

The Ant Tribe Dacetini (Hymenoptera, Formicidae) of
Taiwan, with Descriptions of Three New Species

Mamoru TERAYAMA

1-25-11, Wakaba-cho, Chofu, Tokyo, 182 Japan

and

Satoshi KUBOTA

Akagidai Senior High School, Yamabuki-cho, Shinjuku,
Tokyo, 162 Japan



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Akagidai Senior High School, Yamabuki-cho, Shinjuku,
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Abstract The Taiwanese species of the ant tribe Dacetini are revised. Eleven species are recognized: *Trichoscapa membranifera* (EMERY), *Strumigenys minutula* sp. nov., *S. liukueiensis* sp. nov., *S. formosensis* FOREL, *S. solifontis* BROWN, *Smithistruma elegantula* sp. nov., *S. leptothrix* (WHEELER), *Kyidris mutica* BROWN, *Epitritus hexamerus* BROWN, *Pentastruma sauteri* FOREL and *Quadristruma emmae* (EMERY). Keys to these genera and species are provided.

The ant tribe Dacetini, belonging to the subfamily Myrmicinae, is represented by about 390 described species in 27 genera distributed from the tropics to the temperate zones of the world (BOLTON, 1983).

In 1972, FOREL described two new species, *Pentastruma sauteri* and *Strumigenys feae* var. *formosensis*, from Peinan (=Pilam), Taitung Hsien. This was the first record of the tribe from Taiwan. WHEELER (1929) described *Strumigenys leptothrix* from Fenchihu (=Funkiko), Chiayi Hsien, which was later transferred to the genus *Weberistruma* by BROWN (1948). In 1949, BROWN raised FOREL's variety to the new status *S. formosensis* and described *Kyidris nuda* from Mt. Yui-shan (=Mt. Niitaka). In 1952, however, he synonymized the latter species with *Kyidris mutica* BROWN. Thus four dacetine species have hitherto been found in Taiwan.

In this paper, three new and four newly recorded species of the tribe Dacetini are added to the Taiwanese fauna, and the females of *Strumigenys formosensis* and *Smithistruma leptothrix* are described for the first time. Keys to genera and species of this tribe in Taiwan are also provided.

Measurements and Indices

Head length (HL): maximum length of head excluding mandibles, in full face view.

Head width (HW): maximum width of head in full face view.

Scape length (SL): maximum length of scape excluding the basal constriction or neck close to the condylar bulb.

Mandibular length (ML): straight length of mandible from the apex to the level through the anteriormost points of clypeal margin.

Cephalic index (CI): $HW \times 100/HL$

Mandibular index (MI): $ML \times 100/HL$

Pronotal width (PW): maximum width of pronotum in dorsal view.

WEBER's length of alitrunk (WL): maximum diagonally length of the alitrunk excluding the pronotal cervix, in lateral view.

Total length (TL): total length of outstretched individual, from the mandibular apex to the gastral apex.

Key to the Genera of the Tribe Dacetini in Taiwan

(Worker and female)

1. Mandibles elongate and linear, with only 2–4 spiniform teeth at or near their apices; when closed, only the teeth are elongate and a broad open space is formed between the mandibular shafts..... 2.
 - Mandibles triangular to subtriangular, thick and serially dentate; when closed, engaging with each of the whole teeth or almost masticatory margin without a marked gap..... 4.
2. Antennae with 4 segments..... Genus *Quadristruma* BROWN.
 - Antennae with 6 segments..... 3.
3. Head, scape and pronotum with subappressed, orbicular, squamiform hairs; head broad, $CI > 100$ Genus *Epitritus* EMERY.
 - Head, scape and pronotum with simple or spatulate hairs; head narrower, $CI < 80$ Genus *Strumigenys* Fr. SMITH.
4. Pronotal lamellae reduced to fine, indistinct carina without teeth or angle above..... Genus *Kyidris* BROWN.
 - Pronotal lamellae well developed, usually tooth-like or angulate above..... 5.
5. Fully closed mandibles with a strongly defined, transverse basal border, which is separated from the anterior clypeal margin by a conspicuous impression or gap; pronotum marginate laterally, with pronounced humeral angles (Fig. 9); head with only a single pair of erect clavate hairs on dorsum of vertex..... Genus *Trichoscapa* EMERY.
 - Fully closed mandibles without a strongly defined, transverse basal border; basal region of mandible contiguous with or overlapped by the anterior clypeal margin, the two not separated by an impression or gap; pronotum without pronounced humeral angles (Fig. 10)..... 6.
6. Dorsum of head and alitrunk with hairs..... Genus *Smithistruma* BROWN.
 - Dorsum of head and alitrunk without hairs..... Genus *Pentastroma* FOREL.

Tribe **Dacetini** FOREL

The Taiwanese species of the tribe Dacetini are distinguished from the other ant species of Taiwan by the following combination of characters: 1) antennae with 4 or 6 segments, the funiculus ending in a 2-segmented club; 2) pedicel consisting of two segments; 3) head more or less cordate, emarginate on the occipital margins and strongly narrowed in front; 4) spongiform appendages present on petiole or post-petiole.

Key to the Taiwanese Species of *Strumigenys*

(Worker and female)

1. Worker..... 2.
- Female..... 5.
2. Dorsum of alitrunk with 5–6 pairs of long erect hairs; cephalic dorsum with numerous, long, erect hairs; apical fork of left mandible with 2 intercalary denticle between the spiniform teeth.....*S. liukueiensis* sp. nov.
- Dorsum of alitrunk with 2 pairs of long erect hairs at most; cephalic dorsum without or with only a few, long erect hairs; apical fork of left mandible with or without intercalary denticle between the spiniform teeth..... 3.
3. Mandibles straight, single preapical tooth short and blunt, not spiniform; anterior clypeal margin deeply concave medially....*S. formosensis* FOREL.
- Mandibles more or less arcuate, preapical tooth acutely spiniform; anterior clypeal margin transverse or slightly concave..... 4.
4. Larger species, HL 0.70–0.80 mm, TL 2.9–3.2 mm; mandibles slightly more than or almost 1/2 of the length of head; pronotal dorsum with 2 pairs of straight stout hairs.....*S. solifontis* BROWN.
- Smaller species, HL 0.48–0.52 mm, TL 1.8–1.9 mm; mandibles relatively short and more arcuate, less than 3/8 of the length of head; pronotal dorsum with 3 pairs of long flagellate hairs.....*S. minutula* sp. nov.
5. Cephalic dorsum with numerous, long erect hairs....*S. liukueiensis* sp. nov.
- Cephalic dorsum without or with only a few, long erect hairs..... 6.
6. Mandibles straight, single preapical tooth short and blunt, not spiniform..
..... *S. formosensis* FOREL.
- Mandibles more or less arcuate, preapical tooth acutely spiniform..... 7.
7. Larger species, HL 0.83–0.88 mm TL 3.3–3.5 mm; dorsum of alitrunk with 6–7 pairs of long erect hairs; propodeal lameliform teeth acute.....
..... *S. solifontis* BROWN.
- Smaller species, HL 0.58 mm, TL 2.3 mm; dorsum of alitrunk with long flagellate hairs; postero-lateral border of propodeum without lameliform teeth..
..... *S. minutula* sp. nov.

Strumigenys formosensis FOREL

(Figs. 1, 11)

Strumigenys feae var. *formosensis* FOREL, 1912, Ent. Mitt., 1: 52.*Strumigenys formosensis*: BROWN, 1949, Mushi, Fukuoka, 20: 19, 24.

The female caste of this species was hitherto undescribed.

Description of female. HL 0.91 mm; HW 0.60 mm; SL 0.53 mm; ML 0.43 mm; CI 66; SI 88; MI 47; WL 0.91 mm; PW 0.40 mm; TL 3.5 mm.

Head very similar to that of the worker with the usual caste differences. Mandibles straight in full face view, inner and outer borders nearly parallel; preapical tooth short and blunt, not spiniform. Anterior border of clypeus deeply concave in the middle. Compound eye ca. 0.13 mm in maximum diameter.

Lateral shape of alitrunk, petiole and postpetiole as in Fig. 11. Propodeal teeth acute, narrowly triangular.

Dorsum of head with relatively short hairs, which are curved anteriorly. Frontal carina with 2 pairs of long flagellate hairs in the middle and near posterior border respectively. Anterior margin of antennal scape with slender spatulate hairs. Dorsum of alitrunk with about 6 pairs of long flagellate hairs. Petiole, postpetiole, and 1st gastral tergite with flagellate hairs.

Color yellow.

Material examined. 1 female, 8. VII. 1982, Puli, Nantou Hsien, M. TERAYAMA leg.; 3 workers, 14. VII. 1982, Wushe, Nantou Hsien, M. TERAYAMA leg.; 3 workers, 2 females, 19. VII. 1982, Chihpen, Taitung City, M. TERAYAMA leg.; 7 workers, 25. VII. 1982, Chihpen, Taitung City, M. TERAYAMA leg.; 5 workers, 17. VIII. 1987, Liukuei, Kaohsiung Hsien, H. SAKAI leg.

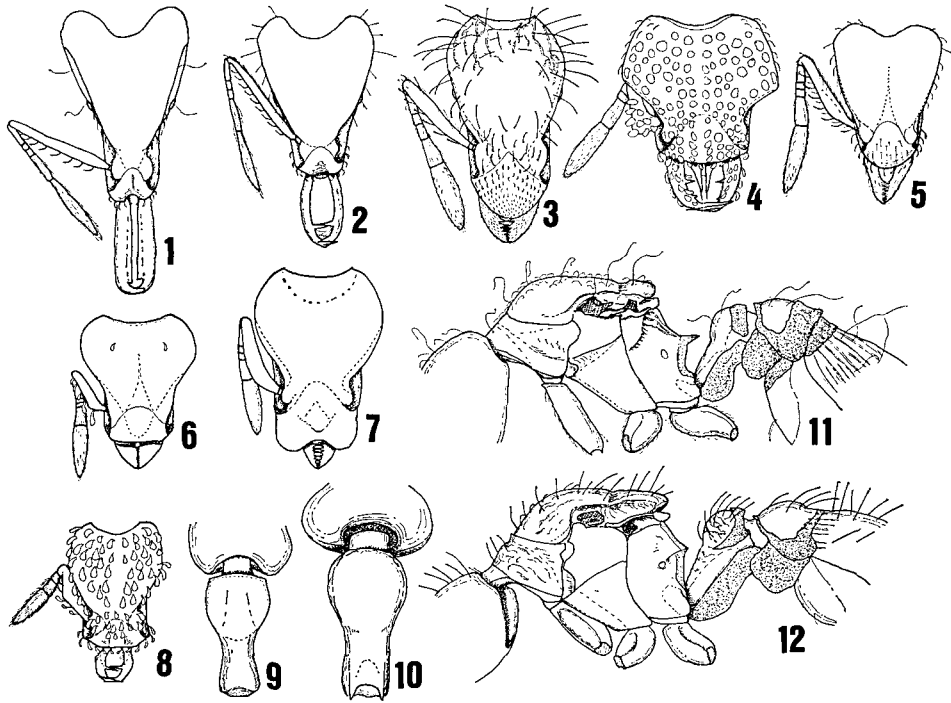
Distribution. Taiwan.

Strumigenys solifontis BROWN

(Fig. 2)

Strumigenys solifontis BROWN, 1949, Mushi, Fukuoka, 20: 18.

Material examined. 10 workers, 10. VIII. 1980, Chihpen, Taitung City, M. TERAYAMA leg.; 1 worker, 30. VIII. 1980, Chihpen, Taitung City, M. TERAYAMA leg.; 12 workers, 9. VIII. 1980, Chihpen, Taitung City, S. KUBOTA leg.; 15 workers, 19. VII. 1982, Chihpen, Taitung City, M. TERAYAMA leg.; 4 workers, 16. VIII. 1980, Jiuyuehtan (alt. ca. 750 m), Nantou Hsien, M. TERAYAMA leg.; 3 workers, 14. VII. 1982, Wushe, Nantou Hsien, M. TERAYAMA leg.; 151 workers, 31 alate females, 20 dealate females, 8. VII. 1982, Puli, Nantou Hsien, M. TERAYAMA leg.; 1 worker, 9. VIII. 1986, Wushe, Nantou Hsien, M. TERAYAMA leg.; 5 dealate females, 27 workers, 23. III. 1987, Zhongzheng Cun, Nantou Hsien, M. TERAYAMA leg.; 2 females, 91 workers, 21. VIII. 1987, Nanshanchi, Nantou Hsien, S. KUBOTA & H. SAKAI leg.



Figs. 1-12. Taiwanese dacetine ants. — 1-8. Head, full face view, worker; 1, *Strumigenys formosensis*; 2, *Strumigenys solifontis*; 3, *Smithistruma leptothrix*; 4, *Epitritus hexamerus*; 5, *Kyidris mutica*; 6, *Trichoscapa membranifera*; 7, *Pentastruma sauteri*; 8, *Quadristruma emmae*. — 9-10. Dorsal view of alitrunk, worker; 9, *Trichoscapa membranifera*; 10, *Pentastruma sauteri*. — 11-12. Alitrunk, petiole and postpetiole, lateral view, female; 11, *Strumigenys formosensis*; 12, *Smithistruma leptothrix*.

This is the first record of this species from Taiwan where it is commonly found. The female is very similar to the worker with the usual caste differences.

Distribution. Taiwan, Japan.

***Strumigenys minutula* sp. nov.**

(Figs. 13-17)

Worker. HL 0.48-0.52 mm; HW 0.35-0.38 mm; SL 0.25-0.27 mm; ML 0.19-0.20 mm; CI 70-74; SI 67-71; MI 36-37; WL 0.52-0.55 mm; PW 0.20-0.23 mm; TL 1.7-1.9 mm.

Mandibles relatively short, arcuate in full face view; shaft broadest near the base and gradually tapering toward the apex. Preapical tooth of mandibles prominently spiniform, tip slightly turned inward; apical fork with 2 spiniform teeth,

with an intercalary denticle. Anterior clypeal margin transverse. Antennae 6-segmented; scape slightly curved near the base, broadest in about middle; 2nd segment longer than broad; 3rd and 4th segments shorter than broad; 5th and apical segments longer than broad. Eyes relatively small, with 9–11 ommatidia; maximum diameter of scape much less than the maximum width.

Alitrunk in profile with promesonotum convex, sloping down posteriorly to propodeum; posterior part of mesonotum weakly concave. Propodeal dorsum convex from anterior border to posterior part of propodeal declivity. Propodeal lamellae well developed, upper posterior corner dully angulate and not acute, postero-lateral border convex. Petiolar disc in dorsal view $1.1\times$ as broad as long; postpetiolar disc broadly rounded, $1.5\times$ as long as broad. Spongiform appendages of pedicelled segments well developed.

Dorsum of head with short, narrowly spatulate hairs which are curved anteriorly. In full face view postero-lateral borders of head with a pair of long flagellate hairs; clypeal and scrobicular margins beset with narrowly spatulate hairs; a pair of long flagellate hairs present laterally near occipital border. Dorsum of alitrunk with numerous, short curved hairs and 3 pairs of long flagellate hairs. Petiole, postpetiole and 1st gastral tergite with long flagellate hairs.

Dorsal surface of head and alitrunk rugose and microreticulate. Lateral surface of pronotum microreticulate, mesonotum and propodeum smooth and shining. Petiolar disc microreticulate, postpetiolar disc and gaster smooth and shining.

Color medium yellow; vertex and dorsum of alitrunk somewhat darker.

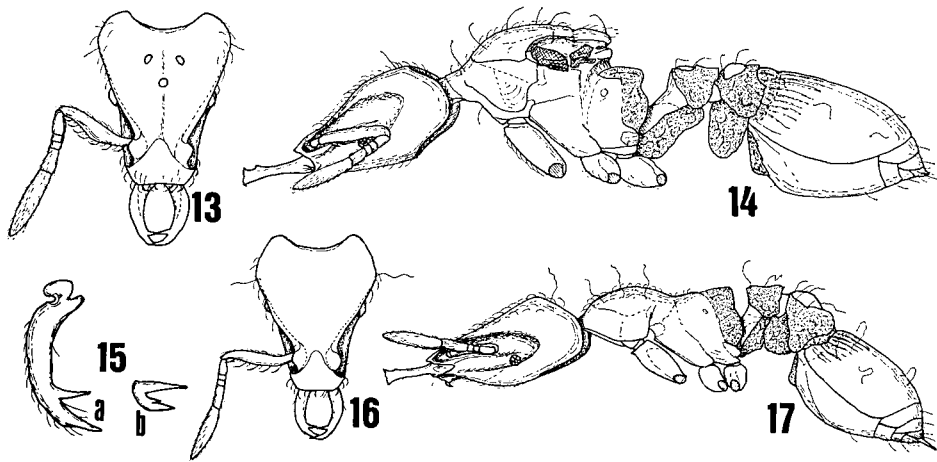
Female. HL 0.58 mm; HW 0.43 mm; SL 0.28 mm; ML 0.21 mm; CI 74; SI 65; MI 37; WL 0.68 mm; PW 0.34 mm; TL 2.3 mm.

General shape of head as in worker. Mandibles as in worker but broader at the base of shaft. Compound eyes ca. 0.10 mm in maximum diameter. Ocelli relatively small, each with blackened callus.

Alitrunk in profile convex dorsally, arching from the anteriormost of mesonotum to the posteriormost of metanotum. Propodeal lamellae well developed. Pedicelled segments and gaster as in worker, but ventral spongiform lobe of postpetiole more developed.

Dorsum of head with short, narrowly spatulate hairs which are curved anteriorly. In full face view clypeal and scrobicular margins beset with narrowly spatulate hairs. Antennal scape with a row of 7 hairs apically curved, which are narrowly spatulate. Dorsum of alitrunk with numerous, short curved hairs. Long flagellate hairs present on the dorsum of alitrunk, petiole, postpetiole, and 1st gastral tergite.

Head, mandibles and antennal scape microreticulate. Dorsal surface of alitrunk microreticulate; mesoscutum with 9 irregular striae on the posterior half; mesoscutellum reticulate and rugose. Lateral surface of pronotum and upper half of mesepisternum microreticulate, lower half of mesepisternum and propodeum smooth and shining. Petiolar disc subopaque, postpetiolar disc and gaster smooth



Figs. 13–17. *Strumigenys minutula* sp. nov.; 13, head, full face view, female; 14, profile, female; 15, mandible, worker (a, dorsal view; b, end-on view of the apical fork); 16, head, full face view, worker; 17, profile, worker.

and shining.

Color medium yellow.

Holotype. Worker, 4. VIII. 1981. Puli, Nantou Hsien, Taiwan, M. TERAYAMA & S. KUBOTA leg.

Paratypes. 13 workers, 1 female (from the same nest as the holotype); 18 workers, 20. VIII. 1987, same locality as the holotype, H. SAKAI leg.; 1 worker, 13. IX. 1981, Naha City, Okinawa-hontô Is., Japan, M. TERAYAMA leg.; 1 female, 12. VI. 1984, Uenohara, Okinawa-hontô Is., Japan, H. TAKAMINE leg.; 2 workers, 23. VI. 1985, Nandai, Okinawa-hontô Is., Japan, H. TAKAMINE leg.; 1 worker, 24. VI. 1985, Hisadaka, Okinawa-hontô Is., Japan, H. TAKAMINE leg.; 1 worker, 13. VIII. 1979, Iriomote-jima Is., Okinawa Pref., Japan, M. TERAYAMA leg.; 1 worker, 29. VII. 1985, Tokunoshima Is., Kagoshima Pref., Japan, M. TERAYAMA leg.

Type depository. The holotype and some paratypes are preserved in the National Institute of Agro-Environmental Sciences, Tsukuba, Japan, and the other paratypes in the Taiwan Agricultural Research Institute, the National Science Museum (Nat. Hist.), Tokyo, and the Osaka Museum of Natural History.

Distribution. Taiwan, Japan (Ryukyu Is.).

Remarks. The present new species is easily distinguished from the other known species of the genus by its small size (HL 0.48–0.52 mm, HW 0.35–0.38 mm), relatively short and strongly arcuate mandibles, dorsal shape of alitrunk, and abundant spongiform appendages.

Strumigenys liukueiensis sp. nov.

(Figs. 18–22)

Worker. HL 0.68–0.69 mm; HW 0.43–0.45 mm; SL 0.40–0.41 mm; ML 0.29–0.30 mm; CI 62–67; SI 89–94; MI 42–44; WL 0.73–0.75 mm; PW 0.28 mm; TL 2.5–2.7 mm.

Mandibles slender in full face view, external margin convex very shallowly and evenly, internal margin almost straight. Preapical teeth of mandibles prominently spiniform; apical fork with 2 spiniform teeth, with 2 intercalary denticles. Anterior clypeal margin transverse. Antennae 6-segmented, scape slender, curved weakly near the base and broadest at about middle; 2nd segment longer than broad; 3rd and 4th segments each almost as long as broad; 4th to 6th segments in a ratio of about 1:7:12. Eyes relatively small, with 10–12 ommatidia; the maximum diameter ca. 0.05 mm.

Dorsal outline of promesonotum convex in profile, arching from the anterior-most of pronotum to the posteriormost of mesonotum. Basal face of propodeum straight. Propodeal lamellae well developed, upper posterior corner acute. Petiolar disc in dorsal view $1.3\times$ as broad as long; postpetiolar disc oval, $1.3\times$ as long as broad. Spongiform appendages of pedicelled segments well developed.

Cephalic dorsum with numerous, long erect hairs and short appressed hairs. Anterior border of clypeus with slender spatulate hairs. Anterior margin of antennal scape with 8–9 slender spatulate hairs which are curved anteriorly. Dorsum of pronotum with 5–6 pairs of long erect hairs; mesonotum and propodeum each with 2 pairs of erect hairs; longest, pronotal hair about 0.13 mm in length. Dorsa of petiole and postpetiole with suberect hairs. Gaster with numerous, stout erect hairs.

Dorsal surfaces of head and alitrunk, antennae and legs microreticulate. Lateral surface of pronotum microreticulate, mesonotum and propodeum smooth or very weakly microreticulate. Gaster smooth and shining, anterior 1/5 of 1st gastral tergite microreticulate.

Color medium yellow.

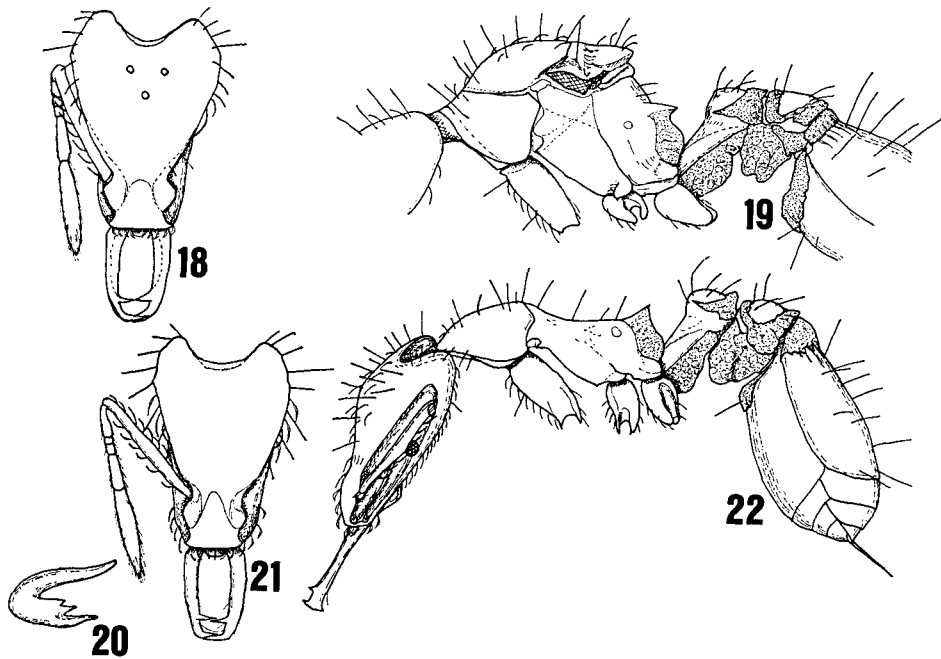
Female. HL 0.70 mm; HW 0.48 mm; SL 0.40 mm; ML 0.30 mm; CI 68; SI 84; MI 43; WL 0.78 mm; PW 0.38 mm; TL 2.8 mm.

General shape of head as in worker. Compound eyes ca. 0.12 mm in maximum diameter. Ocelli relatively small, each with blackened callus.

Lateral shape of alitrunk and pedicelled segments as in Fig. 19. Propodeal lamellae well developed, upper posterior corner acute.

Dorsa of head and alitrunk with numerous, long erect hairs and short appressed hairs. Petiole and postpetiole with erect or suberect hairs. Gaster with numerous, stout erect hairs.

Head microreticulate. Mesepisternum and lateral surface of propodeum mostly smooth and shining; remainder of alitrunk microreticulate. Petiolar disk and legs



Figs. 18–22. *Strumigenys liukueiensis* sp. nov.; 18, head, full face view, female; 19, profile, female; 20, apical fork of mandible, end-on view, worker; 21, head, full face view, worker; 22, profile, worker.

microreticulate; postpetiolar disk and gaster weakly microreticulate and subopaque.

Color medium yellow.

Holotype. Worker, 17. VIII. 1987, Liukuei, Kaohsiung Hsien, Taiwan, M. TERAYAMA leg.

Paratypes. 1 dealate female, 2 alate females, 13 workers (from the same nest as the holotype); 1 dealate female, 12 workers, same locality as the holotype, 17. VIII. 1987, S. KUBOTA leg.

Type depository. The holotype and some paratypes are preserved in the National Institute of Agro-Environmental Sciences, Tsukuba, Japan, and the other paratypes in the Taiwan Agricultural Research Institute, the National Science Museum (Nat. Hist.), Tokyo, and the Osaka Museum of Natural History.

Distribution. Taiwan.

Remarks. This species resembles *S. lewisi* CAMERON from Japan, China and Burma, and *S. solifontis* BROWN from Taiwan and Japan. It is, however, distinguished from the latter two by the head and alitrunk with much more abundant, long erect hairs and the almost straight mandibular shafts.

Key to the Taiwanese Species of *Smithistruma*

(Worker and female)

1. Head with numerous, long erect hairs dorsally, postero-lateral margins of head convex, not angulate; posterior surface of head with loose longitudinal rugae in full face view; alitrunk with more than 20 long erect hairs dorsally; dorsum of promesonotum smooth and shining with 7–8 loose longitudinal striae in worker.....*S. leptothrix* (WHEELER).
- Head only with a pair of erect hairs close to the occipital margin; postero-lateral margins of head dully angulate in full face view; posterior surface of head without rugulae; alitrunk with less than 6 pairs of erect hairs dorsally; dorsum of promesonotum opaque and microreticulate in worker.....
..... *S. elegantula* sp. nov.

***Smithistruma leptothrix* (WHEELER)**

(Figs. 3, 12)

Strumigenys (Cephaloxys) leptothrix WHEELER, 1929, Boll. Lab. Zool. gen. Agrar. Portici, **24**: 55.*Smithistruma (Weberistruma) leptothrix*: BROWN, 1948, Trans. Amer. ent. Soc., **74**: 106.*Weberistruma leptothrix*: BROWN, 1949, Mushi, Fukuoka, **20**: 8; 1953, Amer. Midl. Natur., **50**: 24.

The present species was described on the basis of a single worker specimen from Fenchihu (=Funkiko, alt. ca. 1,300m), and the female caste was hitherto undescribed.

Description of female. HL 0.75–0.78 mm; HW 0.50–0.55 mm; SL 0.33–0.35 mm; ML 0.08 mm; CI 64–70; SI 60–70; MI 15–16; WL 0.88–0.89 mm; PW 0.45–0.47 mm; TL 3.1–3.3 mm.

Shape of head much like that of the worker with the usual caste differences. Compound eyes ca. 0.20 mm in maximum diameter. Postero-lateral border of head convex, not angulate. Anterior border of clypeus convex. Antennal 3rd to 6th segments in a ratio of about 5: 4: 10: 22; terminal segment $3.7\times$ as long as broad.

Lateral shape of alitrunk and pedicelled segments as in Fig. 12.

Head, alitrunk, pedicel, and gaster relatively abundant in long erect hairs.

Dorsum of head reticulate and rugose; surface near occipital border smooth and shining, with distinctly but loosely and longitudinal rugose. Dorsal surface of alitrunk microreticulate. In lateral view, pronotum, mesepisternum, and propodeum smooth and shining. Dorsum of petiole irregularly reticulate and rugose, postpetiolar disc and gaster smooth and shining.

Color medium brown; clypeus, antennae, mandibles, and legs brownish yellow.

Material examined. 265 workers, 2 dealate females, 25 alate females, 6. VIII. 1981, Wushe (alt. 1,100 m), Nantou Hsien, M. TERAYAMA & S. KUBOTA leg.; 3 workers, 23. III. 1987, Zhongzheng Cun, Nantou Hsien, M. TERAYAMA leg.; 4 workers, 21. VIII. 1987, Nanshanchi, Nantou Hsien, H. SAKAI leg.

Distribution. Taiwan.

Smithistruma elegantula sp. nov.

(Figs. 23–27)

Worker. HL 0.69–0.70 mm; HW 0.45–0.50 mm; SL 0.30–0.31 mm; ML 0.08–0.09 mm; CI 66–71; SI 61–66; MI 12–13; WL 0.68–0.73 mm; PW 0.26–0.31 mm; TL 2.4–2.6 mm.

Head as in Fig. 26, dorso-lateral borders dully angulate in full face view. Mandibles with 18 teeth except for basal lamella, principal dental row with 7 relatively large teeth followed by 5 minute denticles and 4 small teeth. Basal lamella of mandibles broadly triangular, apices rounded. Clypeus as long as broad, anterior margin well convex. Eyes moderate in size, ca. 0.10 mm in maximum diameter. Antennal scapes narrow basally, broadest in the middle. Antennal 3rd to 6th segments in a ratio of about 1.8:1.8:3.5:10; 3rd and 4th segments each as long as broad; 5th segment 1.4× as long as broad; apical segment 3.3× as long as broad.

Lateral shape of alitrunk and pedicelled segments as in Fig. 24. Dorsum of pronotum strikingly flattened, lateral borders subparallel in dorsal view. Propodeal teeth strongly developed, narrowly triangular, tip pointed and upturned. Petiolar disc 1.8× as long as broad, postpetiolar disc 1.5× as broad as long dorsally.

Head with numerous, curved, slender, spatulate hairs; a pair of erect hairs present close to occipital margin. Clypeal dorsum with decumbent hairs. Anterior margin of antennal scapes with arranged, slender, spatulate hairs which are curved anteriorly. Dorso-lateral borders of alitrunk with 4 pairs of long erect hairs and many, curved, short hairs. Dorsa of petiole and postpetiole with suberect hairs. First gastral tergite with more than 15 long erect hairs, restricted to 5 transverse rows.

Dorsal surface of head reticulate and rugose. Antennal scape microreticulate. Dorsum of alitrunk microreticulate, with a longitudinal median stria from the anteriormost of pronotum to near anterior border of propodeum. Lateral surface of pronotum smooth and shining, mesonotum and propodeum microreticulate. Lateral surface of petiole microreticulate, disc irregularly reticulate and rugose. Postpetiolar disc and gaster smooth and shining.

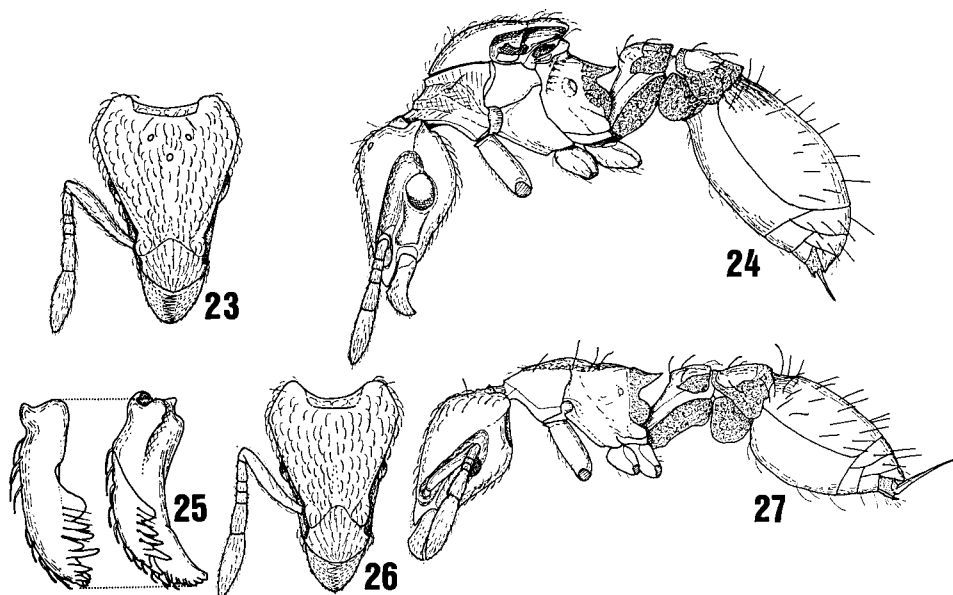
Color reddish brown; clypeus, mandibles, antennae, and legs yellowish brown.

Female. HL 0.77 mm; HW 0.53 mm; SL 0.30 mm; ML 0.09 mm; CI 71; SI 57; MI 15; WL 0.85 mm; PW 0.45 mm; TL 3.5 mm.

General shape of head as in worker. Compound eyes ca. 0.15 mm in maximum diameter. Antennal 3rd to 6th segments in a ratio of about 2:2:5:7; 5th segment 2.1× as long as broad; 6th segment 3.0× as long as broad.

Lateral shape of alitrunk and pedicelled segments as in Fig. 24. Propodeum with lamelliform teeth. In dorsal view, mesoscutum 1.1× as long as broad, mesoscutellum 1.3× as broad as long. Petiolar disc 1.3× as long as broad, postpetiolar disc 1.4× as broad as long dorsally.

Head with numerous, slender, spatulate hairs which are curved anteriorly.



Figs. 23–27. *Smithistruma elegantula* sp. nov.; 23, head, full face view, female; 24, profile, female; 25, mandible, worker; 26, head, full face view, worker; 27, profile, worker.

Dorsum of alitrunk with abundant, curved, short hairs. A pair of stiff erect hairs present close to occipital margin. Pronotal humeral hairs stiff and long. Dorsum of alitrunk with 4–5 pairs of stiff, erect to suberect hairs laterally; gastral tergites with erect hairs.

Head, dorsum of alitrunk, petiole and legs microreticulate; sides of pronotum finely microreticulate. Petiolar disk, postpetiole and gaster smooth and shining.

Color reddish brown; vertex darker; clypeus, mandibles, antennae, and legs yellow.

Holotype. Worker, 12. VII. 1982, Puli, Nantou Hsien, Taiwan, M. TERAYAMA leg.

Paratypes. 22 workers, 1 female (from the same nest as the holotype); 32 workers, 20. VIII. 1987, the same locality as the holotype, S. KUBOTA & H. SAKAI leg.; 2 workers, 17. VIII. 1987, Liukuei, Kaohsiung Hsien, H. SAKAI leg.

Type depository. The holotype and some paratypes are preserved in the National Institute of Agro-Environmental Sciences, Tsukuba, Japan, and the other paratypes in the Taiwan Agricultural Research Institute, the National Science Museum (Nat. Hist.), Tokyo, and the Osaka Museum of Natural History.

Distribution. Taiwan.

Remarks. This new species resembles *Smithistruma jacobsoni* MENOZZI from Sumatra but is separable from the latter by absence of long erect hairs on body including head and legs in worker caste.

Trichoscapa membranifera (EMERY)

(Figs. 6, 9)

Strumigenys (Trichoscapa) membranifera EMERY, 1869, Anns. Acad. Aspir. Nat. Napoli, **2**: 24.*Strumigenys (Cephaloxys) membranifera* var. *williamsi* WHEELER, 1933, Proc. Hawaii. ent. Soc., **8**: 275.*Strumigenys membranifera* race *simillia* EMERY, 1890, Boll. Soc. ent. ital., **22**: 69.*Strumigenys (Cephaloxys) vitiensis* MANN, 1921, Bull. Mus. comp. Zool., **64**: 461.*Strumigenys (Cephaloxys) silvestriana* WHEELER, 1928, Boll. Lab. Zool. gen. Agrar. Portici, **22**: 27.*Strumigenys (Cephaloxys) foochowensis* WHEELER, 1928, Boll. Lab. Zool. gen. Agrar. Portici, **22**: 28.*Strumigenys (Cephaloxys) membranifera* var. *marioni* WHEELER, 1933, Proc. Hawaii. ent. Soc., **8**: 275.*Trichoscapa membranifera*: BROWN, 1948, Trans Amer. ent. Soc., **74**: 112.

Material examined. 8 workers, 4. VIII. 1981, Puli, Nantou Hsien, M. TERAYAMA & S. KUBOTA leg.; 86 workers, 1 female, 11. VII. 1982, Nanshanchi, Nantou Hsien, M. TERAYAMA leg.

This is the first record of this genus from Taiwan.

Distribution. Tropicopolitan.

Pentastruma sauteri FOREL

(Figs. 7, 10)

Pentastruma sauteri FOREL, 1912, Ent. Mitt., **1**: 51; BROWN & BOISVERT, 1978, Psyche, **85**: 203.

Material examined. 2 workers, 20. VIII. 1980, Chihpenchi, Taitung Hsien, M. TERAYAMA leg.; 1 worker, 14. VII. 1982, Wushe, Nantou Hsien, M. TERAYAMA leg.; 9 workers, 21. VIII. 1987, Nanshanchi, Nantou Hsien, S. KUBOTA leg.; 1 worker, 22. VIII. 1987, the same locality as above, S. KUBOTA leg.

This species has been known only from a single worker specimen. In the present study, we have collected 13 more workers from Taiwan. This species is also distributed on the Ryukyu Islands, Japan (TERAYAMA, 1985).

Distribution. Taiwan, Japan (Ryukyu Is.).

Kyidris mutica BROWN

(Fig. 5)

Kyidris mutica BROWN, 1949, Mushi, Fukuoka, **20**: 3; 1952, Psyche, **58**: 124.*Kyidris nuda* BROWN, 1949, Mushi, Fukuoka, **20**: 23.*Polyhoma itoi* AZUMA, 1950, Hyogo Biology, **1**: 37.*Kyidris itoi*: CREIGHTON, 1950, Psyche, **54**: 93.

Material examined. 16 workers, 26. VII. 1986, Nanshanchi, Nantou Hsien, M. TERAYAMA leg.

Distribution. Taiwan, Japan, Java.

Epitritus hexamerus BROWN

(Fig. 4)

Epitritus hexamerus BROWN, 1958, Mushi, Fukuoka, 31: 70.

Material examined. 1 worker, 24. VII. 1982, Chihpenchi, Taitung Hsien, M. TERAYAMA leg.; 1 worker, 13. VIII. 1985, Nanshanchi, Nantou Hsien, M. TERAYAMA leg.; 12 workers, 18. VIII. 1987, Liukuei, Kaohsiung Hsien, S. KUBOTA leg.

This is the first record of this genus from Taiwan.

Distribution. Taiwan, Japan.

Quadristruma emmae (EMERY)

(Fig. 8)

Epitritus emmae EMERY, 1890, Boll. Soc. ent. ital., 22: 70.*Epitritus clypeatus* SZABO, 1909, Arch. Zool., Budapest, 1 (7): 1.*Epitritus clypeatus* var. *malesiana* FOREL, 1913, Zool. Jahrb. Syst., 36: 83–84.*Epitritus wheeleri* DONISTHORPE, 1916, Ent. Rec., 38: 121.*Quadristruma emmae*; BROWN, 1949, Trans. Amer. Ent. Soc., 75: 48.

Material examined. 1 female, 1 worker, 17. VIII. 1987, Liukuei, Kaohsiung Hsien, S. KUBOTA leg.

This is the first record of this genus from Taiwan. The colony was found nesting in the clay soil about 5 cm in depth.

Distribution. Tropicopolitan.

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