

Seven New Species of the Genera *Falcileptoneta* and *Masirana* (Araneae, Leptonetidae) from Kyushu, Japan

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Abstract Seven new species of the genera *Falcileptoneta* Komatsu, 1970 and *Masirana* Komatsu, 1942 (Araneae, Leptonetidae) are described from Kyushu, Japan, under the names *Falcileptoneta gotoensis* (from Gotô Islands, Nagasaki Pref.), *F. amakusaensis* (from Amakusa Islands, Kumamoto Pref.), *F. soboensis* (from Anamori-no-ana Cave in Takeda-shi, Oita Pref.), *F. satsumaensis* (from Gongen-ana Cave in Kawanabe-chô, Kagoshima Pref.), *Masirana taioensis* (from an abandoned mine at Taio-kinzan, Hita-gun, Oita Pref.), *M. mizonokuchiensis* (from Mizonokuchi-dô Cave in Takarabe-chô, Kagoshima Pref.), and *M. taraensis* (from Takaki-chô, Nagasaki Pref.). The genus *Sarutana* Komatsu, 1957, is regarded as a junior synonym of *Masirana*, Komatsu, 1942 and the species hitherto determined under *Sarutana* are transferred to *Masirana* or to *Falcileptoneta* as follows: *Masirana abensis* (Kobayashi, 1973), *M. bandoi* (Nishikawa, 1986), *M. glabra* (Komatsu, 1957), *M. kawasawai* (Komatsu, 1970), *M. silvicola* (Kobayashi, 1973), *M. kinoshitai* (Irie, 2000), *M. chibusana* (Irie, 2000), *Falcileptoneta yamauchii* (Nishikawa, 1982), and *F. higoensis* (Irie et Ono, 2003), all comb. nov.

Key words: Taxonomy, cave fauna, Araneae, Leptonetidae, Japan, new species, new synonymy.

Up to the present, following species of the family Leptonetidae were recorded from Kyushu, Japan: *Leptoneta striata* Oi, 1952 from Tsushima Island, Nagasaki Pref. (Yaginuma & Nishikawa, 1970) and from Oita Pref. (Kikuya, 1985), *L. iriei* Komatsu, 1967, from almost all prefectures in Kyushu (Komatsu, 1967; Irie, 1989), *L. tsushimensis* Yaginuma, 1970 from Tsushima Island, Nagasaki Pref. (Yaginuma, 1970), *L. kinoshitai* Irie, 2000, *L. chibusana* Irie, 2000, and *L. higoensis* Irie et Ono, 2003, from Kumamoto Pref. (Irie, 2000; Irie & Ono, 2003), and *Masirana nippara* Komatsu, 1957 from Fukuoka Pref. (Okuma, 1960; a doubtful record). Other than these, the senior author has some specimens of *Leptoneta melanocomata* Komatsu, 1961, collected from Fukuoka, Oita, Miyazaki, and Kumamoto Prefs. (Irie, 2005, in preparation).

Of these, *Leptoneta*, s. lat., *striata*, *melanocomata*, *tsushimensis*, and *iriei* were regarded as *Falcileptoneta* Komatsu, 1970, and *kinoshitai*,

chibusana, and *higoensis* were handled as *Sarutana*, Komatsu, 1957, in recent catalogues of spiders.

The present authors agree with the generic division by Komatsu (1970), especially on the establishment of *Falcileptoneta* Komatsu, 1970, because binding species of all leptonetid groups in Japan into one genus *Leptoneta* as proposed by Yaginuma (1986) has not been accepted by recent researches in this field. However, the transfer of some species to *Sarutana* seems also unreasonable because the definition of the genera by Komatsu (1970) was based on overestimating of specialization in troglophilous species and of some variable characters such as the number of marginal teeth of cheliceral fang furrow and the number of spines on male palpal femur.

Because no discrimination was able between the species from Honshu, Shikoku and Kyushu determined under the genus *Sarutana* and those under *Masirana*, both the genera should be join-

ing to each other.

In the present paper, further, new species of the family Leptonetidae will be described from Kyushu, which were mainly collected from caves by the senior author.

All the type specimens of the new species are deposited in the collection of the National Science Museum, Tokyo, while other specimens examined are preserved in the private collection of the senior author (T. Irie, Kumamoto).

The abbreviations used in this paper are as follows: ALE, anterior lateral eye; AME, anterior median eye; PE, posterior eye; OA, ocular area; Cp, length of clypeus.

Descriptions of New Species

Family Leptonetidae

[Japanese name: Mashiragumo-ka]

Genus *Falcileptoneta* Komatsu, 1970

[Japanese name: Yokofu-mashiragumo-zoku]

Leptoneta: Komatsu, 1940, p. 186; 1957, p. 68; 1961, p. 56 (partim). — Yaginuma, 1960, p. 30; 1986, p. 21 (partim).

Falcileptoneta Komatsu, 1970, p. 1 (type species: *Leptoneta striata* Oi, 1952). — Deeleman-Reinhold, 1971, p. 297.

Falcileptoneta gotoensis Irie et Ono, sp. nov.

[Japanese name: Gotô-mashiragumo]

(Figs. 1–6)

Type series. Holotype: ♂, Nanadake-jinja, Tamanoura-chô, Fukuejima Island, Gotô Islands, Gotô-shi, Nagasaki Pref., Kyushu, Japan, 7–XI–1995, T. Irie leg. (NSMT-Ar 5818); allotype: ♀, same locality as for the holotype, 18–IX–2004, T. Irie leg. (NSMT-Ar 5819).

Other specimens examined. 1 ♀ 1 ♂, an abandoned mine at Gotô-kôzan, Fukue-chô, Gotô-shi, Nagasaki Pref., 24–IX–1970; 2 ♂, same locality as for the holotype, 23–IX–1990 and 19–IX–2004; all collected by T. Irie.

Description. Measurements (♂ holotype/♀ allotype; in mm). Body length 2.50/2.26, carapace length 1.00/1.00, width 0.80/0.83, abdomen

length 1.50/1.26, width 0.90/0.10. Lengths of palp and legs as shown in Table 1. Eyes: AME 0.08/0.07, ALE 0.07/0.06, PE 0.06/0.06. Distances between eyes: ALE-ALE 0.08/0.05, ALE-PE 0.03/0.03. OA length 0.22/0.20, width 0.17/0.13, Cp 0.07/1.33.

Male (holotype). Carapace light brown, hairless. Median furrow brown, linear. Cervical grooves and radial furrows distinct and brown. All the eyes nearly same in size; major axes of ALEs convergent behind; PEs close to each other, their axes parallel (Fig. 5). Chelicera light brown, with nine teeth on promargin of fang furrow, seven teeth on retromargin (Fig. 3). Maxillae dark yellowish brown, narrowing at the anterior part; labium dark yellowish brown, almost as long as wide; sternum dark yellowish brown, shield-shaped and almost as long as wide (Fig. 4). Legs yellowish brown, leg formula 1, 4, 2, 3. Abdomen haired, yellowish brown, oval in shape and longer than wide.

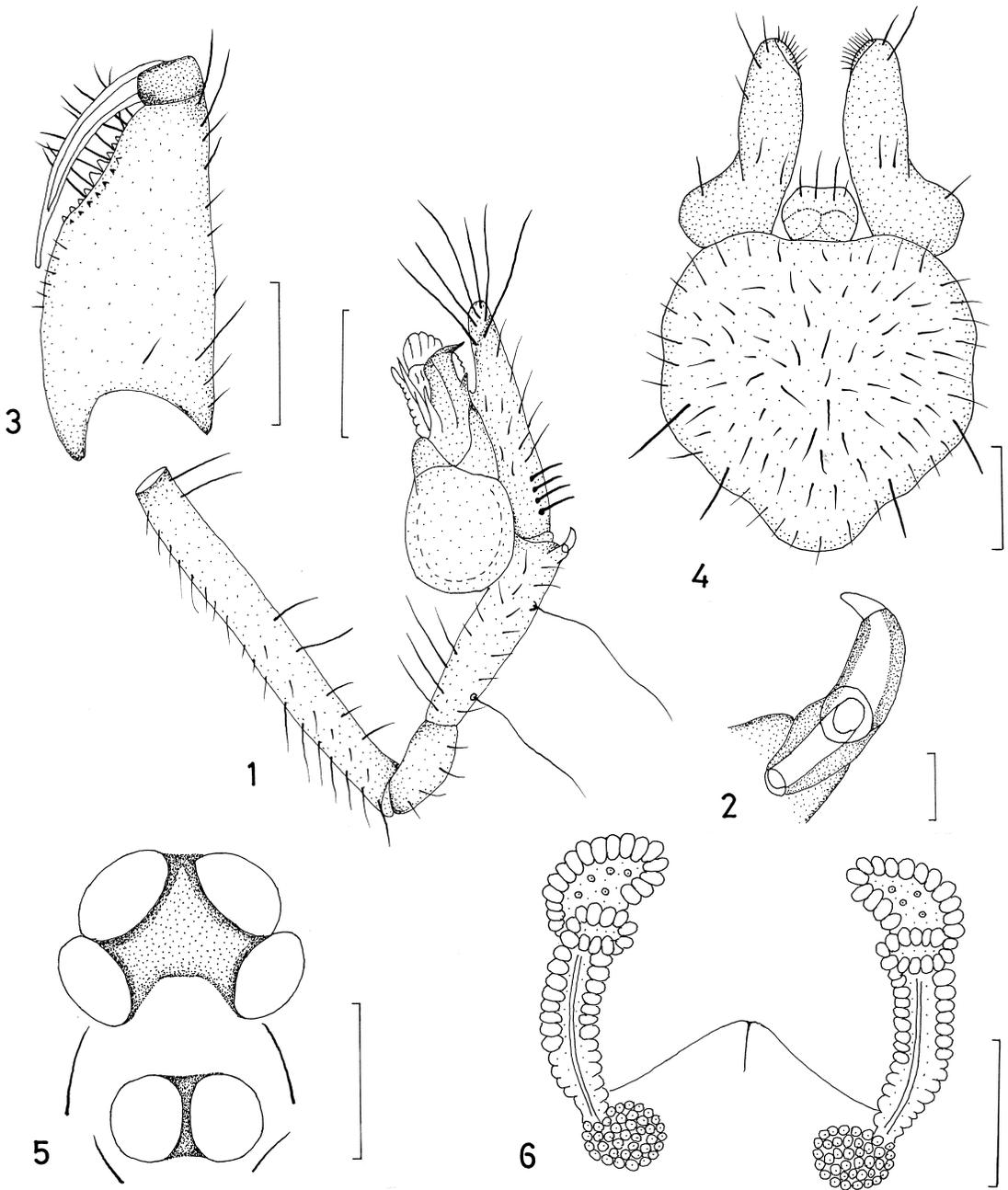
Male palp (Figs. 1–2): Femur>tarsus>tibia>patella in length. Tibia with two long trichobothria on the dorsal surface and one apophysis on the apical part; the apophysis with a bird's toenail-like tooth on its top (Fig. 2); accessory apophysis or peculiar hairs at the base of the apophysis absent. Projections and embolus of bulb are shown in Fig. 1.

Female (allotype). Similar to male in coloration and general features. Body slightly shorter than that of the male. Palp longer than the carapace, femur>tarsus>tibia>patella in length. Apical margin of patella with a dorsal spine 0.22 mm long. Internal genitalia with a pair of spermathecae as shown in Fig. 6.

Distribution. Japan, Kyushu (Nagasaki Pref.).

Etymology. The specific name is derived from Gotô, the name of the island group and the abandoned mine, in which the spiders of the new species were found.

Remarks. This new species resembles several species of the genus in Kyushu, namely, *Falcileptoneta iriei* (Komatsu, 1967), *F. higoensis* (Irie et Ono, 2003), *F. amakusaensis* sp. nov., *F. soboen-*



Figs. 1–6. *Falcileptoneta gotoensis* Irie et Ono, sp. nov. 1–5, ♂ holotype (NSMT-Ar 5818), ♀ allotype (NSMT-Ar 5819). — 1, Left, male palp, retrolateral view; 2, tibial apophyses of male palp, retrolateral view; 3, left chelicera, ventral view; 4, maxillae, labium and sternum, ventral view; 5, ocular area, dorsal view; 6, internal structure of female genitalia, dorsal view. (Scales: 1, 3–4, 0.2 mm; 2, 0.01 mm; 5–6, 0.1 mm.)

Table 1. Measurements of palp and legs of *Falcileptoneta gotoensis* sp. nov. (♂ holotype/♀ allotype; in mm).

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	0.66/0.70	0.18/0.20	0.36/0.46	—	0.40/0.60	1.60/1.96
Leg I	2.26/1.83	0.33/0.30	2.06/2.16	1.63/1.66	1.06/1.10	7.34/7.05
Leg II	1.46/1.10	0.30/0.33	1.53/1.46	1.16/1.16	0.93/0.86	5.38/4.91
Leg III	1.16/1.16	0.26/0.30	1.10/1.13	1.03/1.00	0.73/0.66	4.28/4.25
Leg IV	1.66/1.70	0.30/0.30	1.80/1.86	1.13/1.40	0.90/0.90	5.79/6.16

sis sp. nov., and *F. satsumaensis* sp. nov., in the structure of bulb of male palp, especially the shape of embolus with rostrated tip. However, the condition of apical part of male palpal tibia is diverse among these species. As an extreme case apophyses are lacking and replaced by two hairs in *F. iriei*, while the other four species have one or two distinct apophyses on the male palpal tibia. The apophysis of this new species is peculiar in bearing a bird's toenail-like tooth. It is an epigeic species and appears to be troglomorphic.

***Falcileptoneta amakusaensis* Irie et Ono, sp. nov.**

[Japanese name: Amakusa-mashiragumo]

(Figs. 7–12)

Type series. Holotype: ♂, Ryû-no-ana Cave, Shinwa-machi, Amakusa-gun, Kumamoto Pref., Kyushu, Japan, 3–V–1988, T. Irie leg. (NSMT-Ar 5829); allotype: ♀, same data as for the holotype (NSMT-Ar 5830).

Other specimens examined. 2♀, same data as for the holotype; 2♀ 1♂, Mt. Some-dake, Hondoshi, Kumamoto Pref., Kyushu, Japan, 23–IX–1997, T. Irie leg.

Description. Measurements (♂ holotype/♀ allotype; in mm). Body length 2.23/2.06, carapace length 0.90/0.83, width 0.76/0.76, abdomen length 1.33/1.23, width 0.86/1.00. Lengths of palp and legs as shown in Table 2. Eyes: AME 0.09/0.08, ALE 0.08/0.07, PE 0.06/0.07; distances between eyes: ALE-ALE 0.06/0.07, ALE-PE 0.03/0.02; OA length 0.23/0.23, width 0.20/0.20, Cp 0.15/0.15.

Male (holotype). Carapace yellowish brown, hairless. Median furrow linear and light brown. Cervical grooves and radial furrows distinct and

brown. AME>ALE>PE in size; major axes of ALEs convergent behind; PEs close to each other, their axes parallel (Fig. 11). Chelicera light brown, with ten teeth on promargin of fang furrow, also ten teeth on retromargin (Fig. 9). Maxillae yellowish brown, narrowing at the anterior part; labium yellowish brown, almost as long as wide; sternum brown, shield-shaped and almost as long as wide (Fig. 10). Legs light yellowish brown, leg formura 1, 4, 2, 3. Abdomen haired, yellowish gray with two gray horizontal bands in the posterior part and oval in shape.

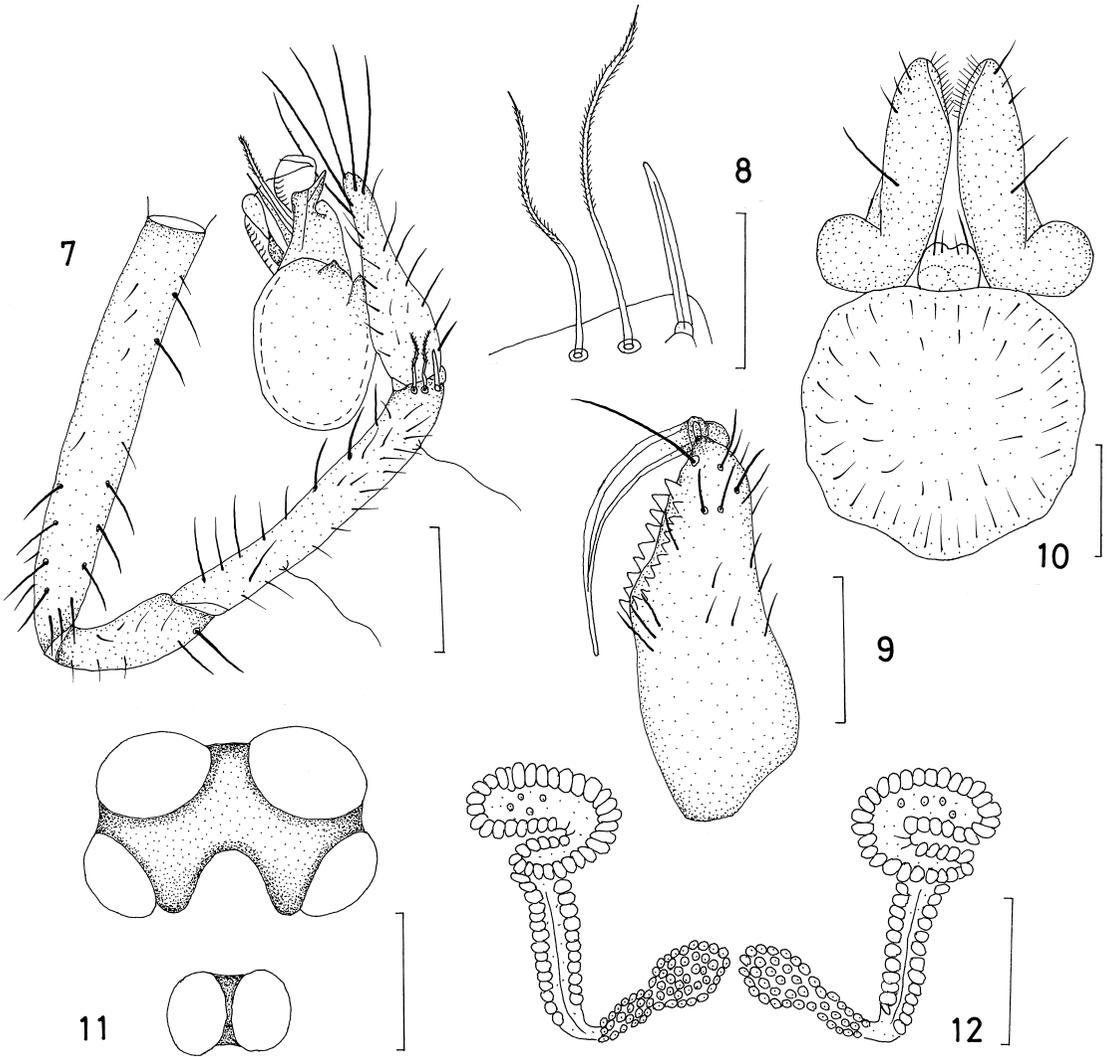
Male palp (Figs. 7–8): Femur>tibia>tarsus>patella in length. Tibia with two long trichobothria on the dorsal surface and with an apophysis with two hairs on the apical part; the two hairs whip-shaped, with minute setae, the main apophysis spiniform (Fig. 8). Projections and embolus of bulb as shown in Fig. 7.

Female (allotype). Similar to male in coloration and general features. Body slightly shorter than that of the male holotype. Palp longer than the carapace, femur>tarsus>tibia>patella in length. Apical margin of patella with a dorsal spine 0.23 mm long. Internal genitalia with a pair of spermathecae as shown in Fig. 12.

Distribution. Japan, Kyushu (Kumamoto Pref.).

Etymology. The specific name is derived from the name of the district around the type locality.

Remarks. This new species is close to *Falcileptoneta higoensis* (Irie et Ono, 2003), described from Sagara-mura, Kuma-gun in Kumamoto Pref. in the condition of male palpal tibia. Both the species have a gladiate main apophysis sclerotized and with a low basal protu-



Figs. 7–12. *Falcileptoneta amakusaensis* Irie et Ono, sp. nov. 7–11, ♂ holotype (NSMT-Ar 5829), 12, ♀ allotype (NSMT-Ar 5830). — 7, Left palp, retrolateral view; 8, tibial apophyses of male palp, retrolateral view; 9, left chelicera, ventral view; 10, maxillae, labium and sterum, ventral view; 11, ocular area, dorsal view; 12, internal structure of female genitalia, dorsal view. (Scales: 7, 9–10, 0.2 mm; 8, 0.05 mm; 11–12, 0.1 mm.)

Table 2. Measurements of palp and legs of *Falcileptoneta amakusaensis* sp. nov. (♂ holotype/♀ allotype; in mm).

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	0.73/0.70	0.30/0.23	0.56/0.50	—	0.33/0.60	1.92/2.03
Leg I	2.73/2.33	0.33/0.30	3.33/2.73	2.66/2.00	1.13/1.26	10.18/8.62
Leg II	1.66/1.66	0.33/0.30	2.13/1.80	1.70/1.40	1.06/0.93	6.88/6.09
Leg III	1.66/1.50	0.30/0.30	1.66/1.26	1.43/1.26	0.93/0.83	5.98/5.15
Leg IV	2.16/1.96	0.33/0.33	2.46/1.76	1.96/1.66	1.06/0.96	7.97/6.67

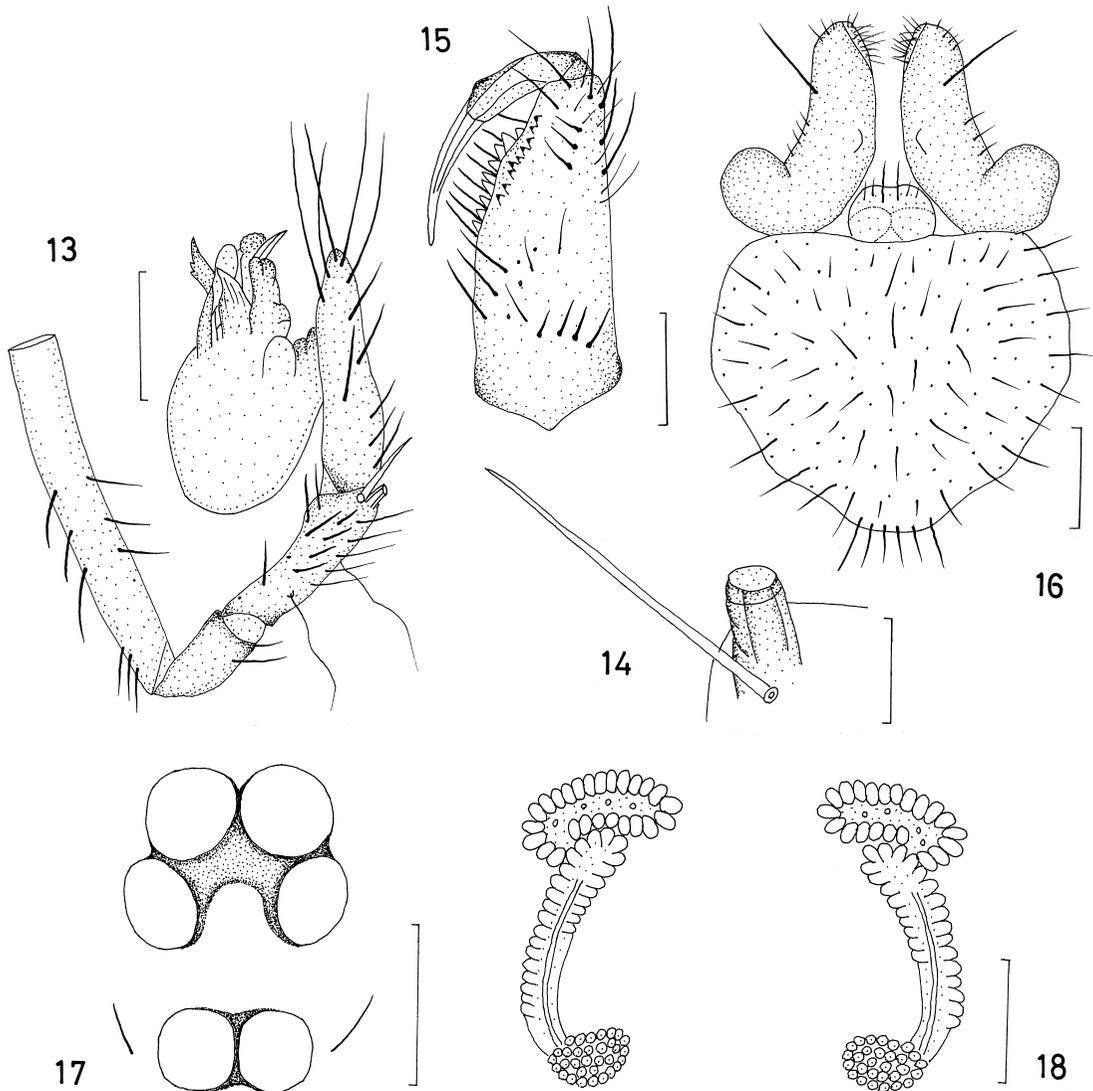
berance and additional, strong hairs with minute setae. However, the new species has two flagelli-form hairs, while *F. higoensis* has only one thick hair (cf. Fig. 8 and Irie & Ono, 2003, p. 179, fig. 2). Spiders of this new species were collected from cracks in a large rock and under small rocks in the rocky area. This new spider is regarded as an epigeal species, which appears to be trogliphilous.

Falcileptoneta soboensis Irie et Ono, sp. nov.

[Japanese name: Sobo-mashiragumo]

(Figs. 13–18)

Type series. Holotype: ♂, Anamori-no-ana Cave, Koubaru, Takeda-shi, Oita Pref., Kyushu, Japan, 22–VI–1984, T. Irie leg. (NSMT-Ar 5823); allotype: ♀, same locality and collector as for the holotype, 20–VI–2004 (NSMT-Ar 5824).



Figs. 13–18. *Falcileptoneta soboensis* Irie et Ono, sp. nov. 13–17, ♂ holotype (NSMT-Ar 5823), 18, allotype ♀ (NSMT-Ar 5824). — 13, Left palp, retrolateral view; 14, tibial apophyses of male palp, retrolateral view; 15, left chelicera, ventral view; 16, maxillae, labium and sternum, ventral view; 17, ocular area, dorsal view; 18, internal structure of female genitalia, dorsal view. (Scales: 13, 15–16, 0.2 mm; 14, 0.03 mm; 17–18, 0.1 mm.)

Table 3. Measurements of palp and legs of *Falcileptoneta soboensis* sp. nov. (♂ holotype/♀ allotype; in mm).

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	0.60/0.60	0.20/0.23	0.33/0.43	—	0.40/0.53	1.53/1.79
Leg I	2.10/1.96	0.33/0.36	—/2.36	—/1.73	—/1.16	—/7.57
Leg II	1.70/1.53	0.30/0.33	1.90/1.76	1.36/1.23	1.00/1.00	6.26/5.85
Leg III	1.50/1.36	0.30/0.30	1.50/1.43	1.20/1.10	0.83/0.80	5.33/4.99
Leg IV	2.00/1.83	0.30/0.30	—/2.03	—/1.46	—/1.00	—/6.62

Other specimens examined. 2♀, 30–XI–2003, and 2♀, 5–X–2004, same locality and collector as for the holotype; 4♀, same data as for the allotype.

Description. Measurements (♂ holotype/♀ allotype; in mm). Body length 2.53/2.23, carapace length 1.00/0.83, width 0.83/0.76, abdomen length 1.53/1.40, width 1.00/1.06. Lengths of palp and legs as shown in Table 3. Eyes: AME 0.07/0.06, ALE 0.08/0.06, PE 0.06/0.06; distance between eyes: ALE-ALE 0.06/0.06, ALE-PE 0.03/0.03; OA length 0.23/0.21, width 0.16/0.18, Cp 0.10/0.10.

Male (holotype). Carapace yellowish brown, hairless. Median furrow light brown, linear. Cervical grooves and radial furrows distinct and brown. All the eyes nearly same in size; major axes of ALEs convergent behind; PEs close to each other, their axes parallel (Fig. 17). Chelicera brown, with nine teeth on promargin of fang furrow, nine teeth on retromargin (Fig. 15). Maxillae yellowish brown, slightly narrowing at the anterior part; labium yellowish brown, almost as long as wide; sternum yellowish brown, shield-shaped and almost as long as wide (Fig. 16). Legs light yellowish brown. Abdomen haired, yellowish brown, oval in shape and longer than wide.

Male palp (Figs. 13–14): Femur>tarsus>tibia>patella in length. Tibia with two long trichobothria on the dorsal surface and with two apophyses on the apical part; the main apophysis cask-shaped, probably homologous to the basal protuberance of the apophysis as seen in other species, and the other one long and spiniform (Fig. 14). Projections and embolus of bulb as shown in Fig. 13.

Female (allotype). Similar to male in coloration and general features. Body slightly short-

er than that of the male holotype. Leg yellowish brown, leg formura 1, 4, 2, 3. Palp longer than the carapace, femur>tarsus>tibia>patella in length. Femur with three dorsal and three prolateral spines, apical margin of patella with a dorsal spine 0.22 mm long. Internal genitalia with a pair of spermathecae as shown in Fig. 18.

Distribution. Japan, Kyushu (Oita Pref.).

Etymology. The specific name is derived from the name of a mountain, Sobo-san, which is situated SW of the type locality of the new species.

Remarks. This species can be distinguished from other congeners by the peculiar, cask-shaped apophysis on the male palpal tibia. Although this new species is collected in the tuff cave, it is regarded as an epigean spider, which appears to be troglomorphic.

Falcileptoneta satsumaensis Irie et Ono, sp. nov.

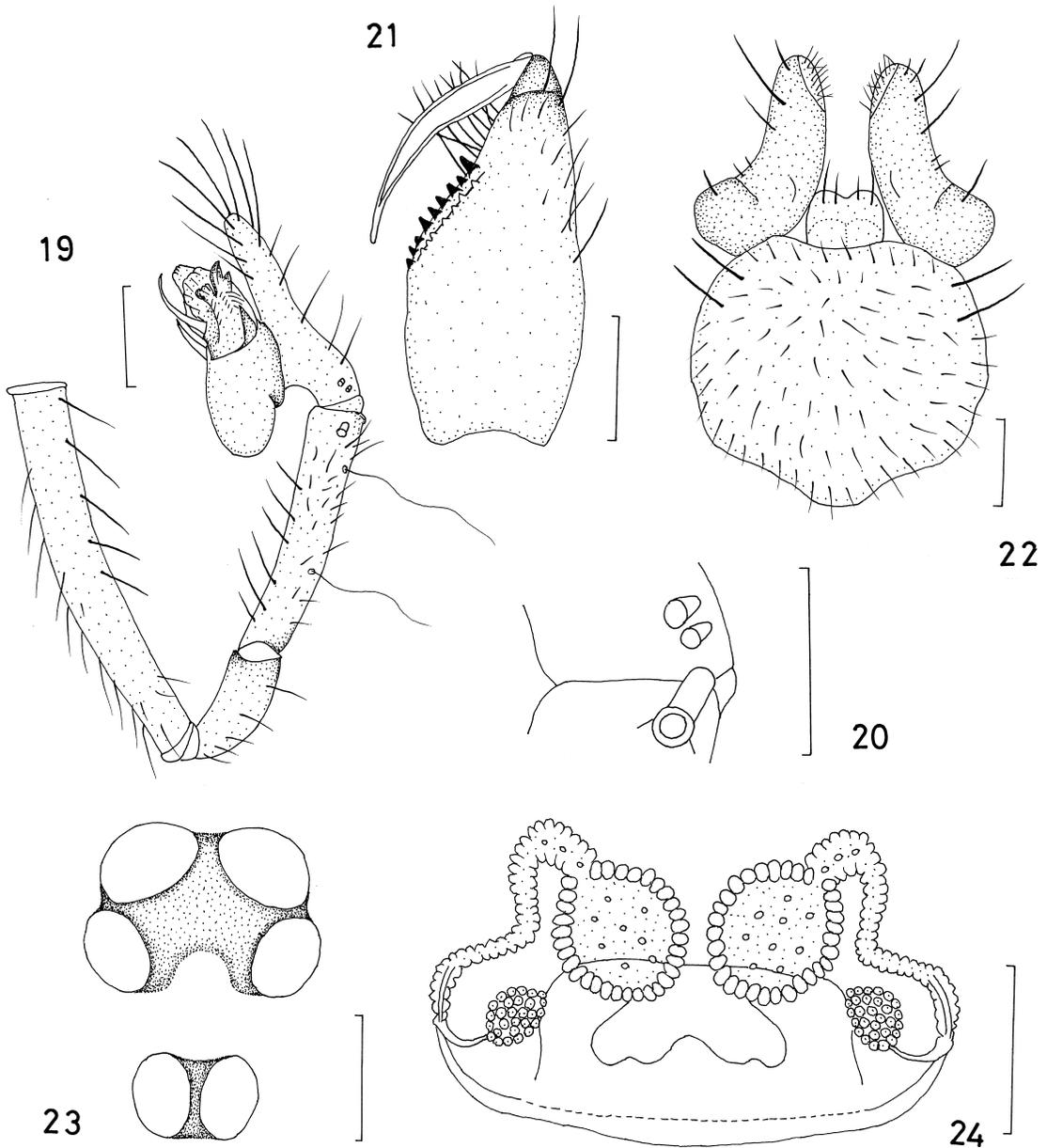
[Japanese name: Satsuma-mashiragumo]

(Figs. 19–24)

Type series. Holotype: ♂, Gongen-ana Cave, Kami-yamada, Kawanabe-chô, Kawanabe-gun, Kagoshima Pref. Kyushu, Japan, 14–IX–2003, T. Irie leg. (NSMT-Ar 5827); allotype: ♀, same data as for the holotype (NSMT-Ar 5828).

Other specimens examined. 3♀ 1♂, same locality and collector as for the holotype except for the date 10–III–1979; 3♀ 5♂, same data as for the holotype.

Description. Measurements (♂ holotype/♀ allotype; in mm). Body length 1.99/1.73, carapace length 1.06/0.90, width 0.93/0.83, abdomen length 1.40/1.23, width 0.83/0.93. Lengths of palp and legs as shown in Table 4. Eyes: AME 0.08/0.08, ALE 0.07/0.06, PE 0.07/0.06; dis-



Figs. 19–24. *Falcileptoneta satsumaensis* Irie et Ono, sp. nov. 19–23, ♂ holotype (NSMT-Ar 5827), 24, ♀ allotype (NSMT-Ar 5828). — 19, Left palp, retrolateral view; 20, tarsal and tibial apophyses of male palp, retrolateral view; 21, left chelicera, ventral view; 22, maxillae, labium and sternum, ventral view; 23, ocular area, dorsal view; 24, internal structure of femal genitalia, dorsal view. (Scales: 19, 21–22, 0.2 mm; 20, 23–24, 0.1 mm.)

tances between eyes: ALE-ALE 0.10/0.08, ALE-PE 0.03/0.03; OA length 0.26/0.21, width 0.20/0.17, Cp 0.12/0.17.

Male (holotype). Carapace light brown, hair-

less. Median furrow yellowish brown, linear. Cervical grooves and radial furrows distinct and yellowish brown. All the eyes nearly same in size; major axes of ALEs convergent behind; PEs

Table 4. Measurements of palp and legs of *Falcileptoneta satsumaensis* sp. nov. (♂ holotype/♀ allotype; in mm).

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	0.83/0.63	0.30/0.23	0.50/0.53	—	0.43/0.63	2.06/2.02
Leg I	3.03/2.33	0.33/0.33	3.56/2.96	2.83/2.03	1.66/1.30	11.41/8.95
Leg II	2.23/1.83	0.33/0.33	2.46/1.96	1.93/1.43	1.30/1.06	8.25/6.61
Leg III	1.90/1.56	0.33/0.30	1.93/1.66	1.60/1.30	0.86/0.90	6.62/5.72
Leg IV	2.56/2.00	0.36/0.30	2.86/2.20	2.26/1.70	1.33/1.16	9.37/7.36

close to each other, their axes parallel (Fig. 23). Chelicera light brown, with nine teeth on promargin of fang furrow, seven teeth on retromargin (Fig. 21). Maxillae dark yellowish brown, narrowing at the anterior part; labium yellowish brown, almost as long as wide; sternum dark yellowish brown, shield-shaped and almost as long as wide (Fig. 22). Legs light yellowish brown, leg formula 1, 4, 2, 3. Abdomen haired, yellowish brown with four dark yellowish gray horizontal bands in the posterior part and oval in shape.

Male palp (Figs. 19–20): Femur>tibia>tarsus>patella in length. Tibia with two long trichobothria on the dorsal surface and with a digitiform apophysis on the apical part, tarsus with two wart-like apophyses on the basal part as shown in Fig. 20. Projections and embolus of bulb as shown in Fig. 19.

Female (allotype). Similar to male in coloration and general features. Body slightly shorter than that of the male holotype. Palp longer than the carapace, femur>tarsus>tibia>patella in length. Femur with two dorsal and two prolateral spines; the dorsal spine in the apical part of patella 0.27 mm long. Internal genitalia with a pair of spermathecae as shown in Fig. 24.

Distribution. Japan, Kyushu (Kagoshima Pref.).

Etymology. The specific name is derived from a Japanese word, Satsuma, an old name of Kagoshima Pref.

Remarks. This species may be related to the five species mentioned in the remarks of *Falcileptoneta gotoensis* sp. nov., but can be distinguished from other congeners by the presence of two small apophyses on the basal part of male palpal tarsus as well as by the shape of the main

tibial apophysis small and digitiform. This new species was collected in a tuff cave, but is regarded as an epigean spider, which appears to be troglophilous.

Genus *Masirana* Komatsu, 1942

[Japanese name: Hina-mashiragumo-zoku]

Masirana, Komatsu, 1942, p. 57 (type species: *Masirana cinevacea* Komatsu, 1942=*Masirana cineracea* Komatsu, 1961, new synonymy, based on an unjustified emendation); 1949, p. 1 (also *Mashirana*, lapsus); 1957, p. 71; 1961, p. 56; 1970, p. 7. — Yaginuma, 1960, p. 30. — Deeleman-Reinhold, 1971, p. 297.

Sarutana, nom. nud., Komatsu, 1949, p. 3.

Sarutana, Komatsu, 1957, p. 70 (type species: *Sarutana glabra* Komatsu, 1957); 1961, p. 57; 1970, p. 7. — Yaginuma, 1960, p. 30. — Deeleman-Reinhold, 1971, p. 297. — Kobayashi, 1973, p. 1. [New synonymy.]

Leptoneta: Yaginuma, 1986, p. 21 (partim).

Notes. Komatsu (1942) reported some arachnids found in Saishô-dô Cave in Nagano Pref., Honshu, and described a leptonetid spider under the name of *Masirana cinevacea* Kishida [MS]. The specific epithet was misspelled as *cinevacea* instead of *cineracea*, a Latin meaning “ash gray.” Afterwards, Komatsu (1961) emended the name and redescribed the species with further illustrations. However, Kishida has never described the spider but at that time only advised his follower on its identification and suggested the new name. Furthermore, the description of the new genus *Masirana* was omitted in the original report.

Some problems are raised: What is the original description of the species and the genus, who is the author of the name and what is a scientifically correct spelling?

Komatsu (1961) suggested that the description

in his first paper (1942) was original but the author of the name should be Kishida. And he emended the name grammatically. The genus was well diagnosed in Komatsu (1961).

Yaginuma (1961) recognized that Komatsu's description (1942) was original not only for the species *Masirana cinevacea* but also for the genus *Masirana* with Komatsu as the original author. Afterwards, however, he regarded *Masirana* as a subgroup within the genus *Leptoneta*. The emendation of the spelling of Komatsu (1961) was accepted by Deeleman-Reinhold (1971) and Yaginuma (1986).

Although no particular description of the genus *Masirana* exist in Komatsu (1942), the present authors recognized herein the Komatsu's description of 1942 as original for *Masirana cinevacea* and at the same time for the genus *Masirana* based on the diagnosis in the species description. *Masirana cinevacea* is regarded as the type species of the genus. They also took Komatsu as the author of the name, not Kishida in Komatsu, because the authorship should be given to the person who really described the taxon. Besides, the emended name, *Masirana cineracea* Komatsu, 1961 has a status but is regarded as a junior synonym of *Masirana cinevacea* Komatsu, 1942.

Komatsu (1957) established a monotypic genus *Sarutana* based on *Sarutana glabra* Komatsu, 1957 from Saruta-dô Cave in Shikoku. However, characteristics given in the original description are all unacceptable except for the strong spines on male palpal femur. In the important features as the condition of male palpal tibia and the structure of the bulb, *Sarutana glabra* and *Masirana cinevacea*, type species of each genus, stand in a same group proper to generic rank. Komatsu (1970) and Kobayashi (1973) redefined the genus *Sarutana*, but the characters they mentioned became all variable ones after many new species were found in Honshu, Shikoku and Kyushu, up to the present. *Sarutana* Komatsu, 1957, should be regarded as a junior synonym of *Masirana* Komatsu, 1942.

Thus, the species hitherto determined under

Sarutana are transferred to *Masirana* or to *Falcileptoneta* as follows: *Masirana abensis* (Kobayashi, 1973), comb. nov., *M. bandoi* (Nishikawa, 1986), comb. nov., *M. glabra* (Komatsu, 1957), comb. nov., *M. kawasawai* (Komatsu, 1970), comb. nov., *M. silvicola* (Kobayashi, 1973), comb. nov., *M. kinoshitai* (Irie, 2000), comb. nov., *M. chibusana* (Irie, 2000), comb. nov., *Falcileptoneta yamauchii* (Nishikawa, 1982), comb. nov., and *F. higoensis* (Irie et Ono, 2003), comb. nov.

***Masirana taioensis* Irie et Ono, sp. nov.**

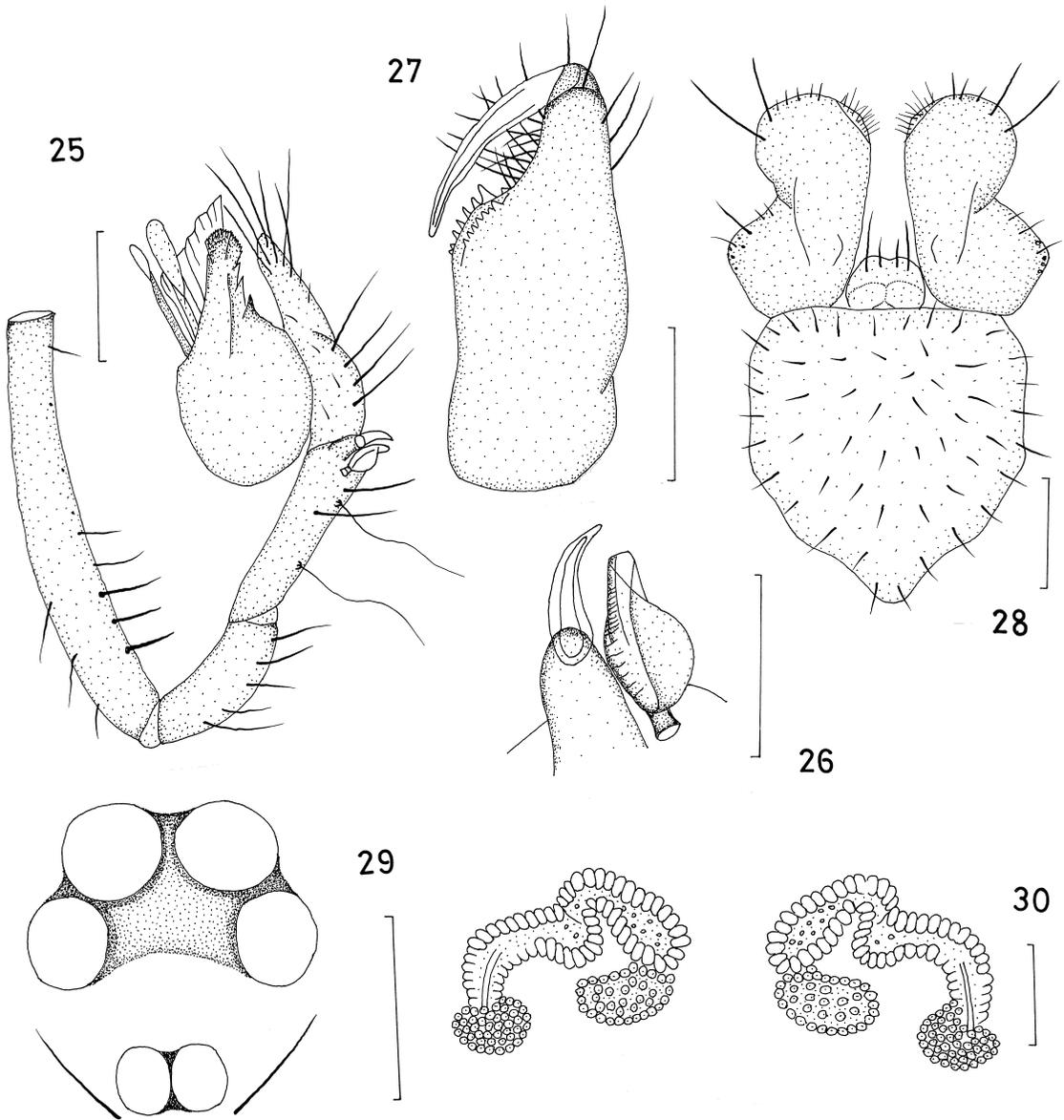
[Japanese name: Taio-mashiragumo]

(Figs. 25–30)

Type series. Holotype: ♂, an abandoned mine at Taio-kinzan, Nakatsué-mura, Hita-gun, Oita Pref., Kyushu, Japan, 12–VI–1983, T. Irie leg. (NSMT-Ar 5821); allotype: ♀, same locality and collector as for the holotype, 1–V–1985, (NSMT-Ar 5822).

Description. Measurements (♂ holotype/♀ allotype; in mm). Body length 1.83/2.03, carapace length 0.83/0.80, width 0.76/0.66, abdomen length 1.00/1.23, width 0.73/0.10. Lengths of palp and legs as shown in Table 5. Eyes: AME 0.06/0.06, ALE 0.06/0.06, PE 0.04/0.04; distance between eyes: ALE-ALE 0.05/0.06, ALE-PE 0.03/0.03; OA length 0.17/0.16, width 0.16/0.15, Cp 0.20/0.16.

Male (holotype). Carapace pale yellowish brown, hairless. Median furrow yellowish brown, linear. Cervical grooves and radial furrows distinct and dark yellowish brown. Size of eyes: PEs the smallest; major axes of ALEs convergent behind; PEs close to each other, their axes parallel (Fig. 29). Chelicera pale yellowish brown, with eight teeth on promargin of fang furrow, seven teeth on retromargin (Fig. 27). Maxillae pale yellowish brown, the anterior part laterally expanded; labium pale yellowish brown, almost as long as wide; sternum pale yellowish brown, shield-shaped and almost as long as wide (Fig. 28). Legs pale yellowish brown, leg formura 1, 4, 2, 3. Abdomen haired, pale yellowish brown, oval in



Figs. 25–30. *Masirana taioensis* Irie et Ono, sp. nov. 25–29, ♂ holotype (NSMT-Ar 5821). 30, ♀ allotype (NSMT-Ar 5822). — 25, Left palp, retrolateral view; 26, tibial apophyses of male palp, retrolateral view; 27, left chelicera, ventral view; 28, maxillae, labium and sternum, ventral view; 29, ocular area, dorsal view; 30, internal structure of female genitalia, dorsal view. (Scales: 25, 27–28, 0.2 mm; 26, 29–30, 0.1 mm.)

shape and longer than wide.

Male palp (Figs. 25–26): Femur > tarsus > tibia > patella in length. Tibia with two long trichobothria on the dorsal surface and with two apophyses on the apical part; the main apophysis short, rostriform and standing on a large basal

protuberance, the second one a thick polyp reminding of a calla's petal (Fig. 26). Projections and embolus of bulb as shown in Fig. 25.

Female (allotype). Similar to male in coloration and general features. Body slightly longer than that of the male holotype. Palp longer than

Table 5. Measurements of palp and legs of *Masirana taioensis* sp. nov. (♂ holotype/♀ allotype; in mm).

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	0.66/0.53	0.26/0.20	0.30/0.41	—	0.33/0.50	1.55/1.64
Leg I	1.66/1.56	0.24/0.32	1.70/1.96	1.26/1.40	1.03/0.83	5.89/6.07
Leg II	1.50/1.43	0.28/0.25	1.76/1.40	1.32/1.06	0.83/0.76	5.69/4.90
Leg III	1.16/1.16	0.26/0.26	1.06/1.10	1.06/0.96	0.73/0.70	4.27/4.18
Leg IV	1.66/1.53	0.28/0.25	1.70/1.60	1.36/1.23	0.83/0.76	5.83/5.37

the carapace, femur>tarsus>tibia>patella in length; femur with two dorsal and two prolateral spines; the dorsal spine in the apical part of patella 0.26 mm long. Internal genitalia with a pair of spermathecae as shown in the Fig. 30.

Distribution. Japan, Kyushu (Oita Pref.).

Etymology. The specific name is derived from the type locality.

Remarks. This new species resembles *Masirana abensis* (Kobayashi, 1973), described from Shizuoka-shi, Shizuoka Pref., Honshu, *M. bandoi* (Nishikawa, 1986), from Awa-chô, Tokushima Pref., and *M. kinoshitai* (Irie, 2000), from Itsukimura, Kumamoto Pref., and another two new species of *Masirana* described in this paper, in the structure of male palp, especially of the bulb, but differs from others in the shape of the tibial apophyses. The second apophysis is very large and thick and longer than the main one. This new species was collected in an abandoned mine and seems epigeal.

***Masirana mizonokuchiensis* Irie et Ono, sp. nov.**

[Japanese name: Mizonokuchi-mashiragumo]

(Figs. 31–36)

Type series. Holotype: ♂, Mizonokuchi-dô Cave, Shimo-takarabe, Takarabe-chô, Soo-gun, Kagoshima Pref. Kyushu, Japan, 1–V–1985, T. Irie leg. (NSMT-Ar 5825); allotype: ♀, same locality and collector as for the holotype, 4–VII–2004 (NSMT-Ar 5826).

Description. Measurements (♂ holotype/♀ allotype; in mm). Body length 1.92/2.16, carapace length 0.86/0.83, width 0.76/0.66, abdomen length 1.06/1.33, width 0.76/1.00. Lengths of palp and legs as shown Table 6. Eyes: AME

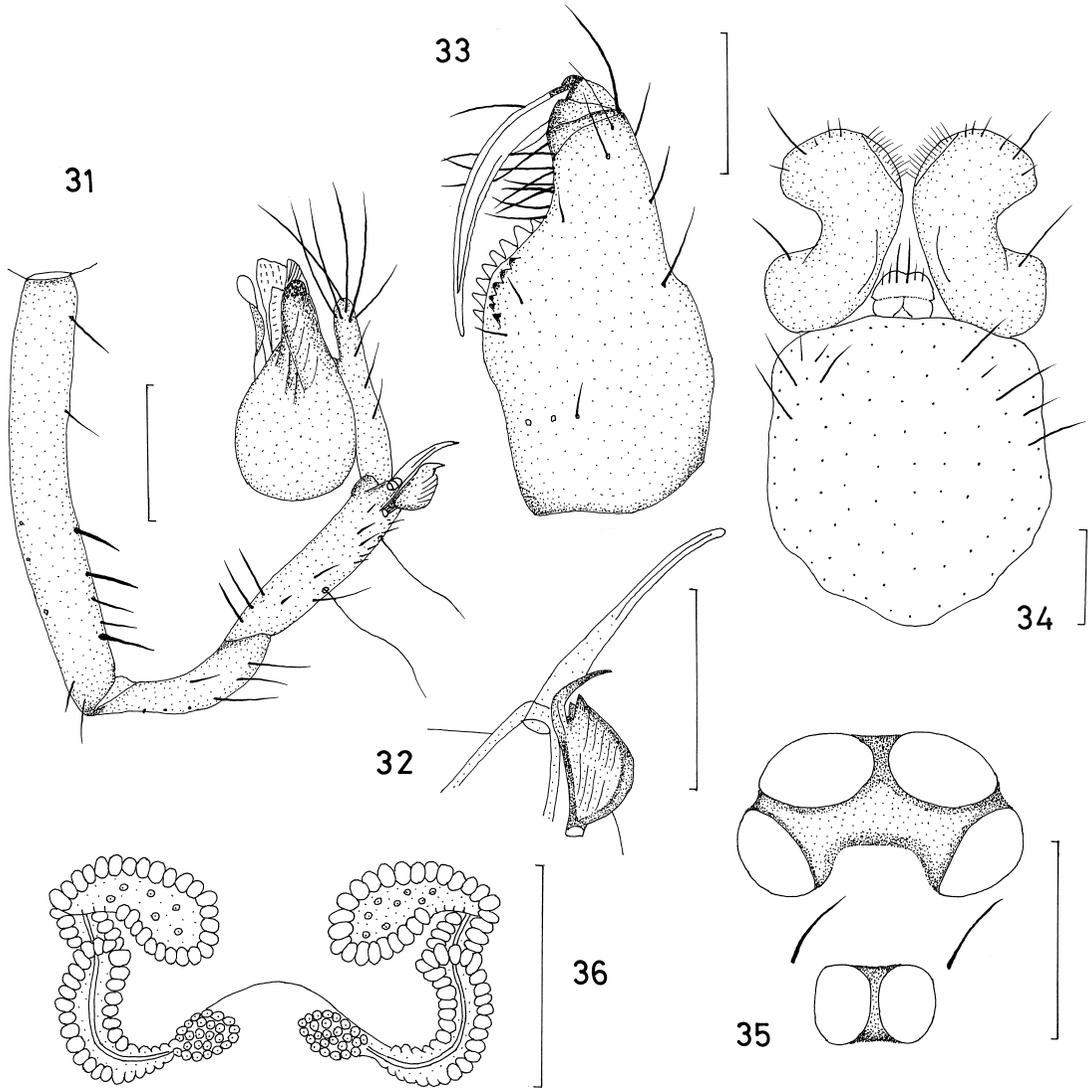
0.06/0.06, ALE 0.06/0.06, PE 0.04/0.04; distances between eyes: ALE-ALE 0.06/0.06, ALE-PE 0.03/0.03; OA length 0.20/0.16, width 0.13/0.14, Cp 0.18/0.18.

Male (holotype). Carapace pale yellowish brown, hairless. Median furrow yellowish brown, vary narrow. Cervical grooves and radial furrows distinct and dark yellowish brown. Size of eyes: PEs the smallest; major axes of ALEs convergent behind; PEs close to each other, their axes parallel (Fig. 35). Chelicera yellowish brown, with eight teeth on promargin of fang furrow, six teeth on retromargin (Fig. 33). Maxillae yellowish brown, the anterior part laterally expanded; labium yellowish brown, almost as long as wide; sternum yellowish brown, shield-shaped and almost as long as wide (Fig. 34). Leg pale brown, leg formula 1, 4, 2, 3. Abdomen haired, pale gray, oval in shape.

Male palp (Figs. 31–32): Femur>tarsus=tibia>patella, in length. Tibia with two long trichobothria on the dorsal surface and with two apophyses on the apical part; the main apophysis long spiniform standing on a protuberance, the other one lyrate, with a curved spine apically (Fig. 32). Projections and embolus of bulb as shown in Fig. 31.

Female (allotype). Similar to male in coloration and general features. Body slightly longer than that of the male holotype. Palp longer than the carapace, femur>tarsus>tibia>patella in length. Femur with three dorsal and three prolateral spines; the dorsal spine in the apical part of patella 0.18 mm long. Internal genitalia with a pair of spermathecae as shown in Fig. 36.

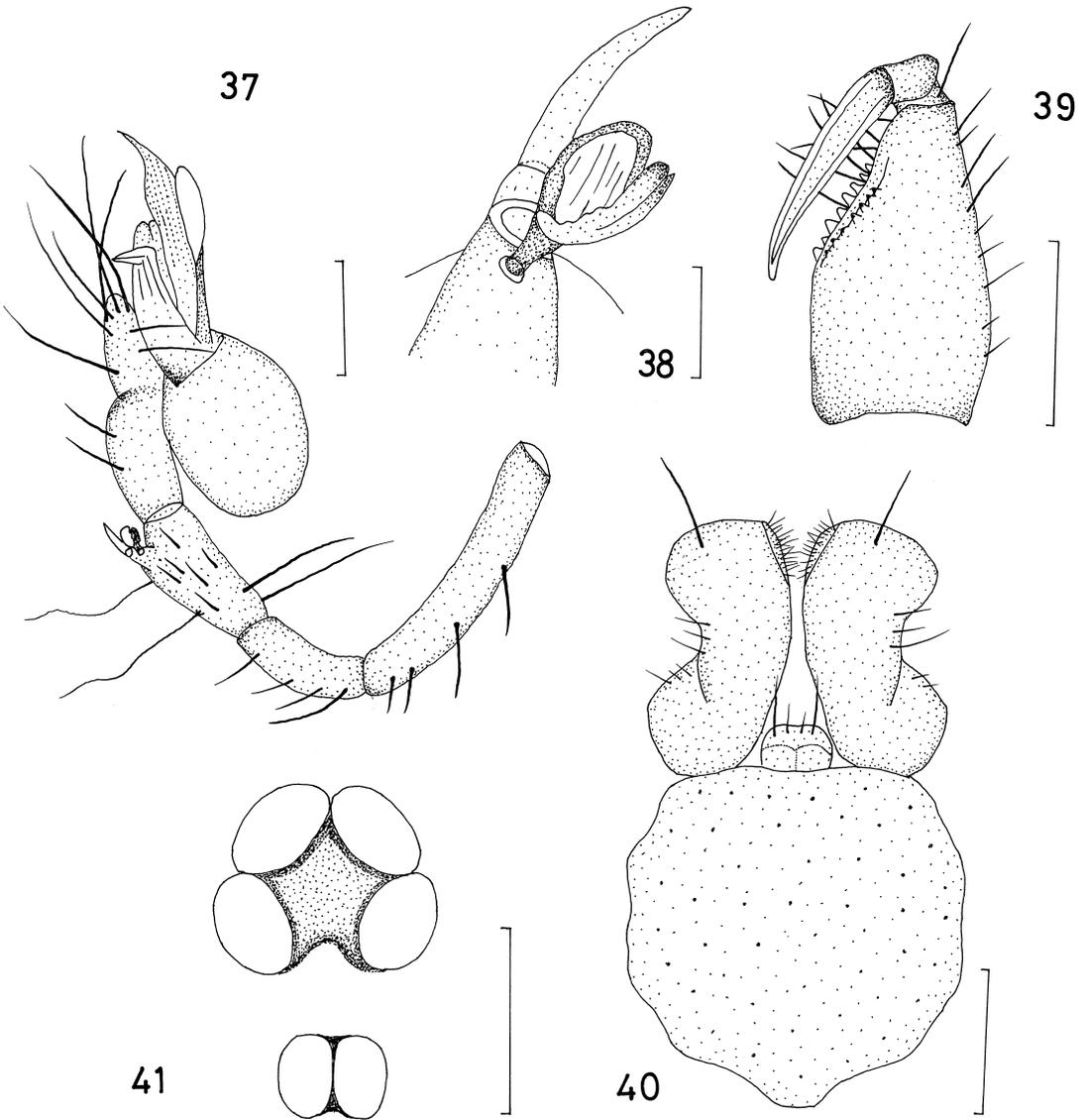
Distribution. Japan, Kyushu (Kagoshima Pref.).



Figs. 31–36. *Masirana mizonokuchiensis* Irie et Ono, sp. nov. 31–35, ♂ holotype (NSMT-Ar 5825), 36, ♀ allotype (NSMT-Ar 5826). — 31, Left palp, retrolateral view; 32, tibial apophyses of male palp, retrolateral view; 33, left chelicera, ventral view; 34, maxillae, labium and sternum, ventral view; 35, ocular area, dorsal view; 36, internal structure of female genitalia, dorsal view. (Scales: 31, 33–34, 0.2 mm; 32, 35–36, 0.1 mm.)

Table 6. Measurements of palp and legs of *Masirana mizonokuchiensis* sp. nov. (♂ holotype/♀ allotype; in mm).

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	0.70/0.53	0.30/0.15	0.33/0.36	—	0.33/0.50	1.66/1.54
Leg I	1.83/1.60	0.30/0.26	1.86/1.80	1.66/1.30	1.03/0.90	6.68/5.86
Leg II	1.46/1.33	0.26/0.26	1.60/1.33	1.20/1.03	1.13/0.76	5.65/4.71
Leg III	1.16/1.06	0.26/0.23	1.18/0.96	1.00/0.86	0.66/0.63	4.26/3.74
Leg IV	1.66/1.40	0.26/0.23	1.83/1.43	1.26/1.13	0.80/0.76	5.81/4.95



Figs. 37–41. *Masirana taraensis* Irie et Ono, sp. nov., ♂ holotype (NSMT-Ar 5820). — 37, Right palp, retrolateral view; 38, tibial apophyses of male palp, retrolateral view; 39, left chelicera, ventral view; 40, maxillae, labium and sternum, ventral view; 41, ocular area, dorsal view. (Scales: 37, 39–40, 0.2 mm; 38, 0.02 mm; 41, 0.1 mm.)

Table 7. Measurements of palp and legs of *Masirana taraensis* sp. nov. (♂ holotype; in mm).

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	0.53	0.23	0.24	—	0.30	1.30
Leg I	1.30	0.26	1.50	1.06	0.66	4.78
Leg II	1.00	0.26	1.05	0.80	0.50	3.61
Leg III	0.83	0.23	0.76	0.66	0.33	2.81
Leg IV	1.10	0.23	1.20	0.86	0.46	3.85

Etymology. The specific name is derived from the name of the cave in type locality.

Remarks. This new species seems to be related to the species as mentioned in the remarks of the former new species, especially to *Masirana abensis* (Kobayashi, 1973), but is distinguishable from the other species by the details in the structure of male palp, especially by the shape of tibial apophyses. The second apophysis of the new species is lyrate and apically with a curved spine (cf Fig. 32 and Kobayashi, 1973, p. 6, Fig. 7). Although this new species is only collected in a tuff cave, it is regarded as an epigeal spider, which appears to be troglomorphic.

***Masirana taraensis* Irie et Ono, sp. nov.**

[Japanese name: Tara-mashiragumo]

(Figs. 37–41)

Type specimen. Holotype: ♂, Todoroki-kyô, Takaki-chô, Kitatakaki-gun, Nagasaki Pref., Kyushu, Japan, 16–X–2000, T. Irie leg. (NSMT-Ar 5820).

Description. Measurements (♂ holotype; in mm). Body length 1.79, carapace length 0.76, width 0.66, abdomen length 1.03, width 0.60. Lengths of palp and legs as shown in Table 7. Eyes: AME 0.06, ALE 0.06, PE 0.05; distances between eyes: ALE-ALE 0.05, ALE-PE 0.03; OA length 0.18, width 0.11, Cp 0.16.

Male (holotype): Carapace yellowish brown, hairless. Median furrow dark yellowish brown, linear. Cervical grooves and radial furrows distinct and dark yellowish brown. All eyes nearly same in size; major axes of ALEs convergent behind; PEs close to each other, their axes parallel (Fig. 41). Chelicera light brown, with seven teeth on promargin of fang furrow, eight teeth on retro-margin (Fig. 39). Maxillae dark yellowish brown, parallel at the anterior part; labium dark yellowish brown, almost as long as wide; sternum dark yellowish brown, shield-shaped and almost as long as wide (Fig. 40). Abdomen hairy, dark yellowish brown, oval in shape and longer than wide.

Male palp (Figs. 37–38): Femur>tarsus>

tibia>patella, in length. Tibia with two long trichobothria on the dorsal surface and with two apophyses on the apical part; the main apophysis spiniform with a trophy-like accompanying apophysis at the base (Fig. 38). Projections and embolus of bulb as shown in Fig. 37.

Distribution. Japan, Kyushu (Nagasaki Pref.).

Etymology. The specific name is derived from the name of a mountain, Tara-dake, situated NW of the type locality.

Remarks. This new species can be distinguished from other congeners by the size and shape of the projections of bulb and the shape of tibial apophyses of male palp. The second apophysis of male palpal tibia is raised on the basal protuberance of the main apophysis (Fig. 38). The holotype specimen of the new species was collected from rocky areas as in *Falcileptoneta gotoensis* and *F. amakusaensis*. Though only one specimen was available, the species is regarded as an epigeal spider. Female is unknown.

References

- Deeleman-Reinholdt, C. L., 1971. A new species of *Sulcia* Kratochvil (Araneida, Leptonetidae) from Greece, and a discussion of some Japanese cavernicolous Leptonetidae. *Zool. Medl.*, **45**: 289–301.
- Irie, T., 1989. Cave spiders of Kyushu (VIII). *Heptathela*, **4**(1): 31–35.
- Irie, T., 2000. Two new species of the genus *Leptoneta* (Araneae: Leptonetidae) from Kumamoto Prefecture, Kyushu, Japan. *Acta arachnol.*, **49**: 209–214.
- Irie, T., & H. Ono, 2003. Note on spiders of families Leptonetidae and Cybaeidae (Araneae) from Kumamoto Prefecture, Kyushu, Japan. *Bull. natn. Sci. Mus. Tokyo*, Ser. A, **29**(4): 177–183.
- Kikuya, N., 1985. On the spider fauna of Oita Pref., Kyushu, with a list of species. In: Papers Presented to Prof. Akira Kobayashi on the Occasion of His Retirement, pp. 41–108.
- Kobayashi, H., 1973. Two new spiders of the genus *Sarutana* (Leptonetidae: Araneae) from Shizuoka Prefecture, Japan. *Acta arachnol.*, **25**: 1–9.
- Komatsu, T., 1940. Five spiders from Ryûga Cave. *Acta arachnol.*, **5**: 186–195.
- Komatsu, T., 1942. Spiders from Saishô Cave. *Acta arachnol.*, **7**: 54–70.
- Komatsu, T., 1949. A view of cave spiders from Nagano

- Prefecture. *Shinano-Kyōiku*, **1949**: 1–6.
- Komatsu, T., 1957. Some new cave spiders in Japan. *Acta arachnol.*, **14**: 67–73.
- Komatsu, T., 1961. Cave Spiders of Japan, Their Taxonomy, Chorology and Ecology. 91pp. Arachnological Society of East Asia, Osaka.
- Komatsu, T., 1967. Two new Japanese spiders (*Gamasomorpha*, Oonopidae and *Leptoneta*, Leptoneidae). *Acta arachnol.*, **20**: 46–49.
- Komatsu, T., 1970. A new genus and a new species of Japanese spiders (*Falcileptoneta* n. g. and *Sarutana kawasawai* n. sp., Leptonetidae). *Acta arachnol.*, **23**: 1–12.
- Komatsu, T., 1974. Leptonetid Spiders in Akiyoshi-dai Plateau. *Bull. Akiyoshi-dai Sci. Mus.*, (10): 17–30.
- Nishikawa, Y., 1982. A new leptonetid spider from a lime-stone cave of western Shikoku, Southwest Japan. *J. speleol. Soc. Japan.*, **7**: 78–82.
- Nishikawa, Y., 1986. A new eyeless Leptonetid spider from an abandoned conduit in northeastern Shikoku, Southwest Japan. *J. speleol. Soc. Japan.*, **11**: 30–33.
- Oi, R., 1952. A new spider of the genus *Leptoneta*. *Arachnological News*, (1): 10–12.
- Okuma, C., 1960. Enumeratio Arachnidarum Montis Hikosan, I. Araneina. 18 pp. Hikosan Laboratorium Biologicum, Universitatis Kyushuensis, Hikosan.
- Yaginuma, T., 1960. Spiders of Japan in Colour. 186 pp., 56 pls., with extra 8 pp. for descriptions of a new genus and 17 new species. Hoikusha, Osaka.
- Yaginuma, T., 1961. Revision of Families, Genera and Species of Japanese Spiders. 45 pp. Arachnological Society of East Asia, Osaka.
- Yaginuma, T., 1986. Spiders of Japan in Color, new edition. 305 pp., 64 pls. Hoikusha, Osaka.
- Yaginuma, T., 1970. Two new spiders of the genera *Leptoneta* and *Dolichocybaeus* from the Island of Tshshima. *Bull. natn. Sci. Mus, Tokyo*, **13**: 241–248.
- Yaginuma, T. & Y. Nishikawa, 1970. Faunal survey of spiders in the Tsushima Islands, supporting area of JIBP-CT. *Lit. Dept. Rev. Otemon Gakuin Univ.*, (4): 129–139.