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NAKANISHI, AKINORI

Biological Laboratory, College of General Education, Kyushu University

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ON THE SPECIES OF *PLECTOCHORUS* UCHIDA AND
STICTOPISTHUS THOMSON FROM JAPAN

(Hymenoptera, Ichneumonidae)

AKINORI NAKANISHI

(Biological Laboratory, College of General Education, Kyushu University)

In this paper the author reports six Japanese ichneumonflies, of which two belong to *Plectochorus* and four to *Stictopisthus*. All the species of *Stictopisthus* treated here are described as new to science. The types of these new species will be preserved in the collection of the Entomological Laboratory, Kyushu University.

The genus *Plectochorus* and *Stictopisthus* are very closely allied to each other, and characteristic and easily separable from any other genera of the subfamily Mesochorinae in having the following structures: Transverse carina below antennal socket not dipped medially; upper end of prepectal carina reaching the swollen marginal rim of the mesopleuron; lateral carina of mesonotum fading out or vestigial before scutellar fovea.

Before going further the author wishes to express his hearty thanks to Prof. K. Yasumatsu, Prof. S. Miyamoto, Prof. T. Shirôzu and Mr. T. Saigusa of Kyushu University for their constant encouragements, and to Prof. C. Watanabe of Hokkaido University for his kindness in allowing me to examine the type-specimens of *P. iwatensis* (Uchida) and *S. chinensis* (Uchida).

Genus *Plectochorus* Uchida, 1933

Plectochorus Uchida, Insecta Matsumurana 7: 163, 1933.

Females of this genus may be separable from *Stictopisthus* by the following characters: Abdomen elongated and strongly compressed beyond segment 2; terga concave on caudal margins of segments 3-6. Petiolar area of propodeum strongly elongated and its apex reaching nearly to apical margin of hind coxa. Ovipositor sheath long and slender.

Two species occur in Japan, and they may be separated as follows.

Key to species from Japan

1. Petiolar area of propodeum completely carinated. Basal area of propodeum directly connected with areola by costula (Fig. 1, A). Many longitudinal carinulae present in scutellar fovea. Mesopleuron rather coarsely punctate. Posterior spur of hind tibia with scale-like hairs on basal 2/3 (Fig. 1, C). Spiracular area of propodeum reddish brown *iwatensis* (Uchida)
- Petiolar area of propodeum usually incompletely carinated. Basal area of propodeum connected with areola by one longitudinal carina (Fig. 1, B). Longitudinal carinulae absent from scutellar fovea. Mesopleuron almost impunctate. Posterior spur of hind tibia with scale-like hairs on entire length (Fig. 1, D). Spiracular area of propodeum piceous black *niger* Kusigemati

1. *Plectochorus iwatensis* (Uchida, 1928)

Mesochorus iwatensis Uchida, Jour. Fac. Agr. Hokkaido Univ. 21: 262, 1928.

Female. Head polished; vertex and frons impunctate, the latter with weak shagreenings on upper half; temple with fine and rather sparse punctures; face densely punctate, punctures becoming finer and sparser towards sides, face also with a weak short median vertical convexity and distinct clypeal fovea; clypeus barely distinguished as a somewhat convex area, heavily punctate laterally, its apical margin weakly transversed and slightly impressed laterally; malar space deeply sulcate, $0.6 \times$ basal width of mandible; antenna with 32 flagellar segments.

Thorax polished; pronotum impunctate; mesonotum with somewhat coarse punctures separated by about 1.5 their diameter, faint notaulus anteriorly; scutellum somewhat convex and also inflated on lateral sides to form subglobular shape in dorsal view, without punctures; many carinulae present in scutellar fovea; lower anterior half of mesopleuron densely sculptured with coarse and rather deep punctures that are separated by much less than their diameter, posterior half with several coarse and deep punctures that are separated by about 1.5-2 their diameter; mesosternum faintly punctate; metapleuron densely with small rather shallow punctures.

Propodeum polished; apex extending nearly to apical margin of hind coxa; petiolar area bounded by complete lateral carinae (Fig. 1, A), not separated from areola by carina, sparsely with shallow punctures; areola about $1.7 \times$ as long as wide; first and second lateral areas scattered with very fine and weak punctures, the latter area about $2 \times$ as long as wide; spiracular area punctate as on metapleuron; third lateral area somewhat rugulose; areola and second lateral and petiolar areas with distinct shallow

grooves along carinae.

Abdomen polished and impunctate; spiracle of petiole at $1/3$ from apex; second tergum $4.7 \times$ as long as wide at base; ovipositor sheath more than $2 \times$ as wide as first flagellar segment diameter.

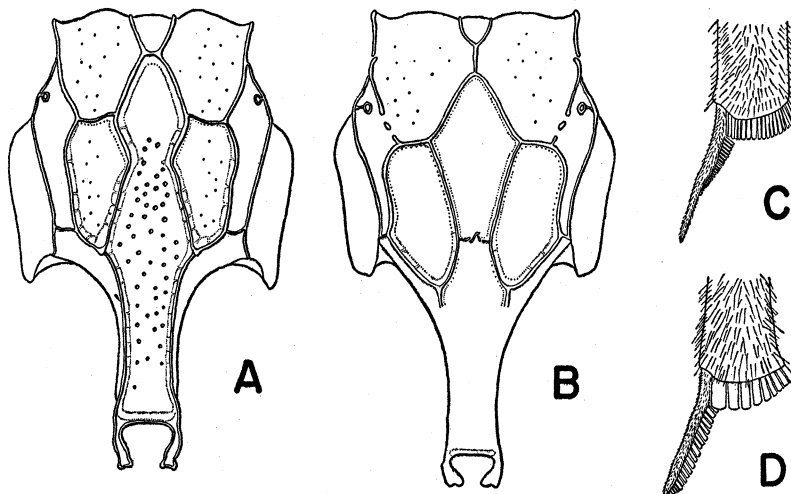


Fig. 1. Propodea and apices of hind tibiae of *Plectochorus* spp.

- A. Propodeum of *P. iwatensis* (Uchida).
- B. Propodum of *P. niger* Kusigemati.
- C. Hind tibia of *P. iwatensis* (Uchida).
- D. Hind tibia of *P. niger* Kusigemati.

Legs slender; scale-like hairs on posterodistal portion of hind tibia narrow; posterior spur of hind tibia with scale-like hairs on basal $2/3$ (Fig. 1, C).

Fore wing length 3.7 mm; nervulus distad of basal vein by about $2/3 \times$ its length.

Reddish brown. Dorsal part of occiput dark brown. Antenna dark brown, blackened towards apex. Mesonotum yellowish brown; median scutal area pale brown; broad median longitudinal stripe on lateral scutal area dark brown. Lower mesopleuron and mesosternum brown. Propodeum piceous black except for spiracular areas which are reddish brown. Abdomen largely brown. Petiole piceous black with its extreme apex reddish brown. Second tergum black with its apex yellowish, lightened medially. Legs tawny; coxae somewhat reddish brown; hind tibia darkened at base and apex. Wings hyaline, stigma and veins pale brown.

Male. The author could not examine male specimens.

Distribution. Japan (Honshu and Amami-Ōshima).

Specimens examined. 1 ♀ (holotype of *iwatensis*), Iwate Pref., Honshu,

23. x. 1910, T. Ogasawara leg., 1 ♀, Amami-Ôshima, 4. xi. 1966, Y. Miyatake leg.

The description was made based on the specimen from Amami-Ôshima. This specimen shows several differences from the type-specimen, especially in the punctation on thorax and propodeum much stronger and coarser, and the coloration of propodeum and abdomen much darker than in the type-specimen.

2. *Plectochorus niger* Kusigemati, 1967

Plectochorus niger Kusigemati, Insecta Matsumurana 30: 28, 1967.

Female. Head polished; vertex and frons almost impunctate, the former usually with minute punctures on ocellar prominence; temple with fine and shallow punctures; face densely with fine punctures, but almost impunctate on the sides, face also with rather distinct median vertical convexity, clypeal fovea indistinct; clypeus clearly distinguished as a convex and almost impunctate area which has a row of rather coarse punctures subapically, apical margin subtruncate; malar space sulcate, about $0.4 \times$ basal width of mandible; antenna with 35 flagellar segments.

Thorax polished; pronotum impunctate; mesonotum densely with fine punctures; scutellum weakly convex, without punctures; carinulae absent from scutellar fovea; mesopleuron and mesosternum almost impunctate; metapleuron sparsely with very fine punctures.

Propodeum polished and almost impunctate; apex extending nearly to apical margin of hind coxa; petiolar area bounded by lateral carinae only on basal $1/3$, separated from areola by an incomplete carina (Fig. 1, B); basal area strongly converging posteriorly and connected with areola by one longitudinal carina; lateral longitudinal carina on first lateral area usually in pieces; second lateral area $2.2 \times$ as long as wide; areola $2.2 \times$ as long as wide.

Abdomen polished and impunctate; spiracle of petiole at 3.2 from apex; second tergum $4.3 \times$ as long as wide at base; ovipositor sheath $3.4 \times$ as long as first flagellar segment diameter.

Legs slender; hind tibia with broad scale-like hairs on posterodistal portion (Fig. 1, D); posterior spur of hind tibia with scale-like hairs on entire length.

Fore wing length 4.4 mm; nervulus distad of basal vein by about $0.3 \times$ its length.

Dark brown. Tawny to tawny rufous on inner orbit, clypeus, mandible except teeth, temple, frons except center, gena, palpi, lower half of occiput, almost all of propleuron, lower and upper margins of pronotum, tegula, mesonotum except for lateral lobes and basal half of median area that are blackish brown, scutellum, postscutellum usually, and upper part of mesepimeron. Antenna fuscous brown. Face brown medially.

Propodeum entirely piceous black. Legs tawny; coxae somewhat tinged with ferruginous; hind tibia darkened basally and apically. Wings hyaline; stigma and veins pale brown.

Male. Unknown.

Distribution. Japan (Hokkaido and Honshu).

Specimens examined. 1 ♀, Mt. Yûbaridake, Sorachi, Hokkaido, 14. vii. 1967, 1 ♀, same locality, 15. vii. 1967, 1 ♀, Berabonai, Ashoro, Tokachi, Hokkaido, 23. vii. 1967, A. Nakanishi leg.; 1 ♀, Mikunitôge, Niigata Pref., Honshu, 12. vii. 1966, Y. Miyatake leg.

In the specimens from Mt. Yûbaridake, the punctures on mesonotum are more closely situated, and the mesopleuron is marked with brown.

Genus *Stictopisthus* Thomson, 1886

Stictopisthus Thomson, Ann. Soc. Ent. France (6) 5: 327, 1886.

In the Eastern Palaearctic Region only two species of *Stictopisthus*, *chinensis* (Uchida) and *complanatus* (Haliday), have been reported from China by Uchida in 1942. In the course of present study the author has found four species from Japan, all of which are described as new to science as follows.

Key to species from Japan

1. Hind femur thickened, 2.7-3.2 times as long as wide. First flagellar segment 4.3-4.9 times as long as wide. Postpetiole without a transverse groove. Frons with a pair of submedian longitudinal carinae (Fig. 2, C-E) 2
- Hind femur slender, 4 times as long as wide (Fig. 3, B). First flagellar segment 5.8 times as long as wide. Postpetiole with a transverse groove at apical 1/3. Frons without a pair of submedian longitudinal carinae. Very small species *S. minimus* n. sp.
2. Areola of propodeum longer than petiolar area (12:8) (Fig. 2, B). Propodeum rather flattened dorsally. Abdomen rather slender, total length of second and following segments 4-4.5×basal width of second segment. Mesopleuron coarsely punctate. Propodeum entirely piceous black 3
- Areola of propodeum a little shorter than petiolar area (11:14) (Fig. 2, A). Propodeum rounded dorsally. Abdomen rather short and stout, total length of second and following segments 2.5×basal width of second segment. Mesopleuron finely punctate. Posterior half of propodeum yellowish brown. Antenna covered with rather long hairs. Spiracle of petiole ventrad of lateral longitudinal carina.....
.....*S. areolatus* n. sp.
3. Petiole striated on apical 1/3. Scutellum weakly convex and punctate.

Thorax mostly piceous black. Apical margin of clypeus sharply truncate. Hind tibia darkened at base and apex. First flagellar segment with many sense cones *S. punctatus* n. sp.
 Petiole not striated. Scutellum flattened and impunctate. Thorax extensively marked with reddish brown. Apical margin of clypeus broadly rounded. Hind tibia darkened only at apex. First flagellar segment almost without sense cones *S. miyatakei* n. sp.

1. *Stictopisthus areolatus* n. sp.

Female. Head polished; vertex impunctate; occipital carina obsolescent medially; temple sparsely and weakly punctate; frons impunctate, with very faint transverse wrinkles on upper half, with a median longitudinal convexity which is carinated laterally (Fig. 2, C), lower half of

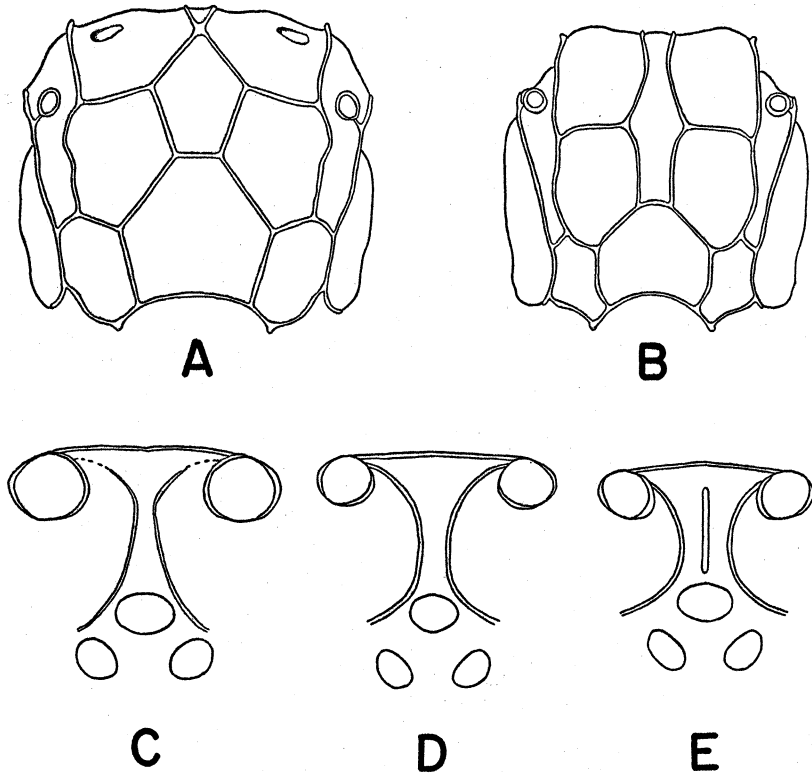


Fig. 2. Propodea and median frontal areas of *Stictopisthus* spp.

- A. Propodeum of *S. areolatus* n. sp.
- B. Propodeum of *S. punctatus* n. sp.
- C. Median frontal area of *S. areolatus* n. sp.
- D. Median frontal area of *S. punctatus* n. sp.
- E. Median frontal area of *S. miyatakei* n. sp.

the carina very weak, space between the carinae at the narrowest part less than $1/3 \times$ width of fore ocellus; face weakly convex, width* $3.4 \times$ basal width of clypeus, closely punctate medially and ventrally, somewhat sparsely punctate laterally, and almost impunctate dorsally; clypeus distinguished from face as a rather flat and less punctate area, punctate laterally and ventrally, punctures much larger and deeper than those on face, apical margin truncate; malar space $0.7 \times$ basal width of mandible; antenna with more than 26 flagellar segments (apical segments missing), sense cones absent from first flagellar segment, covered with rather long subdecumbent hairs whose length more than $1/2$ of segment width, first segment length $4.9 \times$ width.

Thorax polished; pronotum impunctate; mesonotum very finely and weakly punctate anteriorly, posterior half of median scutal area densely with small punctures; scutellum slightly convex, almost impunctate; mesopleuron with rather dense fine punctures on upper anterior half, the remainder part scattered with small punctures; mesosternum faintly punctate; metapleuron sparsely with very fine punctures.

Propodeum (Fig. 2, A) short, not flattened dorsally; polished and almost impunctate; carination complete, basal transverse carina broad; first lateral area with a shallow concavity on basolateral corner; areola a little shorter than petiolar area (11:14); petiolar area broad, slightly longer than wide (14:12.5), rather densely with very fine punctures medially.

Abdomen polished and impunctate; somewhat narrowed from base of segment 2 to apex of abdomen; petiole with lateral carina which is incomplete and vestigial beyond spiracle; spiracle ventrad of the carina; glymma large and deep; second segment length $1.3 \times$ width at base; ovipositor sheath width about $1 \times$ first flagellar segment width, obscurely punctate basally.

Legs rather stout; hind femur thickened, length $3.2 \times$ width.

Body length 5.2 mm.

Yellowish brown. Face and temple yellowish. Vertex tinged with brown along occipital carina. Antenna somewhat darkened towards apex. Palpi pale, almost transparent. Pronotum tinged with dark brown dorsally. Lateral scutal areas and broad longitudinal band on anterior half of median scutal area of mesonotum black. Scutellum blackish brown dorsally. Metapleuron brown in center. Propodeum yellowish brown, basal and first lateral areas entirely, upper median and second lateral areas basally black. Abdominal terga largely blackish. Petiole black, with base light brown, and extreme apex yellowish. Apical $1/3$ of second tergum yellowish. Third and following terga largely yellowish brown laterally. Ovipositor sheath brown. Trochanters and femora of first four legs much pale. Hind tibia pale yellow, with its apical 0.2

*The face width is measured at the level of clypeal foveae, and the basal width of clypeus indicates the space between clypeal foveae.

darkened. Wings hyaline; stigma almost colourless, slightly infuscated; veins brownish.

Male. Unknown.

Distribution: Japan (Hokkaido).

Holotype: ♀, Ashoro, Tokachi, Hokkaido, 22. vii. 1967, A. Nakanishi leg.

This species is a characteristic one and easily separable from the known species by the large petiolar area of propodeum and long hairs on flagellum.

2. *Stictopisthus punctatus* n. sp.

Female. Head polished; vertex almost impunctate, with some fine punctures on ocellar prominence; occipital carina obsolescent medially; temple densely with fine distinct punctures; frons impunctate, with a median longitudinal convexity which is strongly carinated laterally (Fig. 2, D), the carina distinctly defined to antennal socket, space between the carinae at the narrowest part about $0.5 \times$ diameter of fore ocellus; face rather strongly convex, width $2.4 \times$ basal width of clypeus, densely with fine punctures except for impunctate area just below upper transverse carina, punctures a little larger medially, and finer and much denser ventrally; clypeus rather coarsely punctate except for base, apical margin sharply truncate; malar space $0.5 \times$ basal width of mandible; mandible foveolate-punctate along lower edge; antenna with 30 flagellar segments, covered with short subdecumbent hairs whose length subequal to semi-diameter of flagellum, sense cones abundant on first flagellar segment, first segment length $4.3 \times$ width.

Thorax polished; pronotum almost impunctate; mesonotum densely with deep punctures of moderate size, they become much finer and sparser anteriorly and laterally; scutellum slightly convex, with fine and rather dense punctures; mesopleuron closely and finely punctate on upper anterior half, coarsely punctate on lower half, punctures becoming finer and denser anteriorly, two short carinae on posteroventral corner; mesosternum very finely punctate; metapleuron mostly finely and densely punctate, smooth dorsally.

Propodeum (Fig. 2, B) rather flattened and polished; basal transverse carina lacking; upper median area longer than petiolar area (12:8); several very fine punctures on first and second lateral areas; petiolar area closely with very fine punctures.

Abdomen polished and impunctate, very weakly narrowed posteriorly; petiole with a faint lateral carina which is vestigial and incomplete beyond spiracle; spiracle on the carina; glymma deep and large; distinctly with many longitudinal striae on apical half of postpetiole; second segment length about $1.5 \times$ width at base; ovipositor sheath width $1.4 \times$ first flagellar segment width, distinctly punctate on entire length.

Legs stout; hind femur thickened (Fig. 3, A), width $0.38 \times$ length.
Body length 4.7 mm.

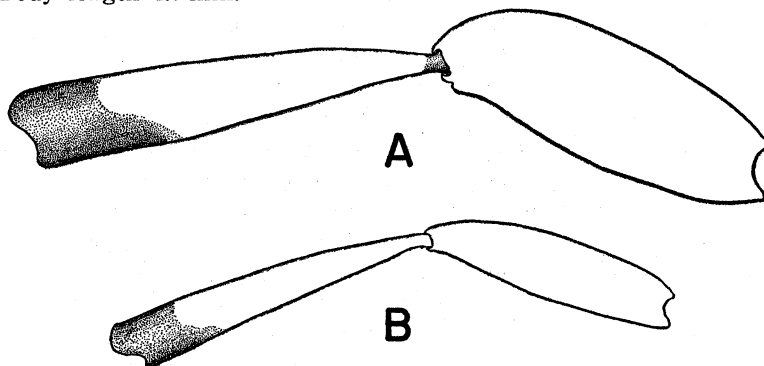


Fig. 3. Hind femora and tibiae of *Stictopisthus* spp.

A. *S. punctatus* n. sp.

B. *S. minimus* n. sp.

Black. Head yellowish brown; ocellar prominence black; vertex behind hind ocelli, dorsal halves of temple and occiput dark brown; frons somewhat brownish medially; mandible brown; antenna blackish brown. Thorax and propodeum piceous black; anterior margin of pronotum, subalar tubercle and upper part of mesepimeron somewhat tinged with brown. Abdomen black; petiole piceous black with its extreme apex pale medially; second and following terga and ovipositor sheath slightly tinged with brown; apical 1/4 of second tergum yellowish brown; third tergum with a narrow yellowish brown basal band which is producing into a broad median longitudinal band and extending to apical 2/5. Legs yellowish brown; fore and middle coxae a little darker; hind coxa dark brown; hind femur brownish towards apex; hind tibia pale yellow with its extreme base and apical 1/4 blackish brown. Wings hyaline, stigma and veins fuscous brown.

Male. Unknown.

Distribution: Japan (Hokkaido).

Holotype: ♀, Fujigawa, Nukabira, Tokachi, Hokkaido, 19. vii. 1967, T. Saigusa leg.

This species is closely allied to the following species, *miyatakei*, but easily separable from the latter by a striated petiole, the first flagellar segment having many sense cones, the weakly convex scutellum, and by the piceous thorax.

3. *Stictopisthus miyatakei* n. sp.

Closely related to *S. punctatus* in structure, but differing as follows.

Female. Occipital carina complete, weakly angulate medially. Temple sparsely punctate. Frons with a somewhat broad median longitudinal

convexity which is carinated laterally, space between the carinae at the narrowest point about as wide as fore ocellus, also with a distinct median longitudinal keel (Fig. 2, E). Face not so strongly convex, punctures much sparser laterally and dorsally, a weak median longitudinal keel present, width $2.3 \times$ basal width of clypeus. Clypeal fovea rather indistinct. Clypeus distinguished from face as an almost impunctate and flattened area, apical margin broadly rounded with a pair of weak small teeth. Malar space $0.5 \times$ basal width of mandible. Antenna with 28-30 flagellar segments, sense cones almost absent from first flagellar segment. Mesonotum less densely punctate than in *punctatus*. Scutellum flattened and almost impunctate. Mesopleuron punctate as in *punctatus*, but punctures a little shallower and smaller, one short carina on posteroventral corner. Petiolar area of propodeum rather sparsely with very fine punctures. Petiole without lateral carina, not striate on postpetiole. Second tergum length $1.7 \times$ width at base. Ovipositor sheath width about $1.6-1.7 \times$ width of first flagellar segment diameter.

Reddish brown. Vertex tinged with dark brown along occipital carina. Ocellar prominence blackish. Antenna darkened towards apex. Mesonotum black on lateral scutal areas and with a broad longitudinal black band on anterior $1/3$ of median scutal area, the band separated from lateral scutal area by a narrow brownish stripe. Scutellum mostly dark brown. Mesosternum and mesopleuron extensively marked with dark brown. Metapleuron black, somewhat tinged with brown. Propodeum piceous black. Petiole piceous black with its apex yellowish. Second tergum black, its apical $1/4$ yellowish brown. Third tergum dark brown, with a narrow yellowish brown basal margin which is producing into a broad median band and extending to apical $1/3$. Fourth and following terga dark brown, marked with reddish brown laterally on each tergum. Ovipositor sheath piceous black with its extreme apex brownish. Legs tinged with yellowish ventrally. Hind femur fuscous yellow with its apical $0.2-0.3$ dark brown. Wings hyaline, stigma and veins dusky brown.

Male. Closely resembles the female, from which it differs in the following points: Punctures on face a little denser. Antenna with 30 flagellar segments. Malar space $0.63 \times$ basal width of mandible. Punctures on mesopleuron a little coarser. Second tergum length $1.8 \times$ width at base. Legs slender, hind femur width $0.26 \times$ length. Mesonotum also reddish brown along the lateral carina. Mesopleuron and mesosternum largely reddish brown. Metapleuron reddish brown. Legs much paler.

Distribution. Japan (Amami-Ōshima).

Holotype: ♀, Amami-Ōshima, 4. xi. 1966, Y. Miyatake leg.

Paratypes: 1♀, 1♂, same data and collector as holotype.

This species most closely resembles *S. complanatus* (Haliday, 1839) from England and China, but is separable from the latter by the slender petiole without lateral carinae and striations, by the strongly carinated

frontal convexity, and by the longer second tergum (in *complanatus* from China petiole distinctly widened behind spiracle and with some striations laterally on postpetiole, and second tergum length $1.3 \times$ width at base).

4. *Stictopisthus minimus* n. sp.

Female. Head polished; vertex impunctate; occipital carina complete and rounded medially; temple sparsely punctate; frons impunctate with slight shagreenings, with weak median longitudinal convexity, but the convexity not carinated laterally; face slightly convex, with a weak vertical keel medially, closely punctate in center, punctures a little sparser and shallower laterally and dorsally, width $2.4 \times$ basal width of clypeus; clypeus distinguished from face as a weakly elevated and flattened area, coarsely foveolate-punctate apically, apical margin subtruncate; malar space $0.85 \times$ basal width of mandible; antenna with 26 flagellar segments, a few sense cones on first flagellar segment first segment length $5.8 \times$ width.

Thorax polished; pronotum impunctate; mesonotum rather sparsely with fine punctures; scutellum roundly convex and impunctate; mesopleuron very sparsely punctate ventrally, somewhat rugulose in center; mesosternum indistinctly punctate; metapleuron sparsely punctate.

Propodeum polished and impunctate; carination complete; upper median area longer than petiolar area (7.5:5.5); rugulose on petiolar area.

Abdomen polished and impunctate; rather stout, weakly narrowed from base of segment 3 to apex of abdomen; petiole without distinct lateral carina; rugulosely grooved at apical $1/3$ of postpetiole, weakly striated at sides, shallowly depressed just behind spiracle; second tergum rather strongly widened posteriorly, length $1.4 \times$ width at base; ovipositor sheath width $1.1 \times$ first flagellar segment width.

Legs slender; hind femur $4 \times$ as long as wide (Fig. 3, B).

Body length 2.9 mm.

Black. Head yellowish brown, vertex and upper half of occiput dark brown. Antenna dark brown; first flagellar segment, scape and pedicel yellowish brown. Propleuron dark brown. Pronotum and swollen marginal rim of mesopleuron brownish. Tegula yellowish. Petiole piceous black; basal $1/3$ and extreme apex reddish brown. Second and basal half of third terga yellow, the former with a pair of large basolateral blackish brown spots. Remainder of abdominal terga black, somewhat tinged with brown. Legs tawny yellow; hind coxa reddish brown; hind femur weakly tinged with reddish brown; hind tibia pale yellow with its apex darkened.

Male. Unknown.

Distribution: Japan (Honshu).

Holotype: ♀, Mt. Senjōdake, Nagano Pref., Honshu, 22. vii. 1962, F. Nakasuji leg.

This species is characteristic in having the slender legs and the long first flagellar segment. It is most closely allied to *S. chinensis* (Uchida, 1942), but may be separated from the latter by the black thorax, the petiole without lateral longitudinal carinae, the short petiolar area of propodeum, and by the very sparsely punctate mesopleuron.