Six new species of the subgenus *Habronychus* (*Habronychus*) (Coleoptera: Cantharidae) from the Oriental region, with key to species

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**Key words.** Taxonomy, morphology, genitalia.

**Abstract.** Six new species of *Habronychus* (*Habronychus*) Wittmer, 1981 are described, including *H. (H.) laticeps* Y. Yang, Ge & X. Yang, sp. n., *H. (H.) honestus* Y. Yang, Ge & X. Yang, sp. n., *H. (H.) crassatus* Y. Yang, Ge & X. Yang, sp. n., and *H. (H.) tengchongensis* Y. Yang, Ge & X. Yang, sp. n. from China, and *H. (H.) longiplatus* Y. Yang, Ge & Liu, sp. n. and *H. (H.) trianguliceps* Y. Yang, Ge & Liu, sp. n. from Vietnam. In addition, a previously known species, *H. (H.) parallelicolor* (Pic, 1921), is redescribed. The above species are illustrated with habitus photographs, aedeagi, abdominal sternites VIII and internal genitalia of females. Key for identification of the species of this subgenus worldwide is provided.

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**INTRODUCTION**

The genus *Habronychus* was established by Wittmer (1981), with *Anolisus rubicundus* Champion, 1926 designated as the type species (Okushima & Satô, 1999). There was a controversy about the validity of *Habronychus* as the generic name (Brancucci, 2007), which was resolved by Kopetz (2008). At present, it is divided into three subgenera (Kazantsev & Brancucci, 2007). The nominate subgenus includes 15 species widely distributed in the Oriental and south eastern Palaearctic regions (Wittmer, 1981, 1982a, b; Ishida, 1986; Satô, 1986; Okushima & Satô, 1999; Švihla, 2004, 2005; Kazantsev & Brancucci, 2007; Kopetz, 2008). *Macrohabronychus* Wittmer, 1981 includes 11 species restricted to the Himalayan area (Kopetz, 2008; Yang et al., 2010) and *Monohabronychus* Okushima & Satô, 1999 is composed of 5 species endemic to Taiwan (Okushima & Satô, 1999; Kazantsev & Brancucci, 2007; Satô et al., 2014).

The members of *Habronychus* can be distinguished from all other genera of Cantharinae by the small to middle-sized and slender body, head with a pair of smooth impressions behind the antennal sockets, subquadrate pronotum, which is much narrower than head in the male, oval-shaped aedeagus which is deeply cleft ventrally and separated dorsally, with the ventral process and dorsal plate of each paramere approaching each other, a pair of laterophyses present between median lobe and dorsal plates, and the pro- and meso- inner and outer claws each with a basal tooth in both sexes in subgenus *Habronychus*, or all claws each with a tooth in *H. (Macrohabronychus)* or simple in *H. (Monohabronychus)* (Okushima & Satô, 1999). However, the female reproductive system, which is helpful in the taxonomy of Cantharinae (Okushima, 2005; Ge et al., 2021a, b, c; Yang et al., 2021a, b), has not been used in this genus until now.

During our recent study, some interesting species of the subgenus *Habronychus* were discovered from China (Yunnan) and northern Vietnam. After careful examination and comparison with the types of previously known species, they were identified to be new species and reported in the present study. Some of the females were used to summarize the characters of the reproductive system for this subgenus. These results provide a better understanding of the taxonomy and morphological diversity in this group.

**MATERIAL AND METHODS**

The material studied is preserved in the following collections, and the primary types were returned to the collections from which...
they were borrowed or were deposited in the following public
museums: California Academy of Sciences, San Francisco, USA
(CAS), Institute of Zoology, Chinese Academy of Sciences, 
Beijing, China (IZAS), Museum of Hebei University, Baoding, 
China (MHHU), Muséum national d’Histoire naturelle, Paris, 
France (MNHN), Naturhistorisches Museum Basel, Switzerland 
(NHMB) and Zoological Institute of Russian Academy of Sci-
ences, St. Petersburg, Russia (ZIN).

Genitalia of both sexes and abdominal sternite VIII of females 
were dissected and cleared in a 10% solution of NaOH; female 
genitalia were dyed with haematoxylin. Generally, at least one 
specimen of each species was dissected to study the morphology 
of the male and female genitalia; more individuals were dissected 
if they were damaged during dissection. If the species is widely 
distributed, one specimen was dissected from each locality. Habi-
tus photographs were taken using a Leica M205A stereo micro-
scope and multiple layers stacked using Combine ZM or Helicon 
Focus 5.3. Line drawings were made using a camera lucida at-
ached to a Nikon SMZ1500 stereo microscope, then edited in 
CorelDRAW 12 and Adobe Photoshop CS3.10.0.1.

Complete label data in Chinese was transliterated for type 
specimens, quotation marks are used to separate data from dif-
f erent labels and a double slash to separate different lines of the 
same label. Body length was measured from the anterior margin 
of the clypeus to the elytral apices and the body width across 
the humeral part of the elytra. Morphological terminology of the 
female genitalia follows Okushima (2005) and that of female genitalia 
follows Brancucci (1980). The abbreviations in the figures are 
as follows: ag – accessory gland; bp – basal piece; di – diverticu-
lum; dp – dorsal plates of parameres; la – laterophyses; ml – me-
dian lobe; nd – nodule; ov – median oviduct; sd – spermathecal 
lum; dp – dorsal plates of parameres; la – laterophyses; ml – me-
dian lobe; nd – nodule; ov – median oviduct; sd – spermathecal 

**TAXONOMY**

**Genus Habronychus** Wittmer, 1981

**Subgenus Habronychus** Wittmer, 1981

Type species: *Anolisus rubicundus* Champion, 1926 (monotypy).

**Distribution.** Oriental and Palearctic Regions.

*Habronychus (Habronychus) parallelicollis* (Pic, 1921)

Figs 1A–D, 2A–C, 3A, 4A

*Lyocerus parallelicollis* Pic, 1921: 5.

*Lyocerus lineaticeps var. notatithorax* Pic, 1947: 8. Synonym-

ized by Wittmer, 1982a: 342.


**Redescription**

**Body length (both sexes):** 5.6–7.0 mm; **width:** 1.0–1.5 

**Male** (Fig. 1C). Coloration. Body dark brown, head 
each side with a brown marking behind eyes, or sometimes 
uniformly black, antennae and scutellum black, pronotum 
brown with median longitudinal line black and darkened 
on both sides of anterior parts, legs with yellow coxae, 
trochanters and femora, or sometimes only on inner sides 
of femora, elytra yellowish brown. Body densely covered 
with short, semi-recumbent yellow pubescence, which is 
slightly sparser on head and pronotum.

Head. Subquadrate, surface densely and finely punctate; 
eyes strongly protruding, head width across eyes 1.5 
times wider than the anterior margin of pronotum; terminal 
maxillary palpomeres long-triangular, widest in the middle; 
antennae filiform, almost reaching the elytral apices, 
 antennomeres II about 1.6 times longer than wide at apices, III 
about 2.1 times longer than II, IV–XI each with a small 
and smooth longitudinal impression in the middle of outer 
edge, XI slightly longer than X, pointed at apex.

**Pronotum.** Subquadrate, nearly as long as wide, anterior 
margin nearly straight, anterior angles truncated, lateral 
margins nearly parallel and feebly sinuate, posterior margin 
binurate and narrowly bordered, posterior angles sub-
rectangular, disc strongly convex on posterolateral parts, 
surface finely and densely punctate.

**Elytra.** Feebly dilated posteriorly, about 3.9 times as long 
as humeral width, 4.5 times longer than pronotum, surface 
finely and densely punctate, with weak longitudinal costae.

**Aedeagus** (Figs 2A–C). Diameter moderately narrower apically, 
with the apical part about half of the basal part; 
basal pieces shorter than parameres, simple and without 
any nodule at base of ventral side; ventral process of each 
paramere moderately approach each other, with apices di-
rected inwards in ventral view, slender and slightly thick-
ened apically, moderately directed ventrally at an angle of 
about 45 degrees with median lobe in lateral view; dorsal 
plate nearly as long as ventral process, strongly narrowed 
apically from the base and slightly thickened at apex; lat-
erophyses conjoint basally and separated from each other 
apically, with apices acute and obviously bent dorsally, 
the emargination between laterophyses shallow; median lobe 
exceeding the middle emargination between dorsal plates.

**Female** (Figs 1A–D). Similar to male, but with stouter 
body, head brown or black, each side with a brown or yel-
low marking behind eyes, legs dark brown or black, eyes 
smaller and less protruding than male, head width across 
eyes 1.3 times wider than the anterior margin of pronotum, 
antennae shorter and reaching elytral mid-length, antenno-
meres IV–XI without impressions; elytra red or yellowish 
brown, moderately dilated posteriorly, about 3.5 times as 
long as humeral width, with moderately distinct longitudi-
nal costae.

**Abdominal sternite VIII** (Fig. 3A). Moderately narrowed 
posteriorly, latero-apical angles obtusely rectangular, pos-
terior margin deeply and roundly emarginate in the middle 
and weakly emarginate on both sides, the portion between 
the middle and lateral emarginations truncated at apex, lat-
eral margins of the middle emargination slightly conver-
ging posteriorly, present with a membranous lobe behind the 
middle emargination, centre of which is sclerotized in a 
heart-form.

**Internal reproductive system** (Fig. 4A). Vagina elongate, 
with diverticulum and spermathecal duct arising from 
apex, median oviduct situated ventroapically; diverticulum 
long, about half of adult body length, slender tube-shaped, 
evenly thinned apically and spiral; spermathecal duct long.
and slender, much shorter than diverticulum; spermatheca slender tube-shaped and spiral, obviously thinner than spermathecal duct and longer than diverticulum, with basal portion extended into a short tube at the end of which is the opening of the accessory gland; accessory gland thickened apically, much shorter than spermatheca.


**Additional material.** 1 ♂ (NHMB), CHINA, NW Yunnan, Yunlong, 2200–2500 m, vi.1993 (det. W. Wittmer); 2 ♂ (MHBU), CHINA, Yunnan, Yunlong, Langba, 28.vi.2020, leg. Younan Wang; 2 ♂ (MHBU), same locality and data, leg. Zechen Yang. [Translated from Chinese labels in the MHBU specimens.]

**Type locality.** China, Yunnan, Pe Yen Tsing (now Chuxiong, Dayao, Baiyang).

**Distribution.** China (Yunnan).

**Habronychus (Habronychus)laticeps** Y. Yang, Ge & X. Yang, sp. n.

Figs 2D–F, 3B, 4B, 5A, B

ZooBank taxon LSID: 7431ECE3-6471-4077-BEEB-9FAF50E44FAB

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**Diagnosis.** It is similar to *H. (H.) parallelicollis*, but differs from the latter in the following characters: pronotum 1.1 times longer than wide in male (Fig. 5A), elytra 3.8 times as long as humeral width in female (Fig. 5B), while in *H. (H.) parallelicollis*, pronotum nearly as long as wide in male (Fig. 1C), elytra less than 3.6 times as long as humeral width in female (Figs 1A–B, D); aedeagus (Figs 2D–F): ventral process of each paramere obviously thickened apically in lateral view, median lobe not reaching the middle emargination between dorsal plates, while in *H. (H.) parallelicollis* (Figs 2A–C), ventral process of each paramere slightly thickened apically in lateral view, median lobe exceeding the middle emargination between dorsal plates; female abdominal sternite VIII: latero-apical angles widely rounded, lateral margins of the middle emargination parallel to each other (Fig. 3B), while in *H. (H.) parallelicollis*, latero-apical angles obtusely rectangular, lateral margins of the middle emargination slightly converging posteriorly (Fig. 3A).

**Description.**

Body length (both sexes): 5.5–7.5 mm (5.5 mm in holotype); width: 1.1–1.5 mm (1.1 mm in holotype).

**Male** (Fig. 5A). Coloration. Body black, each side of head with a brown marking behind eyes, pronotum brown, with black median longitudinal line and darkened on both sides of anterior parts, scutellum black, legs brown, yellow coxae, trochanters and femora, elytra yellowish brown. Body densely covered with short, semi-recumbent pale-yellow pubescence, which is slightly sparser on head and pronotum.

Head. Subquadrate, surface densely and finely punctate; eyes strongly protruding, head width across eyes 1.8 times wider than the anterior margin of pronotum; terminal maxillary palpmere long-triangular, widest near apices; antennae filiform, almost reaching the elytral apices, antennomere II about 1.6 times longer than wide at apex, III about 2.0 times longer than II, IV–XI each with a small and smooth longitudinal impression in the middle of outer edge, XI slightly longer than X, pointed at apex.

Pronotum. Subquadrate, about 1.1 times as long as wide, anterior margin nearly straight, anterior angles truncated, lateral margins nearly vertical, posterior margin bispinate and narrowly bordered, posterior angles sub-rectangular, disc strongly convex on postero-lateral parts, surface finely and densely punctate.

Elytra. Feebly dilated posteriorly, about 4.1 times as long as humeral width, 5.2 times longer than pronotum, surface finely and densely punctate, with weak longitudinal costae. Aedeagus (Figs 2D–F). Diameter moderately narrower apically, of which the apical part is about half of the basal part; basal pieces shorter than parameres, simple and without any nodule at base of ventral side; ventral process of each paramere moderately approach each other, with apices directed inwards in ventral view, slender and distinctly thickened apically, moderately directed ventrally at an angle of about 45 degrees with median lobe in lateral view; dorsal plate of each paramere nearly as long as ventral process, strongly narrowed apically from base and slightly narrow.
thickened at apex; laterophyses conjoint basally and divided from each other apically, with apices acute and slightly bent dorsally, the emargination between laterophyses shallow; median lobe not reaching the middle emargination between dorsal plates.

Female (Fig. 5B). Similar to male, but the body stouter, legs black, eyes smaller and less protruding, head width across eyes 1.3 times wider than the anterior margin of pronotum, antennae shorter and only slightly exceeding elytral mid-length, antennomeres IV–XI without impressions; elytra moderately dilated posteriorly, about 3.8 times as long as humeral width, with slightly distinct longitudinal costae.

Abdominal sternite VIII (Fig. 3B). Moderately narrower posteriorly, latero-apical angles widely rounded, posterior margin deeply and roundly emarginate in the middle and hardly emarginate on both sides, lateral margins of the middle emargination parallel with each other, with a membranous lobe behind the middle emargination, the centre of which is sclerotized area in a three drop-form.

Internal reproductive system (Fig. 4B). Vagina elongate, with diverticulum and spermathecal duct arising from apex, median oviduct situated ventroapically; diverticulum long, about 0.6 times adult body length, slender tube-shaped, evenly thinned apically and spiral; spermathecal duct moderately long and slender, much shorter than diverticulum; spermatheca slender tube-shaped and spiral, obviously thinner than spermathecal duct and about 1.5 times as long as diverticulum, with basal portion extended into a short tube, where the opening of the accessory gland is situated; accessory gland thickened apically, much shorter than spermatheca.


Type locality. China, Yunnan, Nujiang, Lushui, Lusaihe vill.

Etymology. The specific name is derived from the Latin latus (wide) and suffix -ceps (headed), referring to its wide head, with the width across eyes 1.8 times wider than the anterior margin of pronotum, while less than 1.5 times in other species.

Remarks. The right antennomeres X–XI of holotype are missing.

Distribution. China (Yunnan).
Habronychus (Habronychus) honestus Y. Yang, Ge & X. Yang, sp. n.

Figs 2G–I, 5C

ZooBank taxon LSID: 627D8922-B647-4244-BEC1-164761275994

Diagnosis. It is similar to *H. (H.) kurosawai*, but differs from the latter in the following characters: antennae simple and almost reaching elytral apices in male (Fig. 5C); aedeagus: moderately narrower apically, ventral processes moderately approach each other in ventral view (Figs 2G–I). Unlike in *H. (H.) kurosawai*, antennae are flattened and clearly extend beyond apices of the elytra in male (Okushima & Satô, 1999: figs 5, 9); aedeagus abruptly narrows apically, ventral processes approach each other in ventral view (Wittmer, 1982: fig. 9).

Description

Body length: ♂ 5.0–5.4 mm (5.5 mm in holotype); width: 0.9–1.1 mm (1.0 mm in holotype).

Male (Fig. 5C). Coloration. Body brown, median longitudinal line on pronotum slightly darker, elytra yellowish brown, darker basally on inner margins, legs brown, yellow coxae, trochanters and femora. Body densely covered with short, semi-recumbent pale-yellow pubescence, which is slightly sparser on head and pronotum.

Head. Subquadrate, surface densely and finely punctate; eyes strongly protruding, head width across eyes 1.5 times wider than the anterior margin of pronotum; terminal maxillary palpmeres long-triangular, widest in the middle; antennae filiform, almost reaching the elytral apices, antennomere II about 1.6 times longer than wide at apex, III about 2.3 times longer than II, IV–XI each with a small and smooth longitudinal impression in the middle on outer edge, XI slightly longer than X, pointed at apex.

Pronotum. Subquadrate, about 1.1 times as long as wide, anterior margin nearly straight, anterior angles feebly truncated, lateral margins sinuate, posterior margin sinuate and narrowly bordered, posterior angles sub-rectangular, posterolateral parts of disc strongly convex, surface finely and densely punctate.

Elytra. Feebly dilated posteriorly, about 3.8 times as long as humeral width, 5.1 times longer than pronotum, surface finely and densely punctate, with weak longitudinal costae.

Aedeagus (Figs 2G–I). Diameter of the apical part less than half of that of the basal part; basal pieces shorter than parameres, with a large, bifurcate conjoint middle nodule at base of ventral side; ventral process of each paramere moderately approach each other, with apices directed inwards in ventral view, slender and hardly thickened apically, moderately directed ventrally at an angle of about 45 degrees with median lobe in lateral view; dorsal plate of each paramere nearly as long as ventral process, strongly narrowed apically from the base and moderately thickened at apex; laterophyses conjoint basally and divided from each other apically, with apices acute and clearly bent dorsally, the emargination between laterophyses shallow; median lobe exceeding the middle emargination between dorsal plates.

Female. Unknown.

Variation within species. Head brown, with a black marking on centre of vertex, elytra uniformly yellowish brown.


Type locality. China, Yunnan, Menglongbanna, Mengsong.

Etymology. The specific name is derived from the Latin honestus (honourable, respected, regarded with honour), referring to the respected status of the collectors of the types.

Remarks. The right antennomeres X–XI of holotype are missing.

Distribution. China (Yunnan).

Habronychus (Habronychus) crassatus Y. Yang, Ge & X. Yang, sp. n.

Figs 3C, 4C, 5D, 6A–C

ZooBank taxon LSID: B9D7FCDE-9E7E-43CE-8631-D514328DA70A

Fig. 4. Female internal reproductive system of *Habronychus* (*Habronychus*) Wittmer, 1981, ventral view. A – *H. (H.) parallelicollis* (Pic, 1921); B – *H. (H.) laticeps* sp. n.; C – *H. (H.) crassatus* sp. n. Scale bars: 1.0 mm.
**Diagnosis.** It is similar to *H. (H.) parallelicollis*, but differs from the latter in the following characters: eyes moderately protruding in male (Fig. 5D); aedeagus (Figs 6A–C): ventral processes of parameres obviously thickened apically in lateral view, with apices directed outwards in ventral view; female abdominal sternite VIII (Fig. 3C).
shallowly and triangularly emarginate on both sides of posterior margin, lateral margins of the middle emargination diverging posteriorly; diverticulum extremely long, about 0.9 times adult body length (Fig. 4C). In comparison, in H. (H.) parallelicollis, eyes protrude strongly in male (Fig. 1C); aedeagus (Figs 2A–C): ventral processes of parameres are slightly thickened apically in lateral view, with apices directed outwards in ventral view; female abdominal sternite VIII (Fig. 3A) is weakly emarginate on both sides of posterior margin, lateral margins of the middle emargination converging posteriorly, diverticulum is long and about half the length of the adult body (Fig. 4A).

Description

Body length (both sexes): 6.6–8.1 mm (6.6 mm in holotype); width: 1.2–1.5 mm (1.2 mm in holotype).

Male (Fig. 5D). Coloration. Body brown, head, antennae and scutellum black, each side with a yellow marking behind eyes, antennomere I yellow, pronotum brown, with black median longitudinal line and darkened on both sides of anterior parts, coxae, trochanters and femora yellow, elytra red. Body densely covered with short, semi-recumbent pale-yellow pubescence, which is slightly sparser on head and pronotum.

Head. Subquadrate, surface densely and finely punctate; eyes moderately protruding, head width across eyes 1.4 times wider than the anterior margin of pronotum; terminal maxillary palpomeres long-triangular, widest near apices; antennae filiform, almost reaching the elytral apices, antennomere II about 1.4 times longer than wide at apex, III about 2.3 times longer than II, IV–XI each with a small and smooth longitudinal impression in the middle on outer edge, XI slightly longer than X, pointed at apex.

Pronotum. Subquadrate, 1.1 times as long as wide, anterior margin nearly straight, anterior angles truncated, lateral margins nearly vertical, posterior margin bisinuate and narrowly bordered, posterior angles sub-rectangular, disc strongly convex on posterolateral parts, surface finely and densely punctate.

Elytra. Feebly dilated posteriorly, about 3.7 times as long as humeral width, 5.3 times longer than pronotum, surface finely and densely punctate, with weak longitudinal costae.

Aedeagus (Figs 6A–C). Diameter moderately narrower apically, with that of the apical part about half of the basal part; basal pieces shorter than parameres, simple and without any nodule at base of ventral side; ventral processes of parameres moderately approach each other, with apices directed outwards in ventral view; slender and distinctly thickened apically, feebly directed dorsally at an angle of about 45 degrees with median lobe in lateral view; dorsal plate of each paramere nearly as long as ventral process, strongly narrowed apically from the base and moderately thicker at apex; laterophyses conjoint basally and divided from each other apically, with apices acute and obviously bent dorsally, the emargination between laterophyses slightly deep; median lobe does not reach the middle emargination between dorsal plates.

Female. Similar to male, but the body stouter, legs dark brown, with apical half of femora pale yellow, eyes smaller and less protruding than in male, head width across eyes 1.2 times wider than the anterior margin of pronotum, antennae shorter and extending to elytral mid-length, antennomeres IV–XI without impressions; elytra moderately dilated posteriorly, about 3.6 times as long as humeral width, with moderately distinct longitudinal costae.

Abdominal sternite VIII (Fig. 3C). Moderately narrower posteriorly, latero-apical angles sub-rectangular, posterior margin deeply and roundly emarginate in the middle and shallowly and triangularly emarginate on both sides, the portion between the middle and lateral emarginations rounded at apex, lateral margins of the middle emargination diverging posteriorly, with a membranous lobe behind the middle emargination, in centre of which is a sclerotized area in the form of a heart.

Internal reproductive system (Fig. 4C). Vagina elongate, with diverticulum and spermathecal duct arising from apex, median oviduct situated ventroapically; diverticulum extremely long, approximately 0.9 times adult body length, slender tube-shaped, evenly thinned apically and spiral; spermathecal duct long and slender, much shorter than diverticulum; spermatheca slender tube-shaped and spiral, obviously thinner than spermathecal duct and slightly longer than diverticulum, with basal portion extended into a short tube bearing the opening of the accessory gland; ac-
cessory gland thickened apically, much shorter than spermatheca.


**Type locality.** China, Yunnan, Tengchong, Jietou town.

**Etymology.** The specific name is derived from the Latin crassus (thick), referring to the thickened apex of the ventral process of each paramere of the aedeagus.

**Distribution.** China (Yunnan).

**Habronychus (Habronychus) tengchongensis** Y. Yang, Ge & X. Yang, sp. n.

Figs 6D–F, 7A

ZooBank taxon LSID: 49C6C853-A188-41BE-B76C-27F26B32073A

**Diagnosis.** It is similar to *H. (H.) honestus* sp. n., from which it differs in the following characters: eyes moderately protruding, elytra 3.4 times as long as humeral width (Fig. 7A), whereas in the latter eyes are strongly protruding and elytra 3.8 times longer than humeral width (Fig. 5C); aedeagus (Figs 6D–F): basal pieces without nodule at base on ventral side, while in *H. (H.) honestus* sp. n. (Figs 2G–I), basal pieces present with a large, bifurcate middle nodule at base on ventral side.

**Description**

Body length: ♂ 5.8 mm; width: 1.2 mm.

**Male** (Fig. 7A). Coloration. Body brown, head, antennae and scutellum black, each side of head with a brown mark behind eyes, antennomere I brown, the median longitudinal line on pronotum black and darkened on both sides anteriorly, coxae, trochanters and femora yellow, elytra yellowish brown. Body densely covered with short, semi-recumbent pale-yellow pubescence, which is slightly sparser on head and pronotum.

Head. Subquadrate, surface densely and finely punctate; eyes moderately protruding, head width across eyes 1.5 times wider than the anterior margin of pronotum; terminal maxillary palpomeres long-triangular, widest near apices; antennae filiform, almost reaching the elytral apices, antennomere II about 1.6 times longer than wide at apex, III about 2.1 times longer than II, IV–XI each with a small and smooth longitudinal impression in the middle on outer edge, XI slightly longer than X, pointed at apex.

Pronotum. Subquadrate, 1.1 times as long as wide, anterior margin nearly straight, anterior angles truncated, lateral margins nearly vertical, posterior margin bisinuate and narrowly bordered, posterior angles sub-rectangular, disc strongly convex posterolaterally, surface finely and densely punctate.

Elytra. Slightly dilated posteriorly, about 3.4 times as long as humeral width, 5.3 times longer than pronotum, surface finely and densely punctate, with weak longitudinal costae.

Aedeagus (Figs 6D–F). Diameter of the apical part less than half of that of the basal part; basal pieces shorter than parameres, simple and without any nodule at base on ventral side; ventral processes of parameres moderately approach each other, with apices directed inwards in ventral view, slender and slightly thickened apically, moderately directed ventrally at an angle of about 45 degrees with median lobe in lateral view; dorsal plate of each paramere nearly as long as ventral process, narrows strongly from the base, with moderately thickened apex; laterophyses conjoined basally and separate apically, with apices acute and clearly bent dorsally, the emargination between laterophyses shallow; median lobe not reaching the middle emargination between dorsal plates.

**Female.** Unknown.

**Type material.** Holotype: ♂ (IZAS), “CHINA, Yunnan Prov., Tengchong, Huoqiao, Guyong Linchang, 25.39859°N, 98.30531°E, 2584 m, 2006.5.27, Liang H.B. & Liu Z.C., California Academy & IOZ, Chinese Acad. Sci.”

**Type locality.** China, Yunnan, Tengchong, Huoqiao.

**Etymology.** The specific name is derived from its type locality, Tengchong, Yunnan Province, China.

**Distribution.** China (Yunnan).

**Habronychus (Habronychus) longiplatus** Y. Yang, Ge & Liu, sp. n.

Figs 6G–I, 7B

ZooBank taxon LSID: 04A75266-2812-4D45-A546-47B86C87582A

**Diagnosis.** It is similar to *H. (H.) helenae* Švihla, 2004, from which it differs as follows: a larger body 6.8 mm, eyes moderately protruding, elytra with distinct longitudinal costae (Fig. 7B); aedeagus (Figs 6G–I): terminal diameter of which is greatly reduced, ventral processes of parameres hardly thickened apically in lateral view, dorsal plate of each paramere longer than ventral process in lateral view. Whereas *H. (H.) helenae* has a small body 5.5 mm, eyes protrude strongly, elytra have weak longitudinal costae; aedeagus (Švihla, 2004, figs 177–178) is subparallel-sided, ventral processes of parameres are moderately thickened apically in lateral view, dorsal plate of each paramere is shorter than ventral process in lateral view.

**Description**

Body length: ♂ 6.8 mm; width: 1.5 mm.

**Male** (Fig. 7B). Coloration. Body brown, head, antennae and scutellum brown, black between eyes, pronotum brown mixed with black, elytra yellowish brown. Body densely covered with short, semi-recumbent pale-yellow pubescence, which is slightly sparser on head and pronotum.

Head. Subquadrate, surface densely and finely punctate; eyes moderately protruding, head width across eyes 1.4 times wider than the anterior margin of pronotum; terminal maxillary palpomeres long-triangular, widest near apices; antennae filiform, nearly reaching the elytral apices, antennomere II about 1.7 times longer than wide at apex, III

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about 2.5 times longer than II, IV–XI each with a small and smooth longitudinal impression in the middle on outer edge, XI slightly longer than X, pointed at apex.

Pronotum. Subquadrate, about 1.1 times as long as wide, anterior margin feebly arcuate, anterior angles truncated, lateral margins nearly vertical, posterior margin feebly
Habronychus (Habronychus) trianguliceps Y. Yang, Ge & Liu, sp. n.

**Description.** Body length: ♂ 5.5 mm; width: 1.0 mm. Short, semi-recumbent pale-yellow pubescence, which is slightly sparser on head and pronotum.

**Etymology.** The specific name is derived from the Latin *triangulatus* and *ceps*, referring to its aedeagus with the dorsal plate of each paramere longer than ventral process.

**Type locality.** Vietnam, Mountains at Sa Pa.

**Remarks.** The right antenna of the holotype is missing.

**Distribution.** Northern Vietnam.

**Type material.** Holotype: ♂ (ZIN), “ВЬЕТНАМ, горы у ЪЯА-ПА, ФАН-ЧИ-НАХ, 2100 m, 2.vi.1963, leg. Г. Кабаков” [“Vietnam, Mountains at Sa Pa, Fansipan Peak, 2100 m, 2 vi.1963, leg. G. Kabakov”].

**Type material.** Holotype: ♂ (ZIN), “ВЬЕТНАМ, горы у ЪЯА-ПА, ФАН-ЧИ-НАХ, 2100 m, 2.vi.1963, leg. Г. Кабаков” [“Vietnam, Mountains at Sa Pa, Fansipan Peak, 2100 m, 2 vi.1963, leg. G. Kabakov”].

**Diagnosis.** It is similar to *H. (H.) crassatus* sp. n., but can be distinguished from the latter by the following characters: pronotum dilated posteriorly, with sub-rectangular anterior angles, elytra parallel-sided (Fig. 7C), apical diameter of aedeagus strongly reduced, ventral processes of parameres even in width in lateral view, with apices directed inwards in ventral view (Figs 8A–C). While in *H. (H.) crassatus* sp. n., pronotum is subparallel-sided, with truncated anterior angles, elytra are dilated posteriorly (Fig. 5D), apical diameter of aedeagus is moderately reduced, ventral processes of parameres are obviously thickened apically in lateral view, with apices directed outwards in ventral view (Figs 6A–C).

**Type material.** Holotype: ♂ (ZIN), “ВЬЕТНАМ, горы у ЪЯА-ПА, 1900–2600 m, 5.v.1963, leg. Г. Кабаков” [“Vietnam, Mountains at Sa Pa, 1900–2600 m, 5.v.1963, leg. G. Kabakov”].

**Type locality.** Vietnam, Mountains at Sa Pa.

**Etymology.** The specific name is derived from the Latin *triangulatus* (with three corners) and the suffix -ceps (headed), referring to its head distinctly narrowing posteriorly.

**Distribution.** Northern Vietnam.

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**Fig. 8.** Male genitalia of *Habronychus (Habronychus) trianguliceps* sp. n. A – ventral view; B – dorsal view; C – lateral view. Scale bar: 0.5 mm.
DISCUSSION

With more species discovered and added to the subgenus Habronychus, the diversity and morphology of this subgenus are now better understood. The members of this group are quite conservative in the structure of the aedeagus, which is very similar, except in H. (H.) sauteri (Pic, 1934) (Wittmer, 1982: Fig. 7; Okushima & Satô, 1999: Figs 10–12), H. (H.) providus (Kiesenwetter, 1874) (Ishida, 1986: Figs 2–4) and H. (H.) szechwanus Wittmer, 1988 (Wittmer, 1988: Fig. 35). This phenomenon is also noted by Švihla (2004, 2005), who did not provide illustrations of aedeagi for several species. Accordingly, the female genitalia, which is presented and described for the first time here, is also uniform in shape and comparative length of the internal organs, with diverticulum and spermatheca much longer than accessory gland, which is extremely short and thickened apically.

Although the genitalia are very uniform, the species could be distinguished from one another by a combination of characters, such as, body size, coloration and pubescence, shape of eyes, antennae, pronotum, elytra and female abdominal sternite VIII, as well as detailed comparison of genitalia.

KEYS FOR THE IDENTIFICATION OF SPECIES

Because the male or female of some species remain unknown, we provide separate keys for males and females. Males are unknown for H. (H.) distictecostatus (Pic, 1917) and females for eight species: H. (H.) helenae Švihla, 2004, H. (H.) obscuricolorissimus (Pic, 1935), H. (H.) szechwanus Wittmer, 1988, H. (H.) zdeneki Švihla, 2004, H. (H.) honestus sp. n., H. (H.) longiplatus sp. n., H. (H.) tengchongensis sp. n., and H. (H.) trianguliceps sp. n. H. (H.) distinctecostatus (Pic, 1917) and females for eight species: H. (H.) sauteri (Pic, 1934) (Wittmer, 1982) (Kiesenwetter, 1874) (Ishida, 1986: Figs 2–4) and H. (H.) szechwanus Wittmer, 1988 (Wittmer, 1988: Fig. 35). This phenomenon is also noted by Švihla (2004, 2005), who did not provide illustrations of aedeagi for several species. Accordingly, the female genitalia, which is presented and described for the first time here, is also uniform in shape and comparative length of the internal organs, with diverticulum and spermatheca much longer than accessory gland, which is extremely short and thickened apically.

Although the genitalia are very uniform, the species could be distinguished from one another by a combination of characters, such as, body size, coloration and pubescence, shape of eyes, antennae, pronotum, elytra and female abdominal sternite VIII, as well as detailed comparison of genitalia.

KEYS FOR THE IDENTIFICATION OF SPECIES


Males
1 Antennae clearly extend beyond elytral apices ............ 2
2 Antennae at most reaching elytral apices ............... 5
3 Body uniformly black ......................................................... 3
4 Elytra dilated posteriorly, stouter and about 3.2 times as long as humeral width; Japan ................................. H. (H.) providus (Kiesenwetter, 1874)
5 Elytra parallel-sided, slender and about 3.5 times as long as humeral width; Japan ......... H. (H.) obscuricolorissimus (Pic, 1935)
4 Antennae flattened and broad, elytra orange or red, about 3.8 times as long as humeral width (Okushima & Satô, 1999: Figs 5, 9; Okushima, 2008: Fig. 34); aedeagus: apices of ventral processes of parameres directed inwards (Wittmer, 1982: Fig. 9); China (Taiwan)... H. (H.) kurosavai Wittmer, 1982
5 Pronotum uniformly red ..................................................... 6
6 Pronotum uniformly black or pale yellow, or brown mixed with black ......................................................... 7
7 Head and scutellum uniformly red, antennae filiform, elytra parallel-sided; aedeagus: ventral processes of parameres moderately approach each other in ventral view, inner margins of dorsal plates nearly parallel to each other in dorsal view (Švihla, 2004: Figs 180–182); India .............................................. H. (H.) zdeneki Švihla, 2004
8 Head black, each side with a yellowish-brown marking behind eyes, scutellum black, antennae flattened and slightly serratate, elytra dilated posteriorly; aedeagus: ventral processes of parameres closely approach each other in ventral view, inner margins of dorsal plates strongly converging apically in dorsal view (Švihla, 2005: Figs 79–81); northern Vietnam .......................................................... H. (H.) lineaticeps (Pic, 1914)
9 Aedeagus: ventral processes of parameres slender, laterophyses conjoined at the base and divided from each other near apices or in the middle ................................................................. 9
10 Aedeagus: ventral process of each paramere thickened apically in ventral view, inner surface of dorsal plates with a pair of protrusions (Wittmer, 1988: Fig. 35); China (Sichuan) ............. H. (H.) szechwanus Wittmer, 1988
11 Pronotum dilated posteriorly ................................................. 10
12 Pronotum parallel-sided ..................................................... 12
10 Body at least bicolored ........................................................... 4
11 Pronotum pale yellow, elytra black (Okushima & Satô, 1999: Figs 1, 7); aedeagus: ventral process of each paramere narrowed apically in ventral view, inner surface of dorsal plates simple (Wittmer, 1982: Fig. 7; Okushima & Satô, 1999: Figs 10–12); China (Taiwan)........................ H. (H.) sauteri (Pic, 1934)
13 Elytra yellowish brown, elytra red; aedeagus: ventral process of each paramere thickened apically in ventral view, inner surface of dorsal plates with a pair of protrusions (Wittmer, 1988: Fig. 35); China (Sichuan) ......................... H. (H.) szechwanus Wittmer, 1988
14 Body at least bicolored ........................................................... 13
13 Elytra narrowed posteriorly (Ishida, 1986: Fig. 11); aedeagus: dorsal plates of parameres nearly parallel to each other in dorsal view, laterophyses divided near the middle (Ishida, 1986: Figs 12–14); Japan ................................................. H. (H.) miyatakei Ishida, 1986
15 Elytra enlarged posteriorly or parallel-sided; aedeagus: dorsal plates of parameres bend towards each other in dorsal view, laterophyses divided near apices .................................................. 13
16 Aedeagus: basal two-thirds of paramere nearly parallel-sided in ventral view ................................................. 14
17 Aedeagus: basal two-thirds of paramere clearly tapering in ventral view (Figs 2A, D; G; 6A, D, G) ................................ 15
18 Body uniformly black (Okushima & Satô, 1999: Figs 3, 4, 8); aedeagus: about 2.4 times as long as wide, basal pieces clearly shorter than parameres (Wittmer, 1982: Fig. 8); China (Taiwan) ...................................... H. (H.) nanouanai Wittmer, 1982
Body mixture of black and yellowish brown; aedeagus: about 1.4 times as long as wide, basal pieces nearly as long as parameres (Švihla, 2004: Figs 177–178); Myanmar ................................................................. H. (H.) helenae Švihla, 2004

Aedeagus: strongly narrowed apically, of which the apical part is narrower than half of the basal part ........................................ 16

Aedeagus: moderately narrowed apically, of which the apical part is about half of the basal part........................................ 18

Elytra with distinct longitudinal costae (Fig. 7B), aedeagus: dorsal plates of parameres longer than ventral processes in lateral view (Figs 6G–I); northern Vietnam................................................................. H. (H.) longipilatus sp. n.

Elytra with weak longitudinal costae, aedeagus: dorsal plates of parameres as long as ventral processes in lateral view ........................................ 17

Elytra about 3.8 times as long as humeral width (Fig. 5C), aedeagus: basal pieces with a large, bifurcate middle nodule at base on ventral side (Figs 2G–I); China (Yunnan) ................................................................. H. (H.) honestus sp. n.

Elytra about 3.4 times as long as humeral width (Fig. 7A), aedeagus: basal pieces simple and without any nodule at base on ventral side (Figs 6D–F); China (Yunnan) ................................................................. H. (H.) tengchongensis sp. n.

Eyes moderately protruding (Fig. 5D); aedeagus: ventral processes of parameres weakly directed dorsally in lateral view, with the apices directed outwards in ventral view (Figs 6A–C); China (Yunnan) ................................................................. H. (H.) crassatus sp. n.

Eyes strongly protruding; aedeagus: ventral processes of parameres moderately directed ventrally in lateral view, with apices directed inwards in ventral view ........................................ 19

Elytra about 3.9 times as long as humeral width (Fig. 1C); aedeagus: ventral process of each paramere slightly thickened apically in lateral view (Figs 2A–C); China (Yunnan) ................................................................. H. (H.) parallelicollis (Pic, 1921)

Elytra about 4.1 times as long as humeral width (Fig. 5A); aedeagus: ventral process of each paramere clearly thickened apically in lateral view (Figs 2D–F); China (Yunnan) ................................................................. H. (H.) laticeps sp. n.

Females

1 Antennae serrate, antennomeres III–VIII flattened and broader apically ................................................................. 2

2 Antennomere IV less than 2.5 times as long as wide at apex; northern Vietnam ................................................................. H. (H.) lineaticeps (Pic, 1914)

3 Antennomere IV about 2.7 times as long as wide at apex; northern Vietnam ................................................................. H. (H.) distinctecostatus (Pic, 1917)

4 Body uniformly black ................................................................. 4

5 Body at least bicolored ................................................................. 5

6 Head across eyes slightly wider than the anterior margin of pronotum, elytra about 3.2 times as long as humeral width (Okushima, 1997: Fig. 20); Japan ................................................................. H. (H.) providus (Kiesenwetter, 1874)

7 Head across eyes clearly wider than the anterior margin of pronotum, elytra about 3.5 times as long as humeral width (Okushima & Satô, 1999: Fig. 4); China (Taiwan) ................................................................. H. (H.) nantouanus Wittmer, 1982

5 Antennae extending beyond the middle of the elytra .................................... 6

6 Antennae at most extending to the middle of the elytra .................................... 7

Antennae reaching two-thirds of elytral length; abdominal sternite VIII: posterior margin shallowly and triangularly emarginate in middle, lateral margins of the middle emargination diverging posteriorly (Švihla, 2005: Fig. 78); northern Laos ................................................................. H. (H.) kantnerorum Švihla, 2005

Antennae reaching middle of elytral length; abdominal sternite VIII: posterior margin deeply and roundly emarginate in middle, lateral margins of the middle emargination parallel to each other (Fig. 3B); China (Yunnan) ................................................................. H. (H.) laticeps sp. n.

Antennae flattened (Okushima & Satô, 1999: Fig. 6); China (Taiwan) ................................................................. H. (H.) kurosawai Wittmer, 1982

Antennae cylindrical ........................................................................ 8

Pronotum uniformly pale yellow (Okushima & Satô, 1999: Fig. 2); China (Taiwan) ................................................................. H. (H.) satori (Pic, 1934)

Pronotum uniformly black or bicolored ........................................ 9

Abdominal sternite VIII: posterior margin shallowly emarginate in middle ................................................................. 10

Abdominal sternite VIII: posterior margin deeply emarginate in middle ................................................................. 11

10 Body small, 5.8–7.1 mm; abdominal sternite VIII: posterior margin narrowly emarginate in middle (Okushima, 1995: Fig. 1); Japan ................................................................. H. (H.) aritai Satô, 1986

Body large, 8.3 mm; abdominal sternite VIII: posterior margin widely emarginate in middle (Ishida, 1986: Fig. 15); Japan ................................................................. H. (H.) miyatakei Ishida, 1986

11 Abdominal sternite VIII: the portion between the middle and lateral emarginations rounded at apex, lateral margins of middle emargination diverging posteriorly (Fig. 3C); China (Yunnan) ................................................................. H. (H.) crassatus sp. n.

Abdominal sternite VIII: the portion between the middle and lateral emarginations truncated at apex, lateral margins of middle emargination slightly converging posteriorly (Fig. 3A); China (Yunnan) ................................................................. H. (H.) parallelicollis (Pic, 1921)

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