

On the genus *Tibetajanus* Wei (Hymenoptera: Cephidae) with description of a new species

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Abstract: The genus *Tibetajanus* Wei, 1996 is redescribed based on holotypes and new material. The genus is unique among the genera of Cephidae by the supraclypeal area with a sharp middle keel, the fourth labial palpus short and clearly broader than the fourth maxillary palpus, left mandible short and strongly bent at middle, most of the flagellomeres in male serrate ventrally, the middle serrulae of female lancet with fine teeth. A new species, *T. circularis* sp. nov., is described from the southern mountainous regions of Jiangxi and Hunan Provinces, China. A key to known species of this genus is provided.

Key words: stem boring sawflies; Hartigiinae; taxonomy; key

脊颜茎蜂属评述暨一新种（膜翅目：茎蜂科）

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摘要: 基于模式标本和新材料评述了茎蜂科脊颜茎蜂属, 重新描述了该属属征, 指出了其主要鉴别特征。其唇基上区具锐利中脊, 下唇须第4节短, 明显宽于下颚须第4节, 左上额粗短, 中部显著弯折, 雄虫多数鞭分节腹侧钝齿状突出, 雌虫部分锯齿刃具多列亚基齿等特征, 与茎蜂科其余各属均不相同。描述了脊颜茎蜂属1新种, 采集自江西和湖南南部山区。编制了该属已知种检索表。

关键词: 茎蜂; 等节茎蜂亚科; 分类; 检索表

Introduction

Cephidae is a small family in the order Hymenoptera and represents an isolated latter branch among the basal lineages of this order. About 22 genera and 174 species have been described through the end of 2019 (Taeger *et al.* 2010; Liu *et al.* 2017, 2018a, b). A total of 15 genera and 69 species have been recorded from China (Niu *et al.* 2015; Wei *et al.* 2015; Nie *et al.* 2016; Liu *et al.* 2017, 2018).

Tibetajanus Wei, 1996 is a small genus of Hartigiinae, Cephidae with 2 described species from China (Wei & Nie 1996; Wei 2005). During sawfly investigations to Mt. Nanling from 2007 to 2011, we collected specimens of Cephidae among which a new species of *Tibetajanus*

Accepted 30 October 2020. Published 25 June 2021. Published online 28 May 2021.

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was found.

Material and Methods

Specimens examined during this study, including all holotypes and paratypes of the new species and two described species, are deposited in the Asian Sawfly Museum, Nanchang, Jiangxi, China (ASMN).

Images of adults were taken using a digital camera with the series of images montaged using Helicon Focus (HeliconSoft®). Images of genitalia were taken using Moticam® 5000 via Motic® BA400. All images were further processed with Adobe Photoshop CS 11.0.

Abbreviations used are: OOL — distance between the eye and outer edge of lateral ocellus; POL — distance between the mesal edges of the lateral ocelli; OCL — distance between a lateral ocellus and the occipital carina or hind margin of the head.

Terminology of sawfly genitalia follows Ross (1945). Terminology of wing venation follows Niu & Wei (2010).

Taxonomy

Tibetajanus Wei, 1996

Tibetajanus Wei, 1996: 2. Type species: *Tibetajanus fulvus* Wei, 1996. By original designation.

Description. Body slender (Fig. 4); head large and extending backwards, almost as long as broad in dorsal view, lateral of head weakly narrowed behind eyes (Fig. 5); apex of clypeus asymmetrical subtruncate, left apical corner acute; mandibles short and robust, strongly bent at about middle, with an oblique carina, outer surface in basal half concave (Figs 2, 3); left mandible bidentate, length about 2 times breadth, inner tooth as long as outer tooth and with a distinct shoulder (Fig. 3); maxillary palp with 6 palpomeres, third palpomere not strongly enlarged, slightly stouter and shorter than fourth palpomere, length of fourth palpomere 1.5 times as long as sixth palpomere, sixth palpomere originated from base of fifth palpomere; labial palp short and stout, first palpomere longer than second palpomere, third palpomere quite short, broader than long, fourth palpomere about as long as first palpomere and 2 times as long as broad; inner margins of eyes parallel, distance between eyes at level of toruli about as long as longest axis of eye (Figs 5, 10); supraclypeal area strongly elevated with a sharp and long middle keel (Fig. 10); occipital carina short, extending to lower third of postorbit; malar space linear (Fig. 10); face short and broad, distance between toruli broader than inner orbit and as long as distance between torulus and anterior tentorial pit; lateral ocelli clearly beyond posterior line of eyes in dorsal view (Fig. 5); antenna filiform with 26–27 antennomeres, about as long as vein C in forewing, pedicellum slightly longer than broad, third antennomere much longer than fourth, fourth antennomere as long as fifth antennomere in female (Fig. 7) and clearly longer than fifth antennomere in male, most male flagellomeres serrated ventrally (Fig. 8). Pronotum broader than long, distinctly concave in lateral view, anterior margin with distinct carina, not emarginated, posterior margin shallowly incised; mesoscutellum slightly longer than broad (Fig. 15); upper mesepisternum without transverse furrow; middle tibia with a long preapical spur; hind tibia as long as hind tarsus, with 2 preapical spurs (Fig. 9);

metabasitarsus as long as following 4 tarsomeres together, upper margin of fourth tarsomere shorter than half length of third tarsomere and also shorter than length of its apical slope; claw with a large and acute basal lobe, inner tooth broader and longer than apical tooth (Fig. 6); cell C of forewing distinct, breadth of cell C at position of dorsal petiole of cell 1M broader than length of dorsal petiole of cell 1M, vein 1r1 meeting extreme base of pterostigma, 2r1 parallel to 1r1 and meeting pterostigma at middle (Fig. 1), anal cell with an oblique crossvein; hind wing with cells Rs and M closed (Fig. 4). Abdomen strongly compressed laterally, first tergum divided or fused on meson (Fig. 15), second abdominal segment higher than long in lateral view; ovipositor sheath shorter than middle tibia, ventral margin bent more or less, apical sheath much shorter than basal sheath, cercus slender (Fig. 12); lance without distinct annular suture (Fig. 16); lancet broadened at middle, with 16–20 annuli, annular sutures weakly bent and sclerotized, middle sutures with distinct ctenidia (Fig. 17), serrulae roundish protruding, with fine teeth (Fig. 13); posterior margin of eighth sternite straight, without stiff hairs, apical margin of subgenital plate roundly protruding (Fig. 14).

Range. China (Hunan, Guizhou, Jiangxi, Xizang).

Host plant. Unknown.

Diagnosis. Head as long as broad; left mandible short and strongly bent at middle; supraclypeal area strongly elevated with a sharp middle keel; occipital carina extending to lower third of postorbit; malar space linear; distance between toruli as long as distance between torulus and anterior tentorial pit; pedicellum longer than broad, antennomere 3 much longer than antennomere 4, middle antennomeres in male serrated ventrally; cell C distinct; claw with a sharp basal lobe; annular sutures of female lancet sclerotized and with distinct ctenidia, serrulae with fine subbasal teeth.

Key to species of *Tibetajanus*

1. Tergum fused medially; ovipositor apical sheath narrow, 4 times as long as broad, 0.85 times basal sheath, cercus about 1/4 length of apical sheath; lancet slender with 20 serrulae, 8th–21st serrulae continuous with 1 row fine subbasal teeth; annular dents small, about 2 times length of a subbasal tooth; pterostigma entirely black; abdominal terga 5–10 largely black, other terga yellow brown. Tibet..... *T. fulvus* Wei
- . Tergum 1 meeting but completely divided along medial line; ovipositor apical sheath 2 times as long as broad, about half length of basal sheath, cercus about 3/5 length of apical sheath; lancet with about 16–18 isolated serrulae, serrulae each with many rows fine subbasal teeth; annular dents large, about 4–5 times length of a subbasal tooth; pterostigma entirely fulvous or pale brown with blackish center; abdominal terga 2–10 with large black spots or entirely fulvous 2
2. Pterostigma entirely fulvous; abdominal terga 2–10 each with a pair of large black spots; apical sheath almost in same direction with basal sheath (ventral margin of ovipositor weakly bent); annular dents connected with subbasal teeth of serrulae. Guizhou..... *T. stigmata* Wei
- . Pterostigma black with pale brown margin; abdominal terga entirely fulvous; apical sheath not in same direction with basal sheath (ventral margin of ovipositor distinctly bent); annular dents separated from subbasal teeth of serrulae. Jiangxi, Hunan..... *T. circularis* sp. nov.

Tibetajanus circularis sp. nov. (Figs 1–17)

Female (based on holotype, divergent characters of paratypes in brackets). Length of body 13 mm. Color: fulvous; basal 3/5 of mandible, face below toruli and broad inner and posterior orbits shining yellow (Figs 10, 11), a small ocellar area black, postocellar area with 2

narrow dark brown stripes (Fig. 5); flagellum blackish brown, basal 2 antennomeres pale brown, third antennomere brown (Fig. 7); abdominal sternites yellowish brown. Wings hyaline, veins and margins of pterostigma pale brown, central area of stigma dark brown to black (Fig. 1). Body hairs golden, flagellar hairs black brown.

Head shining, vertex evenly, shallowly and minutely punctate, basal half of mandible densely punctate, posterior orbits sparsely punctate; most of pronotum hardly punctate, strongly shining, narrow posterior margin minutely punctate; prescutum and scutum feebly shining, densely punctate and finely microsculptured, anterior half of mesoscutellum densely punctate and pilose, posterior half polished, shining, impunctate; mesepisternum evenly and shallowly punctate; abdominal tergites 1 and 2 largely polished, strongly shiny; posterior 2/5 of tergite 2 and tergites 3–10 extremely finely microsculptured, shiny; basal sheath weakly microsculptured, apical sheath densely punctate.

Broad part of malar space about 1/3 diameter of median ocellus, narrow part of malar space about 1/5 diameter of median ocellus (Fig. 10); middle carina between toruli long and sharp; distance between eyes at level of toruli slightly shorter than longest axis of eye; distance between toruli 1.3 times as long as breadth of inner orbit and 1.1 times as long as distance between torulus and anterior tentorial pit (Fig. 10); middle fovea and postocellar furrow absent; POL : OOL : OCL = 25 : 27 : 95; in dorsal view head behind eyes about as long as eye and weakly narrowed (Fig. 5); left mandible as in Fig. 3, right mandible as in Fig. 2. Antenna with 27 antennomeres [26–28], length of antenna 2.4 times head width, pedicel 1.2 times as long as broad, antennomere 3 about 1.6 times as long as antennomere 4, flagellomeres 11–24 [10–23] each about as long as broad, other flagellomeres each distinctly longer than broad (Fig. 7). Mesoscutellum distinctly longer than broad (Fig. 15); precoxal furrow on mesepisternum distinct. Forewing: cell C at position of dorsal petiole (first abscissa of Rs) of cell 1M clearly broader than length of first abscissa of Rs, cell 2Rs longer than 1Rs. Metabasitarsus as long as following 4 tarsomeres together (Fig. 9), claw as in Fig. 6. Abdomen strongly compressed laterally, tergum 1 strongly protruding forward in lateral view, completely divided along middle line (Fig. 15); apex of abdomen and ovipositor as in Fig. 12, apical sheath short and broad, clearly longer than broad, apex roundish; cercus slender, about 0.55 times length of apical sheath in lateral view; ovipositor apical sheath not in same direction as basal sheath, ventral margin of ovipositor distinctly bent (Fig. 12); lance as in Fig. 16; lancet with 18 annuli and about 17 serrulae, basal 4 serrulae very small, annular sutures strongly curved (Fig. 17), ctenidia developed, middle ctenidia distinctly but shortly separated from subbasal teeth of serrulae, middle ctenidial teeth about 4–5 times length of subbasal teeth, middle serrulae roundly protruding, with many rows of subbasal teeth (Fig. 13), apical serrulae close to each other.

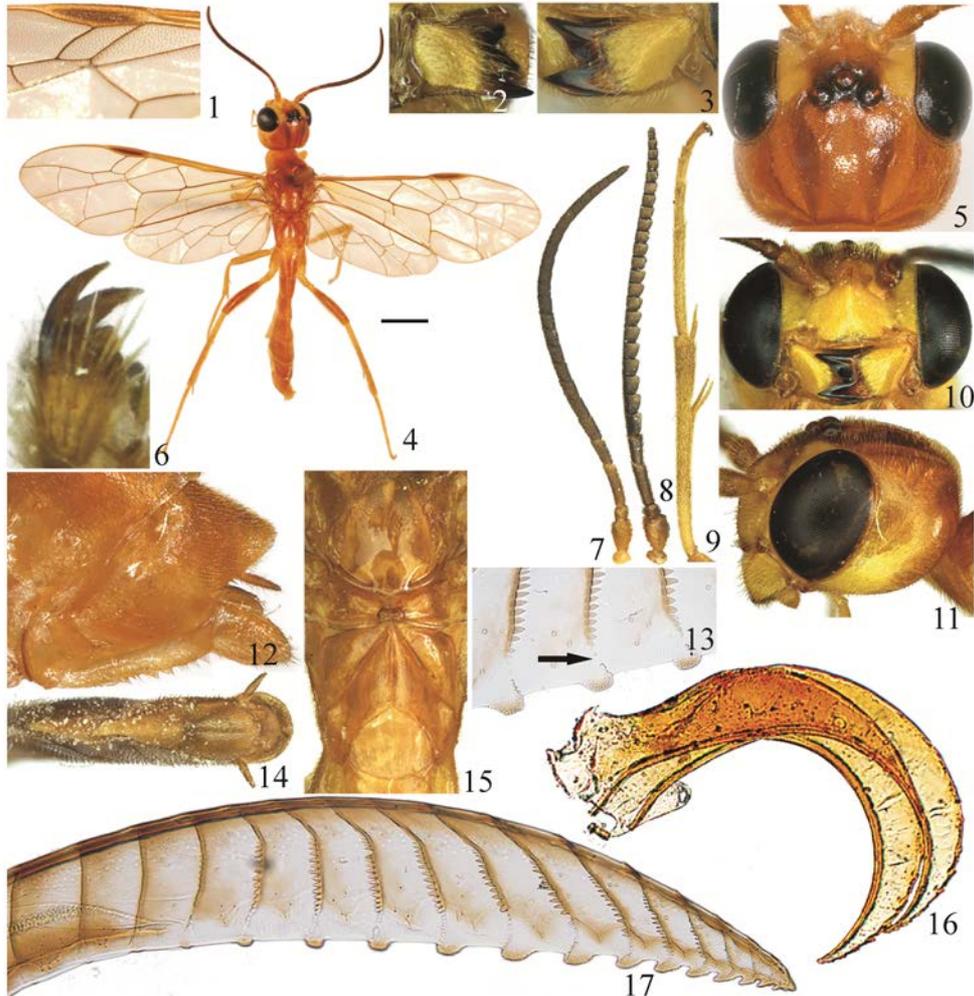
Male. Length 12–13 mm; color and structure similar to female except for: antenna 2.2 times as long as head width; most of flagellomeres distinctly protruding ventrally (Fig. 8); sternite 8 and subgenital plate as Fig. 14.

Holotype. ♀, **China**, Hunan, Mt. Mangshan, Guizhizhai, N24°59.015', E112°48.138', alt. 1090 m, 15-VI-2007, leg. Mei NIE. **Paratypes.** 1♀, **China**, Hunan, Jiangyong, Shanmuyuan, N25°22.418', E111°16.419', alt. 1000 m, 25-VII-2008, leg. Bo CAI; 1♀1♂, **China**, Hunan, Daoxian, Xibian, Qingliyuan, N25°29.200', E111°21.564', alt. 500 m, 23-VI-2008, leg. Tianming SU; 1♂, **China**, Hunan, Daoxian, Qingliyuan, N25°29.540', E111°23.158', alt. 370 m,

21-VI-2008, leg. Tianming SU; 1♀, **China**, Jiangxi, Mt. Jiulian, no. 2 yellow trap, 11-IX-2011, leg. Maoling SHENG; 1♀, **China**, Jiangxi, Mt. Jiulian, no. 6 green trap, 30-VI-2011, leg. Maoling SHENG; 1♂, **China**, Jiangxi, Mt. Jiulian, no. 1–2 trap, 14-VIII-2011, leg. Maoling SHENG; 1♂, **China**, Jiangxi, Mt. Jiulian, Shuangjiang Forest Plant, alt. 174 m, 24-V-2008, leg. Maoling SHENG.

Bionomy. The larval host plant is unknown.

Etymology. The specific epithet refers to the blackish pterostigma surrounded by pale brown margin.



Figures 1–17. *Tibetajanus circularis* **sp. nov.** 1. Pterostigma and veins nearby; 2. Right mandible; 3. Left mandible; 4. Adult; 5. Head, dorsal view; 6. Claw; 7, 8. Antenna; 9. Hind tibia and tarsus; 10. Head, frontal view; 11. Head, lateral view; 12. Apex of abdomen, lateral view; 13. Middle serrulae; 14. Abdomen, ventral view; 15. Mesoscutellum, metathorax and propodeum; 16. Lance; 17. Lancet. 1–17 except for 8, 14. Female, holotype; 8, 14. Male, paratype. Scale bar = 2 mm.

Diagnosis. *Tibetajanus circularis* is quite similar to *T. stigmata* Wei, 2005. See the above key for the differences among the three species of this genus.

Acknowledgements

This research was supported by the National Natural Science Foundation of China (31970447), the Scientific Innovation Fund for Graduate of Central South University of Forestry and Technology (CX20191005) and GDAS Special Project of Science and Technology Development (2020GDASYL-20200102021, 2020GDASYL-20200301003).

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