Revision of the Ant Genus *Strumigenys* Fr. Smith (Hymenoptera: Formicidae) of Taiwan

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ABSTRACT

The genus *Strumigenys* Fr. Smith of Taiwan is revised. Ten species are recognized, of which 5 are new to science and 1 is newly recorded: *S. formosensis* Forel, *S. godeffroyi* Mayr (new record), *S. hispida* sp. nov., *S. lacunosa* sp. nov., *S. lichiaensis* sp. nov., *S. liukueiensis* Terayama & Kubota, *S. minutula* Terayama & Kubota, *S. nanzanensis* sp. nov., *S. solifontis* Brown and *S. trada* sp. nov. A key to the workers and females is presented.

Key words: Hymenoptera, Formicidae, Dacetonini, *Strumigenys*, Taiwan.

Introduction

The ant genus *Strumigenys* Fr. Smith, 1860, belonging to the tribe Dacetonini in the subfamily Myrmicinae, is represented by 167 described species distributed in all zoogeographical regions from the tropical to the temperate zones of the world (Bolton, 1995). Modern taxonomic understanding of *Strumigenys* depends almost entirely upon the works by Brown (1948-1973), who sorted the great diversity of forms previously included in the genus and completed a large number of descriptive, faunistic and revisionary works on *Strumigenys* and its allies, on a world basis.

The first description of Taiwanese *Strumigenys* was that of Forel (1912), who recognized *Strumigenys feae* var. *formosensis* from Peinan, Taitung Hsien in the southeastern part of the island. In 1949, Brown raised Forel's variety to species status, *S. formosensis*. Recently, Terayama and Kubota (1989) described 2 new species, *S. mintula* and *S. liukueiensis*, and recorded *S. solifontis* for the 1st time. Thus 4 species of the genus have hitherto been found in Taiwan. A key to the Taiwanese species of *Strumigenys* was also provided by Terayama and Kubota (1989).

In this paper, 5 new species (*S. hispida* sp. nov., *S. lacunosa* sp. nov., *S. lichiaensis* sp. nov., *S. nanzanensis* sp. nov. and *S. trada* sp. nov.) and 1 newly recorded species (*S. godeffroyi*) are added to the fauna of Taiwan.

The following abbreviations are used for the institutions and collectors in the lists of materials examined: National Taiwan University (NTU), Taiwan Agricultural Research Institute (TARI), C. C. Lin (CCL), C. Y. Lee (CYL), I. S. Shu (ISS) and Y. C. Shiau (YCS).

Measurements and indices

Terminology used herein mainly fol-
follows that in Ierayama and Kubota (1989). Their measurements are as in Figs. 1-2.

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

Frontal carinal distance (FCD). Maximum distance between the frontal carinae, measured in full face (dorsal) view.

Frontal carinal index (FCI). $FCD \times 100 / HW$

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

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

Mandibular length (ML). The straight-line length of the mandible, measured in the same plane for which the HL measurement is taken, from the mandibular apex to the transverse through the anteriormost point of the clypeal margin.

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

Mesosoma index (MSI). $PW \times 100 / WL$

Pronotum width (PW). The maximum width of the pronotum in dorsal view.

Scape index (SI). $SL \times 100 / HW$

Scape length (SL). The maximum straight-line length of the antennal scape excluding the basal constrictions.

Figs. 1-2. 1. Head of *Strumigenys* Fr. Smith worker in full face view, illustrating the measurement of frontal carinal distance (FCD), head length (HL), head width (HW), mandibular length (ML) and scape length (SL). 2. Mesosoma of *Strumigenys* Fr. Smith worker in dorsal view, illustrating the measurement of pronotum width (PW) and Weber's length of mesosoma (WL).
tion or neck close to the condylar bulb.
Total length (TL). The total outstretched length of the ant from mandibular apex to the gastral apex.
Weber's length of mesosoma (WL). The diagonal length of the mesosoma in profile from the point at which the pronotum meets the cervical shield to the posterior base of the metapleuron.

**Strumigenys Fr. Smith**


All the Taiwanese species of the genus *Strumigenys* belong to the godeffroyi-group in Brown (1959). This species-group differs from other groups by the following combination of characters: no preocular notch in the ventrolateral margin of head; mandibles slender, sickle- or hook-like at apex, with a pair of spiniform preapical teeth or reduced; apical fork with 2, 3 or 4 spiniform teeth; presence of long projecting fine hairs on the dorsal (outer) surface of the hind tibia and basitarsus; spongiform appendages on propodeum, petiole and postpetiole.

**Key to the species of Strumigenys in Taiwan**

1. Anterior clypeal margin deeply concave medially (Fig. 3) ..................... *S. formosensis* Forel
   - Anterior clypeal margin transverse (Figs. 4-8) .......................... 2
2. Dorsolateral margin of head behind level of eye with 1 or more laterally projecting flagellate hairs; simple hairs may be present .......................... 3
   - Dorsolateral margin of head behind level of eye without laterally projecting flagellate hairs; simple hairs may be present .......................... 7
3. Head and mesosoma with flocculent hairs and lacunose sculpture (Fig. 5); head dorsolaterally with 3 pairs of long flagellate hairs (Fig. 20); mandible with a pair of spiniform preapical teeth or reduced (Figs. 5, 20); apical fork with an intercalary denticle between spiniform teeth; propodeal teeth acute and well developed ................. *S. lacunosa* sp. nov.
   - Head with spatulate hairs (Figs. 4, 7, 8); head dorsolaterally with 2 pairs of long flagellate hairs at most; mandible with a pair of acute spiniform preapical teeth, apical fork with 1 or 2 intercalary denticle between spiniform teeth; propodeal teeth spongiform ........ 4
4. First gastral tergite with 5 pairs of long flagellate hairs at most (Fig. 36); dorsolateral border of head posteriorly without erect hair (Fig. 35) .................. 5
   - First gastral tergite with numerous, long flagellate hairs (Fig. 31); dorsolateral border of head posteriorly with 3 pairs of erect hairs at least

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5. Medium species. TL 2.20-2.44 mm; mandible relatively long, MI>45, straight in full face view; propodeum smooth and shining in most part; eye with 6 ommatidia —— S. trada sp. nov.

6. Dorsum of promesonotum with numerous, short curved hairs (Fig. 13); size relatively small. TL 2.20-2.22 mm; eye relatively large, consisting of 28-2
ommatidia; in female, mesosoma in profile with scutum convex (Fig. 34)...
.......................... S. nanzanensis sp. nov.
- Dorsum of promesonotum with few short curved hairs (Fig. 10); size relatively medium, TL 2.36-2.44 mm; eye relatively small, consisting of 10-13 ommatidia; in female, mesosoma in profile with scutum even.......................... S. godeffroyi Mayr
7. First gastral tergite with numerous simple erect hairs (Fig. 26).........8
- First gastral tergite with long flagellate hairs, without simple erect hairs (Fig. 16)........................................9
8. Cephalic dorsum with numerous long

erect hairs (Fig. 6): dorsal margin of antennal scrobe with long erect hairs; dorsum of mesosoma with 8 pairs of long erect hairs at least (Fig. 12): larger species. TL 2.5-2.7 mm.................

S. liukueiensis Terayama & Kubota

-- Cephalic dorsum with erect hairs only in posterolateral area (Fig. 25): dorsum margin of antennal scrobe with short narrowly spatulate hairs; dorsum of mesosoma with 6 pairs of long erect hairs at most; smaller species. TL 2.10

Figs. 15-24. 15-19. Strumigenys hispida sp. nov.: 15, head, full face view, worker; 16, profile, worker; 17, apical fork of mandible, end-on view, worker; 18, head, full face view, female; 19, profile, female. 20-24. Strumigenys lacunosa sp. nov.: 20, head, full face view, worker; 21, profile, worker; 22, apical fork of mandible, end-on view, worker; 23, head, full face view, female; 24, profile, female.
2.14 mm .......... *S. lichiaensis* sp. nov.

9. Numerous, long flagellate hairs on first gastral tergite; with propodeal teeth acute; propodeal lamellae well developed; in female, mesosoma in profile with scutum convex

*....................... S. solifontis* Brown

Sparse, long flagellate hairs on first gastral tergite (Fig. 16); propodeal teeth spongiform; in female, mesosoma in profile with scutum even (Fig. 19) ..

*....................... S. hispida* sp. nov.

**Strumigenys formosensis** Forel (Figs. 3, 9)


**Distribution:** Taiwan.

**Remarks:** This species is easily distinguished from the other Taiwanese congeners by the following combination of characters: (1) mandible sickle-like at extreme apex; (2) anterior border of clypeus deeply concave medially (Fig. 3); (3) cranium with numerous, short, broad spatulate hairs (Fig. 3). It is a pleistoendemic species of the genus in Taiwan, and widely distributed in the low-middle elevation zone of the island.

**Strumigenys godeffroyi Mayr** (Figs. 4, 10)


**Remarks:** This species resembles *S. lewisi* Cameron from Japan, Korea, China and Burma, *S. solifontis* Brown, and *S. liukueiensis* Terayama & Kubota from Taiwan in general appearance. However, it is distinguished from the latter 3 by the dorsum of promesonotum with 2 pairs of
Figs. 25-37. 25-29. *Strumigenys lichiaensis* sp. nov.: 25, head, full face view, worker; 26, profile, worker; 27, apical fork of mandible, end-on view, worker; 28, head, full face view, female; 29, profile, female. 30-34. *Strumigenys nanzanensis* sp. nov.: 30, head, full face view, worker; 31, profile, worker; 32, apical fork of mandible, end-on view, worker; 33, head, full face view, female; 34, profile, female. 35-37. *Strumigenys trada* sp. nov.: 35, head, full face view, worker; 36, profile, worker; 37, apical fork of mandible, end-on view, worker.
long flagellate hairs (Fig. 10). This is the 1st record of this species from Taiwan and is the northern limit in distribution of this species. This species is widely distributed from Australia through Oceania, Indonesia, and the Philippines, to South Asia.

*Strumigenys hispida* sp. nov. (Figs. 15-19)

**Holotype Worker:** TL: 2.8 mm, HL: 0.73 mm, HW: 0.67 mm, SL: 0.45 mm, ML: 0.35 mm, FCD: 0.21 mm, PW: 0.34 mm, WL: 0.84 mm, CI: 92, MI: 48, SI: 67, FCI: 31, MSI: 40.

Head as in Fig. 15, microreticulate sculpture, with short, narrowly spatulate hairs on cranium. Posterior portion of head with a row of erect hairs. Mandible hook-like at extreme apex, slender in full face view; external margin very shallowly and evenly convex; internal margin almost straight. Preapical teeth of mandible prominently spiniform; apical fork with 2 spiniform teeth, and 2 intercalary denticles (Fig. 17). Anterior clypeal margin transverse. Antenna 6-segmented, in ratio of 13: 3: 1: 1: 3.5: 8.5 in length from base; scape microreticulate, with a row of narrowly spatulate hairs; 2nd segment 2 X as long as wide; 3rd and 4th segments each as long as wide; 5th segment 2 X as long as wide; apical segment 4.5 X as long as wide. Eye relatively small, 0.06 mm in maximum diameter, consisting of 8 ommatidia.

Dorsum of promesonotum microreticulate sculpture, with erect hairs present on dorsum of mesosoma (Fig. 16). Mesopleuron and metapleuron smooth and shining in most part. Propodeum microreticulate sculpture. Propodeal lamellae well developed.

Petiole peduncle long and node convex, microreticulate sculpture, with erect hairs. Spongiform appendages of pedicel segments well developed.

First gastral tergite smooth and shining, with sparse long flagellate hairs.

Body yellow.

**Paratype:** workers Ten paratype workers with the following measurements and indices: TL: 2.70-2.90 mm, HL: 0.71-0.74 mm, HW: 0.66-0.68 mm, SL: 0.44-0.47 mm, ML: 0.34-0.36 mm, FCD: 0.20-0.22 mm, PW: 0.33-0.35 mm, WL: 0.83-0.86 mm, CI: 90-93, MI: 46-49, SI: 63-67, FCI: 30-33, MSI: 39-42.

**Paratype females:** Five paratype females with the following measurements and indices: TL: 2.80-3.00 mm, HL: 0.74-0.75 mm, HW: 0.56-0.60 mm, SL: 0.41-0.43 mm, ML: 0.39-0.42 mm, FCD: 0.26-0.28 mm, PW: 0.38-0.39 mm, WL: 0.81-0.83 mm, CI: 78-80, MI: 51-53, SI: 70-72, FCI: 45-57, MSI: 46-48.

General shape of head and mesosoma as shown in Figs. 18-19. Head and antennal scape microreticulate sculpture. Head with narrowly spatulate hairs in cranium; posterior border of head with a row of erect hairs. Compound eye large. Ocelli relatively large, each with blackened callus.

Mesosoma in profile relatively more even dorsally, arching from anteriormost of mesonotum to posteriormost of metanotum (Fig. 19). Propodeal lamellae well developed. Dorsum of mesosoma with numerous, short erect hairs. Erect hairs sparsely present on dorsa of mesosoma, petiole, postpetiole and 1st gastral tergite.

Body yellow.

**Holotype:** Worker, NANTOU HSIEN: Chitou, 30.XI.1992, CCL.


**Type depository:** The holotype is preserved in the NTU, and paratypes in NTU and TARI.

**Distribution:** Taiwan.

**Etymology:** The species is named
from the Latin "hispidus", which means hair.

**Remarks:** This new species resembles *S. solifontis* Brown, but is distinguished from the latter by the lower number of hairs on the 1st gastral tergite, and much more developed propodeal lamellae. In female, mesosoma in profile is more even dorsally than that in *S. solifontis*.

**Strumigenys lacunosa** sp. nov. (Figs. 5, 11, 20-24)

**Holotype Worker:** TL: 2.8 mm, HL: 0.73 mm, HW: 0.58 mm, SL: 0.4 mm, ML: 0.35 mm, FCD: 0.18 mm, PW: 0.40 mm, WL: 0.82 mm, CI: 80, MI: 49, SI: 69, FCI: 32, MSI: 49.

Head as in Figs. 5 and 20, lacunose sculpture, with flocculent hairs on cranium; in full face view, dorsolateral borders of head posteriorly with 3 pairs of long flagellate hairs. Mandible hook-like at extreme apex, slender in full face view, external margin convex very shallowly and evenly, internal margin almost straight; preapical teeth of mandible prominently spiniform or reduced (Fig. 5); apical fork with 2 spiniform teeth, with an intercalary denticle (Fig. 22). Anterior clypeal margin transverse. Antenna 6-segmented, in ratio of 10: 1.5: 1: 1: 2.5: 7 in length from base; scape lacunose, with flagellate hairs; 2nd segment 1.2 X as long as wide; 3rd and 4th segments each shorter than broad; 5th segment 2 X as long as wide; apical segment 3.3 X as long as wide. Eye relatively small, 0.06 mm in maximum diameter, consisting of 13 ommatidia.

Dorsum of promesonotum with lacunose sculpture, and with flocculent hairs and 2 pairs of long flagellate hairs (Fig. 11). Mesopleuron and metapleuron smooth and shining in most part. Propodeum with lacunose sculpture. Propodeal teeth acute and well developed; lamellae weakly developed.

Petiole peduncle long and node weakly developed, with lacunose sculpture an with long flagellate hairs. Spongiform appendages of pedicel segments well developed.

First gastral tergite smooth and shining with numerous, long flagellate hairs

Body reddish brown.

**Paratype workers:** Forty-three paratype workers with the following measurements and indices: TL: 2.80-3.00 mm, HL: 0.70-0.75 mm, HW: 0.58-0.60 mm, SL: 0.40-0.41 mm, ML: 0.35-0.36 mm, FCD: 0.18-0.20 mm, PW: 0.39-0.41 mm, WL: 0.820.84 mm, CI: 77-86, MI: 47-51, SI: 67-71, FCI: 30-34, MSI: 46-49.

**Paratype females:** Two paratype females with the following measurements and indices: TL: 3.36-3.38 mm, HL: 0.78-0.82 mm, HW: 0.70-0.72 mm, SL: 0.45-0.46 mm, ML: 0.36-0.37 mm, FCD: 0.22-0.23 mm, PW: 0.50-0.51 mm, WL: 1.00-1.02 mm, CI: 85-92, MI: 44-47, SI: 63-66, FCI: 31-32, MSI: 50.

General shape of head and mesosoma as shown in Figs. 23-24. Head and antennal scape with lacunose sculpture, flocculent hairs on cranium; dorsolateral borders of head posteriorly with 3 pairs of long flagellate hairs in full face view. Compound eye large. Ocelli relatively large, each with blackened callus.

Mesosoma in profile moderately convex dorsally, arched from anteriormost of mesonotum to posteriormost of metanotum (Fig. 24). Propodeal teeth acute, well developed; lamellae weakly developed. Dorsum of mesosoma with flocculent hairs. Long flagellate hairs present on dorsa of mesosoma, petiole, postpetiole and 1st gastral tergite.

Body reddish brown.

**Holotype:** Worker. TAIPEI HSIEN: Chuchih, 26.V.1988, CCL

**Paratypes:** NANTOU HSIEN: Chitou, 1 female, 32 workers, 29.XI.1992, CCL; Lienhuachih, 1 worker, 31.X.1988, YCS. TAIPEI HSIEN: 1 female, 9 workers, 26.V.1988, CCL (from the same nest as the holotype). TAITUNG HSIEN: Li-
chia, 1 worker, 29.III.1995, CCL.

**Type depository:** The holotype is preserved in the NTU, and paratypes in NTU and TARI.

**Distribution:** Taiwan.

**Etymology:** The name of the new species refers to the lacunose sculptures on the head, mesosoma, petiole and postpetiole.

**Remarks:** This species is easily distinguished from the other known species of the genus by the lacunose sculpture and flocculent hairs on the head, mesosoma, petiole and postpetiole. In different nests this species had 2 mandible-types in the preapical tooth, either spiniform or reduced.

**Strumigenys lichiaensis sp. nov. (Figs. 25-29)**

**Holotype Worker:** TL: 2.10 mm, HL: 0.63 mm, HW: 0.49 mm, SL: 0.44 mm, ML: 0.31 mm, FCD: 0.18 mm, PW: 0.29 mm, WL: 0.66 mm, CI: 78, MI: 49, SI: 90, FCI: 37, MSI: 44.

Head as in Fig. 25, microreticulate sculpture, with short, narrowly spatulate hairs on cranium. Posterior and dorsolateral borders of head posteriorly with slightly clavate erect hairs. Mandible hook-like at extreme apex, slender in full face view; external margin very shallowly and evenly convex, internal margin almost straight. Preapical teeth of mandible prominently spiniform; apical fork with 2 spiniform teeth and 2 intercalary denticles (Fig. 27). Anterior clypeal margin transverse. Antenna 6-segmented, in ratio of 15: 2.7: 1: 1: 5: 11 in length from base: scape microreticulate, with a row of narrowly spatulate hairs; 2nd segment 1.2 X as long as wide; 3rd and 4th segments each shorter than broad; 5th segment 2.5 X as long as wide; apical segment 3.6 X as long as wide. Eye relatively small, 0.07 mm in maximum diameter, consisting of 13 ommatidia.

Dorsum of promesonotum microreticulate sculpture, with short, narrowly spatulate hairs. Stout slightly clavate hairs present on the dorsum of mesosoma (Fig. 26). Mesopleuron and metapleuron smooth and shining in most part. Propodeum microreticulate sculpture. Propodeal lamellae well developed.

Petiole peduncle long and node convex, microreticulate sculpture, with stout erect hairs. Spongiform appendages of pedicel segments well developed.

First gastric tergite smooth and shining with numerous, stout and slightly clavate erect hairs.

Body yellow.

**Paratype workers:** One paratype worker with the following measurements and indices: TL: 2.14 mm, HL: 0.64 mm, HW: 0.49 mm, SL: 0.45 mm, ML: 0.31 mm, FCD: 0.19 mm, PW: 0.29 mm, WL: 0.66 mm, CI: 77, MI: 48, SI: 92, FCI: 39, MSI: 44.

**Paratype female:** One paratype female with the following measurement and indices: TL: 2.78 mm, HL: 0.68 mm, HW: 0.54 mm, SL: 0.47 mm, ML: 0.32 mm, FCD: 0.23 mm, PW: 0.38 mm, WL: 0.82 mm, CI: 78, MI: 47, SI: 87, FCI: 43, MSI: 46.

General shape of head and mesosoma as shown in Figs. 28-29. Head and antennal scapes microreticulate sculpture. Head with narrowly spatulate hairs on cranium; posterior and dorsolateral borders of head posteriorly with numerous, slightly clavate erect hairs. Compound eye large. Ocelli relatively large, each with blackened callus.

Mesosoma in profile relatively more even dorsally, arching from the anteriormost of mesonotum to postriormost of metanotum (Fig. 29). Propodeal lamellae well developed. Dorsum of mesosoma with numerous, short erect hairs. Stout and slightly clavate erect hairs present on dorsa of mesosoma, petiole, postpetiole and 1st gastric tergite.

Body yellow.

**Holotype:** Worker. TAITUNG HSIEN: Lichia, 24.IV. 1995, CCL.
Paratypes: TAITUNG HSIEN: Lichia, 1 female, 1 worker, 24.IV. 1995, CCL (from the same nest as the holotype).

Type depository: The types are preserved in the NTU.

Distribution: Taiwan.

Etymology: Named after Lichia, the type locality of this new species.

Remarks: This new species resembles S. liukueiensis Terayama & Kubota from Taiwan. Both species are easily separated from the other Taiwanese congener by the presence of numerous, stout erect hairs on dorsa of mesosoma and 1st gastral tergite. It is distinguished from the latter by the relatively small size in worker (TL<2.2 mm in lichiaensis, TL>2.5 mm in liukueiensis) and the absence of erect hairs on the frontal area of head in worker and female.

Strumigenys liukueiensis Terayama & Kubota (Figs. 6, 12)


Distribution: Taiwan.

Remarks: The species resembles S. solifontis Brown from Taiwan and Japan. However, it is distinguished from solifontis (Figs. 8, 14) by the head and mesosoma with much more abundant, long erect hairs (Figs. 6, 12) and in female, the dorsal outline of mesosoma in profile relatively more even.

Strumigenys minutula Terayama & Kubota (Fig. 7)


Distribution: Taiwan, Japan.

Remarks: The species is easily distinguished from the other known species of the genus by its small size (TL 1.7-1.9 mm in worker caste) and relatively short and strongly arcuate mandibles (Fig. 7). This species is distributed in Taiwan and Lanyu (Orchid Is.).

Strumigenys nanzanensis sp. nov (Figs. 13, 30-34)

Holotype Worker: TL: 2.22 mm, HL: 0.60 mm, HW: 0.47 mm, SL: 0.38 mm, ML: 0.27 mm, FCD: 0.18 mm, PW: 0.32 mm, WL: 0.62 mm, CI: 78, MI: 45, SI: 81, FCI 38, MSI: 52.

Head as in Fig. 30, microreticulate sculpture, with short, narrowly spatulate hairs on cranium: in full face view, dorsolateral borders of head posteriorly with a pair of long flagellate hairs. Mandible hook-like at extreme apex, slender in full face view, external margin convex very shallowly and evenly, internal margin almost straight. Preapical teeth of mandible prominently spiniform; apical fork with 2 spiniform teeth and an intercalary denticle (Fig. 32). Anterior clypeal margin transverse. Antenna 6-segmented, in ratio of 15: 2.7: 1: 1: 5: 11 in length from base; scape microreticulate, with a row of narrowly spatulate hairs; 2nd segment 1.2 X as long as wide; 3rd and 4th segments each shorter than broad; 5th segment 2.5 X as long as wide; apical segment 3.6 X as long as wide. Eye relatively large, 0.08 mm in maximum diameter, consisting of 30 ommatidia.

Dorsum of promesonotum microreticulate sculpture, with numerous, short curved hairs and narrowly spatulate hairs (Fig. 13). Long flagellate hairs present on dorsum of mesosoma (Fig. 31). Mesopleuron and metapleuron smooth and shining in most part. Propodeum with
microreticulate sculpture. Propodeal lamellae well developed; posterodorsal corner rounded, not forming angle in lateral view.

Petiole peduncle long and node convex, microreticulate sculpture, with long flagellate hairs. Spongiform appendages of pedicel segments well developed.

First gastric tergite smooth and shining with numerous, long flagellate hairs.

Body yellow.

**Paratype workers:** Six paratype workers with the following measurements and indices: TL: 2.20-3.22 mm, HL: 0.60-0.63 mm, HW: 0.46-0.47 mm, SL: 0.37-0.38 mm, ML: 0.27-0.28 mm, FCD: 0.18-0.20 mm, PW: 0.30-0.32 mm, WL: 0.60-0.63 mm, CI: 73-78, MI: 43-47, SI: 79-83, FCI: 38-39, MSI: 49-52.

**Paratype females:** Three paratype females with the following measurements and indices: TL: 2.55-2.58 mm, HL: 0.63-0.64 mm, HW: 0.55-0.55 mm, SL: 0.40-0.41 mm, ML: 0.32-0.34 mm, FCD: 0.18-0.19 mm, PW: 0.37-0.40 mm, WL: 0.78-0.79 mm, CI: 86-87, MI: 51-53, SI: 72-74, FCI: 33-34, MSI: 47-51.

General shape of head and mesosoma as shown in Figs. 33-34. Head and antennal scape microreticulate sculpture. Head with narrowly spatulate hairs on cranium; in full face view, dorsolateral borders of head posteriorly with a pair of long flagellate hairs. Compound eye large. Ocelli relatively large, each with blackened calyx.

Mesosoma in profile more convex dorsally, arching from anterioriormost of mesonotum to posteriormost of metanotum (Fig. 34). Propodeal lamellae well developed. Dorsum of mesosoma with numerous, short curved hairs and narrowly spatulate hairs. Long flagellate hairs present on the dorsa of mesosoma. Petiole, postpetiole and 1st gastric tergite.

Body yellow.

**Holotype:** Worker. PINTUNG HSIEN: Nanzanshan. 17.XII.1992, CCL.

**Paratypes:** PINTUNG HSIEN: Nanzanshan, 3 females, 6 workers, 17.XII.1992, CCL (from the same nest as the holotype).

**Type depository:** The holotype is preserved in the NTU, and paratypes in NTU and TARI.

**Distribution:** Taiwan.

**Etymology:** Named after Nanzanshan, the type locality.

**Remarks:** This new species resembles *S. minutula* Terayama & Kubota from Taiwan and Japan. However, it is distinguished from the latter by the mesosoma with much more abundant, short narrowly spatulate hairs and the almost straight mandibular shafts. In female, dorsal outline of mesosoma in profile is more strongly convex than that of *S. minutula*.

**Strumigenys solifontis** Brown (Figs. 8, 14)


Distribution: Taiwan, Japan.

Remarks: As S. formosensis, this species is a pleistoendemic species of the genus in Taiwan and widely distributed on the island.

**Strumigenys trada** sp. nov. (Figs. 35-37)

Holotype Worker: TL: 2.27 mm, HL: 0.66 mm, HW: 0.46 mm, SL: 0.42 mm, ML: 0.31 mm, FCD: 0.20 mm, PW: 0.28 mm, WL: 0.66 mm, CI: 70, MI: 47, SI: 91, FCI: 43, MSI: 42.

Head as in Fig. 35, microreticulate sculpture, with short, narrowly spicate hairs on cranium; in full face view, dorsolateral borders of head posteriorly with a pair of long flagellate hairs in full face view. Mandible hook-like at extreme apex, slender in full face view, external margin very shallowly and evenly convex; internal margin almost straight. Preapical teeth of mandible prominently spiniform; apical fork with 2 spiniform teeth and 2 intercalary denticles (Fig. 37). Anterior clypeal margin transverse. Antenna 6-segmented, in ratio of 15: 3.2: 1: 4.8: 11 in length from base; scape microreticulate, with a row of narrowly spicate hairs; 2nd segment 2 X as long as wide; 3rd and 4th segments each shorter than broad; 5th segment 2.8 X as long as wide; apical segment 5 X as long as wide. Eye relatively small, 0.04 mm in maximum diameter, consisting of 6 ommatidia.

Dorsum of promesonotum smooth and shining in most part and with sparse, short curved hairs and narrowly spicate hairs. Two pairs of long flagellate hairs present on dorsum of pronotum (Fig. 36). Mesopleuron, metapleuron and mesonotum smooth and shining in most part. Propodeal lamellae well developed; posterior border straight and posterodorsal corner dull angulate in lateral view.

Petiole peduncle long and node convex, microreticulate sculpture, with erect hairs. Spongiform appendages of pedicel segments well developed.

First gastral tergite smooth and shining with more than 5 pairs of erect hairs.

Body yellowish brown.

Holotype: Worker, TAIPEI HSIEN, Wulai, 2.X.1992. CCL.

Type depository: The holotype is preserved in the NTU.

Distribution: Taiwan.

Etymology: The species is named from the Latin “trada”, which means change.

Remarks: This new species is closely related to S. godeffroyi Mayr, but is separable from it by the following characters: (1) smaller size (TL > 2.35 mm in godeffroyi, TL > 2.22 mm in trada); (2) pronotum, mesonotum and propodeum smooth and shining in most part (microreticulate in godeffroyi); (3) 1st gastral tergite without long flagellate hairs, erect hairs present (with about 7 pairs of hairs in godeffroyi); (4) eye relatively small and consisting of 6 ommatidia (more than 10 ommatidia in godeffroyi). Only 1 specimen was collected from Wulai in
northern Taiwan.

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References


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台灣產瘤顎蚜屬（膜翅目：蚜科）

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摘 要

瘤顎蚜屬（Strumigenys）隸膜翅目、蚜科、家産亞科、針刺家蚜族，全世界已知種類167種。本文修訂台灣産種類共計10種，其中包括5種新種和1種新記錄種：S. formosensis Forel, S. godeffroyi Mayr（新記錄），S. hispida sp. nov., S. lacunosa sp. nov., S. lichiaensis sp. nov., S. liukueiensis Terayama & Kubota, S. minutula Terayama & Kubota, S. nanzanensis sp. nov., S. solifontis Brown及S. trada sp. nov.。文中並附瘤顎蚜后分種检索表。

關鍵詞：膜翅目、蚜科、針刺家蚜族、瘤顎蚜屬、台灣。