

Two new species of *Exallonyx* Kieffer (Hymenoptera: Proctotrupidae) from China, with a key to the Chinese species

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Abstract

Two new species, *Exallonyx strictus* and *Exallonyx pingbianensis*, are described and illustrated herein from China. Both species belong to the *formicarius*-group of subgenus *Exallonyx* Kieffer. A key for the Chinese *formicarius*-group is given.

Key words: Hymenoptera, Proctotrupidae, *Exallonyx*, new species, China

Introduction

Exallonyx Kieffer, 1904 includes two subgenera: *Eocodrus* and *Exallonyx*. Species of the subgenus *Exallonyx* Kieffer are divided into 11 species groups (Townes *et al.*, 1981). The *formicarius*-group has a worldwide distribution and includes 67 species, of which 6 are known from China (Townes *et al.*, 1981; Johnson, 1992; Fan *et al.*, 2003; He *et al.*, 2004). In this paper, we described two additional species belonging to the *formicarius*-group of subgenus *Exallonyx* Kieffer from China.

Material and methods

The descriptions follow the terminology used by Townes & Townes (1981) and He *et al* (2004). The type specimens are deposited into the Hymenopteran Collection of Zhejiang University, Hangzhou, China.

***Exallonyx strictus* Liu, He & Xu, new species**

(Figs. 1–6)

Diagnosis of Male

Temple 0.65 as long as eye in dorsal view; the second and tenth flagellar segments each 2.7, 2.0 as long as wide; tyloids absent; abdominal petiole as long as deep in lateral view, upper margin straight, distinctly contracted at base, without distinct transverse wrinkles at under side, its posterior half with six diagonal longitudinal ridges in lateral view.

Description of Male (holotype)

Front wing 2.0 mm long. Body black. Antenna black brown. Labrum, apical half of mandible, palpus and tegula fulvous. Leg blackish brown to black, except fore femur, base and apex of mid femur, apex of hind femur fulvous. Wing hyaline, stigma and strong veins light brown; weak veins indistinct. Temple 0.65× as long as eye in dorsal view. Gena 0.3× as long as long diameter of eye. Clypeus 3.0× as wide as long, weakly convex; its apex truncate with weak transverse ridges on subapical declivity. Second flagellar segment 2.7× as long as wide. Tenth flagellar segment 2.0× as long as wide. Last segment of antenna 1.6× as long as penultimate segment. Tyloids absent. Area between antennal sockets with weak ridge. Occipital carina distinct. Pronotum with 4–5 transverse wrinkles on collar. Epomia strong. Pronotum smooth laterally, without setae behind epomia, but with setae behind carina on collar. Upper margin of pronotum with single row of setae. Lower corner of pronotum with two pits. Upper half of mesopleuron nearly asetose except front edge of mesopleuron with group of setae on upper corner and upper 0.3 of speculum with sparse setae. Lower half of mesopleuron mostly with long sparse setae except for median area asetose; lower corner without parallel wrinkles posteriorly. Smooth area of metapleuron with sparse punctures, 0.5× as long as metapleuron and 0.8× as deep as metapleuron. Remainder of metapleuron weakly reticulate. Upper margin of propodeum arcuate in lateral view. Pair of smooth areas present on upper face of propodeum reaching far behind propodeal spiracle; some small punctures present along median ridge and lateral margin. Median ridge incomplete, reaching to middle of posterior face. Posterior face of propodeum irregularly reticulate, with strong transverse ridge at its middle. Lateral areas of propodeum areolate. Hind femur 4.2× as long as deep. Longer spur of hind tibia 0.64× as long as hind basitarsus. Stigma 1.7× as long as deep receiving radius nearly at middle. Anterior side of radial cell 0.6× as long as depth of stigma; posterodistal margin of stigma weakly convex. First radial vein approximately straight, 1.1× as long as wide. Second radial vein straight, meeting first radial vein without projection. Posterior margin of hind wing with shallow notch at basal 0.35. Abdominal petiole 1.2× as long as wide in dorsal view with five strong parallel longitudinal carinae and four longitudinal grooves. Abdominal petiole as long as deep in lateral view; upper margin straight, distinctly

contracted at base; anterior half weakly striae without transverse ridge, posterior half with six diagonal strong longitudinal ridges. Base of syntergite with median groove reaching 0.75 to space between thyridia, each side with two short lateral grooves, $0.33\times$ as long as median groove. First thyridium $2.2\times$ as wide as long, separated from each by 0.33 width of one thyridium. Setae on syntergite short and sparse; sockets of lowest setae separated from lower margin of syntergite by 1.6 to $2.0\times$ setal lengths. Paramere triangular, very short and straight, sharp at tip.

Female. Unknown.

Type material

Holotype male, China, Henan Province: Song County (34.08°N , 112.05°E), Baiyun Mountain, 19.VII.1996, coll. Ping CAI, No.973066. Paratypes: 1 male, China, Shaanxi Province: Qinling (34.14°N , 106.54°E), 3.IX.1999, coll. Junhua HE, No.990204; 1 male, China, Shaanxi Province: Zhouzhi (34.10°N , 108.12°E), 2–3.VI.1998, coll. Yun MA, No.981455; 1 male, China, Gansu Province: Dangchang County (34.04°N , 104.21°E), 31.VII.2004, coll. Qiong WU, No.20047022.

Distribution

China (Henan, Shaanxi and Gansu Provinces).

Etymology

The specific epithet is derived from the Latin adjective *strictus* (narrow) which refers to the fact that basal portion of abdominal petiole is distinctly contracted.

Remarks

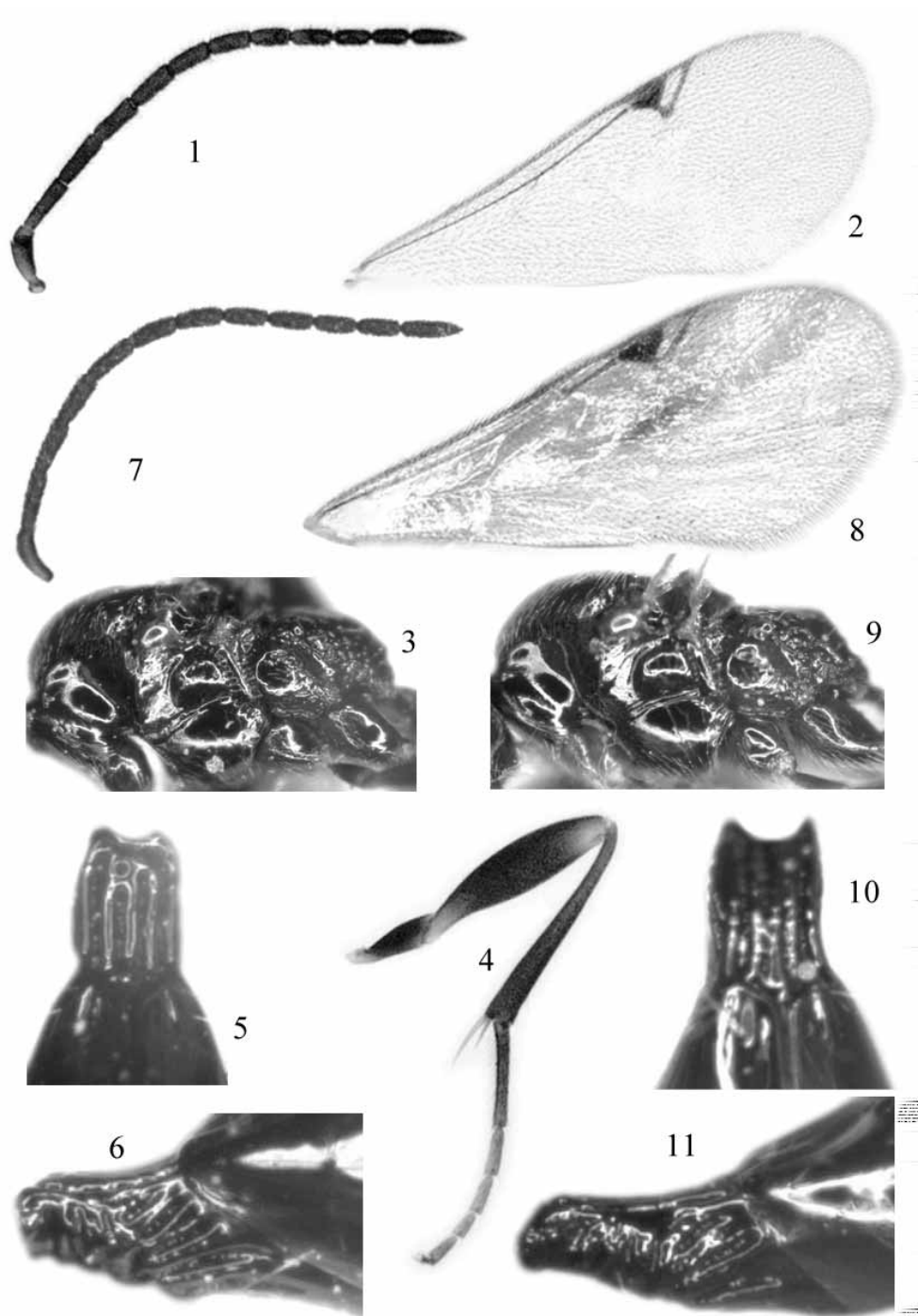
This species is easily separated from all other species by having the basal portion of the abdominal petiole distinctly contracted and the underside without a transverse ridge. Also, the posterior half of abdominal petiole has six longitudinal ridges.

***Exallonyx pingbianensis* Liu, He & Xu, new species**

(Figs. 7–11)

Diagnosis of Male

Temple 0.83 as long as eye in dorsal view; the second and tenth flagellar segments each 3.4, 2.6 as long as wide; tyloids absent; abdominal petiole 2.0 as long as deep in lateral view, upper margin straight, distinctly contracted at base, with four weak transverse wrinkles at under side, its posterior half with four diagonal longitudinal ridges in lateral view.



FIGURES 1–11. 1–6. *Exallonyx strictus*, new species; 1. antenna; 2. fore wing; 3. thorax in lateral view; 4. hind leg; 5. abdominal petiole in dorsal view; and 6. abdominal petiole in lateral view. 7–11. *Exallonyx pingbianensis*, new species; 7. antenna; 8. fore wing; 9. thorax in lateral view; 10. abdominal petiole in dorsal view; and 11. abdominal petiole in lateral view.

Description of Male (holotype)

Front wing 2.3 mm long. Body black. Antenna black brown. Labrum, apical half of mandible and tegula reddish brown. Palpus pale brown. Fore leg light brown, except upper side of femur greyish yellow. Mid leg light brown, except coxa and trochanter black and upper side of femur grayish yellow. Hind leg black, except base and apex of femur redish brown. Wing hyaline, stigma and strong veins black brown, weak veins colorless. Temple $0.83\times$ as long as eye in dorsal view. Gena $0.4\times$ as long as long diameter of eye. Clypeus $2.5\times$ as wide as long, weakly convex; its apex truncate with distinct transverse ridges on subapical declivity. Second flagellar segment $3.4\times$ as long as wide. Tenth flagellar segment $2.6\times$ as long as wide. Last segment of antenna $1.6\times$ as long as penultimate segment. Tyloids absent. Area between antennal sockets with weak ridge. Occipital carina distinct. Pronotum with 4–5 transverse wrinkles on collar. Epomia strong. Pronotum smooth laterally, without setae behind epomia; setae present behind carina on collar. Upper margin of pronotum with single row of setae. Lower corner of pronotum with two pits. Front edge of mesopleuron with patch of setae at upper corner and another just above horizontal groove; bare area between these two patches $1.3\times$ as long as tegula; speculum with sparse setae on upper 0.47 . Lower half of mesopleuron mostly with sparse setae except for median area asetose; anterior portion and lower corner of horizontal groove with parallel fine wrinkles. Smooth area of metapleuron $0.55\times$ as long as metapleuron and $0.8\times$ as deep as metapleuron. Remainder of metapleuron with irregular fine wrinkles. Upper margin of propodeum arcuate in lateral view. Upper face of propodeum smooth with weak wrinkles on posterolateral margin. Median ridge incomplete and reaching to middle of posterior face. Posterior face of propodeum weakly rugose with strong transverse ridge medially. Lateral areas of propodeum with irregular reticulate wrinkles. Hind femur $4.5\times$ as long as deep. Longer spur of hind tibia $0.6\times$ as long as hind basitarsus. Stigma $2.0\times$ as long as deep receiving radius nearly at middle. Anterior side of radial cell $0.5\times$ as long as depth of stigma; posterodistal margin of stigma weakly convex. First radial vein oblique, $1.5\times$ as long as wide. Second radial vein straight, meeting first radial vein with projection. Posterior margin of hind wing with shallow notch at basal 0.35 . Abdominal petiole $1.5\times$ as long as wide in dorsal view with five strong parallel longitudinal carinae and four longitudinal grooves. Abdominal petiole $2.0\times$ as long as deep in lateral view; upper margin straight, contracted at base; anterior half with four weak transverse ridges, behind that with four strong diagonal longitudinal ridges. Base of syntergite with median groove reaching 0.8 to space between thyridia, each side with one short lateral groove, $0.3\times$ as long as median groove. First thyridium $2.0\times$ as wide as long, separated from each by 0.35 width of one thyridium. Setae on syntergite short and sparse, far from lower margin. Paramere triangular, not decurved, sharp at tip.

Female. Unknown.

Type material

Holotype, male, China, Yunnan Province: Pingbian County (22.58°N, 103.41°E), Dawei Mountain, 18.VII.2003, coll. Tingjing LI, No.20045268.

Distribution

China (Yunnan Province).

Etymology

The specific epithet is derived from the Latin adjective *pingbianensis* (inhabiting Pingbian), in reference to the collecting locality.

Remarks

This new species is very similar to *E. strictus* sp. nov., because both have the abdominal petiole contracted basally, and due to the strong transverse ridge at middle of posterior face of propodeum. These two features are unique to these two new species of *Exallonyx*. *Exallonyx pingbianensis* differs from *E. strictus* by having the second flagellar segment 3.4× as long as wide, the tenth flagellar segment 2.6× as long as wide, the abdominal petiole 1.5× as long as wide in the dorsal view, but 2.0× as long as deep in lateral view, and with four diagonal longitudinal ridges on its posterior half in lateral view.

Key to the Chinese species of *formicarius*-group of *Exallonyx*

1. Flagellum with tyloids *E. laevigatus* Fan and He
- Flagellum without tyloids 2
- 2(1). Abdominal petiole contracted at base 3
- Abdominal petiole not contracted at base 4
- 3(2). Second flagellar segment 2.7× as long as wide; abdominal petiole 1.0× as long as deep in lateral view with six diagonal longitudinal ridges..... *E. strictus* sp. nov.
- Second flagellar segment 3.4× as long as wide; abdominal petiole 2.0× as long as deep in lateral view with four diagonal longitudinal ridges..... *E. pingbianensis* sp. nov.
- 4(2). First thyridium 1.8–2.0× as wide as long 5
- First thyridium 2.5–3.5× as wide as long 6
- 5(4). Clypeus 3.1× as wide as long; median groove on syntergite reaching 0.5 to space between thyridia, with two lateral grooves 0.67× as long as median groove *E. ejunicidus* He and Fan
- Clypeus 2.5× as wide as long; median groove on syntergite reaching 0.7 to space between thyridia, with two lateral grooves 0.2× as long as median groove *E. fujianensis* Fan and He
- 6(4). First thyridium 2.5× as wide as long *E. chiuuae* Townes and Townes
- First thyridium 3.1–3.5× as wide as long 7

- 7(6). Upper margin of pronotum with 2 rows of setae *E. fuliginis* He and Fan
 - Upper margin of pronotum with single row of setae *E. nigricornis* He and Fan

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