

On the Japanese Species of the Genus *Ischnoceros* Gravenhorst, with Descriptions of Two New Species (Hymenoptera: Ichneumonidae)

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Introduction

Ischnoceros is a small Holarctic genus, represented by only the seven species: two from Europe, one from North America and four (including two new species) from Japan. In the course of the present study I have found three species in Japan, of which two are new to science. The species of *Ischnoceros* have been known as ectoparasites of larvae of xylophagous Coleoptera belonging to Cerambycidae. The holotypes of the new species are preserved in the collection of the Entomological Institute, Hokkaido University, Sapporo.

Genus *Ischnoceros* Gravenhorst

Ischnoceros Gravenhorst, Ichneumonologia europaea 2: 949, 1829. [Type-species: *Ischnoceros rusticus* Fourcroy].

Mitroboris Holmgren, Öfvers Svenska Vetensk. Akad. Förh. 16: 131, 1857. [Type-species: *Xorides* (*Odontomerus*) *cornutus* Ratzeburg (= *Ischnoceros rusticus* Fourcroy)].

This genus is discussed in details by H. Townes (1957), H. and M. Townes (1960), J. Oehlke (1964) and H. Townes (1969).

Ischnoceros sapporensis Uchida (Figs. 1, 4, 7 & 10)

Ischnoceros seticornis var. *sapporensis* Uchida, Jour. Fac. Agr. Hokkaido Imp. Univ. 25: 15, 1928.

Ischnocerus (!) *seticornis* var. *sapporensis*: Watanabe, Ins. Mats. 18: 83, 1954.

Ischnocerus (!) *seticornis* var. *sapporensis*: Watanabe, Shinrin Boeki News 4: 9, 1955.

Ischnocerus (!) *seticornis* var. *sapporensis*: Iwata, Acta Hym. 1: 70, 1958.

Ischnoceros seticornis var. *sapporensis*: Iwata, Mushi 33: 41, 1960.

Ischnoceros seticornis var. *sapporensis*: Iwata, Acta Hym. 1: 149, 1960.

Ischnoceros sapporensis: Townes, Momoi and Townes, Mem. Amer. Ent. Inst. 5: 119, 1965.

Ischnoceros sapporensis: Kusigemati, Kontyû 40: 86, 1972.

On the basis of the present specimens a redescription is given below: —

♀. Face wide, 1.6–1.7 times as wide as high, strongly convex medially with strong punctures, elsewhere weakly and rather sparsely punctate, with a shallow V-shaped notch on the median dorsal margin; malar space 2/5–1/2 as long as basal width of mandible; clypeus wide, 2.0–2.1 times as wide as high, polished, weakly convex on dorsal 1/2, slightly concave on lower 1/2 with oblique or vertical

striae, with long erect sparse hairs, the apical margin being thin, weakly convex and weakly reflexed; labrum shortly exposed; temple wide, 1.1–1.3 times as long as the eye in lateral view, moderately swollen, with large, shallow and sparse punctures; frons weakly and sparsely punctate, with a strong median tubercle with deep longitudinal groove and short dense hairs, and impunctate area just behind the antennal socket; occipital carina strong, with a wide interruption (Fig. 1), the lower end joining oral carina far above the base of mandible; mandible rather strongly tapering towards apex, with sparse long hairs, the lower apical tooth a little shorter than the upper one. Antennae slender, filiform, with 36–39 segments; 1st flagellar segment about 4.4 times as long as wide at apex; 2nd flagellar segment 1.1–1.2 times as long as 1st flagellar one and 0.9–1.2 times as long as the 3rd one. Pronotum polished, with strong and vertical striae medially, strong and sparse punctures dorsally; epomia weak; mesoscutum strongly and closely punctate medially, finely punctate laterally and anteriorly; notaulus distinct basally, fading out posteriorly; mesopleurum polished, with weak and sparse punctures, the punctures becoming weaker and sparser dorsally, with a short, sharp vertical carina just below the subtegular ridge; speculum polished and impunctate; prepectal carina strong, the upper end connected with anterior edge of mesopleurum; postpectal carina present on median $1/3$; sternaulus very short and weak; metapleurum polished, longitudinally striate on about lower $2/3$, weakly and rather sparsely punctate on about upper $1/3$; scutellum short, flat, moderately strongly punctate, without lateral carinae. Propodeum polished and completely areolated; median basal area confluent with areola; lateral basal areas, almost entirely, weakly and densely punctate, elsewhere more or less longitudinally rugose with shallow, large and sparse punctures; propodeal crest strong; propodeal spiracle small, ovate. Wings (Figs. 7 and 10) with areolet absent; nervulus ante-furcal by $1/9$ – $1/6$ of its own length; stigma large 3.8–4.1 times as long as wide at middle; radius emitted from basal $4/9$ – $1/2$; portion of cubitus between intercubitus and 2nd recurrent vein 2.4–3.9 times as long as intercubitus; nervellus intercepted at lower $1/3$ – $3/8$. Legs stout; hind femur 3.3–3.5 times as long as wide in lateral view, without a tooth beneath; inner spur of hind tibia about 1.2 times as long as the outer one; basitarsus of hind leg about $3/4$ as long as 2nd and following segments together except claws; all tarsal claws simple; apical margin of front tibia without a tooth on the outer side. Abdomen with 1st tergite stout, short, rather strongly bent at the middle (Fig. 4), 1.4–1.5 times as long as wide at apex, weakly and longitudinally rugulo-punctate, its spiracle situated at basal $3/8$; dorsolateral carina of 1st tergite distinct, almost complete (Fig. 4); 2nd tergite $3/5$ – $5/8$ as long as wide at apex and about 1.2 times as long as the 3rd one, moderately strongly and densely punctate, the punctures becoming weaker apically; 3rd to 5th tergites finely and transversely striate basodorsally, finely punctate laterally and posteriorly, the apical margins being membranous; 7th and 8th tergites very finely punctate; epipleurum of 2nd tergite narrow, $2/9$ as long as basal width of 2nd tergite, the inner margin being almost straight. Ovipositor subcylindrical basally, weakly compressed apically, without a subapical dorsal notch; tip of lower valve with weak 10 teeth; ovipositor sheath about $1/3$ as long as forewing.

Black. Clypeus dark brown, darker dorsally; mandible blackish brown, black at base and on apical teeth; antennae infusate, a little paler basally; palpi and labrum pale-yellow to yellowish brown. Tegula dark brown, a little paler apically. Front leg with coxa dark brown; trochanter yellowish brown to dark brown, 1st trochanter almost entirely dark brown; 2nd trochanter almost entirely yellowish brown; femur dark brown, pale-yellow on inner apical $1/2$; tibia pale-yellow on the inner side, light infusate on the outer side, with a basal white band; tarsus infusate. Middle leg infusate; basal $1/3$ of tibia white. Hind leg infusate to black; basal $1/3$ of tibia white. Ovipositor sheath infusate. Wings subhyaline.

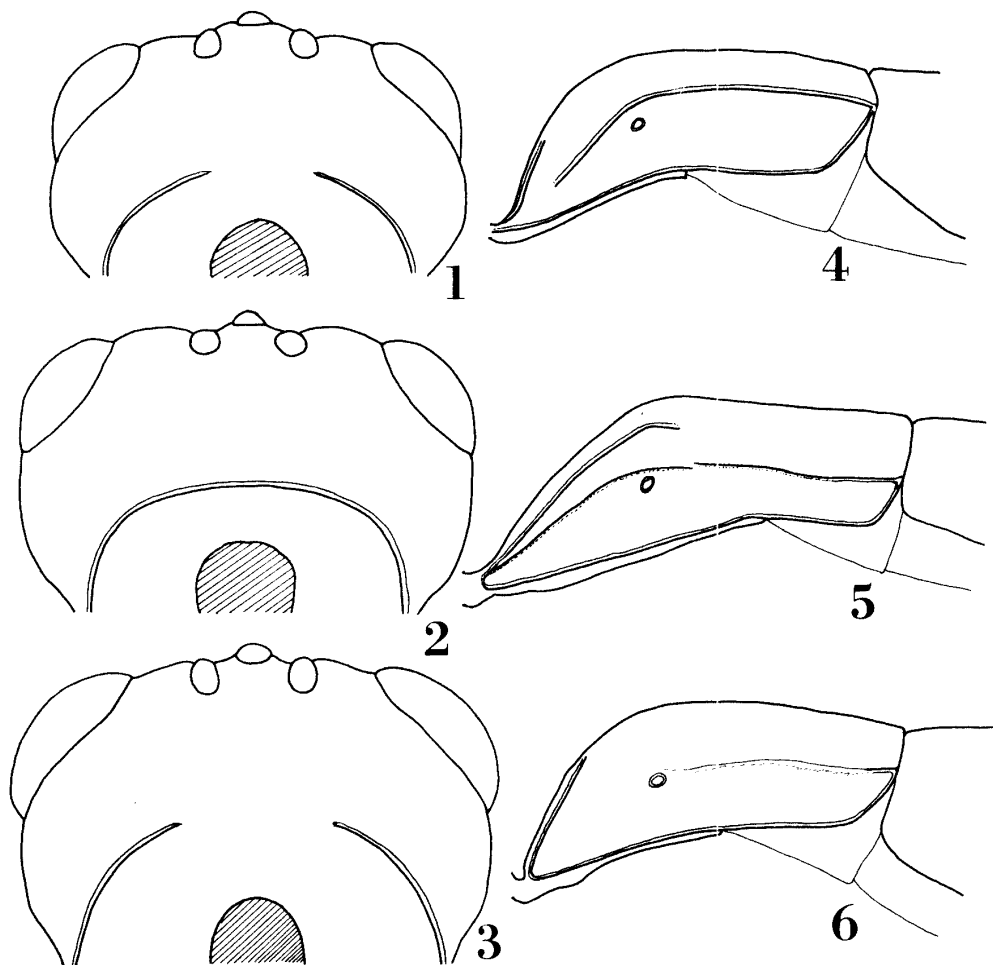
Length: Body 8.7–10.6 mm., forewing 6.7–8.5 mm.

♂. Unknown.

Specimens examined: 1♀, Sapporo, Hokkaido, 13-vi-1949, reared from *Callidium violaceum* Stool by K. Kosugi; 1♀, Naeba-san, Nagano-ken, Honshu, 15-viii-1969, T. Kocha leg.

Hosts: *Callidium rufipenne* Motschulsky (Cerambicidae, Col.) (after C. Watanabe, 1954 and 1966; H. Townes, 1957); *C. violaceum* Stool (Cerambicidae, Col.) (after K. Kusigemati, 1972).

Distribution: Japan (Hokkaido and Honshu).



13 Figs. 1–3. Heads in dorsal view, females: 1. *Ischnoceros sapporensis* Uchida; 2. *I. assimilis*, sp. nov.; 3. *I. kirishimensis*, sp. nov.

Figs. 4–6. First abdominal tergites in lateral view, females: 4. *I. sapporensis* Uchida; 5. *I. assimilis*, sp. nov.; 6. *I. kirishimensis*, sp. nov.

***Ischnoceros kirishimensis*, sp. nov. (Figs. 3, 6, 8 & 11)**

This new species is quite similar to the preceding species, *I. sapporensis*, from which this might be distinguished by means of the following characters: —

♀. Head with temple wide, weakly swollen, about as long as eye in lateral view, a little more strongly and densely punctate; antennae long, filiform, with 36 or 37 segments; 1st flagellar segment 4.0–4.2 times as long as wide at apex and about 1.2 times as long as 2nd flagellar one; 2nd flagellar segment about as long as 3rd flagellar one; occipital carina with a wide dorsal interruption (Fig. 3). Pronotum more weakly striate than in *sapporensis*. Propodeum with areola incompletely confluent

with 2nd lateral area and median basal area. Wings (Figs. 8 and 11) with nervulus antefurcal by $1/8-1/4$ of its own length; stigma about 4.4 times as long as wide at the middle; portion of cubitus between intercubitus and 2nd recurrent vein 2.3–2.7 times as long as intercubitus; nervellus intercepted at lower $3/7-1/2$. Abdomen with 1st tergite distinctly and rather densely punctate, the dorsolateral carina indistinct, sometimes obtuse (Fig. 6); 2nd tergite sharply and closely punctate.

Black. Clypeus entirely blackish; labrum dirty yellowish brown; mandible black, dark reddish brown medially; palpi pale-yellow to light yellowish brown; antennae infusate, a little paler basally. Front leg with coxa blackish brown; 1st trochanter except for pale-yellow apex, dark brown; 2nd trochanter pale-yellow; femur dark brown, pale at base and on apicolateral $1/3$; tibia pale-yellow to dark brown, darker apicodorsally; tarsus yellowish brown, the last segment being infusate. Middle leg with coxa black, yellowish brown at apex; 1st trochanter dark brown, pale-yellow at apex; 2nd trochanter pale-yellow; femur dark brown to black, yellowish brown at the both ends; tibia pale-yellow to fuscous, darker apically, pale-yellow on basoventral $2/3$, with a basal white band; tarsus dark brown, sometimes basal $1/2$ of basitarsus pale-yellow, the last segment being infusate. Hind leg with coxa black; 1st and 2nd trochanters blackish basally, yellowish brown apically, respectively; femur blackish, yellowish brown at the both ends; tibia infusate, white on basal $1/3$; tarsus infusate, sometimes whitish on basal $1/3$ of basitarsus. Ovipositor sheath infusate. Wings subhyaline.

Length: Body 9.8–10.3 mm., forewing 8.2–8.6 mm.

♂. Unknown.

Holotype (♀): Mt. Kirishima (Kurino-dake), Kagoshima-ken, Kyushu, 26-v-1966, K. Kusigemati leg. Paratype: 1♀, Mt. Kirishima (Kurino-dake), Kagoshima-ken, Kyushu, 25-v-1966, K. Kusigemati leg.

Host: Unknown.

Distribution: Japan (Kyushu).

This species is closely related to the preceding species, *I. sapporensis* Uchida, but this is readily distinguished by the 2nd tergite which is strongly and densely punctate, and by the incomplete median longitudinal carina, etc. as mentioned in the key.

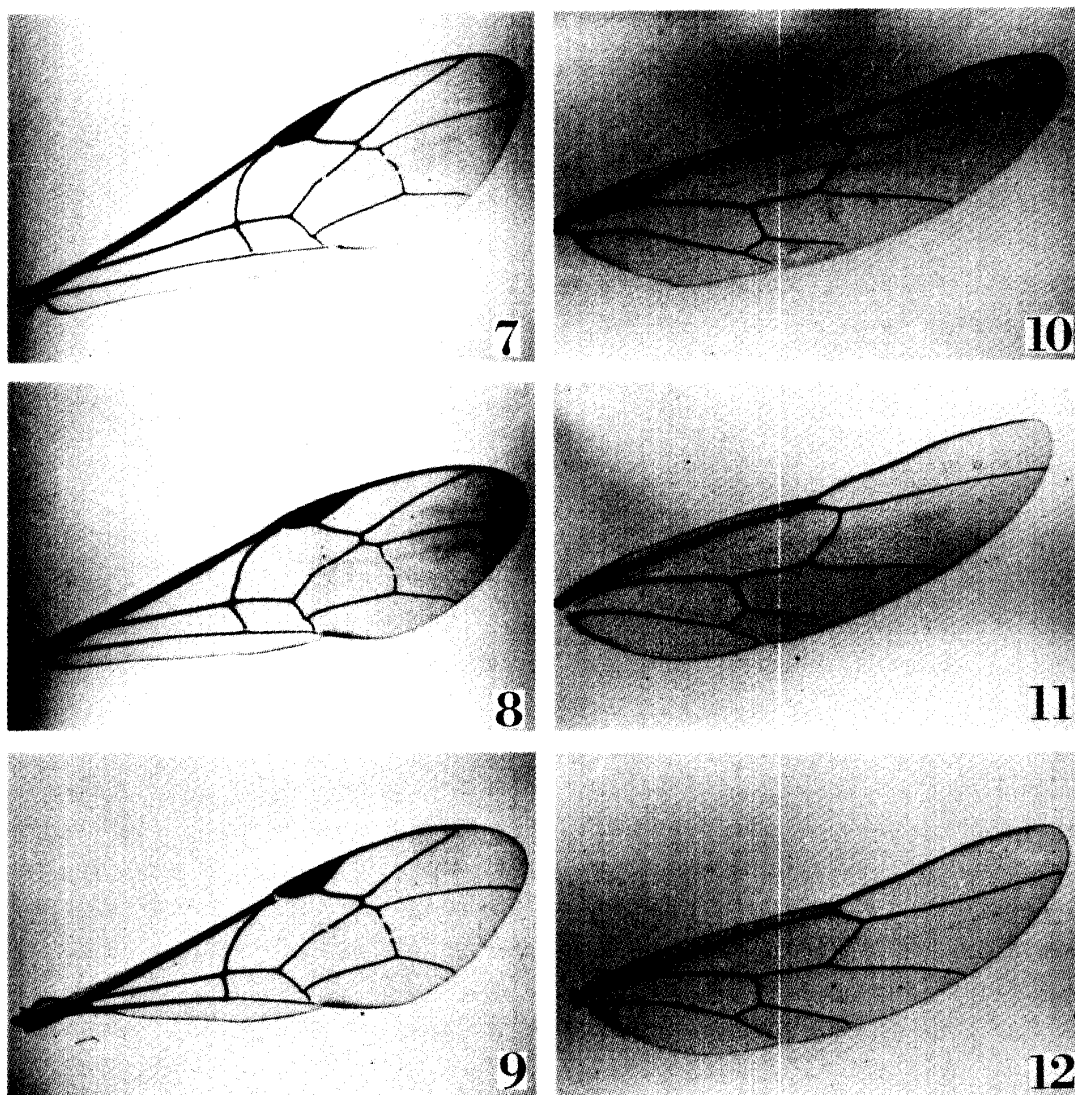
Ischnoceros assimilis, sp. nov. (Figs. 2, 5, 9 & 12)

This species is also similar to *I. sapporensis*, from which this might be distinguished by the following characters: —

♀. Face wide, about 1.9 times as wide as high; clypeus about 1.6 times as wide as high; malar space wide, $5/7$ as long as basal width of mandible; frons more strongly densely punctate than those in *sapporensis*; temple wide, weakly swollen, 1.4 times as long as the eye in lateral view, strongly and sparsely punctate, the punctures becoming sparser towards eye margin; dorsal side of frontal tubercles wide, and more strongly and deeply grooved than in *sapporensis*; occipital carina strong and complete, without a dorsal interruption (Fig. 2). Antennae with 33 segments; 1st flagellar segment stout, 3.3 times as long as wide at apex and 1.5 times as long as 2nd flagellar one; 2nd flagellar segment 1.1 times as long as 3rd flagellar one. Pronotum strongly and obliquely rugoso-punctate almost entirely; epomia very weak; mesoscutum longitudinally rugoso-punctate postmedially, weakly and densely punctate on anterior $1/2$ of median lobe, weakly and sparsely punctate on lateral $2/3$ of lateral lobe; scutellum almost flat, strongly and sparsely punctate; mesopleurum more strongly and densely punctate; sternaulus entirely absent; postpectal carina obsolete; metapleurum weakly and loosely rugose. Propodeum subpolished; areola confluent with petiolar area; 1st lateral area almost entirely, moderately strongly and rather sparsely punctate; 2nd lateral area

longitudinally rugose; areola trans-striate; petiolar area longitudinally striate; propodeal crest a little longer than in *sapporensis*; propodeal spiracle large, subcircular. Wings (Figs. 9 and 12) with nervellus antefurcal by about 1/3 of its own length; stigma 4.0 times as long as wide at middle; radius emitted from basal 1/3; portion of cubitus between intercubitus and 2nd recurrent vein 2.0 times as long as intercubitus; nervellus intercepted at the middle. Hind femur 3.2 times as long as wide in lateral view; inner spur of hind tibia about 1.3 times as long as the outer one. First tergite finely and loosely rugulose, about 1.7 times as long as wide at apex; dorsolateral carina of 1st tergite weak but complete (Fig. 5); median longitudinal carina of 1st tergite present on about basal 1/2 (Fig. 5); spiracle of 1st tergite situated at basal 3/7; epipleurum of 2nd tergite moderately wide, 3/8 as long as basal width of 2nd tergite, the inner margin being weakly convex; 2nd to 6th tergites finely and transversely striate almost entirely; lower valve of ovipositor tip with about 10 teeth; ovipositor sheath about 2/5 as long as forewing.

Black. Clypeus entirely tinged with dark brown; labrum and palpi yellowish brown to in-



Figs. 7-9. Right forewings, females: 7. *Ischnoceros sapporensis* Uchida; 8. *I. kirishimensis*, sp. nov.; 9. *I. assimilis*, sp. nov.

Figs. 10-12. Right hind wings, females: 10. *I. sapporensis* Uchida; 11. *I. kirishimensis*, sp. nov.; 12. *I. assimilis*, sp. nov.

fuscate; mandible blackish, a little paler medially; antennae infusate. Front leg yellowish brown to light reddish brown; 1st trochanter except at apex, dark brown; tibia with an indistinct basal pale-yellow band. Middle leg light reddish brown; 1st trochanter except at apex, dark brown; tibia except for basal pale-yellow band, and tarsus dark brown. Hind leg with coxa reddish brown; trochanter, femur, tibia and tarsus infusate; tibia with a indistinct basal pale-yellow band. Ovipositor sheath blackish. Wings subhyaline.

Length: Body ca. 10.1 mm., forewing 7.9 mm.

♂. Unknown.

Holotype (♀): Aizankei, Kamikawa, Hokkaido, 19-vii-1966, K. Kusigemati leg.

Host: Unknown.

Distribution: Japan (Hokkaido).

This species is closely allied to the Japanese species, *I. sapporensis*, but it is easily distinguished by the complete occipital carina, by the 2nd tergite which is transversely striate, by the presence of median longitudinal carina of 1st tergite and by the colouration of legs. Furthermore, this species resembles the Nearctic species, *I. clivulus* Townes, but it may be clearly differentiated from *clivulus* by the complete dorsolateral carina of 1st tergite and by the comparatively short ovipositor sheath.

Ischnoceros? bicinctus Walker

Ischnocerus (!) *bicinctus* Walker, Cistula Ent. 1: 303, 1874. Type lost.

Ischnocerus (!) *bicinctus*: Morly, Entomologist 46: 132, 1913.

Ischnoceros? bicinctus: Townes, Momoi and Townes, Mem. Amer. Ent. Inst. 5: 118, 1965.

Distribution: Japan.

As this species has not yet been known exactly to me, it is excluded from the present key.

In conclusion, the three species described herein are easily distinguishable by the following key: —

Key to the Japanese species of *Ischnoceros*

1. Occipital carina strong and complete above (Fig. 2); clypeus narrow, 1.6 times as wide as high. Sternaulus absent. Propodeum with areola confluent with petiolar area. Second tergite with fine and transverse striae. Hind coxa dark reddish brown; basal whitish bands of middle and hind tibiae narrow and indistinct.*assimilis*, sp. nov.
- Occipital carina incomplete above, with a wide dorsal interruption (Figs. 1 and 3); clypeus wide, 2.0–2.1 times as wide as high. Sternaulus more or less present basally. Propodeum with areola separated from petiolar area by a distinct carina. Second tergite strongly punctate or rugulo-punctate. Hind coxa black; basal whitish bands of middle and hind tibiae wide and distinct.2
2. Propodeum with median longitudinal carinae obsolete on areola. Second tergite distinctly and densely punctate. Nervellus intercepted at lower $3/7-1/2$ (Fig. 11). Pronotum more weakly striate.*kirishimensis*, sp. nov.
- Propodeum with median longitudinal carinae strong and complete. Second tergite weakly rugulo-punctate. Nervellus intercepted at lower $1/3-3/8$ (Fig. 10). Pronotum more strongly striate.*sapporensis* Uchida

Summary

Three species of the *Ischnoceros* are described: *I. assimilis*, sp. nov. from Hokkaido, *I. kirishimensis*, sp. nov. from Kyushu and *I. sapporensis* Uchida. A key to the Japanese species is given.

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References

- 1) Aubert, J. -F.: Les ichneumonides ouest-paléarctiques et leurs hôtes. 1. Pimplinae, Xoridinae and Acaenitinae. Quatre Feuilles Editeur, 299 pp. (1969)
- 2) Gravenhorst, I. L. C.: Ichneumonologia europaea II, 989 pp. (1829)
- 3) Krombein, K. V., Hurd, Jr. P. D., Smith, D. R. and Burks, B. D.: Catalog of Hymenoptera in America North of Mexico. 2735 pp. (1979)
- 4) Kusigemati, K.: New host records of Ichneumonidae from Japan. *Kontyû* **40**, 85–87 (1972)
- 5) Oehlke, J.: Übersicht und Bestimmungstabelle der palaearktischen Gattungen der ehemaligen Unterfamilie Pimplinae auct. (Hymenoptera, Ichneumonidae). *Ent. Abh. Ber. Mus. Tierk. Dresden* **29**, 533–590 (1964)
- 6) Townes, H.: A revision of the genera of Poemenini and Xoridini (Hymenoptera, Ichneumonidae), *Proc. Ent. Soc. Washington* **59**, 15–23 (1957)
- 7) Townes, H. and Townes, M.: Ichneumon-flies of America North of Mexico: 2. Subfamily Ephialtinae, Xoridinae and Acaenitinae. *U. S. Nat. Mus. Bul.* 216, part 2, 679 pp. (1960)
- 8) Townes, H., Momoi, S. and Townes, M.: A catalogue and recalassification of the Eastern Palearctic Ichneumonidae. *Mem. Amer. Ent. Inst.* **5**, 661 pp. (1965)
- 9) Townes, H.: The genera of Ichneumonidae, part 1, *Mem. Amer. Ent. Inst.* **11**, 300 pp. (1969)
- 10) Uchida, T.: Dritter Beitrag zur Ichneumoniden-fauna Japans. *Jour. Fac. Agr. Hokkaido Imp. Univ.* **25**, 1–115 (1928)
- 11) Watanabe, C.: Hymenopterous parasites of the longicon beetle, *Semanotus rufipennis* Motschulsky. *Ins. Mats.* **18**, 79–83 (1954)