

## Descriptions of Four New Ichneumonflies Parasitic on Pine Insect Pests in Thailand (Hymenoptera: Ichneumonidae)

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### Introduction

On the basis of material reared from economically important insect pests of pine, *Dioryctria* spp., *Eutectona machaeralis* Walker, and *Petrova salweenensis* Miller in Thailand by Drs. C. Hutacharern and J. Sriputachrt four new species of the Ichneumonidae are described in the following pages.

The holotypes and paratypes will be preserved in the collection of the Central Forest Research Laboratory and Training Center, Royal Forest Department, Bangkok. Some duplicate paratypes will be preserved in the collection of the Entomological Institute, Hokkaido University, Sapporo.

### *Tromatobia hutacharerni* sp. nov. (Figs. 2, 6 & 10)

♀. Face subpolished, rather sparsely and distinctly punctate, the punctures sparser centrally, about 1.1 times as wide as high at level of clypeal fovea; clypeus sparsely haired, 2.0 times as wide as high, its apical margin strongly concave; malar space very short, 1/9 as long as basal width of mandible; upper tooth of mandible stouter and a little longer than the lower one; inner margins of eyes weakly convergent ventrally; frons almost flat, bare, sparsely haired dorsally and laterally; vertex with few hairs; distance between lateral ocelli and eyes about 1.1 times as long as diameter of an ocellus; occiput and temple sparsely haired; temple weakly swollen, 4/9 as long as eye in lateral view; occipital carina weak but complete, its dorsomedian part weakly and evenly arched upwards. Flagellum 31-segmented; 2nd flagellar segment 5/7 as long as the 1st and 1.1 times as long as the 3rd. Pronotum subpolished, almost bare, densely haired on dorsal and posterodorsal parts; epomia distinct and rather long; mesopleurum with rather sparse, setiferous punctures, with a large bare area along mesopleural suture; speculum polished, bare; prepectal carina slightly sinuate at sternaulus, ending nearly at level of mesopleural pit, its upper end distant from front edge of mesopleurum by about 1.5 times of tegular width; metapleurum rather sparse, setiferous punctures entirely. Propodeum (Fig. 2) short, rather strongly convex, with median longitudinal carinae on about basal 1/2; basal area and basolateral corner of 1st lateral area bare and impunctate; basolateral 1/2 of propodeum with large punctures; apical 1/2 of propodeum strongly rugose with large punctures; propodeal spiracle subcircular. Wings (Figs. 6 & 10) with nervulus interstitial; stigma about 3.9 times as long as wide, with radius emitting from basal 1/2 of stigma; 2nd recurrent vein a little distad of areolet; nervellus intercepted at lower 5/7. Hind femur rather stout, 4.1 times as long as wide in lateral view. Abdomen with 1st tergite

short, 7/9 as long as at apex, coarsely and densely punctate except for impunctate basomedian concavity, in profile, with a dorsomedian angle, its dorsomedian carina strong, attaining to apical 2/7; 2nd tergite 5/6 as long as wide at apex and 1.1 times as long as the 3rd; 2nd to 6th tergites strongly and densely punctate, the punctures a little weaker posteriorly; 7th and 8th tergites with weak, setiferous punctures; ovipositor compressed; apicodorsal side of ovipositor tip flattened; ovipositor sheath 1.8 times as long as hind tibia.

Black, with abdomen ferruginous. Clypeus weakly tinged with reddish brown; mandible black, the apical teeth dark reddish brown; tegula and humeral angle of pronotum whitish yellow. Scape and pedicel whitish yellow, infusate on lateral side; flagellum yellowish brown to infusate, a little paler apically, the basal 2 or 3 segments whitish yellow entirely. Lower corner and anterior margin of pronotum yellowish brown; apex of scutellum and postscutellum slightly tinged with dark reddish brown. Front and middle legs light yellowish brown. Hind leg with coxa and femur yellowish brown; trochanters light yellowish brown; tibia light yellowish brown, infusate on apical 1/6; 1st metatarsus except at apex, basal 2/3 of the 2nd and basal 1/2 of the 3rd whitish yellow; apex of metatarsus, apical 1/3 of 2nd tarsal segment, apical 1/2 of 3rd tarsal segment, 4th and 5th tarsal segments fuscous. First tergite black, weakly tinged with reddish brown on apical part; 2nd to 6th tergites more or less ferruginous, with a pair of dark brown markings on the 2nd, and with an apical narrow dark brown band on the 2nd to 5th; 7th and 8th tergites blackish; ovipositor yellowish brown; ovipositor sheath infusate. Wings hyaline; stigma fuscous.

Length: Body 10.0 mm, forewing 6.9 mm.

♂. Unknown.

Holotype (♀): Chiangmai, ix-1981, reared from larva of *Dioryctria* sp. on *Pinus kesiya* Royle et Gord by C. Hutacharern.

Host: *Dioryctria* sp. (Pyralidae, Lep.).

It is said that the members of the genus *Tromatobia* are gregarious parasites of spider egg cocoons. The rearing-record from *Dioryctria* sp. is very interesting, if the record is correct.

Distribution: Thailand.

This species is most closely related to the Holarctic *T. variabilis* (Holmgren, 1856), but it is readily distinguished from the latter by the stout and wide 1st abdominal tergite, the rather sparsely haired meso- and metapleurum, the propodeum with strong rugae on the apical half, and the hyaline wings.

#### *Venturia dioryctriae* sp. nov. (Figs. 4, 7 & 11)

♀. Head, thorax, propodeum and coxae covered with long, rather dense, silvery hairs. Face about 1.3 times as wide as high at level of lower margin of antennal socket, mat with rather dense and weak punctures, rugulo-punctate partly; clypeus weakly mat with rather strong and dense punctures, its apical margin weakly convex, weakly marginated; inner margins of eyes parallel-sided; malar space mat, 4/9 as long as basal width of mandible; temple weakly swollen, weakly mat with fine and dense punctures, 5/9 as long as eye in lateral view; frons strongly mat with weak punctures; vertex and occiput weakly mat; distance between lateral ocelli and eyes 5/8 as long as diameter of an ocellus; eye with short and very sparse hairs; occipital carina distinct and complete, its lower end joining oral carina at base of mandible. Flagellum 38-segmented; 1st flagellar segment 3.1 times as long as wide at apex and 1.2 times as long as the 2nd. Pronotum obliquely and roughly striate, strongly and rather densely punctate on posterodorsal portion;

mesoscutum weakly mat with strong and dense punctures, with rugae along notaulus; scutellum weakly convex, strongly and rather densely punctate, rugose apically; mesopleurum weakly mat with distinct and rather dense punctures, with oblique striae just before speculum, speculum polished, impunctate; metapleurum weakly mat with strong and dense punctures, reticulate-rugose on posterior portion. Propodeum strongly carinate, trans-striate with strong punctures, the petiolar area more strongly trans-striate; areola confluent with petiolar area; basal area bare; 1st lateral area rather sparsely rugoso-punctate; 2nd pleural area rather weakly and vertically striate-punctate; apex of propodeum at basal 2/3 of hind coxa; propodeal spiracle elliptic. Wings with stigma narrow, with radius emitting from basal 1/3; nervulus postfurcal by 1/9 of its own length; areolet with a long stalk above; nervellus weakly reclivous, intercepted at lower 2/7. Hind femur 5.3 times as long as wide in lateral view; coxae weakly mat; front tarsal claws weakly pectinate. Abdomen with 1st tergite with very few punctures, 4.2 times as long as wide at apex and 1.3 times as long as the 2nd; postpetiole finely mat, about 1.5 times as long as wide its apical width; 2nd tergite weakly mat, rather sparsely haired, 1.8 times as long as wide at apex and 1.9 times as long as the 3rd; apical margin of 3rd to 5th tergites weakly concave medially; apical margin of 6th and 7th tergites strongly concave medially; ovipositor 2.9 times as long as hind femur, strongly upcurved.

Black. Mouth parts light yellowish brown, the apical teeth of mandible reddish brown; scape and pedicel light yellowish brown, a little darker dorsally; flagellum yellowish brown to fuscous, paler apically. Front coxa dark brown basally, yellowish brown apically; middle coxa blackish, yellowish brown at apex; front and middle legs except coxae light yellowish brown. Hind leg with coxa black, yellowish brown at extreme apex; trochanter, femur, tibia and tarsus yellowish brown to reddish brown, the 1st trochanter and femur a little darker. Abdomen with 1st tergite black, slightly tinged with dark reddish brown on apical portion; 2nd tergite largely dark brown, yellowish brown laterally and apically; 3rd tergite yellowish brown, dark brown on basodorsal portion; 4th to 7th tergites yellowish brown, dark brown dorsally; ovipositor yellowish brown; ovipositor sheath fuscous. Wings hyaline; stigma yellowish brown, the anterior margin fuscous.

Length: Body 8.8 mm, forewing 5.4 mm.

♂. Agrees with above-mentioned description of the female, except the following aspects:—

Face about 1.4 times as wide as high at level of lower margin of antennal socket; malar space 1/2 as long as basal width of mandible; flagellum 40-segmented; carination of propodeum a little more strong; wings (Figs. 7 & 11) with nervulus almost interstitial; nervellus intercepted at lower 1/3. Abdomen with 1st tergite 6.1 times as long as wide at apex; postpetiole 2.2 times as long as its apical width; 2nd tergite 1.9 times as long as wide at apex and 2.6 times as long as the 3rd; apical margin of each tergite truncate; male genital claspers with a weak dorsal subapical notch, its apex pointed (Fig. 4). Hind tarsus infuscate.

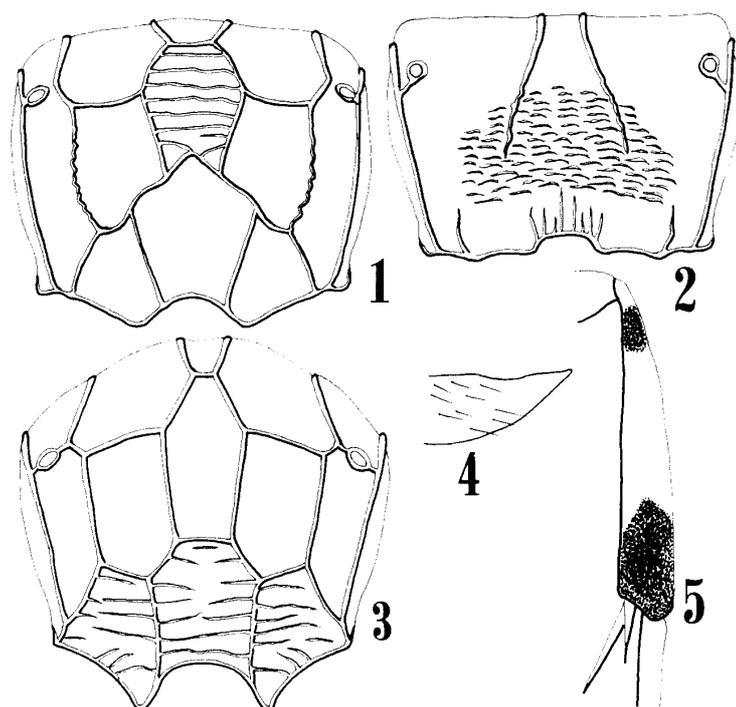
Length: Body 8.7 mm, forewing 5.2 mm.

Holotype (♀) & paratype (♂): Chiangmai, 1981, reared from larvae of *Dioryctria* sp. on *Pinus kesiya* Royle et Gord by C. Hutacharern.

Host: *Dioryctria* sp. (Pyralidae, Lep.).

Distribution: Thailand.

This species is very closely related to the Indian *V. longiterebrae* (Rao, 1953), from which it differs in the strongly mat frons, the entirely punctate mesopleurum, the strongly and densely punctate metapleurum, the shortly and very sparsely haired eyes, and the male genital claspers with a weak dorsal subapical notch.



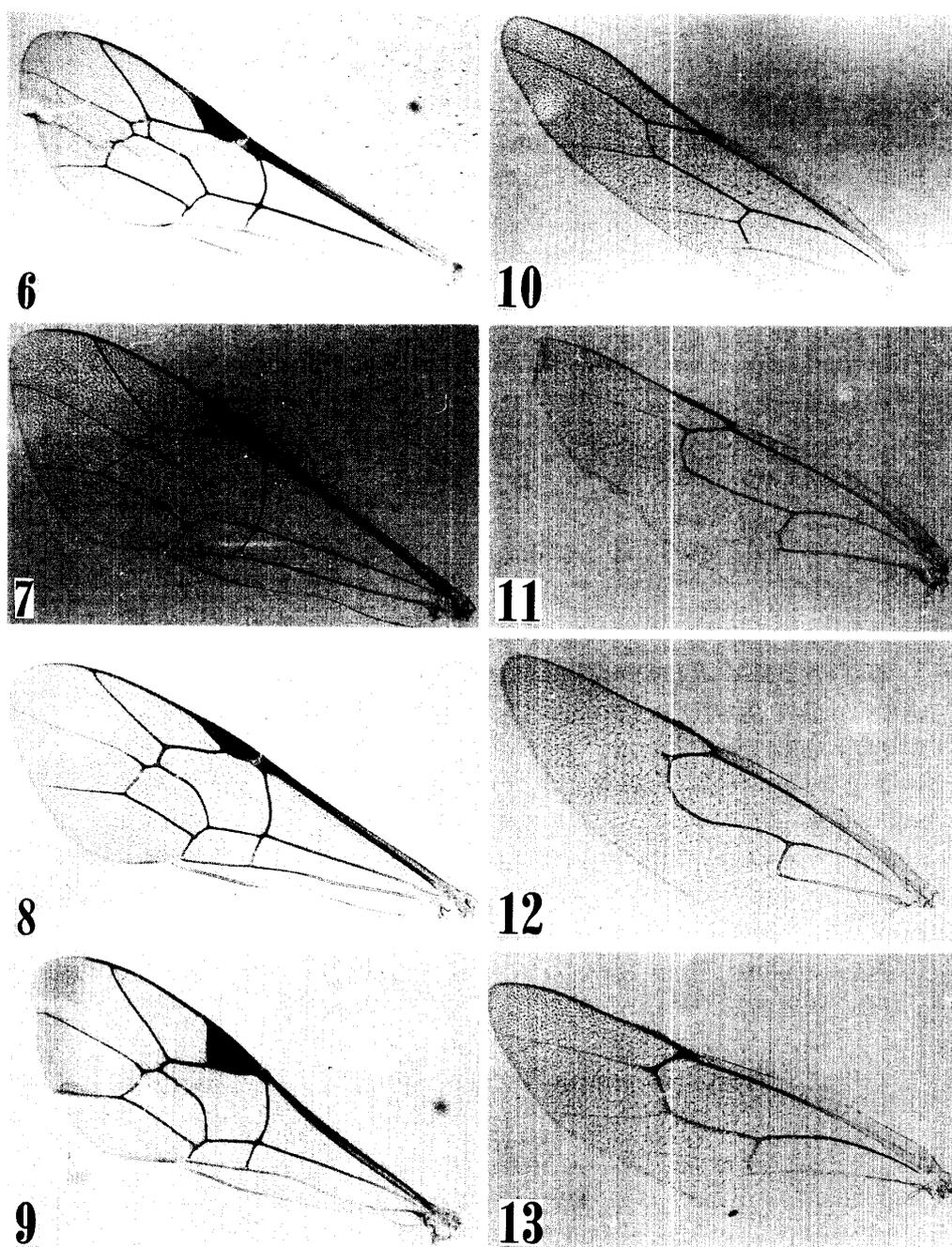
Figs. 1–3. Areolation and striation of propodea in dorsal view: 1, *Eriborus eutectonae* sp. nov., ♀; 2, *Tromatobia hutacharerni* sp. nov., ♀; 3, *Pristimerus petrovae* sp. nov., ♀.

Fig. 4. Clasper in lateral view, *Venturia dioryctriae* sp. nov., ♂.

Fig. 5. Colouration of hind tibia, *Eriborus eutectonae* sp. nov., ♂.

*Eriborus eutectonae* sp. nov. (Figs. 5, 8 & 12)

♀. Head, thorax, propodeum, and coxae covered with dense silvery hairs. Face about 1.3 times as wide as high at level of lower margin of antennal socket, distinctly and densely punctate; clypeus polished, a little more strongly and sparsely punctate than that of face, its apex evenly and weakly convex, and its apical margin not reflexed; inner margins of eyes parallel-sided; malar space narrow,  $2/9$  as long as basal width of mandible; mandible weakly tapering towards apex, 1.7 times as long as its basal width, with a rather high lamella along lower margin, the apical teeth equal in length; frons distinctly and very closely punctate; vertex mat; ocellar area mat with few large punctures; temple almost flat, finely and rather densely punctate; occipital carina weak but complete, its lower end ending oral carina far above mandible. Flagellum 32-segmented; 1st flagellar segment 3.8 times as long as wide at apex and 1.3 times as long as the 2nd; 2nd flagellar segment a little longer than the 3rd. Pronotum almost entirely punctate, with short and weak striae on lower corner; mesoscutum mat with distinct and dense punctures; scutellum distinctly rather sparsely punctate, with longitudinal and short striae on posterior portion; mesopleurum mat, with distinct and rather dense punctures; speculum obliquely striate; metapleurum strongly and densely punctate, rugoso-punctate posteroventrally. Propodeum (Fig. 1) moderately strongly and completely areolated; basal area small,  $3/8$  as long as wide at base, with a few punctures; 1st lateral area strongly and densely punctate, the punctures sparser basolaterally; areola about 1.4 times as long as wide at costula, weakly and coarsely trans-striate, its posterior margin strongly emarginated; 3rd lateral area strongly and densely rugoso-punctate; 2nd pleural area rather



Figs. 6–9 (forewings) & 10–13 (hind wings): 6 & 10, *Tromatobia hutacharerni* sp. nov., ♀; 7 & 11, *Venturia dioryctrinae* sp. nov., ♀; 8 & 12, *Eriborus eutectonae* sp. nov., ♀; 9 & 13, *Pristmerus petrovae* sp. nov., ♀.

densely and obliquely rugoso-punctate; petiolar area trans-striate; 3rd lateral area obliquely striate; propodeal spiracle short oval. Hind femur 4.5 times as long as wide in lateral view; tarsal claws rather strongly pectinate; hind basitarsus with an inconspicuous midventral row of small closely spaced hairs. Wings (Figs. 8 & 12) with nervulus postfurcal by  $2/9$  of its own length; areolet absent; portion of cubitus between intercubitus and 2nd recurrent vein  $2/3$  as long as intercubitus; nervellus vertical, not intercepted; discoidiella absent. Abdomen with 1st tergite very sparsely haired, the hairs a little denser posterolaterally, about 3.5 times as long as wide at apex; postpetiole stout, rather sparsely haired laterally, bare medially, about 1.2 times as long as

its apical width; 2nd tergite weakly mat, about 1.5 times as long as wide at apex and 1.1 times as long as the 3rd; thyridium subcircular, separated from base of 2nd tergite by 1/2 of its own length; 2nd and subsequent tergites covered with short, rather dense hairs; ovipositor 1.5 times as long as 1st tergite; ovipositor sheath 0.9 times as long as hind tibia.

Black. Palpi, mandible except for dark brown apical teeth and tegula stramineous; scape and pedicel stramineous, with a fuscous stripe on lateral side; flagellum fuscous to yellowish brown, darker basally. Front and middle legs stramineous to light yellowish brown, the base of middle coxa, last segments of tarsi dark brown. Hind leg with coxa black, yellowish brown at extreme apex; trochanter stramineous; femur light ferrugineous, dark brown on basolateral side; tibia light yellowish brown on median 5/9, infuscate on about basal 1/6 and about apical 1/4; tarsus infuscate. All tibial spurs stramineous. First abdominal tergite black, the apical part tinged with reddish brown; 2nd tergite blackish, its narrow sides and apical 3/8 reddish brown; 3rd and subsequent tergites reddish brown, the base of 3rd tergite infuscate, ovipositor sheath infuscate. Wings hyaline; stigma fuscous.

Length: Body 6.9 mm, forewing 5.0 mm.

♂. Unknown.

Holotype (♀): Dong-lan, Khoh-kaen, 7-v-1984, reared from *Eutectona machaeralis* Walker on *Tectona grandis* Linnaeus by J. Sriputachrt.

Host: *Eutectona machaeralis* Walker (Pyrilidae, Lep.).

Distribution: Thailand.

This species is very closely allied to the Oriental *E. argenteopilosus* (Cameron, 1907), but it differs from the latter by the stramineous palpi, the colouration of 2nd and 3rd abdominal tergites, the hind tibia with basal and apical infuscate bands, and the short elliptic propodeal spiracle. Furthermore, this species is similar to the Japanese *E. samuelsoni* Momoi, 1970, from which it is easily distinguished by the areola which is separated from the petiolar area by a strong carina, the striate speculum, the scape and pedicel with a lateral stripe each, and the head and thorax more hairs, dense and long.

***Pristmerus petrovae* sp. nov. (Figs. 3, 9 & 13)**

♀. Face 1.6–1.8 times as wide as high at level of clypeal fovea, strongly and densely punctate, the punctures a little weaker laterally, with a dull median prominence; clypeus rather strongly convex, weakly and densely punctate, 1.7–1.8 times as wide as high, its apical margin weakly convex and margined by a carina; malar space 3/8–3/7 as long as basal width of mandible; inner margins of eyes almost parallel-sided; frons mat with rather sparse, weak punctures, polished and impunctate on antennal scrobes; median longitudinal prominence of frons dull, with a few weak longitudinal striae; vertex and occiput mat with weak sparse punctures; distance between lateral ocelli and eyes as long as diameter of an ocellus; temple mat, almost flat, about 2/7 as long as eye in lateral view, with rather dense short hairs; occipital carina strong and complete, the lower part not sinuate, and the median dorsal part weakly and widely arched downwards; mandible stout, weakly tapering towards apex, densely and weakly punctate, the apical teeth equal in length. Flagellum with 34–38 segments; 2nd flagellar segment as long as the 1st and 1.1–1.2 times as long as the 3rd. Pronotum strongly and sparsely punctate, shortly trans-striate medially, with a large impunctate area on posterodorsal portion; mesoscutum strongly and densely punctate, with oblique striae along notaulus, and with longitudinal striae on

posterior portion; notaulus shallowly and widely impressed, reaching to about apical  $1/5$ ; mesopleurum strongly and rather densely punctate, with a row of short vertical striae just below speculum; speculum polished and impunctate ventrally, rather strongly punctate dorsally; scutellum slightly convex, impunctate, with or without a weak median longitudinal sulcus, sometimes finely and longitudinally striate on posterior portion, its lateral carina entirely absent; metapleurum a little more strongly punctate than in mesopleurum; juxtacoxal carina distinct and complete. Propodeum (Fig. 3) strongly and completely areolated; basal area small, bare,  $3/4$ – $7/9$  as long as wide at base, its apical margin widely marginated; areola long, 1.7–2.0 times as long as wide at costula, about as long as petiolar area, and 1.0–1.2 times as long as basal width of 2nd lateral area, with a few large punctures; 1st and 2nd lateral and pleural areas strongly punctate; petiolar, 3rd lateral and pleural areas transversely and strongly striate. Wings (Figs. 9 & 13) with stigma large, semicircular, 2.1–2.3 times as long as wide, with radius emitting from basal  $5/9$ – $3/5$ ; nervulus postfurcal by  $1/6$ – $2/5$  of its own length; intercubitus basad of 2nd recurrent vein by 1.2–1.7 times of its own length; nervellus weakly reclivous, intercepted at lower  $2/7$ . Legs slender; hind femur 4.1–4.3 times as long as wide in lateral view, with a large tooth and a row of 7–10 denticles on ventral side between the large tooth and apex of femur; ventral longitudinal carina of hind tibia present on about basal  $1/2$ . Abdomen with 1st tergite 3.6–3.8 times as long as wide at apex and 1.1–1.2 times as long as propodeum; postpetiole 1.5–1.7 times as long as its apical width; posterior part of petiole and postpetiole finely and longitudinally striate; 2nd tergite 2.7–3.0 times as long as wide at base and 1.3–1.5 times as long as the 2nd, finely and longitudinally striate, with thyridium small, separated from base of 2nd tergite by  $2/7$  of its length; 3rd tergite finely and longitudinally striate on about basal  $2/3$ , the striae weaker posteriorly; ovipositor sheath 2.8–3.0 times as long as 1st tergite.

Yellowish brown. Mandibular teeth dark brown; inner and outer orbits narrowly tinged with yellowish brown; face, frons, vertex, occiput, temple and postocciput blackish; lower part of temple and malar space light yellowish brown. Scape, pedicel and 1st or 2nd flagellar segments yellowish brown; flagellum except for 1st or 2nd segments infusate. Scutellum and postscutellum dirty yellow to yellowish brown; mesoscutum slightly tinged with reddish brown; propodeum blackish basally, yellowish or reddish brown posteriorly; metapleurum yellowish brown, sometimes dark reddish brown. Basal and apical bands of hind tibia indistinct, infusate; ventral denticles of hind femur reddish brown. Apical  $2/3$  of 1st tergite, 2nd tergite and basodorsal portion of 3rd tergite dark brown to blackish; ovipositor sheath infusate. Wings hyaline, weakly tinged with dark brown on apical portion (Fig. 9); stigma infusate.

Length: Body 6.3–9.2 mm, forewing 4.9–6.0 mm.

♂. Very similar to the female and differs in the following points:—

Face about 1.7 times as wide as high at level of clypeal fovea; inner margins of face weakly divergent ventrally; malar space about  $1/2$  as long as basal width of mandible; temple  $1/6$  as long as eye in lateral view; 2nd flagellar segment  $8/9$  as long as the 1st. Pronotum weakly and sparsely punctate, without striae. Propodeum a little more sparsely punctate than in female; basal area as long as wide at base; areola 2.4 times as long as wide at costula and 1.3 times as long as petiolar area. Wing with stigma 2.5 times as long as wide; nervulus postfurcal by  $1/5$  of its own length; nervellus intercepted at lower  $1/3$ . Hind femur stout, 3.4 times as long as wide in lateral view. Striae of 1st to 3rd tergites weaker than those of female; 1st tergite 4.0 times as long as wide at apex; 2nd tergite 3.6 times as long as wide at base. Ventral longitudinal carina of hind tibia reaching near apex. Hind coxa dark brown dorsally and laterally, yellowish brown ventrally; hind

femur yellowish brown, with a wide subapical dark brown band.

Length: Body 8.1 mm, forewing 5.4 mm.

Holotype (♀) & Paratypes, (1♂ & 4♀): Chiangmai, 1981, reared from larvae of *Petrova salweenensis* Miller on *Pinus kesia* Royle et Gord by C. Hutacharern.

Host: *Petrova salweenensis* Miller (Tortricidae, Lep.).

Distribution: Thailand.

This species is very similar to the Indian *P. testaceus* Morley, 1913, but it may be distinguished from the latter by the 3rd tergite with longitudinal striae on the basal half, the forewing with an apical infuscate band, and the blackish mesoscutum and propodeum. Furthermore, it resembles the Taiwanese *P. scutellaris* Uchida, 1932, but it differs from the latter in its finely and longitudinally striate scutellum, the strongly punctate speculum on the dorsal portion, and the blackish face, temple, mesoscutum and propodeum.

### Summary

Four new species, *Tromatobia hutacharerni*, *Venturia dioryctriae*, *Eriborus eutectonae*, and *Pristmerus petrovae* are described from Thailand. The Former two are solitary internal parasites of larvae of *Dioryctria* spp., and the latter two are solitary internal parasites of larvae of *Eutectona machaeralis* and *Petrova salweenensis*, respectively.

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