



Three new species of the ant genus *Leptanilla* (Hymenoptera: Formicidae) from China, with a key to the world species

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Abstract

The world members of the ant genus *Leptanilla* are reviewed based on the morphological characters of the worker caste. Three new species, *Leptanilla qinlingensis* sp.n., *L. dehongensis* sp.n., and *L. beijingensis* sp.n., are described from China based on the worker caste. The new species *L. beijingensis* sp.n. was once identified as *L. taiwanensis* OGATA & al., 1995 by mistake in 2017. A key based on the worker caste is provided to the 38 known species of the world.

Key words: Leptanillinae, taxonomy, species description, species list, worker caste, ecological notes.

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Introduction

Leptanilla species are small to minute and blind ants known from the tropical and warm temperate regions of Asia, Europe, Africa and Oceania. The ant genus *Leptanilla* was established by EMERY (1870) based on the type species, *L. revelierii*, as a member of the subfamily Dorylinae, and then transferred to the subfamily Myrmicinae (EMERY 1877). EMERY (1910) later created a tribe, Leptanillini, within Dorylinae to hold the genus. At last, WHEELER (1923) elevated the tribe to subfamily rank (BOLTON 1990). Since the establishment of the genus, myrmecologists have been making continuous contributions to the taxonomy and biology of the genus. Five species were described from the Palearctic countries including Morocco (EMERY 1899), Algeria (FOREL 1903), Italy (EMERY 1915), Tunisia (SANTSCHI 1915), and Japan (YASUMATSU 1960), three species were described from the Oriental countries like Singapore (FOREL 1901), Malaysia (FOREL 1913) and India (KUTTER 1948), and one species was described from the Australasian country Australia (WHEELER 1932). BARONI URBANI (1977) made a great contribution and described eight species from a Palearctic country (4 species for

Japan), Oriental countries (species for Nepal, Sri Lanka, and Thailand, respectively), and an Afrotropical country (one species for Ghana). Afterwards, another seven species were described from Palearctic countries including Israel (KUGLER 1987), Spain (BARANDICA & al. 1994, LÓPEZ & al. 1994), Morocco (LÓPEZ & al. 1994), Italy (MEI 1995), and Japan (TERAYAMA 2013), and the other five species were described from the Oriental countries embracing Indonesia (YAMANE & ITO 2001), India (BHARTI & KUMAR 2012, SAROJ & al. 2022), and Singapore (WONG & GUÉNARD 2016). PÉREZ-GONZÁLES & al. (2020) and GRIEBENOW (2021) revised part species of the genus.

For the species known only from the male caste, four species were described from the Palearctic country Tunisia (SANTSCHI 1907, 1908). Then, three species were described from the Oriental countries including Indonesia (WHEELER & WHEELER 1930) and Philippines (PETERSEN 1968), and one species was described from the Australasian country Palau (SMITH 1953). Afterwards, another four species were described from the Palearctic countries including Uzbekistan (DLUSSKY 1969), United

Arab Emirates and Yemen (BARONI URBANI 1977), and Israel (KUGLER 1987). Finally, two species were described from the Afrotropical countries Nigeria and South Africa (BARONI URBANI 1977).

From China, TANG & al. (1992) reported *Leptanillinae* for the first time and described the first species, *Leptanilla hunanensis* TANG & al., 1992, from Hunan Province. Then, OGATA & al. (1995) described *L. taiwanensis* OGATA & al., 1995 from Taiwan Province. Afterwards, two species, *L. yunnanensis* XU, 2002 and *L. kunmingensis* XU & ZHANG, 2002, were described from Yunnan Province (XU 2002a, XU & ZHANG 2002). Finally, LEONG & al. (2018) described *L. macauensis* LEONG & al., 2018 from Macau Special Administrative Region.

Before this study, *Leptanilla* included 49 valid species world-wide, of which 35 species have been known from the worker caste and 14 species have been known only from the male caste (BOLTON 2023). In this study, we reviewed the 35 species known from the worker caste and described three new species from China. A key to the 38 species of *Leptanilla* based on the worker caste is provided including eight species known from China, while the 14 species only known from the males are excluded from the key because they are only known from the males.

Material and methods

The *Leptanilla* species of the world are reviewed based on the specimens from China and the type and non-type specimen images available on ANTWEB (2023) and ANTWIKI (2023) and their distribution information on ANTMAPS (2023). The type specimens of *L. beijingensis* sp.n. were collected using subterranean pitfall traps buried deeply in the soil layer about 30 - 55 cm below the ground (MAN & al. 2017). The type specimens of *L. dehongensis* sp.n. were collected using plot-sampling and search methods (XU 2002b, XU & al. 2011). The type specimens of *L. qinlingensis* sp.n. were collected by hand-picking. The type specimens were observed under a Shunyu SDPTOP SZ (Hangzhou, China) SZ stereomicroscope with an ocular micrometer. Examined type specimens of *L. kunmingensis*, *L. yunnanensis*, and all the new species were deposited in the Insect Collection, Southwest Forestry University (SWFU), Kunming, Yunnan Province, China. One paratype worker of each new species will be deposited in the Insect Collection, Guangxi Normal University, Guilin, China. Further, another paratype worker of each new species will be deposited in the Insect Collection, Institute of Zoology, Chinese Academy of Sciences, Beijing, China. Digital images were obtained using a Liyang (Chengdu, China) Super Resolution System LY-WN-YH. Stacking was done using the software Zerene Stacker version 1.04 (zerenesystems.com/cms/home). The key was prepared using the examined specimens, images available on ANTWEB (2023) and ANTWIKI (2023), and original descriptions of the species.

Standard measurements and indices used in the paper are as defined in BOLTON (1983) except for PL, PH, DPW, PPL, PPH, and PPW:

- CI Cephalic Index = $HW \times 100 / HL$.
- DPW Dorsal Petiole Width: maximum width of petiole in dorsal view.
- HL Head Length: straight-line length of head in perfect full-face view, measured from the mid-point of the anterior clypeal margin to the midpoint of the posterior margin. In species where one or both of these margins are concave, the measurement is taken from the mid-point of a transverse line that spans the apices of the projecting portions.
- HW Head Width: maximum width of head in full-face view, excluding the eyes.
- PH Petiole Height: height of petiole measured in lateral view from the apex of the ventral (subpetiolar) process vertically to a line intersecting the dorsal-most point of the node.
- PL Petiole Length: length of petiole measured in lateral view from the anterior articulation to the posterior articulation of petiole.
- PPL Postpetiole Length: length of postpetiole measured in lateral view from the anterior articulation to the posterior articulation of the postpetiole.
- PPH Postpetiole Height: height of postpetiole measured in lateral view from the apex of the ventral (subpostpetiolar) process vertically to a line intersecting the dorsal-most point of the node.
- PPW Postpetiole Width: maximum width of postpetiole in dorsal view.
- PW Pronotal Width: maximum width of pronotum measured in dorsal view.
- SI Scape Index = $SL \times 100 / HW$.
- SL Scape Length: straight-line length of the antennal scape, excluding the basal constriction or neck.
- TL Total Length: total outstretched length of the individual, from the mandibular apex to the gastral apex.
- WL Weber's Length (= AL, alitrunk length): diagonal length of the mesosoma in lateral view from the point at which the pronotum meets the cervical shield to the posterior base of the metapleuron.

All measurements are expressed in millimeters.

List of world *Leptanilla* species

List of the 38 *Leptanilla* species known from worker caste

- L. beijingensis* sp.n. [Palearctic Region: China: Beijing (type locality)]
- L. besucheti* BARONI URBANI, 1977 [Oriental Region: Sri Lanka (type locality)]
- L. boltoni* BARONI URBANI, 1977 [Afrotropical Region: Ghana (type locality)]
- L. buddhista* BARONI URBANI, 1977 [Oriental Region: Nepal (type locality)]
- L. butteli* FOREL, 1913 [Oriental Region: Malaysia: Selangor (type locality)]
- L. charonea* BARANDICA & al., 1994 [Palearctic Region: Iberian Peninsula, Spain (type locality)]

L. clypeata YAMANE & ITO, 2001 [Oriental Region: Indonesia: Java (type locality)]

L. dehongensis sp.n. [Oriental Region: China: Yunnan (type locality)]

L. doderoi EMERY, 1915 [Palearctic Region: Italy (type locality)]

L. escheri (KUTTER, 1948) [Oriental Region: India (type locality)]

L. havilandi FOREL, 1901 [Oriental Region: Singapore (type locality)]

L. hunanensis TANG & al., 1992 [Oriental Region: China: Hunan (type locality), Hubei]

L. hypodracos WONG & GUÉNARD, 2016 [Oriental Region: Singapore (type locality)]

L. japonica BARONI URBANI, 1977 [Palearctic Region: Japan (type locality)]

L. judaica KUGLER, 1987 [Palearctic Region: Israel (type locality)]

L. kebunraya YAMANE & ITO, 2001 [Oriental Region: Indonesia: Java (type locality)]

L. kubotai BARONI URBANI, 1977 [Palearctic Region: Japan (type locality)]

L. kunmingensis XU & ZHANG, 2002 [Oriental Region: China: Yunnan (type locality)]

L. lamellata BHARTI & KUMAR, 2012 [Oriental Region: India (type locality)]

L. macauensis LEONG & al., 2018 [Oriental Region: China: Macau (type locality)]

L. morimotoi YASUMATSU, 1960 [Palearctic Region: Japan (type locality)]

L. nana SANTSCHI, 1915 [Palearctic Region: Tunisia (type locality)]

L. oceanica BARONI URBANI, 1977 [Palearctic Region: Japan: Ogasawara Islands (type locality)]

L. okinawensis TERAYAMA, 2013 [Palearctic Region: Japan: Okinawa (type locality)]

L. ortunoi LÓPEZ & al., 1994 [Palearctic Region: Spain (type locality)]

L. plutonia LÓPEZ & al., 1994 [Palearctic Region: Iberian Peninsula, Spain (type locality)]

L. poggii MEI, 1995 [Palearctic Region: Italy (type locality)]

L. qinlingensis sp.n. [Palearctic: China: Shaanxi (type locality)]

L. revelierii EMERY, 1870 [Palearctic Region: France (type locality), Iberian Peninsula, Italy, Malta, Morocco, Portugal, Spain]

L. swani WHEELER, 1932 [Australasian Region: Australia (type locality), New Guinea]

L. taiwanensis OGATA & al., 1995 [Oriental Region: China: Taiwan (type locality), Hunan]

L. tanakai BARONI URBANI, 1977 [Palearctic Region: Japan (type locality)]

L. thai BARONI URBANI, 1977 [Oriental Region: Thailand (type locality)]

L. theryi FOREL, 1903 [Palearctic Region: Algeria (type locality)]

L. ujjalai SAROJ & al., 2022 [Oriental Region: India (type locality)]

L. vaucheri EMERY, 1899 [Palearctic Region: Morocco (type locality)]

L. yunnanensis XU, 2002 [Oriental Region: China: Yunnan (type locality)]

L. zaballosi BARANDICA & al., 1994 [Palearctic Region: Iberian Peninsula, Spain (type locality)]

List of the 14 *Leptanilla* species known only from male caste

L. africana BARONI URBANI, 1977 [Afrotropical Region: Nigeria (type locality)]

L. alexandri DLUSSKY, 1969 [Palearctic Region: Uzbekistan (type locality)]

L. astylina PETERSEN, 1968 [Oriental Region: Philippines (type locality)]

L. australis BARONI URBANI, 1977 [Afrotropical Region: South Africa (type locality)]

L. bifurcata KUGLER, 1987 [Palearctic Region: Israel (type locality)]

L. exigua SANTSCHI, 1908 [Palearctic Region: Tunisia (type locality)]

L. islamica BARONI URBANI, 1977 [Palearctic Region: Yemen (type locality), United Arab Emirates]

L. israelis KUGLER, 1987 [Palearctic Region: Israel (type locality)]

L. javana (WHEELER & WHEELER, 1930) [Oriental Region: Indonesia (type locality)]

L. minuscula SANTSCHI, 1907 [Palearctic Region: Tunisia (type locality)]

L. palauensis (SMITH, 1953) [Australasian Region: Palau (type locality)]

L. santschii WHEELER & WHEELER, 1930 [Oriental Region: Indonesia (type locality)]

L. tanit SANTSCHI, 1907 [Palearctic Region: Tunisia (type locality)]

L. tenuis SANTSCHI, 1907 [Palearctic Region: Tunisia (type locality)]

Descriptions of new species

Leptanilla beijingensis sp.n. (Fig. 1)

Type materials: Holotype worker: **China:** Beijing City, Yanqing County, Badaling Town, Xibozi Village, 40° 22' 26" N, 115° 58' 18" E, 550 m above sea level, from an underground trap in deciduous broadleaf forest, 15.X.2015, leg. Pei Man, No. A15-2355. Paratypes: 20 workers, same data as holotype.

Description of holotype worker: TL 1.60, HL 0.29, HW 0.25, CI 86, SL 0.16, SI 64, PW 0.18, WL 0.40, PL 0.12, PH 0.12, DPW 0.10, PPL 0.12, PPH 0.14, PPW 0.10.

In full-face view, head longer than broad, roughly rectangular, posterior margin weakly concave, posterolateral corners narrowly rounded, lateral margins moderately convex. Mandibles elongate triangular, masticatory margin about 2 / 3 of length of basal margin, with three teeth, the apical one long and sharp; the basal one shorter, nearly

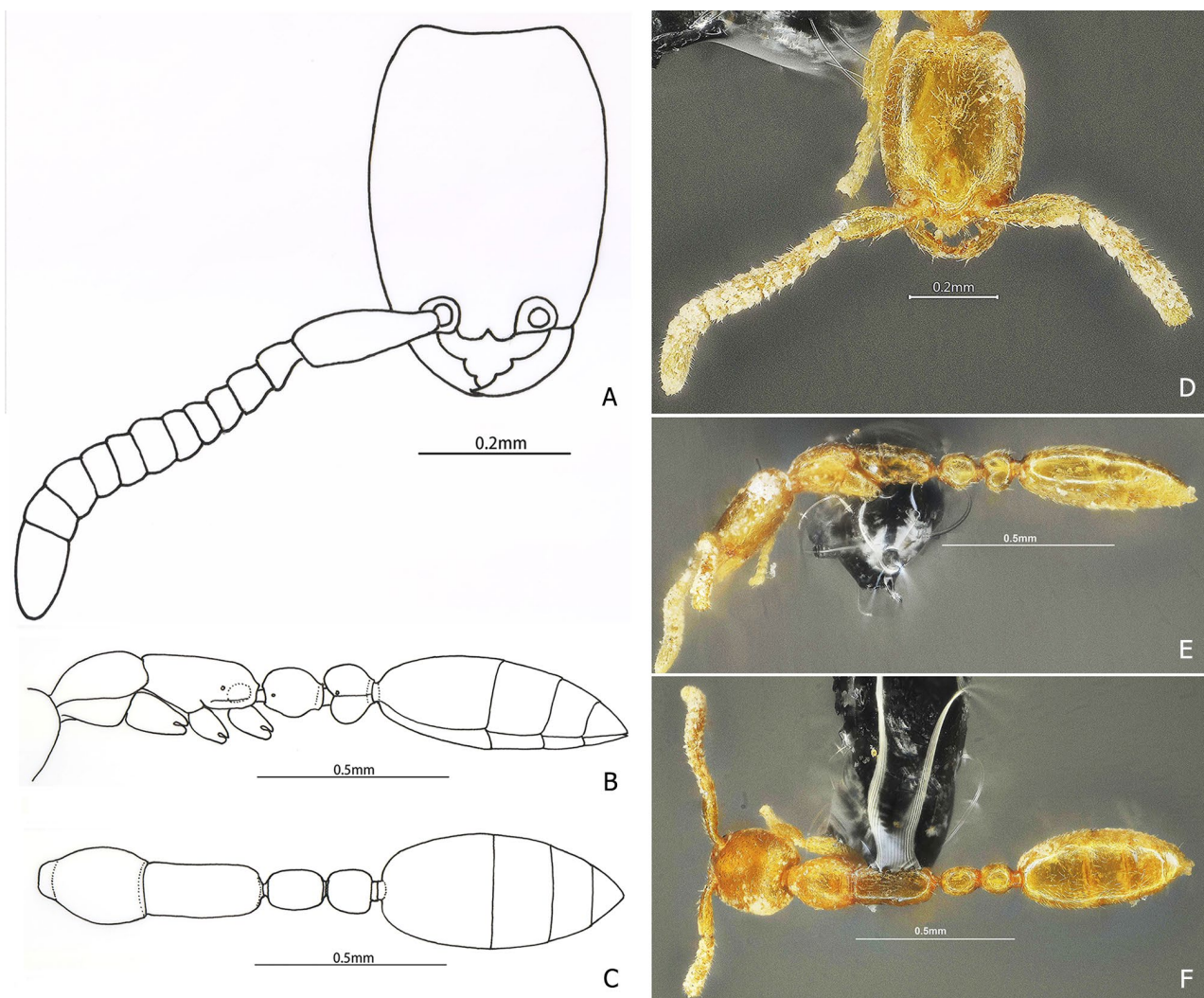


Fig. 1: *Leptanilla beijingensis* sp.n. holotype worker. (A, D) head in full-face view; (B, E) body in lateral view; (C, F) body in dorsal view. (A - C) illustrations drawn from images, photos by Zheng-Hui Xu; (D - F) images, photos by Zheng-Hui Xu.

triangular; the middle one minute and shorter than the basal one, located approximately at middle of the apical and basal one. Median lobe of clypeus weakly but broadly protruding anteriorly and surpassing antennal sockets, anterior margin moderately convex with a narrow deep notch in the center. Antennae 12-segmented, apex of scape reaching $2/5$ of distance from antennal socket to posterolateral corner of head, flagella obviously incrassate toward apex.

In lateral view, dorsal and ventral margins of head slightly convex. Mesosoma moderately constricted at promesonotal suture, the suture weakly impressed on dorsum. Pronotum moderately convex. Dorsal of mesonotum and propodeum slightly convex and weakly sloping down posteriorly, metanotal groove absent, posterodorsal corner of propodeum very broadly rounded; declivity steeply sloping and very short, nearly straight, about $1/4$ of length of dorsum; spiracle circular and located at about midpoint of propodeal side. Metapleural bulla large and distinct, roughly elliptical. Petiolar node widening posteriorly, dorsum moderately convex, anterodorsal corner broadly

rounded, posterodorsal corner indistinct; ventral margin strongly convex. Postpetiole slightly higher than petiole, dorsum moderately convex, posterodorsal corner broadly rounded and higher than anterodorsal corner, the latter narrowly rounded; sternite strongly convex and rounded apically, strongly inclining anteriorly. Gaster strongly elongate and roughly elliptical, first segment occupying about $2/3$ of length of the gaster, apex with sting.

In dorsal view, pronotum broadest, lateral margins moderately convex, humeral corners indistinct. Promesonotal suture moderately constricting and weakly impressing. Mesonotum nearly square, lateral margins weakly convex. Metanotal groove absent. Propodeum longer than broad, roughly trapezoidal and narrowing posteriorly, lateral margins weakly convex, posterolateral corners broadly rounded. Petiolar node longer than broad and roughly elliptical, about 1.3 times as long as broad, slightly narrowing posteriorly, lateral margins moderately convex. Postpetiolar node as broad as long, about as broad as petiolar node, roughly trapezoidal and widening posteriorly, anterior and posterior margins nearly straight,

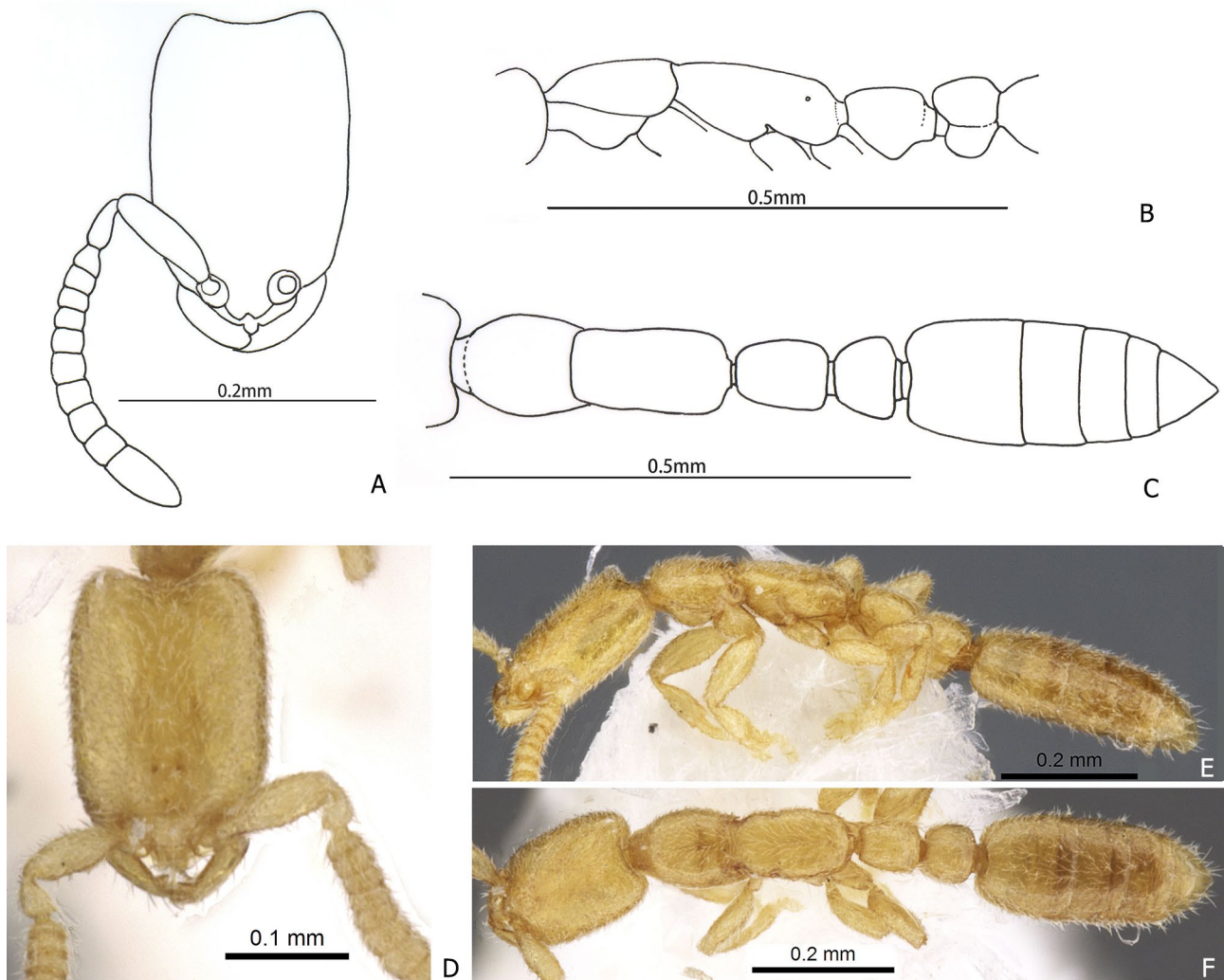


Fig. 2: *Leptanilla oceanica* worker. (A, D) head in full-face view; (B, E) body in lateral view; (C, F) body in dorsal view. (A - C) illustrations redrawn from BARONI URBANI (1977); (D - F) paratype worker images from ANTWEB (2023), CASENT 0911452, photos by Will Ericson.

lateral margins moderately convex. Gaster elongate and roughly elliptical.

Body surface smooth and shiny. Body dorsum with dense decumbent pubescence, without subdecumbent hairs. Scapes with sparse subdecumbent hairs and dense decumbent pubescence. Tibiae with dense decumbent pubescence. Body color yellow, antennae and legs light yellow.

Description of paratype workers: TL 1.40 - 1.80, HL 0.30 - 0.37, HW 0.25 - 0.32, CI 83 - 86, SL 0.15 - 0.16, SI 50 - 64, PW 0.15 - 0.19, WL 0.40 - 0.54, PL 0.10 - 0.15, PH 0.10 - 0.12, DPW 0.08 - 0.12, PPL 0.10 - 0.11, PPH 0.12 - 0.13, PPW 0.08 - 0.13 (20 individuals measured). Like holotype worker, but body size slightly variable, body color light yellow to yellow.

Comparative notes: The new species is similar to *Leptanilla oceanica* BARONI URBANI, 1977 (Fig. 2), but in the new species, in full-face view, median lobe of clypeus broadly protruding anteriorly, anterior margin narrowly and deeply notched in the center, posterior margin of head slightly concave; in dorsal view, petiolar node nearly

rectangular and not widening posteriorly, anterior margin strongly convex. While in *L. oceanica*, in full-face view, median lobe of clypeus narrowly protruding anteriorly, anterior margin widely and shallowly notched in the center, posterior margin of head slightly concave; in dorsal view, petiolar node trapezoidal and distinctly widening posteriorly, anterior margin slightly concave.

Etymology: The specific epithet refers to the type locality, Beijing City.

Taxonomic notes: The new species was once identified as *Leptanilla taiwanensis* OGATA & al., 1995 by MAN & al. (2017) by mistake. After a careful study, we found it to be a new species, *L. beijingensis* sp.n.

Ecological notes: Both the holotype and 20 paratype workers of the new species were collected using subterranean pitfall traps buried deeply in the soil layer about 30 - 55 cm below the ground in 2015. Besides, by using the subterranean pitfall traps, a total of 116 workers of the new species were collected from nine sampling plots in Beijing. Sampling plots 2 to 4 are situated in the northwest subur-

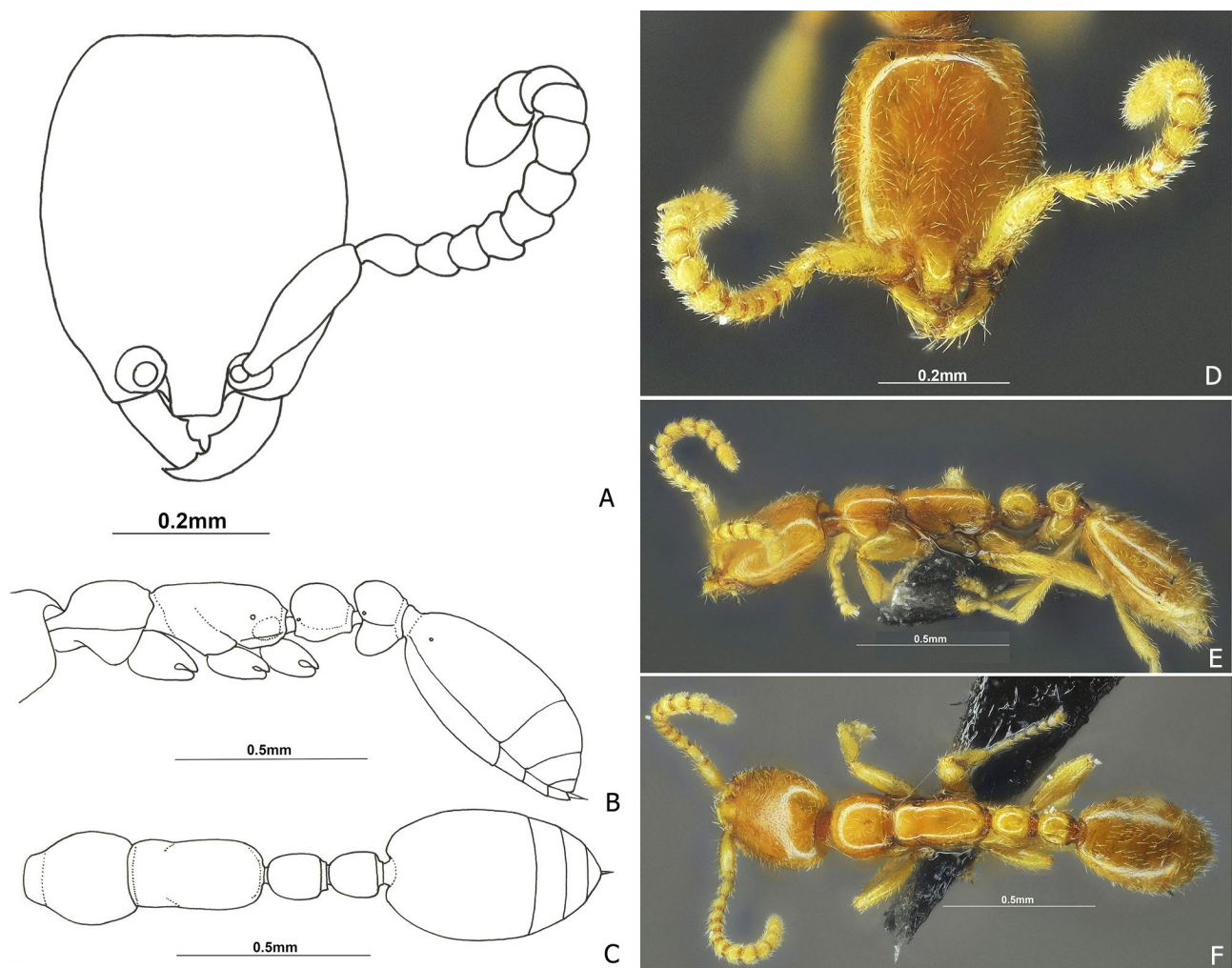


Fig. 3: *Leptanilla dehongensis* sp.n. holotype worker. (A, D) head in full-face view; (B, E) body in lateral view; (C, F) body in dorsal view. (A - C) illustrations drawn from images, photos by Yu-Han Qian; (D - F) images, photos by Yu-Han Qian.

ban zone of Beijing, where the habitat is a mountainous forested area close to a road and surrounded by farmland. Plots 5 to 10 are located in urban parks and green belts along roads, and are significantly disturbed by human activities. Geographic coordinates are 39° 52' 13" N - 40° 22' 26" N, 115° 52' 5" E - 116° 18' 37" E, and the elevation is 47 - 550 m above sea level (MAN & al. 2017). The new species is relatively commonly living in the soil in deciduous broadleaf forest in the mountainous area of Badaling, the northwest suburban zone of Beijing and in the urban parks and green belts along roads that are significantly disturbed by human activities in the City of Beijing with altitudes of 47 - 550 m. The habitat of the new species has a temperate climate and belongs to the Palearctic region in northern China.

***Leptanilla dehongensis* sp.n. (Fig. 3)**

Type material: Holotype worker: **China:** Yunnan Province, Dehong Dai and Jingpo Autonomous Prefecture, Longchuan County, Husa Town, Baoping Village, 24° 22' 56" N, 97° 50' 01" E, 1537 m above sea level, from a soil sample in a monsoon evergreen broadleaf forest,

23.III.2015, leg. Ying Zheng, No. A15-548. Paratypes: 3 workers, same data as holotype; 9 workers, from a nest in soil containing 48 workers, with same locality and date as holotype, No. A15-547; 9 workers, from a soil sample containing 16 workers, same locality and date as holotype, No. A15-549.

Description of holotype worker: TL 1.70, HL 0.50, HW 0.38, CI 76, SL 0.18, SI 47, PW 0.23, WL 0.57, PL 0.15, PH 0.15, DPW 0.12, PPL 0.11, PPH 0.18, PPW 0.13.

In full-face view, head longer than broad, roughly trapezoidal and weakly narrowing anteriorly, posterior margin almost straight, posterolateral corners narrowly rounded, lateral margins moderately convex. Mandibles elongate triangular, basal margin about 4 / 5 of length of masticatory margin; masticatory margin with three teeth, the apical one long and sharp, the middle one relatively shorter and acute, located in the middle of the apical and basal ones; the basal one shortest and nearly triangular. Median lobe of clypeus strongly protruding anteriorly and nearly square, significantly surpassing antennal sockets, dorsum longitudinally convex, anterior margin straight, anterolateral corners rightly angled. Antennae 12-seg-

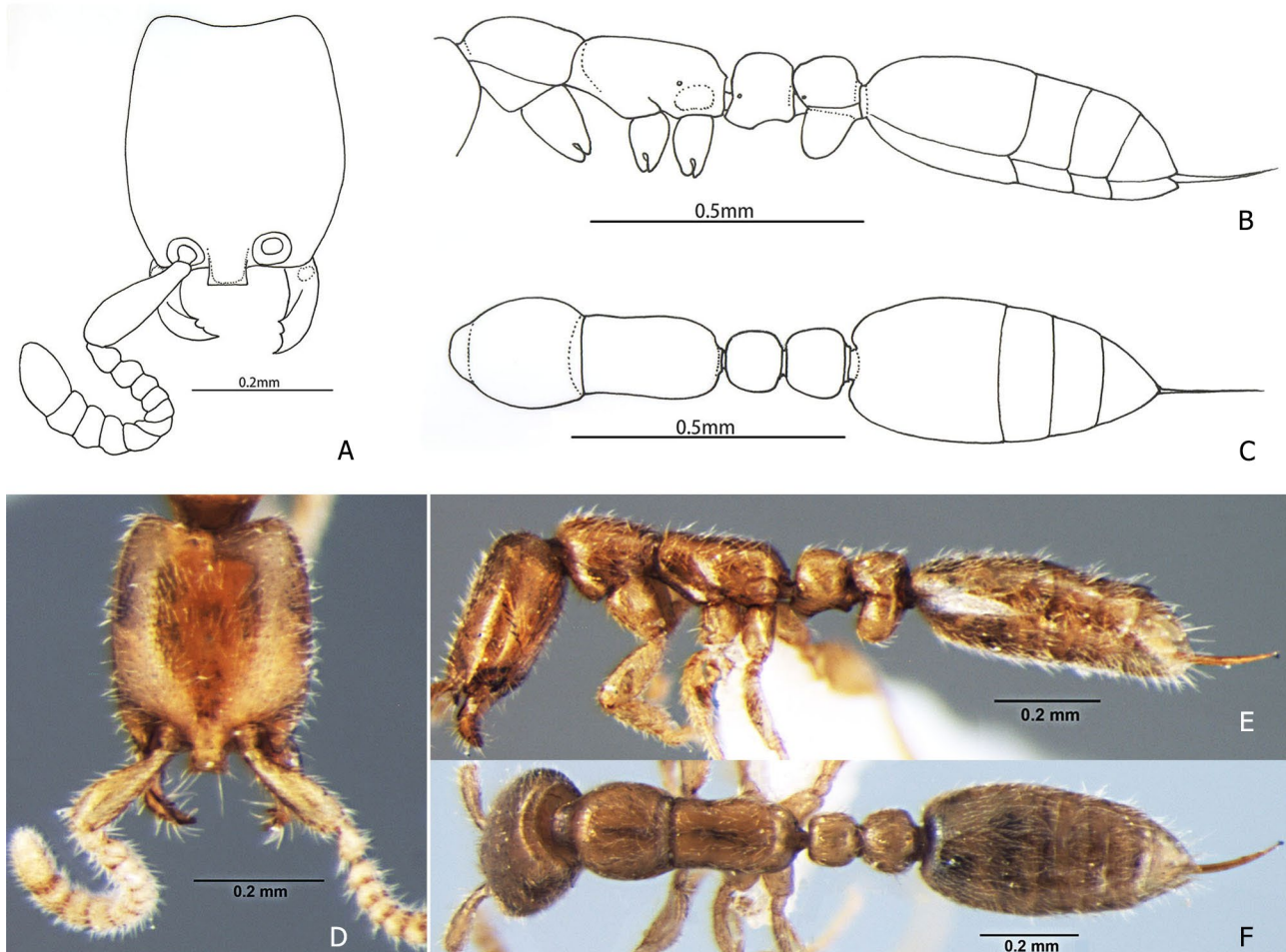


Fig. 4: *Leptanilla lamellata* holotype worker. (A, D) head in full-face view; (B, E) body in lateral view; (C, F) body in dorsal view. (A - C) illustrations drawn from images, from ANTWEB (2023); (D - F) images from ANTWEB (2023), ANTWEB 1008004, photos by Himender Bharti.

mented, apex of scape reaching $1/2$ of the distance from antennal socket to posterolateral corner of head, flagella weakly incrassate toward apex.

In lateral view, dorsal and ventral margins of head slightly convex. Mesosoma strongly constricted at promesonotal suture, the suture moderately impressed on dorsum. Pronotum moderately convex. Dorsa of mesonotum and propodeum straight and weakly sloping down posteriorly, metanotal groove absent. Posterodorsal corner of propodeum broadly rounded; declivity steeply sloping and short, about $1/4$ of length of dorsum; spiracles circular and locating at about midpoint of side. Metapleural bulla large and distinct, roughly elliptical. Dorsum of petiolar node strongly convex and nearly semicircular, weakly inclining anteriorly, anterodorsal corner broadly rounded, posterodorsal corner indistinct; ventral margin strongly convex, anteroventral corner bluntly angled. Postpetiole distinctly higher than petiole, dorsum strongly convex and strongly inclining anteriorly, anterodorsal corner narrowly rounded, posterodorsal corner indistinct; sternite large and nearly trapezoidal, strongly inclining anteriorly, ventral margin strongly convex and rounded. Gaster strongly

elongate and roughly elliptical, first segment occupying about $2/3$ of length of the gaster, apex with strong sting.

In dorsal view, pronotum broadest, lateral margins moderately convex, humeral corners broadly rounded. Promesonotal suture strongly constricted and moderately impressed. Mesonotum short and widening posteriorly, lateral margins weakly convex. Metanotal groove absent. Propodeum longer than broad, nearly rectangular, lateral margins weakly convex, posterolateral corners broadly rounded. Petiolar node longer than broad, about 1.2 times as long as broad, nearly trapezoidal and weakly widening posteriorly, anterior margin strongly convex, lateral margins moderately convex, posterior margin weakly convex. Postpetiolar node slightly broader than petiolar node, about as broad as long, roughly trapezoidal and widening posteriorly, anterior margin strongly convex, lateral margins moderately convex, posterior margin straight. Gaster strongly elongate and roughly elliptical.

Body surface smooth and shiny. Body dorsum with sparse subdecumbent hairs and abundant decumbent pubescence. Scapes with abundant subdecumbent hairs and dense decumbent pubescence. Tibiae with dense

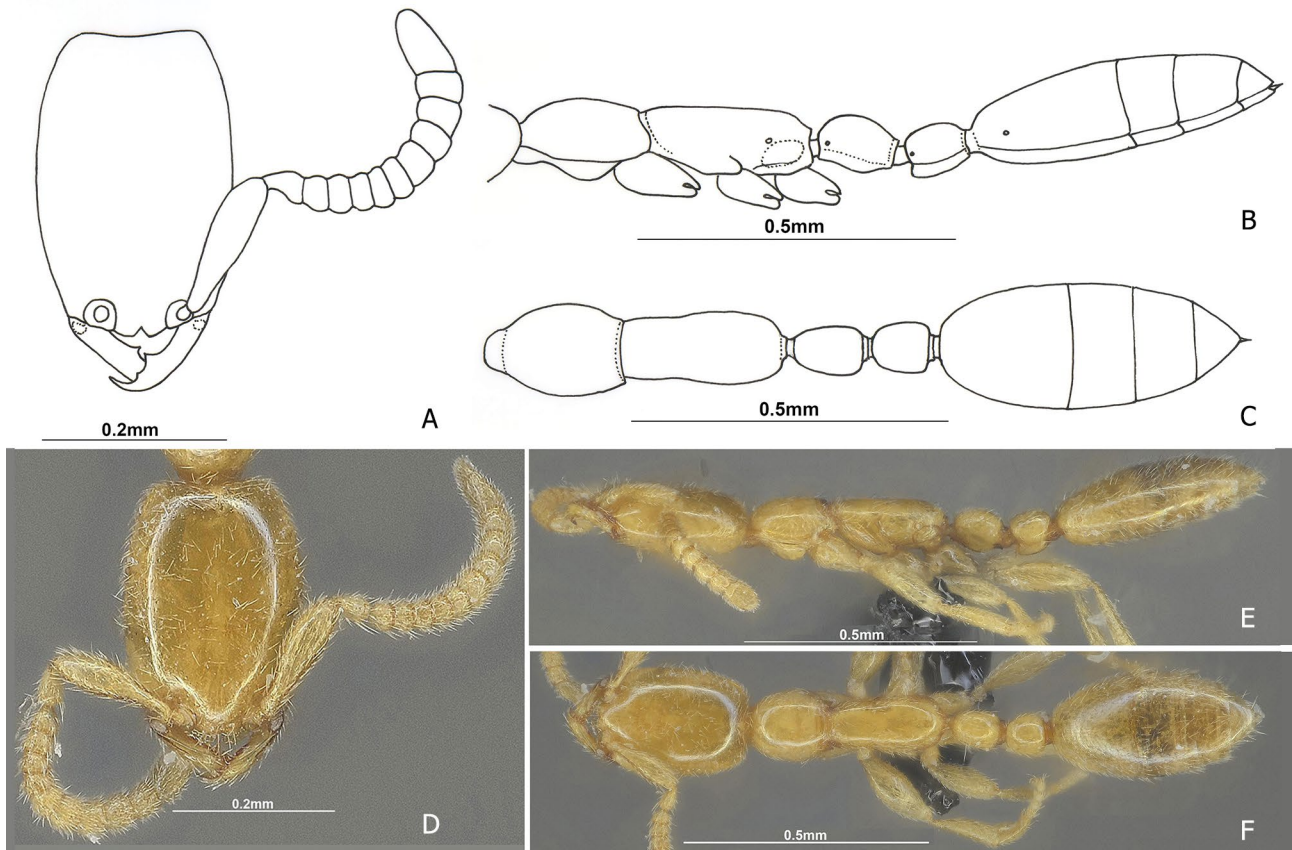


Fig. 5: *Leptanilla qinlingensis* sp.n. holotype worker. (A, D) head in full-face view; (B, E) body in lateral view; (C, F) body in dorsal view. (A - C) illustrations drawn from images, photos by Yu-Han QIAN; (D - F) images, photos by Yu-Han QIAN.

decumbent pubescence. Body color brownish yellow, antennae and legs yellow.

Description of paratype workers: TL 1.60 - 2.30, HL 0.40 - 0.54, HW 0.30 - 0.42, CI 75 - 78, SL 0.15 - 0.23, SI 47 - 67, PW 0.20 - 0.29, WL 0.45 - 0.67, PL 0.10 - 0.16, PH 0.10 - 0.15, DPW 0.10 - 0.14, PPL 0.10 - 0.12, PPH 0.15 - 0.22, PPW 0.10 - 0.14 (21 individuals measured). As holotype worker, but body size weakly variable, body color yellow to yellowish brown.

Comparative notes: The new species is similar to *Leptanilla lamellata* BHARTI & KUMAR, 2012 (Fig. 4), but in the new species, in full-face view, posterior head margin straight; in lateral view, dorsum of petiolar node strongly convex, sternite erect, dorsum of postpetiolar node strongly convex; in dorsal view, petiolar node as broad as long and nearly trapezoidal; body color lighter yellow. While in *L. lamellata*, in full-face view, posterior head margin obviously concave; in lateral view, dorsum of petiolar node weakly convex, sternite inclining anteriorly and protruding, dorsum of postpetiolar node weakly convex; in dorsal view, petiolar node slightly broader than long and nearly square; body color brownish yellow.

Etymology: The specific epithet refers to the type locality, Dehong Dai and Jingpo Autonomous Prefecture in Yunnan Province.

Ecological notes: A nest containing 48 workers including 9 paratype workers of the new species was found

in the soil in monsoon evergreen broadleaf forest with an altitude of 1537 m above sea level from southern Huangdun Mountains in southwestern China. Besides, the holotype worker and 28 paratype workers were collected from the soil samples in monsoon evergreen broadleaf forest at the same site. The habitat of the new species has a subtropical climate and belongs to the Oriental region in southwestern China.

***Leptanilla qinlingensis* sp.n. (Fig. 5)**

Type material: Holotype worker: **China:** Shaanxi Province, Xi'an City, Chang'an District, Xiangyu Forest Park, 33° 57' 48" N, 108° 48' 6" E, 1200 m above sea level, from a soil nest in conifer-broadleaf mixed forest, 18.V.2020, leg. Guan-Lin Liu, No. A20-3892. Paratypes: 5 workers, same data as holotype.

Description of holotype worker: TL 1.50, HL 0.33, HW 0.25, CI 77, SL 0.20, SI 80, PW 0.17, WL 0.45, PL 0.12, PH 0.10, DPW 0.10, PPL 0.10, PPH 0.10, PPW 0.11.

In full-face view, head longer than broad and nearly rectangular, posterior margin almost straight, posterolateral corners narrowly rounded, lateral margins moderately convex. Mandibles elongate triangular, basal margin about as long as masticatory margin; masticatory margin with three teeth, the apical one long and sharp; the basal one shorter and acute, nearly perpendicular to the basal margin; the middle one shortest and nearly triangular,

located at basal 2 / 5 of masticatory margin and closer to the basal one. Median lobe of clypeus broadly protruding anteriorly and surpassing antennal sockets, anterior margin strongly convex with a narrow deep notch in the center. Antennae 12-segmented, apex of scape reaching about 1 / 2 of the distance from antennal socket to posterolateral corner of head, flagella obviously incrassate toward apex.

In lateral view, dorsal and ventral margins of head slightly convex. Mesosoma moderately constricted at promesonotal suture, the suture moderately impressed on dorsum. Pronotum weakly convex. Mesonotum straight. Metanotal groove absent. Propodeal dorsum long and weakly convex, weakly sloping down posteriorly, posterodorsal corner very broadly rounded; declivity steeply sloping and short, weakly convex, about 1 / 4 of length of dorsum; spiracle circular and locating at about midpoint of propodeal side. Metapleural bulla large and distinct, roughly elliptical. Petiolar node roughly trapezoidal and widening posteriorly, dorsum moderately convex, anterodorsal corner broadly rounded, posterodorsal corner indistinct; posteroventral corner strongly convex and broadly rounded, anteroventral margin nearly straight. Postpetiole as high as petiole, dorsum slightly convex, posterodorsal corner broadly rounded, slightly higher than anterodorsal corner; sternite narrow and inclining anteriorly, ventral margin moderately convex, anteroventral corner narrowly rounded. Gaster strongly elongate and roughly elliptical, first segment occupying about 2 / 3 of length of the gaster, apex with sting.

In dorsal view, pronotum broadest, lateral margins moderately convex, humeral corners broadly rounded. Promesonotal suture strongly constricting and moderately impressed. Mesonotum nearly trapezoidal and widening posteriorly, lateral margins weakly convex. Metanotal groove absent. Propodeum about as broad as long, narrowing posteriorly, lateral margins moderately convex, posterolateral corners broadly rounded. Petiolar node longer than broad, about 1.3 times as long as broad, roughly trapezoidal and widening posteriorly, anterior margin strongly convex, lateral margins moderately convex, posterior margin weakly convex. Postpetiolar node shorter and broader than petiolar node, about as broad as long, roughly trapezoidal and widening posteriorly, anterior and lateral margins moderately convex, posterior margin nearly straight. Gaster strongly elongate and roughly elliptical.

Body surface smooth and shiny. Body dorsum with abundant decumbent pubescence, without subdecumbent hairs, pubescence on head and gaster denser. Scapes with abundant subdecumbent hairs and dense decumbent pubescence. Tibiae with dense decumbent pubescence. Body color brownish yellow, antennae and legs yellow, mandibular teeth brown.

Description of paratype workers: TL 1.40 - 2.00, HL 0.30 - 0.42, HW 0.23 - 0.31, CI 74 - 77, SL 0.15 - 0.22, SI 67 - 80, PW 0.15 - 0.21, WL 0.40 - 0.54, PL 0.08 - 0.14, PH 0.08 - 0.11, DPW 0.08 - 0.11, PPL 0.08 - 0.10, PPH 0.10 - 0.13, PPW 0.08 - 0.12 (5 individuals measured). Like

holotype worker, but body size weakly variable, body color yellow to brownish yellow.

Comparative notes: The new species is similar to *Leptanilla beijingensis* sp.n. (Fig. 1), but in the new species, in dorsal view, petiolar node nearly trapezoidal, obviously widening posteriorly; in lateral view, postpetiole as high as petiole, sternite of postpetiole narrow and strongly inclining anteriorly. While in *L. beijingensis* sp.n., in dorsal view, petiolar node nearly rectangular, not widening posteriorly; in lateral view, postpetiole slightly higher than petiole, sternite of postpetiole broad and erect, not inclining anteriorly.

Etymology: The specific epithet refers to the type locality, Mt. Qinling in Shaanxi Province.

Ecological notes: A soil nest containing the holotype worker and 5 paratype workers was found in conifer-broadleaf mixed forest with an altitude of 1200 m above sea level from the northern slope of Qinling Mountains in central China. Qinling Mountains are a boundary of the Palearctic and Oriental regions in central China. The habitat of the new species has a temperate climate and belongs to the Palearctic region in northwestern China.

Preliminary key to the *Leptanilla* species of the world based on the worker caste

- 1 Masticatory margin of mandible with two teeth 2
- Masticatory margin of mandible with three or four teeth 3
- 2 In lateral view, dorsum of petiolar node moderately convex with broadly rounded anterodorsal corner, ventral margin of petiole roundly convex. Sternite of postpetiole ventrally pointing [Oriental Region: Indonesia: Java (type locality).] (Fig. 6) ***L. kebunraya* YAMANE & ITO, 2001**
- In lateral view, dorsum of petiolar node slightly convex with prominent narrowly rounded anterodorsal corner, ventral margin of petiole bluntly angled. Sternite of postpetiole strongly inclining anteriorly [Oriental Region: Malaysia: Selangor (type locality).] (Fig. 7) ***L. butteli* FOREL, 1913**
- 3 Masticatory margin of mandible with 4 teeth 4
- Masticatory margin of mandible with 3 teeth 17
- 4 In full-face view, median lobe of clypeus protruding anteriorly and obviously surpassing antennal sockets 5
- In full-face view, median lobe of clypeus not protruding anteriorly and not surpassing antennal sockets 7
- 5 Anterior margin of median lobe of clypeus deeply notched in the center. In dorsal view, petiole with an anteriorly tapering peduncle [Palearctic Region: Morocco (type locality).] (Fig. 8) ***L. vaucheri* EMERY, 1899**
- Anterior margin of median lobe of clypeus convex or straight, never notched in the center. In dorsal view, petiole without an anteriorly tapering peduncle 6

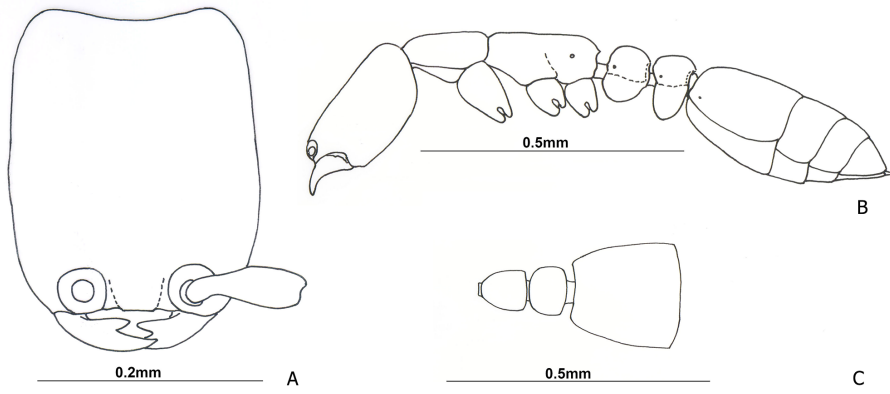


Fig. 6: *Leptanilla kebumraya* holotype worker. (A) head in full-face view; (B) body in lateral view; (C) petiole, postpetiole, and first gasteral segment in dorsal view. (A - B) illustrations drawn from images of YAMANE & ITO (2001); (C) redrawn from YAMANE & ITO (2001).

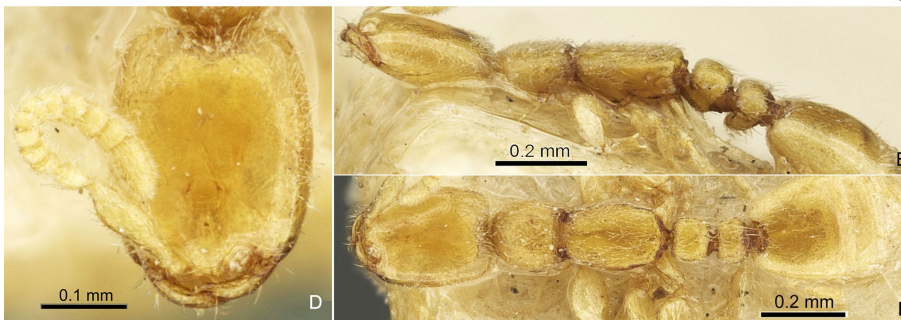
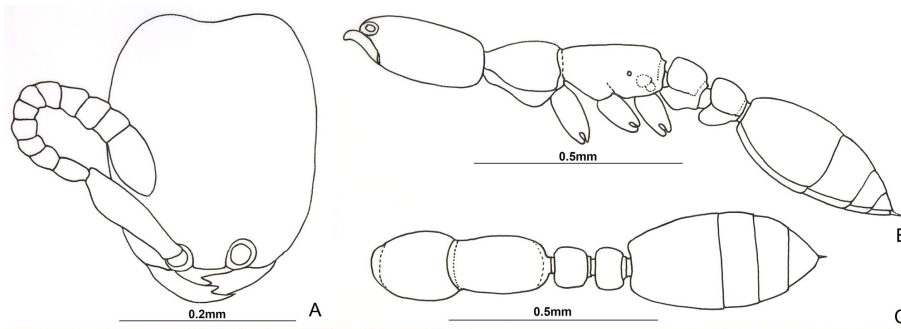


Fig. 7: *Leptanilla butтели* cotype worker. (A, D) head in full-face view; (B, E) body in lateral view; (C, F) body in dorsal view. (A - C) illustrations drawn from images, from ANTWEB (2023); (D - F) images from ANTWEB (2023), CASENT 0901484, photos by Ryan Perry.

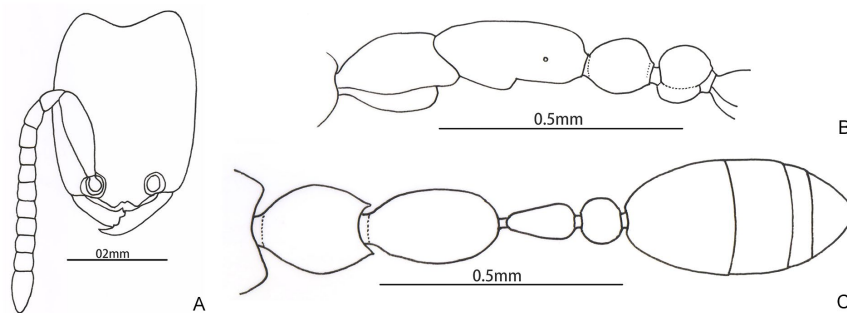


Fig. 8: *Leptanilla vaucheri* syn-type worker. (A, D) head in full-face view; (B, E) body in lateral view; (C, F) body in dorsal view. (A - C) illustrations redrawn from BARONI URBANI (1977); (D - F) images from ANTWEB (2023), CASENT 0903767, photos by Zach Lieberman.

- 6 In dorsal view, petiolar node relatively longer, about 1.4 times as long as broad. In lateral view, postpetiolar dorsum nearly straight [Palearctic Region: Tunisia (type locality).] (Fig. 9) ***L. nana* SANTSCHI, 1915**
- In dorsal view, petiolar node relatively broader, about 1.2 times as long as broad. In lateral view, postpetiolar dorsum moderately convex [Palearctic Region: Italy (type locality).] (Fig. 10) ***L. doderoi* EMERY, 1915**
- 7 In lateral view, postpetiole distinctly higher than petiole **8**
- In lateral view, postpetiole about as high as petiole **10**
- 8 In full-face view, head relatively shorter and nearly trapezoidal, about 1.1 times as long as broad, significantly narrowing anteriorly. Basal tooth of mandible nearly rectangular with truncated apex. In lateral view, dorsum of postpetiolar node strongly convex and rounded [Oriental Region: India (type locality).] (Fig. 11) ***L. ujjalai* SAROJ & al., 2022**
- In full-face view, head relatively longer and nearly rectangular, about 1.3 times as long as broad, slightly narrowing anteriorly. Basal tooth of mandible triangular with acute apex. In lateral view, dorsum of postpetiolar node slightly to moderately convex and not rounded **9**
- 9 In lateral view, dorsum of postpetiolar node moderately convex and raising up posteriorly, posterodorsal corner distinctly higher than anterodorsal corner [Afrotropical Region: Ghana (type locality).] (Fig. 12) ***L. boltoni* BARONI URBANI, 1977**
- In lateral view, dorsum of postpetiolar node slightly convex and nearly horizontal, posterodorsal corner about as high as anterodorsal corner [Palearctic Region: Japan (type locality).] (Fig. 13) ***L. japonica* BARONI URBANI, 1977**
- 10 In dorsal view, petiolar node about as long as broad **11**
- In dorsal view, petiolar node longer than broad .. **12**
- 11 In lateral view, dorsum of petiolar node straight and horizontal, anterodorsal and posterodorsal corners at the same level [Palearctic Region: Morocco (type locality).] (Fig. 14) ... ***L. ortunoi* LÓPEZ & al., 1994**
- In lateral view, dorsum of petiolar node moderately convex and raising up posteriorly, anterodorsal corner lower than posterodorsal corner [Palearctic Region: Algeria (type locality).] (Fig. 15) ***L. theryi* FOREL, 1903**
- 12 In lateral view, dorsum of petiolar node nearly straight **13**
- In lateral view, dorsum of petiolar node distinctly convex **15**
- 13 In lateral view, sternite of postpetiole strongly inclining anteriorly with narrowly rounded anteroventral lobe [Palearctic Region: Japan (type locality).] (Fig. 16) ***L. tanakai* BARONI URBANI, 1977**
- In lateral view, sternite of postpetiole erect with broadly rounded ventral margin **14**
- 14 In lateral view, petiolar node narrowing dorsally with narrowly rounded anterodorsal and posterodorsal corners, ventral margin strongly convex [Palearctic Region: Iberian Peninsula, Spain (type locality).] (Fig. 17) ... ***L. plutonia* LÓPEZ & al., 1994**
- In lateral view, petiolar node weakly widening dorsally with almost rightly angled anterodorsal and posterodorsal corners, ventral margin nearly straight with a notch anteriorly [Palearctic Region: Italy (type locality).] (Fig. 18) ... ***L. poggii* MEI, 1995**
- 15 In lateral view, dorsum of petiolar node not ascending posteriorly, posterodorsal and anterodorsal corners at the same level [Palearctic Region: Iberian Peninsula, Spain (type locality).] (Fig. 19) ***L. charonea* BARANDICA & al., 1994**
- In lateral view, dorsum of petiolar node distinctly ascending posteriorly, posterodorsal corner obviously higher than anterodorsal corner **16**
- 16 In lateral view, sternite of postpetiole moderately inclining anteriorly, ventral margin strongly convex [Australasian Region: Australia (type locality), New Guinea.] (Fig. 20) ***L. swani* WHEELER, 1932**
- In lateral view, sternite of postpetiole erect, ventral margin nearly straight [Palearctic Region: Iberian Peninsula, Spain (type locality).] (Fig. 21) ***L. zaballosi* BARANDICA & al., 1994**
- 17 In full-face view, median lobe of clypeus not protruding anteriorly and not surpassing antennal sockets **18**
- In full-face view, median lobe of clypeus protruding anteriorly and obviously surpassing antennal sockets **24**
- 18 In lateral view, postpetiole about as high as petiole **19**
- In lateral view, postpetiole distinctly higher than petiole **21**
- 19 In lateral view, dorsum of petiolar node distinctly ascending posteriorly, posterodorsal corner obviously higher than anterodorsal corner [Oriental Region: Sri Lanka (type locality).] (Fig. 22) ***L. besucheti* BARONI URBANI, 1977**
- In lateral view, dorsum of petiolar node nearly horizontal, posterodorsal and anterodorsal corners almost at the same level **20**
- 20 In lateral view, dorsum of petiolar node weakly convex, sternite inclining posteriorly. Dorsum of postpetiolar node slightly convex, sternite erect, ventral margin slightly convex [Palearctic Region: France (type locality), Iberian Peninsula, Italy, Malta, Morocco, Portugal, Spain.] (Fig. 23) ***L. revelierii* EMERY, 1870**
- In lateral view, dorsum of petiolar node strongly convex, sternite inclining anteriorly. Dorsum of postpetiolar node moderately convex, sternite inclining anteriorly, anteroventral corner protruding and narrowly rounded [Palearctic Region: Japan (type locality).] (Fig. 24) ***L. morimotoi* YASUMATSU, 1960**

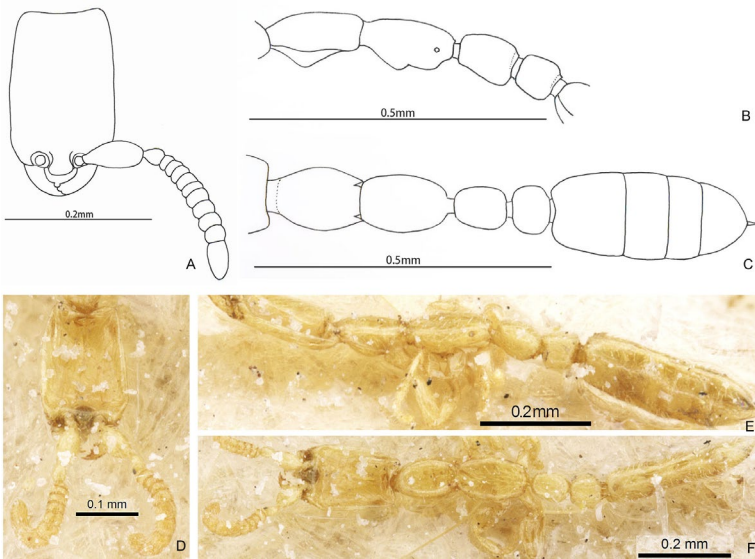


Fig. 9: *Leptanilla nana* syntype worker. (A, D) head in full-face view; (B, E) body in lateral view; (C, F) body in dorsal view. (A - C) illustrations redrawn from BARONI URBANI (1977); (D - F) images from ANTWEB (2023), CASENT 0911451, photos by Will Ericson.

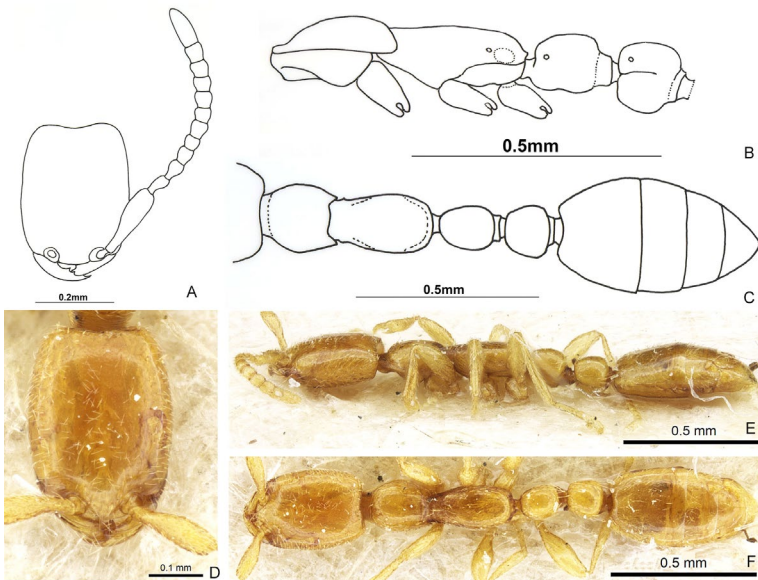


Fig. 10: *Leptanilla doderoi* syntype worker. (A, D) head in full-face view; (B, E) body in lateral view; (C, F) body in dorsal view. (A - C) illustrations redrawn from MEI (1995); (D - F) images from ANTWEB (2023), CASENT 0903768, photos by Zach Lieberman.

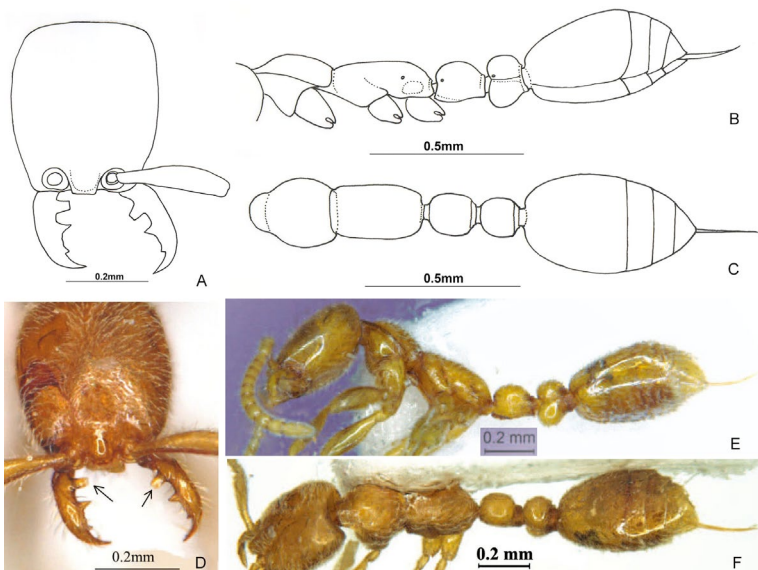


Fig. 11: *Leptanilla ujjalai* holotype worker. (A, D) head in full-face view; (B, E) body in lateral view; (C, F) body in dorsal view. (A - C) illustrations drawn from images, from SAROJ & al. (2022); (D - F) images from SAROJ & al. (2022).

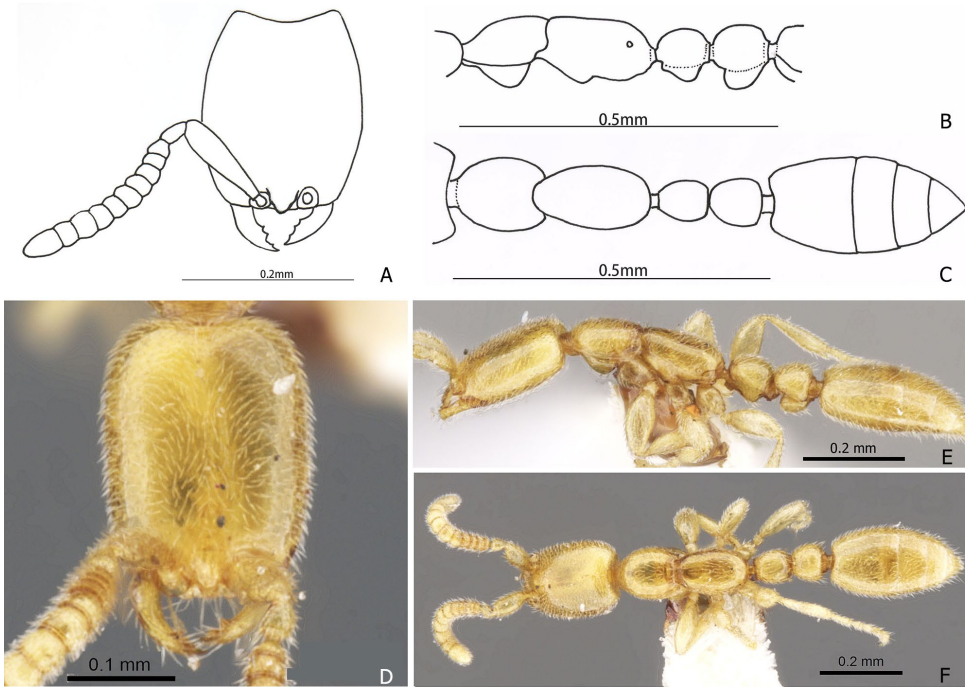


Fig. 12: *Leptanilla boltoni* holotype worker. (A, D) head in full-face view; (B, E) body in lateral view; (C, F) body in dorsal view. (A - C) illustrations redrawn from BARONI URBANI (1977); (D - F) images from ANTWEB (2023), CASENT 0902778, photos by Will Ericson.

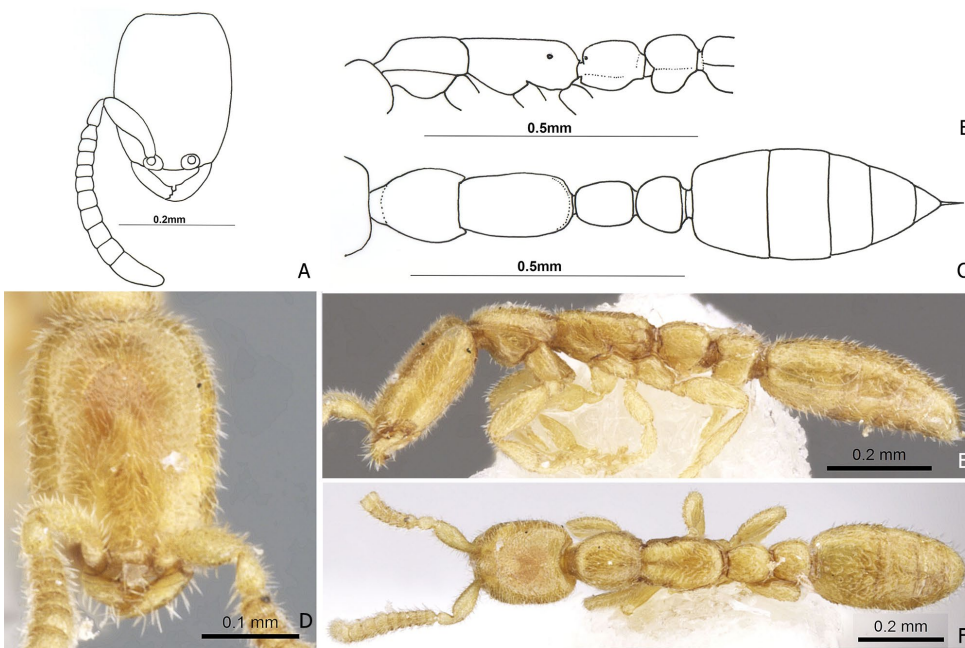


Fig. 13: *Leptanilla japonica* paratype worker. (A, D) head in full-face view; (B, E) body in lateral view; (C, F) body in dorsal view. (A - C) illustrations redrawn from BARONI URBANI (1977); (D - F) images from ANTWEB (2022), CASENT 0902775, photos by Will Ericson.

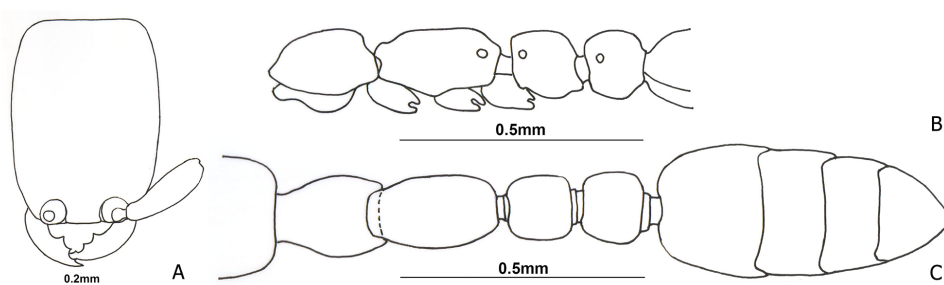


Fig. 14: *Leptanilla ortunoi* holotype worker. (A) head in full-face view; (B) body in lateral view; (C) body in dorsal view. (A - C) illustrations redrawn from LÓPEZ & al. (1994), pilosity and legs omitted.

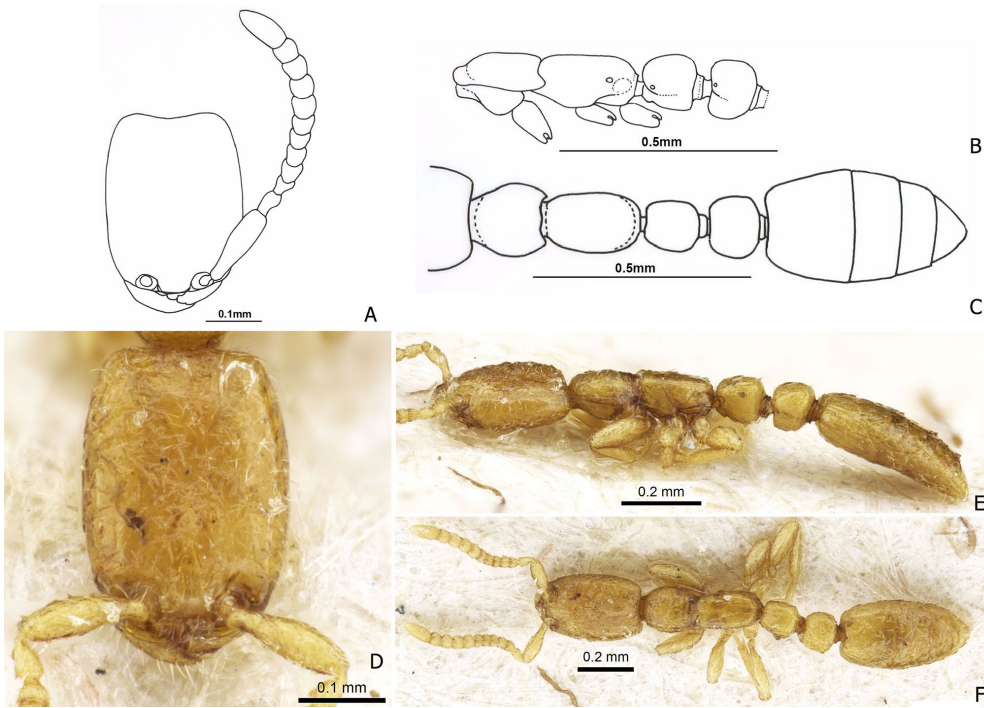


Fig. 15: *Leptanilla theryi* syntype worker. (A, D) head in full-face view; (B, E) body in lateral view; (C, F) body in dorsal view. (A - C) illustrations redrawn from MEI (1995); (D - F) images from ANTWEB (2023), CASENT 0905758, photos by Will Ericson.

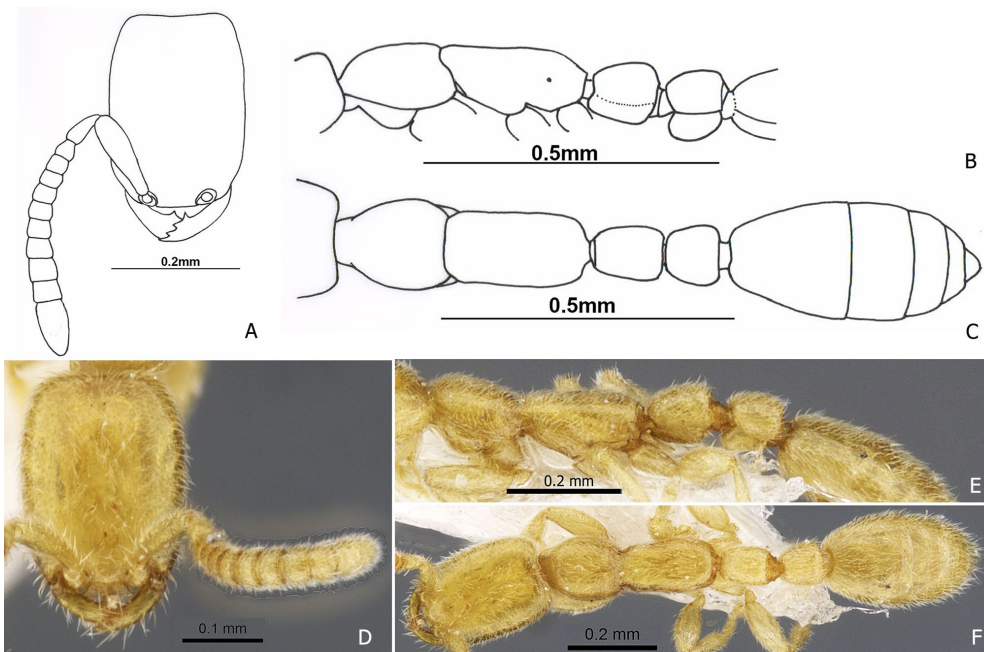


Fig. 16: *Leptanilla tanakai* paratype worker. (A, D) head in full-face view; (B, E) body in lateral view; (C, F) body in dorsal view. (A - C) illustrations redrawn from BARONI URBANI (1977); (D - F) images from ANTWEB (2023), CASENT 0911453, photos by Will Ericson.

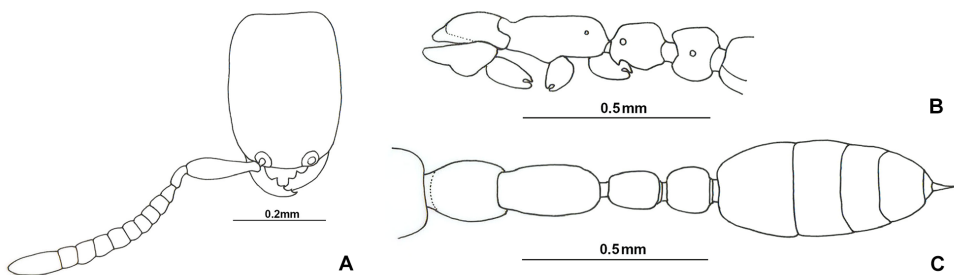


Fig. 17: *Leptanilla plutonia* holotype worker. (A) head in full-face view; (B) body in lateral view; (C) body in dorsal view. (A - C) illustrations redrawn from LÓPEZ & al. (1994), pilosity and legs omitted.

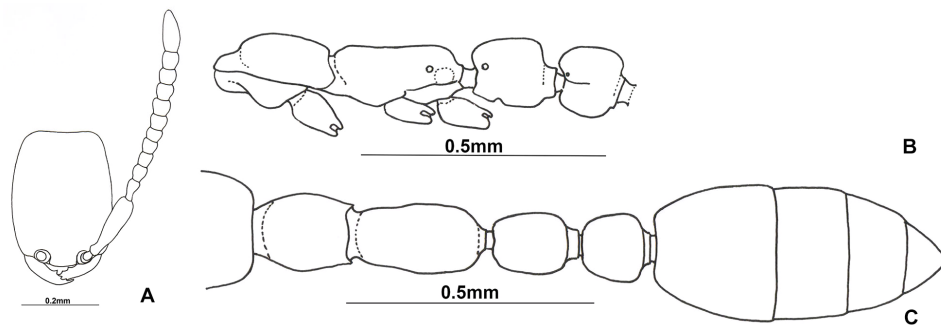


Fig. 18: *Leptanilla poggii* holotype worker. (A) head in full-face view; (B) body in lateral view; (C) body in dorsal view. (A - C) illustrations redrawn from MEI (1995).

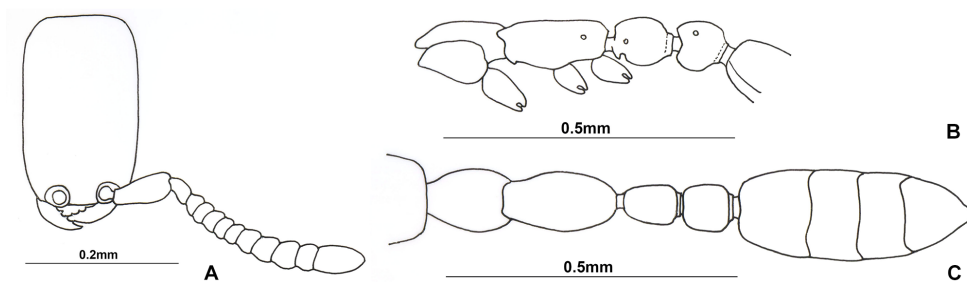


Fig. 19: *Leptanilla charonea* worker. (A) head in full-face view; (B) body in lateral view; (C) body in dorsal view. (A - C) illustrations redrawn from LÓPEZ & al. (1994), pilosity and legs omitted.

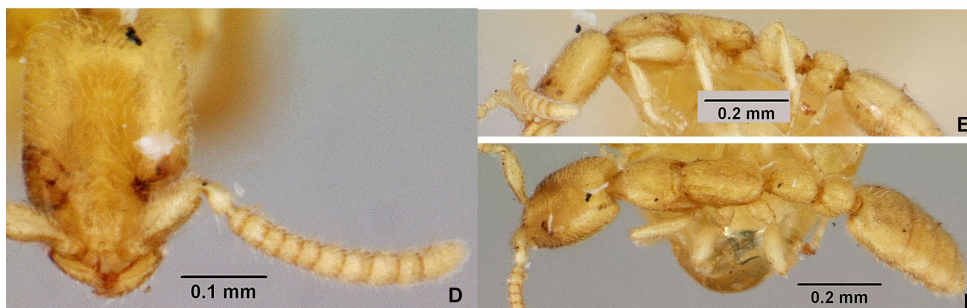
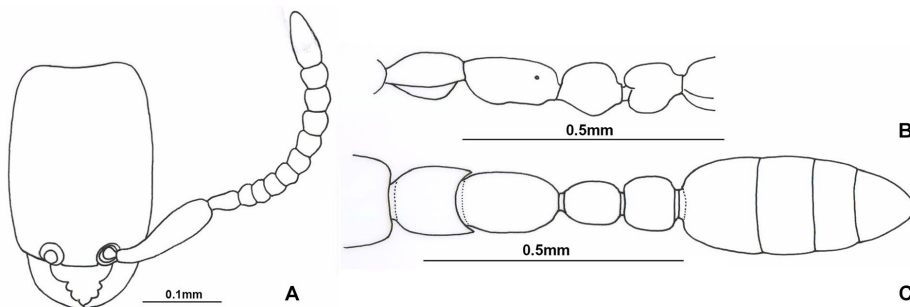


Fig. 20: *Leptanilla swani* paratype worker. (A, D) head in full-face view; (B, E) body in lateral view; (C, F) body in dorsal view. (A - C) illustrations redrawn from BARONI URBANI (1977); (D - F) images from ANTWEB (2023), CASENT 0172006, photos by April Nobile.

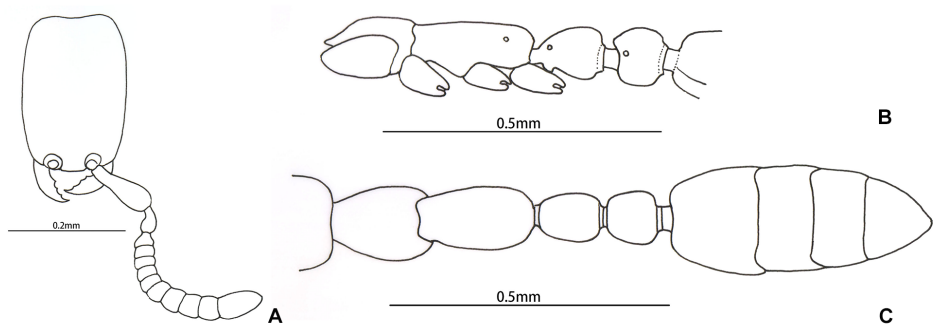


Fig. 21: *Leptanilla zaballosi* holotype worker. (A) head in full-face view; (B) body in lateral view; (C) body in dorsal view. (A - C) illustrations redrawn from LÓPEZ & al. (1994), pilosity and legs omitted.

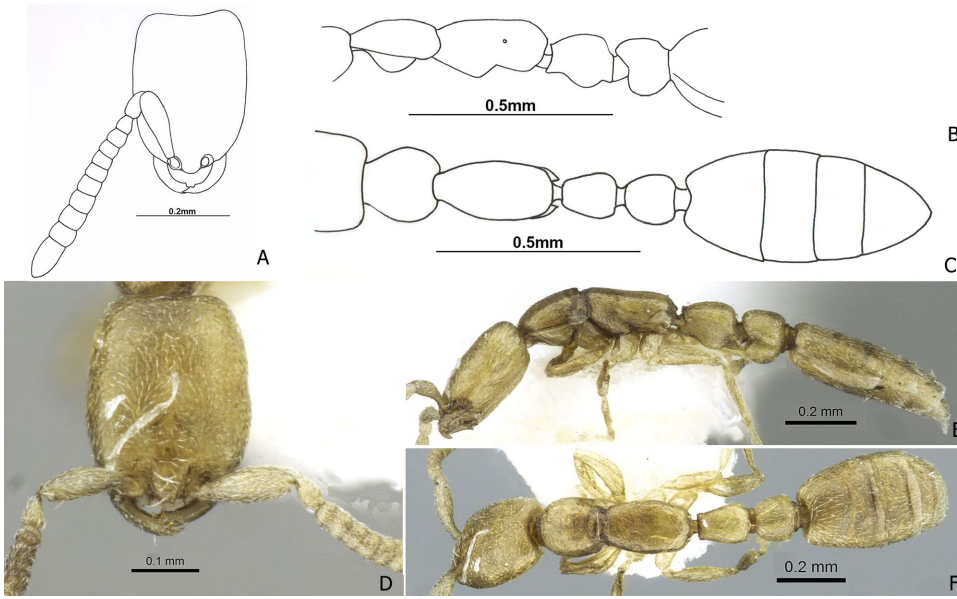


Fig. 22: *Leptanilla besucheti* holotype worker. (A, D) head in full-face view; (B, E) body in lateral view; (C, F) body in dorsal view. (A - C) illustrations redrawn from BARONI URBANI (1977); (D - F) images from ANTWEB (2023), CASENT 0911183, photos by Alexandra Westrich.

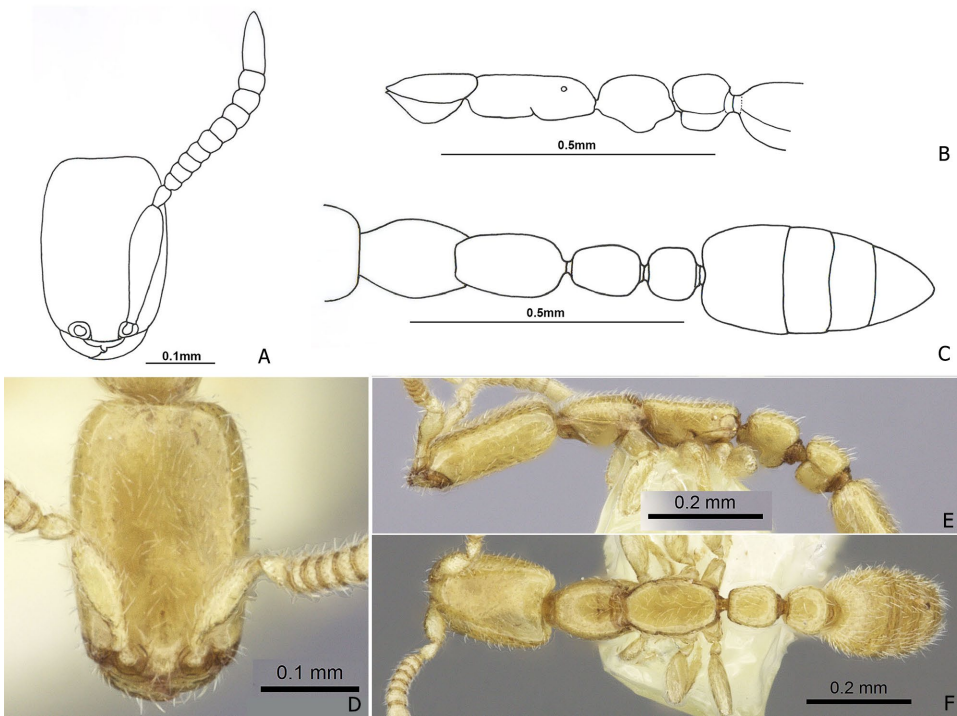


Fig. 23: *Leptanilla revelierii* worker. (A, D) head in full-face view; (B, E) body in lateral view; (C, F) body in dorsal view. (A - C) illustrations redrawn from BARONI URBANI (1977); (D - F) images from ANTWEB (2023), CASENT 0006788, photos by April Nobile.

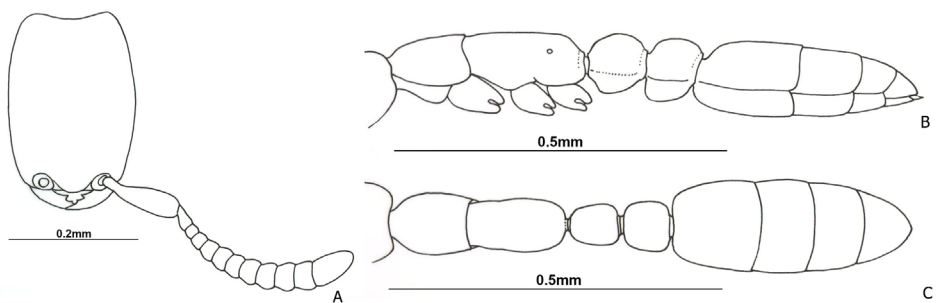


Fig. 24: *Leptanilla morimotoi* worker. (A) head in full-face view; (B) body in lateral view; (C) body in dorsal view. (A, C) illustrations redrawn from YASUMATSU (1960), pilosity and legs omitted; (B) illustration drawn from image of IMAI & al. (2003).

- 21 In dorsal view, petiolar node broader than long [Oriental Region: China: Yunnan (type locality).] (Fig. 25) ***L. yunnanensis* XU, 2002**
- In dorsal view, petiolar node longer than broad ... **22**
- 22 In lateral view, dorsum of postpetiolar node nearly straight, anterodorsal corner protruding and narrowly rounded, sternite strongly inclining anteriorly [Oriental Region: China: Macau (type locality).] (Fig. 26) ***L. macauensis* LEONG & al., 2018**
- In lateral view, dorsum of postpetiolar node moderately convex, anterodorsal corner not protruding and broadly rounded, sternite nearly erect and not inclining anteriorly **23**
- 23 In lateral view, dorsum of petiolar node weakly ascending posteriorly. Ventral margin of postpetiolar sternite broadly rounded [Palearctic Region: Japan (type locality).] (Fig. 27)
..... ***L. kubotai* BARONI URBANI, 1977**
- In lateral view, dorsum of petiolar node descending posteriorly. Ventral margin of postpetiolar sternite bluntly angled [Palearctic Region: Japan: Okinawa (type locality).] (Fig. 28)
..... ***L. okinawensis* TERAYAMA, 2013**
- 24 In full-face view, anterior margin of median clypeal lobe entire, without a notch or concavity in the center **25**
- In full-face view, anterior margin of median clypeal lobe notched or concave in the center **28**
- 25 Metanotal groove present [Oriental Region: China: Hunan (type locality), Hubei.] (Fig. 29)
..... ***L. hunanensis* TANG & al., 1992**
- Metanotal groove absent **26**
- 26 In full-face view, median lobe of clypeus narrowing anteriorly and nearly triangular, anterior margin acutely angled [Oriental Region: Nepal (type locality).] (Fig. 30)
..... ***L. buddhista* BARONI URBANI, 1977**
- In full-face view, median lobe of clypeus not narrowing anteriorly and nearly square, anterior margin straight **27**
- 27 In full-face view, posterior head margin obviously concave. In lateral view, dorsum of petiolar node weakly convex, sternite inclining anteriorly and protruding, dorsum of postpetiolar node weakly convex. In dorsal view, petiolar node slightly broader than long and nearly square. Body color brownish yellow [Oriental Region: India (type locality).] (Fig. 4)
..... ***L. lamellata* BHARTI & KUMAR, 2012**
- In full-face view, posterior head margin straight. In lateral view, dorsum of petiolar node strongly convex, sternite erect, dorsum of postpetiolar node strongly convex. In dorsal view, petiolar node as broad as long and nearly trapezoidal. Body color lighter yellow [Oriental Region: China: Yunnan (type locality).] (Fig. 3) ***L. dehongensis* sp.n.**
- 28 Metanotal groove present **29**
- Metanotal groove absent **31**
- 29 In lateral view, anterodorsal corner of petiolar node rightly angled. In dorsal view, petiolar node as broad as long [Oriental Region: Singapore (type locality).] (Fig. 31)
..... ***L. havilandi* FOREL, 1901**
- In lateral view, anterodorsal corner of petiolar node broadly rounded. In dorsal view, petiolar node longer than broad **30**
- 30 In dorsal view, petiolar node narrowing posteriorly and nearly trapezoidal, postpetiolar node broader than long and nearly elliptical. In lateral view, posterodorsal corner of postpetiolar node bluntly angled [Palearctic Region: Israel (type locality).] (Fig. 32) ***L. judaica* KUGLER, 1987**
- In dorsal view, petiolar node widening posteriorly and nearly trapezoidal, postpetiolar node as broad as long and nearly trapezoidal. In lateral view, posterodorsal corner of postpetiolar node broadly rounded [Oriental Region: China: Yunnan (type locality).] (Fig. 33)
..... ***L. kunmingensis* XU & ZHANG, 2002**
- 31 In dorsal view, postpetiole as broad as petiole **32**
- In dorsal view, postpetiole broader than petiole ... **34**
- 32 In lateral view, dorsum of petiolar node weakly convex with anterodorsal corner bluntly angled [Oriental Region: Thailand (type locality).] (Fig. 34)
..... ***L. thai* BARONI URBANI, 1977**
- In lateral view, dorsum of petiolar node strongly convex with anterodorsal corner broadly rounded **33**
- 33 In full-face view, posterior margin of head weakly concave. In dorsal view, anterior margin of petiolar node nearly straight, postpetiolar node longer than broad [Oriental Region: China: Hunan, Taiwan (type locality).] (Fig. 35)
..... ***L. taiwanensis* OGATA & al., 1995**
- In full-face view, posterior margin of head straight. In dorsal view, anterior margin of petiolar node weakly concave, postpetiolar node broader than long [Oriental Region: Indonesia: Java (type locality).] (Fig. 36)
..... ***L. clypeata* YAMANE & ITO, 2001**
- 34 In dorsal view, petiolar node about as broad as long [Oriental Region: India (type locality).] (Fig. 37) ...
..... ***L. escheri* (KUTTER, 1948)**
- In dorsal view, petiolar node longer than broad ... **35**
- 35 In full-face view, anterior margin of median clypeal lobe widely and shallowly concave. In dorsal view, anterior margin of petiolar node deeply concave, lateral margins straight. Body color blackish brown [Oriental Region: Singapore (type locality).] (Fig. 38)
..... ***L. hypodracos* WONG & GUÉNARD, 2016**
- In full-face view, anterior margin of median clypeal lobe notched in the center. In dorsal view, anterior margin of petiolar node strongly convex or slightly concave, lateral margins weakly convex. Body color light yellow **36**

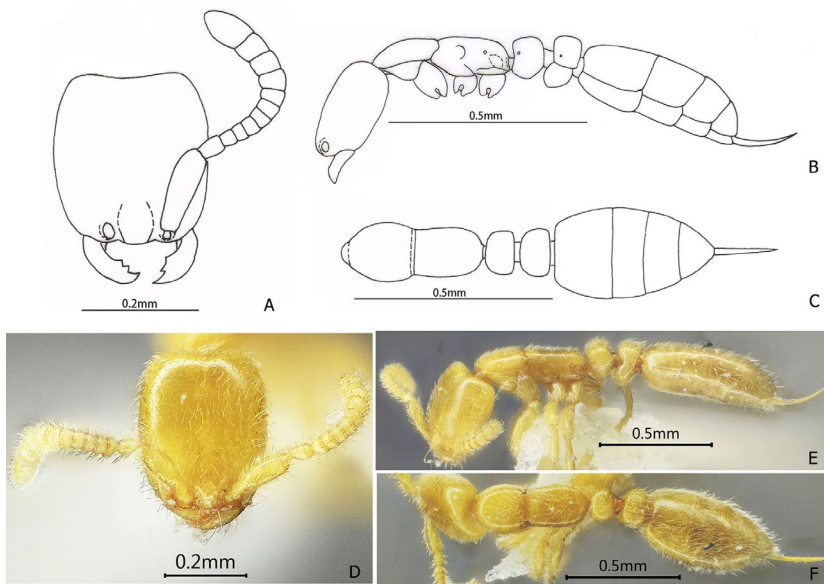


Fig. 25: *Leptanilla yunnanensis* holotype worker. (A, D) head in full-face view; (B, E) body in lateral view; (C, F) body in dorsal view. (A - C) illustrations redrawn from XU (2002a); (D - F) images, photos by Zheng-Hui Xu.

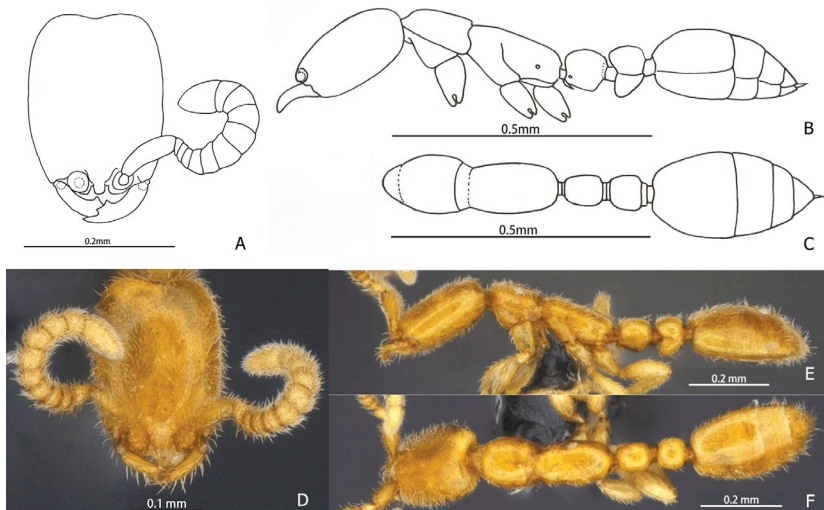


Fig. 26: *Leptanilla macauensis* holotype worker. (A, D) head in full-face view; (B, E) body in lateral view; (C, F) body in dorsal view. (A - C) illustrations drawn from images, from ANTWEB (2023); (D - F) images from ANTWEB (2023), photos by LEONG & al. (2018).

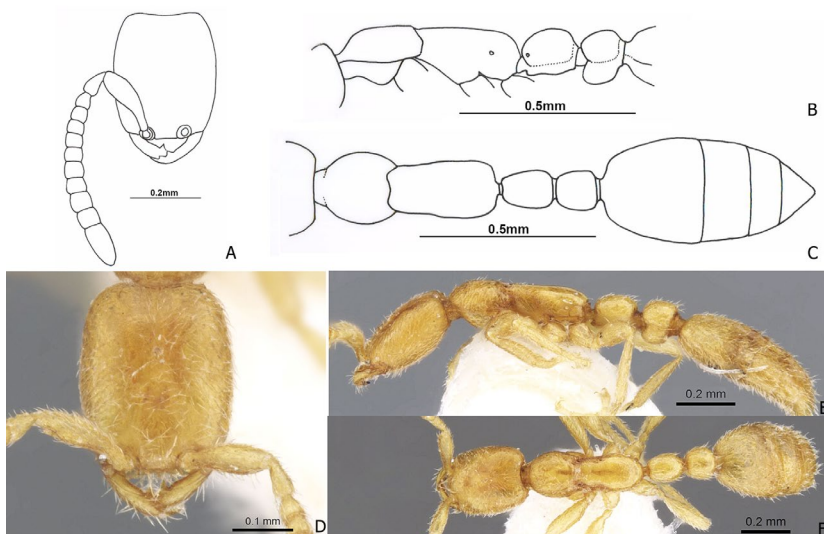


Fig. 27: *Leptanilla kubotai* paratype worker. (A, D) head in full-face view; (B, E) body in lateral view; (C, F) body in dorsal view. (A - C) illustrations redrawn from BARONI URBANI (1977); (D - F) images from ANTWEB (2023), CASENT 0902776, photos by Will Ericson.

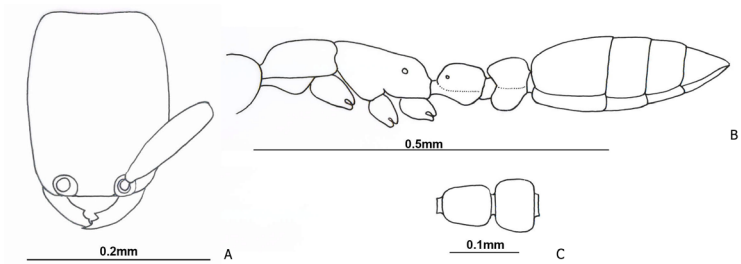


Fig. 28: *Leptanilla okinawensis* holotype worker. (A) head in full-face view; (B) body in lateral view; (C) petiole and postpetiole in dorsal view. (A, B) illustrations redrawn from TERAYAMA (2013), slightly modified with legs omitted; (C) illustration drawn according to original description of TERAYAMA (2013).

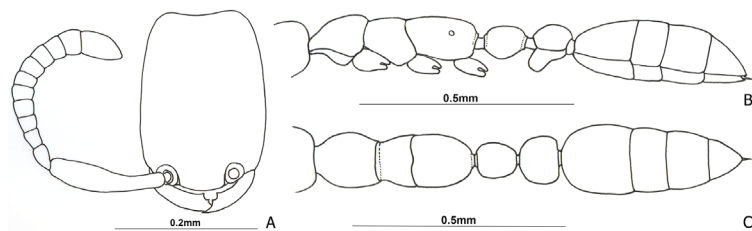


Fig. 29: *Leptanilla hunanensis* holotype worker. (A) head in full-face view; (B) body in lateral view; (C) petiole and postpetiole in dorsal view. (A - C) illustrations redrawn from TANG & al. (1992), slightly modified.

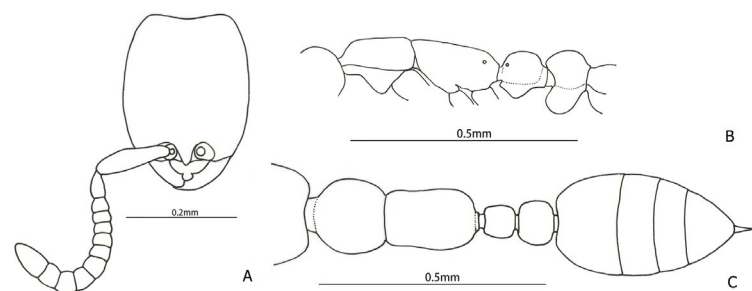


Fig. 30: *Leptanilla buddhista* holotype worker. (A, D) head in full-face view; (B, E) body in lateral view; (C, F) body in dorsal view. (A - C) illustrations redrawn from BARONI URBANI (1977); (D - F) images from ANTWEB (2023), CASENT 0902774, photos by Will Ericson.

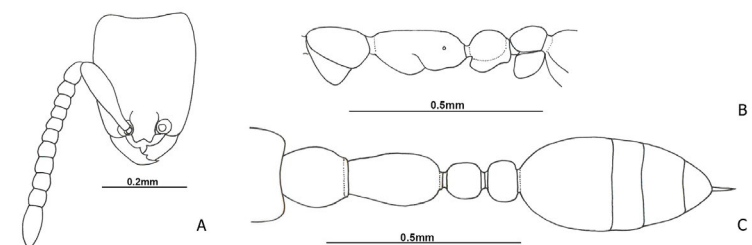


Fig. 31: *Leptanilla havilandi* type worker. (A, D) head in full-face view; (B, E) body in lateral view; (C, F) body in dorsal view. (A - C) illustrations redrawn from BARONI URBANI (1977); (D - F) images from ANTWEB (2022), CASENT 0101455, photos by April Nobile.

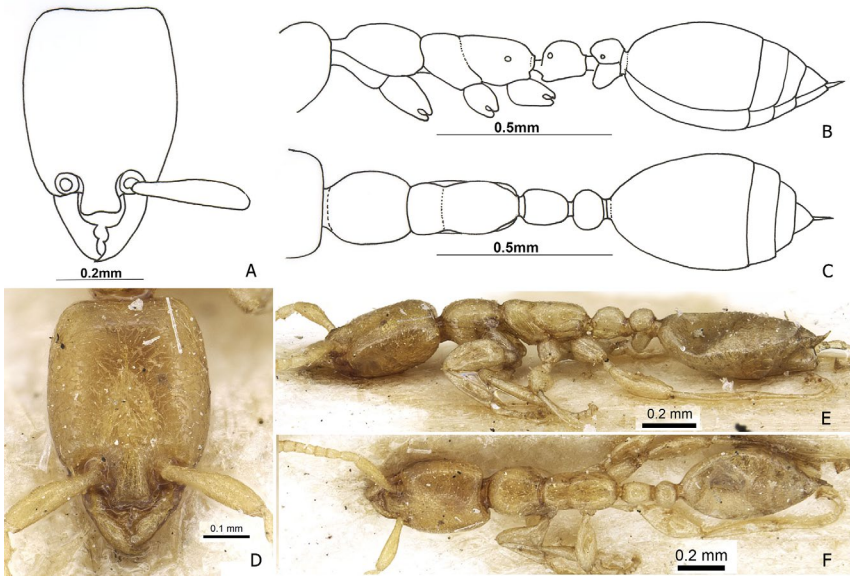


Fig. 32: *Leptanilla judaica* paratype worker. (A, D) head in full-face view; (B, E) body in lateral view; (C, F) body in dorsal view. (A - C) illustrations redrawn from KUGLER (1987), slightly modified with legs omitted; (D - F) images from ANTWEB (2022), CASENT 0902780, photos by Zach Lieberman.

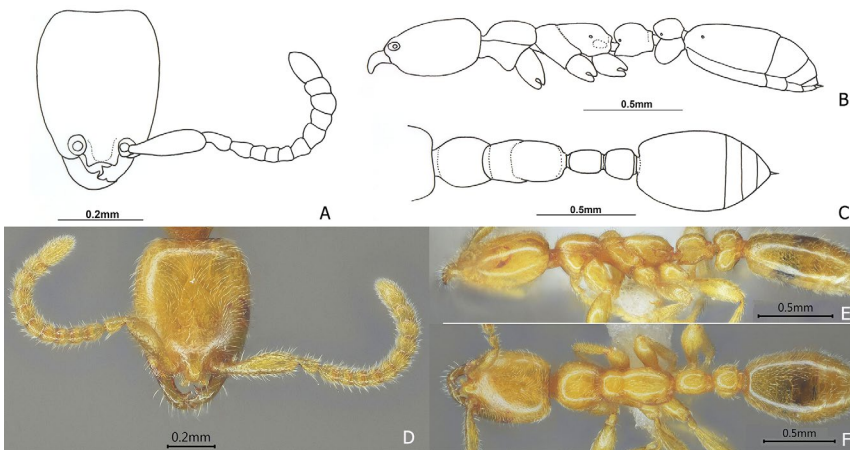


Fig. 33: *Leptanilla kunmingensis* holotype worker. (A, D) head in full-face view; (B, E) body in lateral view; (C, F) body in dorsal view. (A - C) illustrations drawn from images, photos by Zheng-Hui Xu; (D - F) images, photos by Zheng-Hui Xu.

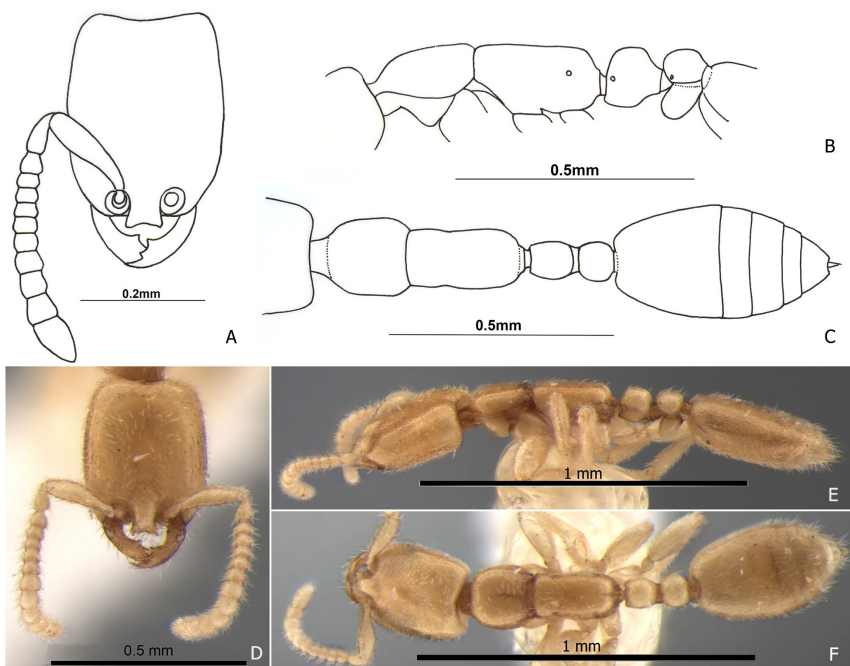


Fig. 34: *Leptanilla thai* worker. (A, D) head in full-face view; (B, E) body in lateral view; (C, F) body in dorsal view. (A - C) illustrations redrawn from BARONI URBANI (1977); (D - F) images from ANTWEB (2023), CASENT 0842752, photos by Zachary Griebenow.

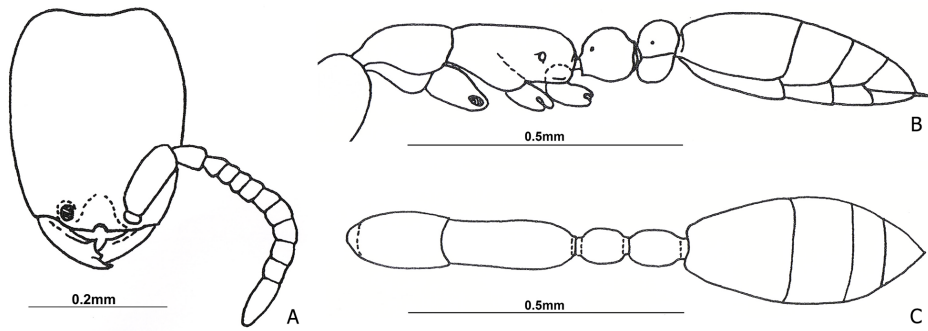


Fig. 35: *Leptanilla taiwanensis* paratype worker. (A) head in full-face view; (B) body in lateral view; (C) body in dorsal view. (A - C) illustrations redrawn from OGATA & al. (1995).

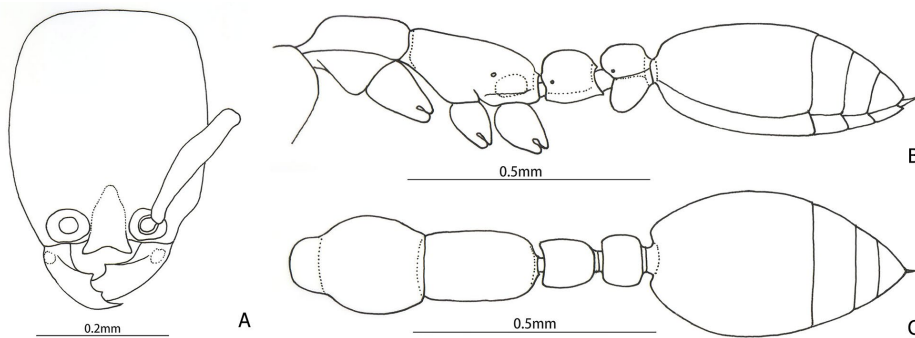


Fig. 36: *Leptanilla clypeata* holotype worker. (A, D) head in full-face view; (B, E) body in lateral view; (C, F) body in dorsal view. (A - C) illustrations redrawn from images, from WONG & GUÉNARD (2016); (D - F) images from WONG & GUÉNARD (2016).

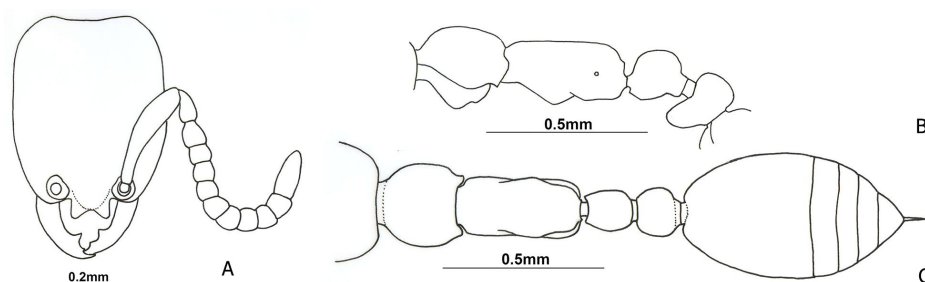


Fig. 37: *Leptanilla escheri* syntype worker. (A, D) head in full-face view; (B, E) body in lateral view; (C, F) body in dorsal view. (A - C) illustrations redrawn from BARONI URBANI (1977); (D - F) images from ANTWEB (2023), CASENT 0907607, photos by Will Ericson.

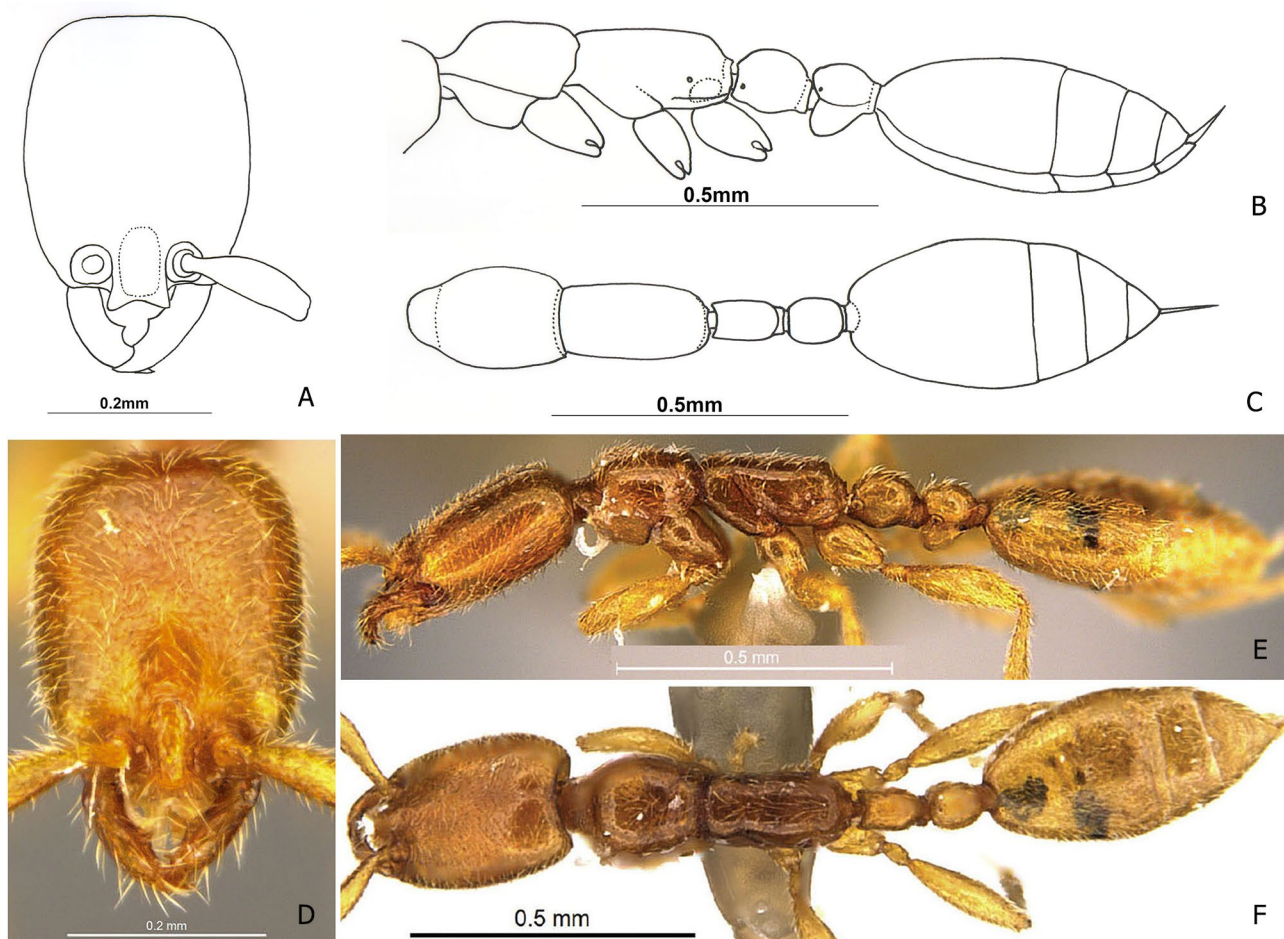


Fig. 38: *Leptanilla hypodracos* holotype worker. (A, D) head in full-face view; (B, E) body in lateral view; (C, F) body in dorsal view. (A - C) illustrations redrawn from images, from WONG & GUÉNARD (2016); (D - F) images from WONG & GUÉNARD (2016).

36 In full-face view, median lobe of clypeus narrowly protruding anteriorly, anterior margin widely and shallowly notched in the center, posterior margin of head deeply concave. In dorsal view, anterior margin of petiolar node slightly concave [Palearctic Region: Japan: Ogasawara Islands (type locality).] (Fig. 2) ***L. oceanica* BARONI URBANI, 1977**

- In full-face view, median lobe of clypeus broadly protruding anteriorly, anterior margin narrowly and deeply notched in the center, posterior margin of head straight or slightly concave. In dorsal view, anterior margin of petiolar node strongly convex **37**

37 In dorsal view, petiolar node nearly rectangular, not widening posteriorly. In lateral view, postpetiole slightly higher than petiole, sternite of postpetiole broad and erect, not inclining anteriorly [Palearctic Region: China: Beijing (type locality).] (Fig. 1) ***L. beijingensis* sp.n.**

- In dorsal view, petiolar node nearly trapezoidal, obviously widening posteriorly. In lateral view, postpetiole as high as petiole, sternite of postpetiole narrow and strongly inclining anteriorly [Palearctic Region: China: Shaanxi (type locality).] (Fig. 5) ***L. qinlingensis* sp.n.**

Acknowledgments

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