without long setae; second segment as long as the first, with 13-14 setae on outer margin; terminal segment 3/5 as long as the second, with 6 setae. Maxillula (Fig.1G); inner lobe with four plumose setae; outer lobe with 12 teeth, including three or four saw-like ones. Maxilla (Fig.1H) relatively slender; inner lobe with 17-18 plumose setae; both rami of outer lobe 10-12 pectinated setae. Maxilliped (Fig.1I): endite with a coupling hook and 18 spines on distal area; papal segment 1 small; segment 2 with 8-10 setae on inner margin; segment 3 with 14-16 long setae on inner margin; segment 3 with 12 setae on inner margin; segment 4 with 12-13 setae on inner margin; terminal segment slender, with 10 -11 setae around the margin.

Pereopod 1 (Fig.2A): basis 2.5 times as long as wide, with a setae at inner distal angle and several short setae on both margins; ischium approximately as long as basis, with a seta on inner distal area and 9-10 long setae on outer margin; merus with 2 setae on inner distal area and 8 long setae on outer distal area and 4 long setae on outer side; carpus short and triangular, with a spine at inner distal area; propodus 3/4 as long as basis, with 3 setae on inner distal area; dactylus bifid.

Pereopod 2 (Fig.2B): basis 3.2 times as long as with several relatively long setae on outer margin; ischium 2/3 as long as basis, with 7-8 long setae on outer margin ; merus less than 2/5 times as long as ischium, with four setae on outer distal area; carpus almost as long as merus, with 2 setae at outer distal angle; propodus a little longer than carpus, with two setae on inner margin and 2-3 setae on distal area of outer margin ;dactylus bifid.

Pereopods 3-4 (Fig.2C): basis missing; ischium 2.3-2.5 times as long as wide, with a long seta on outer margin; merus 0.4 times as long as wide, with many short setae on inner margin; carpus as long as merus but narrower, with 6 to 7 setae on distal margin; propodus wide, with about 12 setae on inner margin and two setae on outer distal angle; dactylus bifid, with 3 setae.

Pereopod 5:basis 2.5 times as long as wide, with 11-12 setae on outer margin; ischium 2/3 as long as basis, with 7-8 setae on outer margin; merus 2/3 as long as ischium, with 10 setae on inner margin and a seta at outer distal angle; carpus 5/7 as long as wide, with about 20 setae on inner margin and a seta at inner distal angle; propodus twice longer than carpus, with 14-15 setae on inner margin; dactylus bifid.

Pereopod 6 (Fig.2D): basis 3.5 times as long as wide, with 14-15 setae on outer margin; ischium as long as basis, with about 20 long setae on outer margin; merus 45% as long as ischium, with much hair on inner margin; carpus as long as merus, with much hair on inner margin; propodus 1.4 times longer than carpus, with many fine setae on inner margin and a seta on inner distal area; dactylus bifid.

Pereopod 7 (Fig.2E): basis 4 times as long as wide, with many setae on both margins; ischium 4/5 as long as basis, with many setae on outer margin; merus less than half the length of ischium, with about 12-15 relatively short setae on inner margin ; carpus a little longer than merus, with 2 relatively stout setae on inner distal angle and 2 setae outer distal angle; propods 1.5 times longer than carpus, with 2 stout setae on inner margin; dactylus bifid.

Pleopod 1 (Fig.2F): basis rectangular, with about a dozen setae on lateral margin; endopod triangular, with 5 long setae, 8-9 spines and much hair around the margin; exopod rectangular, with about 35 setae around the margin.

Pleopod 2 (Fig. 2G): endopod rounded triangular, with a straight stylus which extends far beyond both rami; exopod rectangular, with more than 40 setae around the margin. Pleopod 3 missing during dissection.

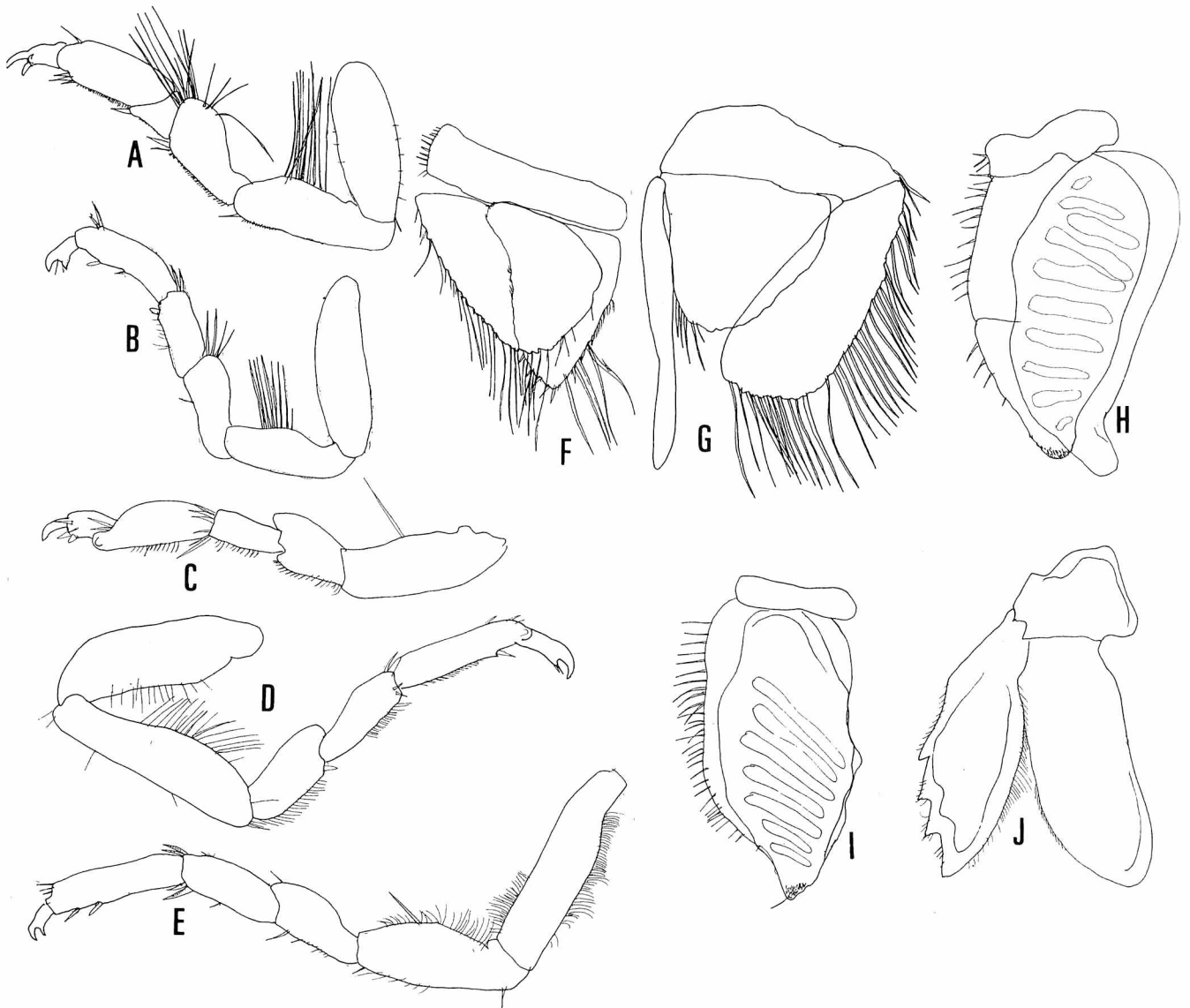


Fig.2 *Sphaeroma mukaii* n. sp.

A, Pereopod 1; B, Pereopod 2; C, Pereopod 4; D, Pereopod 6; E, Pleopod 7; F-G, Pleopods 1-2; H-I, Pleopods 4-5; J, Uropod (All: Holotype male).

Pleopod 4 (Fig.2H): basis rectangular, with 3 setae on lateral margin; endopod lanceolate and thickened; exopod a little shorter than endopod, with many small setae on distal are and 18 setae on inner margin.

Pleopod 5 (Fig.2I): basis rectangular,; endopod thickened; exopod with about 40 setae on lateral margin.

Uropod (Fig.2J): basis pentagonal; endopod lanceolate; exopod a little shorter than endopod, with 4-5 projections on outer margin.

Etymology: The species named is dedicated Prof. Hiroshi Mukai, the collector of the present specimens and

Remarks: Hitherto, 39 species of the genus *Sphaeroma* have been known from all over the world and species in Japan (Dollfus, 1889; Kussakin, 1979; Nunomura, 1994; Nunomura, 2003; Shiino, 1957; Thielemann, 1910). The

present new species is most closely allied to *Sphaeroma retrolaeve* Richardson, 1904, recorded from many shores in Japan, but the former is separated from the latter in the following features: (1) presence of stylus on male second pleopod, (2) less numerous plumose setae on inner lobe of maxillula, (3) less numerous long setae on pereopod, (4) longer pereopods 3-4, (5) smoother body surface, (6) numerous flagellar segments of antennule, (7) less numerous flagellar segments of antenna, (8) wider endite of maxilliped, (9) longer clypeus and frontal lamina and (10) numerous lacinia mobilis of mandible.

The present new species is most closely allied to *Sphaeroma sieboldii* Richardson Dollfus, 1889 in the following features: (1) presence of stylus on male second pleopod, (2) less numerous dentations on outer margin of exopod of uropod, (3) less numerous long setae on pereopod, (4) longer pereopods 3-4, (5) less numerous setae on maxilla, (6) numerous flagellar segments of antennule, (7) less numerous flagellar segments of antenna, (8) wider endite of maxilliped and (9) smoother body surface.

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References

- Dollfus, A., 1889, Note XXI. Sur quelques isopodes du Muséum de Leyde. *Notes from the Leyden Museum*, 11: 91-94.
- Kussakin, O. G., 1979, Marine and brackish Isopoda of cold and temperate waters of the northern hemisphere I, suborder Flabellifera. *Acad. Sci. U.S.S.R., Leningrad*, 1-472 [In Russian].
- Nunomura, N., 1994, A new rock boring isopod crustacean belonging to the genus *Sphaeroma* collected from Tanabe Bay, Kii Peninsula, middle Japan. *Bull. Toyama Sci. Mus.*, 17: 1-5.
- Nunomura, N., 2003, A new species of the genus *Sphaeroma* (Crustacea, Isopoda) from the mouth of the River Shimanto, Kochi, Shikoku, southern Japan. *Bull. Toyama Sci. Mus.*, 28: 47-50.
- Richardson, H., 1904, Isopoda collected in the year 1900 by the U. S. Fish Commission steamer Albatross and in the year 1881 by the U. S. S. Palos. *Proc. U. S. Nat. Mus.*, 27: 32-45.
- Shiino, S. M., 1957, The marine wood-boring crustaceans of Japan (Sphaeromidae and Cheluridae). *Was. J. Biol.*, 15(2): 161-197.
- Thielemann, M., 1910, Beiträge zur Kenntnis der Isopoden fauna Ostasiens. *Abhandl. math.-phys. Klass. Akad. Wiss. Suppl.*, 2(3): 1-110, 2 pls.