

## The Thomisidae of Japan

### IV. *Boliscus* THORELL, 1891 (Arachnida, Araneae), a Genus New to the Japanese Fauna

By

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#### Abstract

*Boliscus tuberculatus* (SIMON, 1886), a thomisid spider newly recorded from Japan, is redescribed on the basis of both the sexes. It is regarded as a senior synonym of *B. segnis* THORELL, 1891, which was originally designated as the type species of the genus. The subfamily Bominae, stat. nov., is proposed for the genus-group Bomeae sensu SIMON (1895).

Since about thirty years ago, an interesting small thomisid spider with many peculiar tubercles on the opisthosoma has often been found in the southern part of Japan south of Chiba Prefecture, Honshu, through the Ryukyu Islands to the Island of Taiwan. This spider was first introduced to Japanese science and illustrated by OHNO and YAGINUMA (1968) as a "Thomisidae gen. sp."

In the course of a generic revision of the family Thomisidae, I had an opportunity to examine in 1978 the old spider collection of the Muséum National d'Histoire Naturelle, Paris, through the courtesy of Dr. M. HUBERT, and found a specimen of the species in question collected in Singapore and determined by SIMON (1895) as *Boliscus segnis* THORELL, 1891. In the museum I was also able to examine some other specimens: 2 ♀♀ "*Boliscus* sp." from Java labelled by SIMON and the holotype (juvenile female) of *Boliscus tuberculatus* (SIMON, 1886) from Thailand. After that, I have seen through the kindness of Dr. F. R. WANLESS of the British Museum (Natural History), London, four juvenile specimens of *Boliscus segnis* THORELL, 1891, from Burma identified by THORELL (1895) himself.

It was most unexpected that all the above-mentioned specimens showed a habitus identical with the Japanese warty spider that had long been left undetermined. The name *Boliscus tuberculatus* (SIMON, 1886) has the priority to *Boliscus segnis* THORELL, 1891, the type species of the genus originally designated by THORELL (1891).

The genus *Boliscus* was established on the single species, *Boliscus segnis*, collected in Singapore by WORKMAN. THORELL (1895) reported later on a juvenile of this species from Burma. The first adult female from Singapore was described and illustrated by WORKMAN (1896) in his "Malaysian Spiders." On the other hand, SIMON (1895) discussed on the systematic position of the genus in the second edition of his great

work "Histoire Naturelle des Araignées," and listed three species in the genus, that is, *B. segnis* THORELL, 1891 (Singapore), *B. tuberculatus* (SIMON, 1886) (Indo-Chinese Pen.) transferred from *Corynethrix* L. KOCH, 1876, and *B. duricorius* (SIMON, 1880) (New Caledonia) transferred from *Bomis* L. KOCH, 1874. He placed *Boliscus* together with *Bomis*, *Corynethrix* and four other genera in the genus-group Bomeae, belonging to the subfamily Misumeninae (=Thomisinae). In 1899, O. PICKARD-CAMBRIDGE described the fourth species, *B. decipiens*, from Ceylon. For the 85 years since that time, almost nothing has been offered for the spiders of this genus.

Under this situation, the material newly collected from Japan and Taiwan is valuable, especially because several adult male specimens are included. The male described herein is nothing but the first record of the male sex in the whole genus. This interesting thomisid spider will be redescribed and revised with some new morphological aspects, especially of the male. The subfamily Bominae, status nov., is proposed for SIMON's genus-group Bomeae.

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#### Abbreviations

ALE	Anterior lateral eye	NSMT	National Science Museum, Tokyo
AME	Anterior median eye	PLE	Posterior lateral eye
AME-AME	Distance between AMEs	PME	Posterior median eye
AME-ALE	Distance between AME and ALE	PME-PME	Distance between PMEs
BMNH	British Museum (Natural History), London	PME-PLE	Distance between PME and PLE
ITA	Intermediate tibial apophysis of male palp	RTA	Retrolateral tibial apophysis of male palp
MOA	Median ocular area	TYO	Private collection of Takeo YAGINUMA, Osaka
MOA-L	Length of MOA	VTA	Ventral tibial apophysis of male palp
MOA-WA	Anterior width of MOA		
MOA-WP	Posterior width of MOA		
MNHN	Museum National d'Histoire Naturelle, Paris		

Subfamily **Bominae** SIMON, 1895, stat. nov.

Bomeae SIMON, 1895, Hist. nat. Araign., éd. 2, 1 (4), p. 1002. (Genus-group within the subfamily Misumeninae.)

Bomidae: DAHL, 1907, Mitt. zool. Mus. Berlin, 3, p. 372; 1913, Verh. Physiol. Morph. Spinnentiere, p. 18.

*Type genus:* *Bomis* L. KOCH, 1874, Arachn. Austral., p. 527 (type species: *Bomis larvata* L. KOCH, 1874, from Port Mackay and Rockhampton, East Coast of Australia).

*Notes.* Bomeae was first recognized by SIMON (1895) as a genus-group of the subfamily Misumeninae (=Thomisinae), and is now known to comprise nine genera mainly distributed in the Palearctic and Australian Regions (ROEWER, 1954). DAHL (1907) raised it to the familial rank because of the presence of a row of modified hairs on the promargin of chelicera. Later in 1913, he placed Stiphropodinae SIMON, 1895 (type genus: *Stiphropus* GERSTAECKER, 1873) in this family. It is true that the Stiphropodinae may be related to bomid spiders, but is, as I already pointed out (ONO, 1980), definitely different from the latter at the subfamilial level in view of various characteristics including genital features. Although DAHL's classification is too splitting to be accepted at the present day, his family Bomidae cannot be simply united with the subfamily Thomisinae. I am therefore going to recognize an independent subfamily for the bomid spiders on the basis of the following diagnosis.

*Diagnosis.* Carapace convex, poorly haired, often covered with granulation or small tubercles. Elevation of ocular area not much developed. Chelicerae with no teeth, but with bristle-like hairs in a row (scopula) on their promargins. Labium longer than wide. Legs short and thick, without setae. Patellae long, nearly as long as tibiae, longer than metatarsi. Hairs of legs and palps not branched.

*Genera included.* *Avelis* SIMON, 1895, *Boliscus* THORELL, 1891, *Boliscodes* SIMON, 1908, *Bomis* L. KOCH, 1874, *Corynethrix* L. KOCH, 1876, *Felsina* SIMON, 1895, *Holopelus* SIMON, 1886, *Parabomis* KULCZYNSKI, 1901, *Thomisopus* KARSCH, 1879 (not carefully studied excepting *Boliscus*).

Genus **Boliscus** THORELL, 1891

[Japanese name: Ibokanigumo-zoku]

*Boliscus* THORELL, 1891, Kongl. Svensk. Vet.-Akad. Handl., 24 (2), p. 98. — SIMON, 1895, Hist. nat. Araign., éd. 2, 1 (4), p. 1006.

*Type species.* *Boliscus tuberculatus* (SIMON, 1886) (= *B. segnis* THORELL, 1891).

*Etymology.* Greek βῶλος + ισκός, meaning small lump of earth; masculine.

*Diagnosis.* Small thomisids; male half the size of female. Carapace poorly haired, without setae. Tubercles of eyes poorly developed, lateral eyes on separate tubercles. Chelicerae toothless, labium oblong, longer than wide. Legs short, thick, without setae, patellae nearly as long as tibiae, longer than metatarsi. Tarsi of male palp with VTA and RTA, bulb simple in form, without apophyses, embolic

division winding twice around tegulum, embolus long, needle-shaped. Opisthosoma tuberculate. Epigynum without hood, intromittent canal long and winding, atrium present.

*Range.* Southeast Asia (Japan, Taiwan, Burma, Thailand, Singapore, Java, Ceylon), New Caledonia.

*Species included.* Other than the type species, only two described species are known: *B. decipiens* O. PICKARD-CAMBRIDGE, 1899 (Ceylon) and *B. duricorius* (SIMON, 1880) (New Caledonia). Both have not been rediscovered since the original description.

*Remarks.* This genus is distinguished from all the known genera of the subfamily Bominae by the presence of various tubercles on the opisthosoma.

### *Boliscus tuberculatus* (SIMON, 1886)

[Japanese name: Ibokanigumo]

(Figs. 1-9)

*Corynethrix tuberculatus* SIMON, 1886, Act. Soc. linn. Bordeaux, **40**, p. 146. Juvenile female holotype from Bangkok, Thailand, in MNHN, examined.

*Boliscus segnis* THORELL, 1891, Kongl. Svensk. Vet.-Akad. Handl., **24** (2), p. 98. Juvenile female holotype from Singapore, WORKMAN leg., probably in the National Museum of Ireland, Dublin, not examined; 1895, Descr. Cat. Spid. Burma, p. 283. 1 juvenile male and 3 juvenile females from Burma, THORELL det., in BMNH, examined. — SIMON, 1895, Hist. nat. Araign., éd. 2, **1** (4), p. 1006. Female specimen from Singapore, in MNHN, examined. — WORKMAN, 1896, Malays. Spid., p. 93. (*New synonymy.*)

*Boliscus tuberculatus*: SIMON, 1895, Hist. nat. Araign., éd. 2, **1** (4), p. 1006.

Thomisidae gen. sp.: OHNO & YAGINUMA, 1968, J. Tôyô Univ., Gen. Educ., (Nat. Sci.), (10), p. 29.

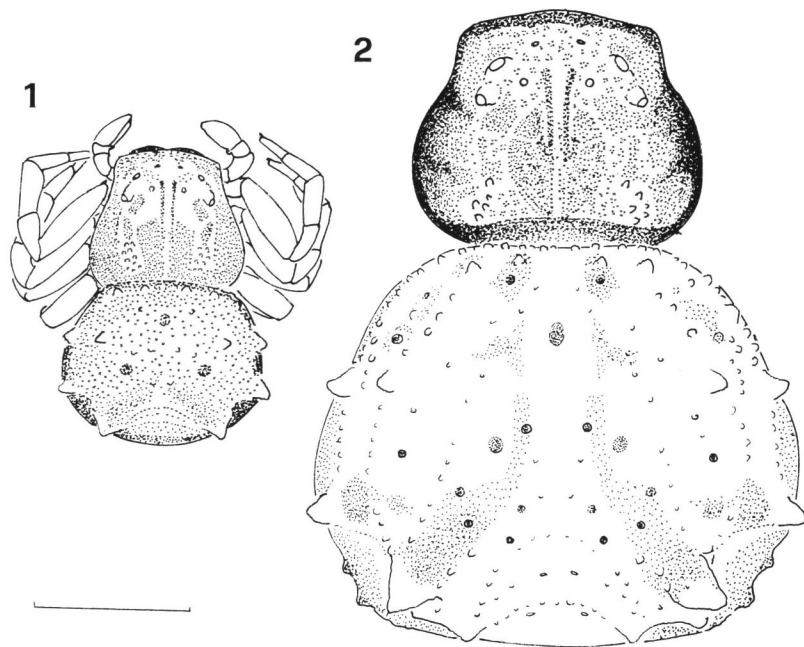
*Notes.* In spite of its darker coloration and withered body, the holotype of *B. tuberculatus* shows the same diagnostic characters as *B. segnis*. They are conspecific beyond doubt. Judging from the original description and illustration by O. PICKARD-CAMBRIDGE (1899), *B. decipines* may be a synonym of *B. tuberculatus*. A re-examination of the type specimens is required.

*Etymology.* Specific name from Latin meaning tuberculate.

*Specimens examined.* 1 juv. ♀ (holotype), Bangkok, Thailand (MNHN 6475); 2 ♀♀, Java, SIMON det. as *Boliscus* sp. (MNHN 19037); 1 ♀, Singapore, SIMON det. as *Boliscus segnis* THORELL, 1891 (MNHN 13815); 3 juv. ♀ 1 juv. ♂, Burma, OATES leg., THORELL det. as *Boliscus segnis* (BMNH 95-9-21-875-7); 1 ♂ 2 juv., Yangmingshan, Taipei, Taiwan, 28-VII-1977, H. YOSHIDA leg. Japan: 1 ♀, Mt. Takatsukayama, Chikura-chô, Chiba Pref., 10-X-1967, K. ISHII leg. (TYO); 1 ♀, Emi-chô, Chiba Pref., 15-VI-1966, S. MATSUMOTO leg., (NSMT-Ar 424); 1 juv., Nijijima Island, Izu-shotô Islands, Tokyo-to, 2-VI-1967, M. OHNO leg. (TYO); 1 juv., Miyakejima Island, Izu-shotô Islands, Tokyo-to, 5-VIII-1978, K. SUZUKI leg. (NSMT-Ar 425); 1 juv., Mikurajima Island, Izu-shotô Islands, Tokyo-to, 12-VII-1970, H. ONO leg. (NSMT-Ar 426); 1 ♂ 1 juv., Inazusa, Shimoda-shi, Shizuoka Pref. 4-VIII-1976, H. ONO leg.;

1 juv., Nantô-chô, Watarai-gun, Mie Pref., 11-VIII-1971, K. KAIHOTSU leg. (TYO); 1 ♀ 2 juv., Kuki-chô, Owase-shi, Mie Pref., 12-VII-1964 (TYO); 1 ♀, Kizuro, Kitayama-kyô, Wakayama Pref., 30-V-1951, M. OKURA leg. (TYO); 2 ♂♂, Naeno, Okubo, Tsushima Islands, Nagasaki Pref., 21-X-1968, J. AOKI leg. (NSMT-Ar 427); 1 juv., Kônoura, Nakadôrishima Island, Gotô Islands, Nagasaki Pref., 21-V-1968, M. OHNO leg. (TYO); 1 juv., Yusubaru, Ôita Pref., 3-XII-1965, S. FUJISAWA leg. (TYO); 1 ♂ 1 juv., Nishi-toyoda, Ôita-shi, Ôita Pref., 26-I-1966, S. FUJISAWA leg. (TYO); 1 ♀, Kamihouri, Higashi-usuki-gun, Miyazaki Pref., 16-VI-1966 (TYO); 1 ♀ 2 ♂♂, Minamata-shi, Kumamoto Pref., 25-IX-1967, R. HAMADA leg. (TYO); 1 ♂, northern part of the Okinawa Island, Okinawa (Ryukyu) Islands, Okinawa Pref., X-1960, K. YASUMATSU leg. (NSMT-Ar 428); 1 ♀, Enobi, Gushikawa-shi, Okinawa Island, Okinawa Islands, Okinawa Pref., 30-VI-1977, H. YOSHIDA leg.; 1 ♀, Shoshiuntan, Nakijin-mura, Kunigami-gun, Okinawa Island, Okinawa Islands, Okinawa Pref., 16-VIII-1957, SHOZA leg. (TYO); 2 juv., Miyagi Island, Okinawa Islands, Okinawa Pref., 7-X-1961, M. SHIMOJANA leg. (TYO); 2 juv., Mt. Banna-dake, Ishigaki Island, Sakishima Islands, Okinawa Pref., 29-III-1976, N. TAKEUCHI leg. (NSMT-Ar 429); 2 ♂♂, Iriomote Island, Sakishima Islands, Okinawa Pref., 17~18-VIII-1963, M. SHIMOJANA leg. (TYO).

*Description.* Measurements. Body length ♀ 2.60–4.25 mm, ♂ 1.65–1.95 mm;

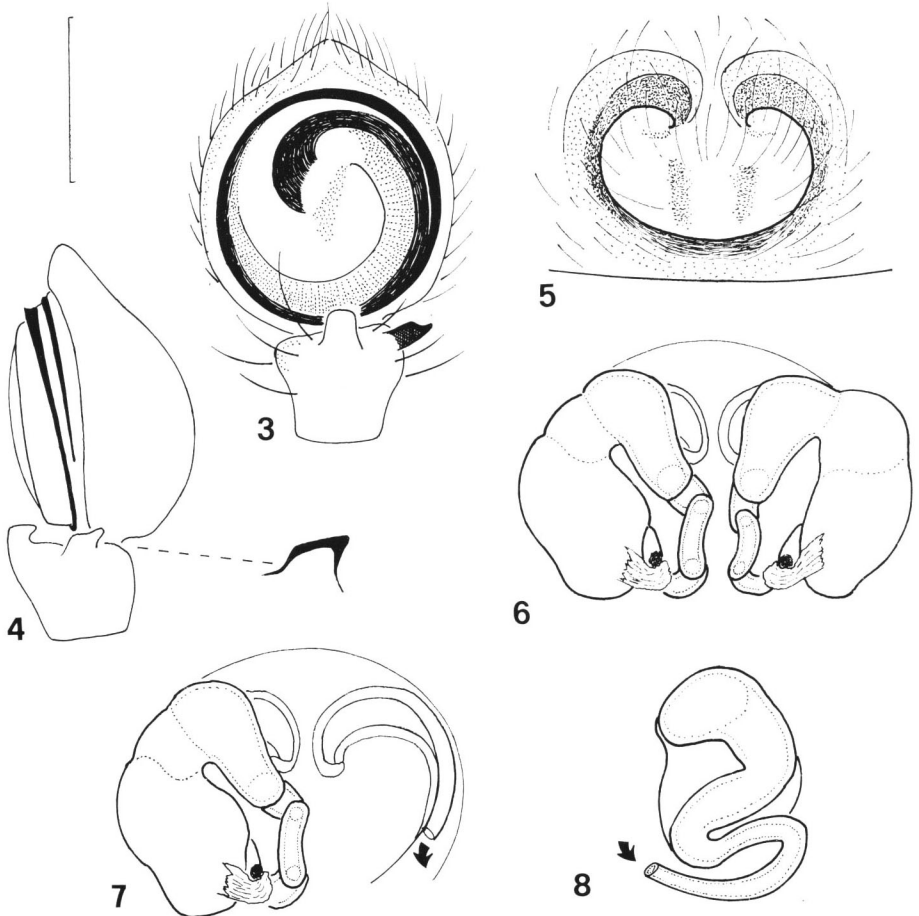


Figs. 1–2. *Boliscus tuberculatus* (SIMON, 1886). — 1. Male from the Tsushima Islands. 2. Female from Okinawa Island. (Scale: 1 mm.)

prosoma length ♀ 1.36–1.75 mm, ♂ 0.90–1.00 mm, width ♀ 1.48–1.85 mm, ♂ 0.95–1.05 mm; opisthosoma length ♀ 1.32–2.85 mm, ♂ 1.10–1.20 mm, width ♀ 1.92–3.35 mm, ♂ 1.25–1.40 mm. Lengths of legs of 1 ♀ from Gushikawa-shi of Okinawa Island and 1 ♂ from the Tsushima Islands (in mm; ♀/♂):

Leg	Tarsus	Metatarsus	Tibia	Patella	Femur	Total
I	0.35/0.24	0.48/0.30	0.73/0.45	0.70/0.35	1.10/0.63	3.34/2.00
II	0.35/0.25	0.48/0.30	0.73/0.45	0.70/0.35	1.13/0.63	3.39/1.98
III	0.25/0.18	0.35/0.23	0.45/0.25	0.50/0.25	0.73/0.43	2.28/1.34
IV	0.28/0.18	0.40/0.25	0.55/0.33	0.50/0.25	0.93/0.55	2.66/1.56.

Prosoma. Carapace poorly haired, without setae, as long as wide to slightly



Figs. 3–8. *Boliscus tuberculatus* (SIMON, 1886). — 3. Male palp, ventral view. 4. Male palp, retrolateral view. 5. Epigynum. 6. Female genitalia, cleared, dorsal view. 7. Do., right apparatus removed. 8. Intromittent canal, lateral view. (Scale: 0.2 mm.)

wider than long, convex, highest in the posterior region, cephalic region sloping gently downwards to clypeus, thoracic region steep to the posterior margin, some small white granulation on the posterior region. Eyes small, lateral eyes on separate, poorly developed tubercles,  $ALE > PLE \geq AME \geq PME$  with little difference in size,  $ALE/$

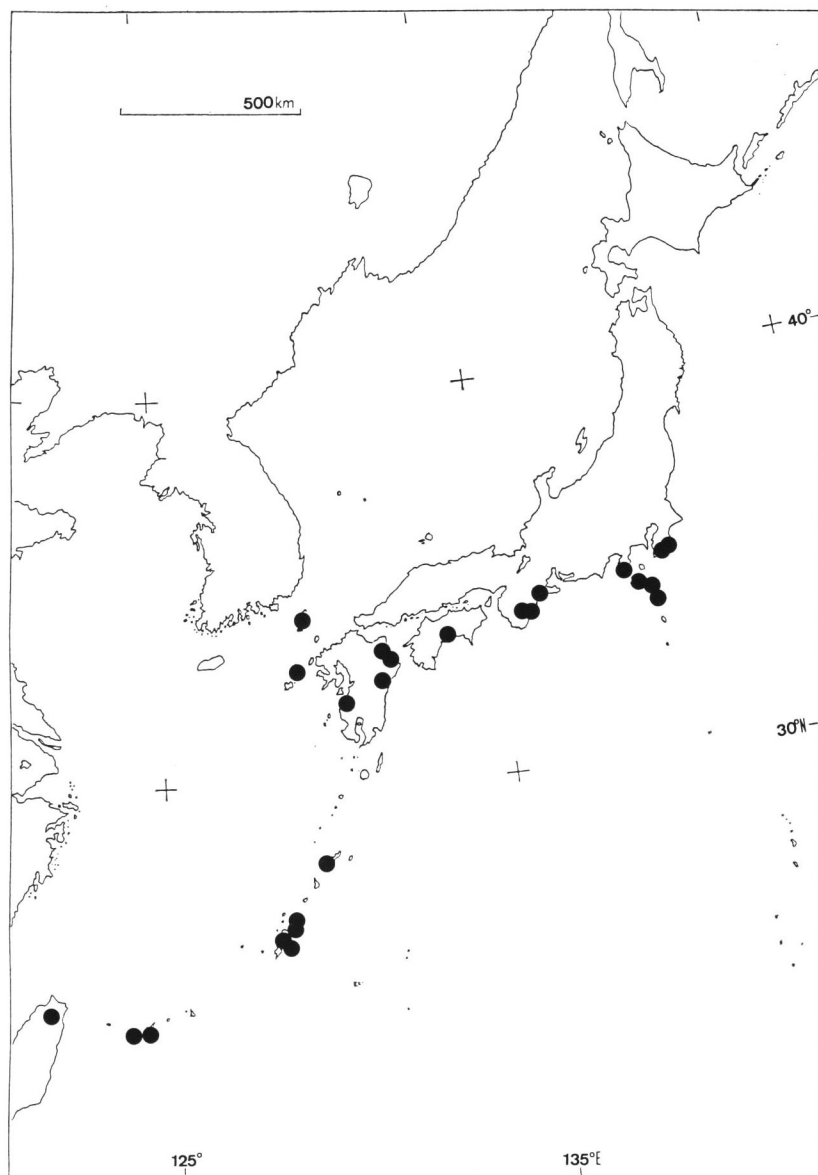


Fig. 9. Distribution of *Boliscus tuberculatus* (SIMON, 1886) in Japan. Two localities (Kōchi-shi and Amami-ōshima Island) from literature (YAGINUMA, 1968).

AME 1.40–2.00, PLE/PME 1.13–1.50, AME–AME/AME–ALE ♀ 0.85–1.12, ♂ 1.00–1.23, PME–PME/PME–PLE ♀ 1.37–1.70, ♂ 1.28–1.34, MOA–WA/WP ♀ 0.66–0.69, ♂ 0.75–0.80, L/WP ♀ 0.71–0.76, ♂ 0.83–0.90, Clypeus/AME–AME ♀ 1.10–1.34, ♂ 1.40–1.60. Chelicerae toothless, maxillae distally convergent, labium oblong, longer than wide (length/width ♀ 1.22–1.40, ♂ 1.16–1.25), more than half the length of maxillae, sternum longer than wide (length/width ♀ 1.20–1.50, ♂ 1.20–1.34), with the edge extending between coxae. Legs haired, without setae, patellae longer than metatarsi, metatarsi and tarsi with scopula.

Male palp (Figs. 3–4). Tibiae with VTA and RTA, RTA chitinous, without ITA. Cymbium without attached elements, bulb simple in form without apophyses, embolic division winding twice around tegulum, embolus long, needle-shaped.

Opisthosoma with tubercles of various size, ♂ dorsum chitinous.

Female genitalia (Figs. 5–8). Epigynum without a chitinous hood, vestibulum wide, concave, intromittent orifice situated in the posterior part of vestibulum. Intromittent canal long, winding forwards, atrium present, spermathecae peanut-shaped.

Coloration and markings (Figs. 1–2). ♀♂ carapace yellow- or red-brown or brown mottled with dark brown, darkest at the sides, tubercles in the posterior region white. Palps, chelicerae, maxillae, labium and sternum yellow-brown to dark brown. Legs yellow, with darker femora. Opisthosoma dorsally yellow-brown to dark red-brown, with faint black markings, underside yellow-brown.

*Range.* Southeast Asia (Japan, Taiwan, Thailand (type area), Burma, Singapore, Java). Distribution in Japan in Fig. 9.

*Biology.* Unknown. Often collected from shrubs by sweeping method.

*Remarks.* This spider can be readily identified by its external appearance. It is the only member of the subfamily Bominae known from Japan, and is the smallest thomisid spider of Japan in the male.

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