

Two new species of Xiphidriidae (Hymenoptera) from China

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Abstract: Two new Xiphidriidae species are described from Zhejiang, China: *Hyperxiphia ruficephala* Wei sp. nov. and *Xiphidria tianmunica* Wei sp. nov. Types examined in this study are deposited in the Asian Sawfly Museum, Nanchang (ASMN).

Key words: Symphyta; Xiphidriinae; *Hyperxiphia*; *Xiphidria*; taxonomy; Zhejiang

中国项蜂科二新种（膜翅目）

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摘要: 记述中国浙江项蜂科 2 新种: 红头异跗项蜂 *Hyperxiphia ruficephala* Wei sp. nov. 和天目项蜂 *Xiphidria tianmunica* Wei sp. nov.。新种模式标本保存于中国南昌亚洲叶蜂博物馆 (ASMN)。

关键词: 广腰亚目; 项蜂亚科; 异跗项蜂属; 项蜂属; 分类; 浙江

Introduction

Xiphidriidae is a small family of Hymenoptera with about 147 valid species belonging to 31 genera. This family occurs in the Nearctic Region and Australia with 6 genera and 26 species, and in the Holarctic Region with 25 genera and 121 species.

Hyperxiphia Maa, 1949 includes 18 known species, all of them occurring in Eastern and Southern Asia (Liu *et al.* 2019). Four species of this genus have been recorded from China (Maa 1949).

Xiphidria is the largest genus in Xiphidriidae with 38 known species (Liu *et al.* 2019). Among them, 11 species occur in North America, 9 species in Europe and 27 species in Asia. Nine species of *Xiphidria* have been recorded from China (Maa 1949; Xiao & Wu 1984; Shinohara & Kameda 2019).

Material and methods

Specimens were examined with a Motic-SMZ-168 stereomicroscope. Adult images were taken with a Nikon D700 digital camera and a series of images were montaged using Helicon Focus (©HeliconSoft). All images were further processed using Adobe Photoshop CS 11.0.

Morphological descriptions of new species are based on the holotype. The terminology of genitalia follows Ross (1945) and that of general morphology follows Niu & Wei (2010).

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Abbreviations. 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.

Types examined in this study are deposited in the Asian Sawfly Museum, Nanchang (ASMN).

Taxonomy

1. *Hyperxiphia ruficephala* Wei sp. nov. (Fig. 1)



Figure 1. *Hyperxiphia ruficephala* Wei sp. nov., ♀, holotype. A. Adult, lateral view; B. Head, frontal view; C. Head, dorsal view; D. Head, lateral view; E. Mesothorax, lateral view; F. Claw; G. Maxillary palpomere 2–5; H. Antennomeres 1–5; I. Apex of abdomen and ovipositor sheath, lateral view; J. Apex of abdomen and ovipositor sheath, dorsal view; K. Labial palp.

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Female (Holotype). Body length (including sheath) 12 mm (Fig. 1A). Black; head reddish brown, antenna, occiput largely and mouthparts black, extreme base of scape and palps pale brown; thorax and abdomen black, abdominal tergite 7 with a large lateral white macula (Fig. 1A), upper basal corner of apical sheath brownish; leg black brown, basal dot on fore tibia, basal 0.33 of middle tibia, basal 0.4 of hind tibia, basitarsi of middle and hind leg except extreme apex, white. Body hairs silver, setae on sheath brown. Wing weakly infusate, subhyaline, pterostigma and veins black.

Head almost glabrous, thorax and abdomen with very short and flat hairs. Clypeus, frons and upper inner orbits with regulate carinae converging downward, without distinct puncture, ocellar area weakly rugose, head otherwise polished, strongly shiny (Figs. 1B–D); basal 2 antennomeres feebly microsculptured, weakly shiny, antennomeres densely microsculptured, mat; antero-ventral lobe of pronotum largely shiny, other part of pronotum irregularly carinate; dorsum of propleuron largely smooth, anterior part of ventral side coarsely punctured; mesonotum including dorsum of mesoscutellum irregularly carinate, narrow anterior area of mesoscutal middle lobe smooth and shiny, dorsum of lateral lobe with a narrow elongated densely microsculptured patch, parapsis largely and lateral slope of mesoscutellum smooth and shiny, narrow posterior margin of mesoscutellum weakly rugose; dorsum of metascutellum carinate; elevated area of mesepisternum densely and irregularly carinate (Fig. 1E), narrow anterior slope polished, strongly shiny, upper posterior slope with transverse carinae, lower posterior slope microsculptured; mesepimeron with many regular transverse carinae; metapleuron irregularly carinate (Fig. 1E); abdominal tergite 1 with large and dense punctures, inner and posterior margins smooth, shiny; tergite 2 with dense punctures, broad anterior furrow densely sculptured, other tergites densely microsculptured, without distinct punctures; venter of abdomen microsculptured, feebly shiny.

Mandible with 4 distinct dents; labial palp with 4 palpomeres, palpomere 1 slender, about 1.1 times as long as palpomere 2 and 3 combined, palpomere 2 2.1 times as long as broad, palpomere 3 broader than long, palpomere 4 weakly enlarged toward apex with a round sensory pit, apex round (Fig. 1K); maxillary palp slender with 5 palpomeres, palpomere 1 slightly longer than broad, length ratio of palpomeres 2–5 as 66 : 35 : 32 : 29 (Fig. 1G); flat part of malar space linear, fovea deep and large, almost touching eye (Fig. 1D); eye small with longest axis 1.25 times the shortest axis, upper margin of hind orbit as long as longest axis of eye (Figs. 1B, D); inner margins of eyes weakly divergent downward, distance between eyes at lower corner 1.4 times as long as longest axis of eye; distance between toruli 2.3 times as broad as inner orbit (Fig. 1B); genal carina long and sharp, occipital carina complete; face not distinctly protruding, anterior corner round in lateral view, center of postocellar area weakly convex (Fig. 1D); frons elliptical, frontal basin deep and roundish; head in dorsal view roundly narrowed behind eyes, temple as long as eye, OOL : POL : OCL = 19 : 13 : 51 (Fig. 1C). Antenna short with 18 antennomeres, total length 1.5 times as long as head breadth, antennomere 1 as long as antennomere 3, antennomere 2 slightly longer than broad and about 0.8 times as long as antennomere 4, antennomere 3 slightly longer than antennomeres 4+5 combined, antennomere 4 1.3 times as long as its breadth (Fig. 1H), flagellum distinctly tapering toward apex, each flagellomere longer than broad. Middle furrow of mesoscutal middle lobe distinct, notaulix broad and shallow, bottom with transverse carinae; top of

mesoscutellum triangular. Fore tibia with 1 apical spur, bent and bifurcate at apex; inner hind tibial spur slightly longer than outer spur and slightly shorter than apical breadth of tibia; metabasitarsus slightly shorter than following 4 tarsomeres together, apical tarsomere much larger than fore and middle apical tarsomeres; claw with inner tooth shorter than apical tooth (Fig. 1F). Fore wing: free abscissa of vein Sc slightly basad of base of vein Rs, 1st abscissa of Rs 0.5 times as long as cell 1M, vein 2r meeting apical 1/5 of pterostigma and base of cell 2Rs, vein cu-a almost interstitial to vein 1M, cell 2Rs about as long as 1Rs, apex of cell R1 close, basal anal cell close; hind wing: petiole of hind anal cell 1.2 times as long as vein cu-a, apex of cell R1 close with a distinct dorsal petiole. Cercus short, 3 times as long as broad (Fig. 1J); ovipositor sheath 1.2 times as long as hind tibia, apical sheath 0.9 times as long as basal sheath, apex narrow and roundish (Fig. 1I), in dorsal view sheath distinctly broadened toward base and narrowed toward apex in apical half (Fig. 1J).

Male. Unknown.

Etymology. The specific epithet refers to the red head.

Holotype. ♀, China, Zhejiang, Taishun, Wuyanling, VIII-2014, collector unknown.

Distribution. China (Zhejiang).

Remarks. This new species is similar to *H. heritierae* (Rohwer, 1921) but differs from the latter by the following: body smaller and black, without metallic tinge; maxillary palpomere 4 about as long as palpomere 5 and clearly shorter than palpomere 3; OOL much longer than POL; pronotum, abdominal tergites 2 and 9 without white macula, tergite 7 with a lateral white stripe; antenna black with antennomere 2 clearly shorter than antennomere 4; mesoscutellum smooth with large and sparse punctures. In *H. heritierae* (Rohwer, 1921), the body much larger (length 16.5 mm), with distinct metallic tinge; maxillary palpomere 3 as long as palpomere 4 and much shorter than palpomere 5; OOL as long as POL; pronotum, abdominal tergites 2 and 9 with distinct white maculae, tergite 7 without lateral white stripe; basal 2 antennomeres reddish brown and antennomere 2 as long as antennomere 4; the dorsum of mesoscutellum strongly rugose and carinate, without distinct punctures.

2. *Xiphydria tianmunica* Wei sp. nov. (Fig. 2)

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Female (Holotype). Body length including sheath 16 mm (Fig. 2A). Body black, a long stripe on lower inner orbit and post orbit (Fig. 2C), a quadrate macula on temple, lateral stripe on postocellar area (Fig. 2D), antennomere 3 largely, antennomeres 4–17 entirely, narrow posterior margin of pronotum, most of tegula, posterior of axilla, a small spot near cenchrus, a small stripe on dorsal-anterior corner of mesepisternum (Fig. 2E), a lateral triangular spot on each of abdominal tergites 3–5, a pair of long lateral stripe on tergites 6–8, a long hook-like stripe on posterior of tergite 9 and a quadrate middle macula on tergite 10, white (Figs. 2A, I); a central macula on dorsum of mandible, a small spot between toruli (Fig. 2B) and ventral margin of basal sheath pale brown (Fig. 2F). Body hairs silver, setae on sheath brown. Leg black, apical margin of hind coxa, basal 0.4 of each tibia white, apical 0.6 of each tibia and tarsomeres 1–2 orange (Fig. 2A). Wing feebly infusate, pterostigma dark brown, veins black brown.

Body hairs very short and flat. Frons and upper inner orbit coarsely rugose mixed with irregular carinae (Fig. 2B), anterior third of postocellar area (Fig. 2D) finely and densely

rugose, lower 2/3 of hind orbit microsculptured mixed with several irregular longitudinal carinae, temple largely and posterior 2/3 of postocellar area smooth, strongly shiny (Fig. 2D); ventral margin of pronotum sparsely punctured, anterior of mesonotum and dorsum of mesoscutellum rugose, mat, center of mesonotum irregularly carinate, dorsum of mesoscutal lateral lobe with a narrow elliptical microsculptured patch, narrow posterior margin of mesoscutellum smooth, lateral slope of mesoscutellum microsculptured; upper half of mesepisternum, mesepimeron largely and metapleuron coarsely rugose mixed with carinae (Fig. 2E), lower half of mesepisternum feebly sculptured mixed with obscure punctures; center of abdominal tergite 1 coarsely punctured, inner margins smooth, other tergites densely microsculptured, feebly shiny, anterior furrow of tergites 2–3 coarsely punctured.

Basal two teeth of mandible small; maxillary palp slender, palpomeres 3–5 about equal in length, each about 3 times as long as broad (Fig. 2G); malar space 2.1 times as long as median ocellus, largely flat, lower 1/3 with a small roundish fovea (Fig. 2C); eyes elliptical, inner margins divergent downwards, distance between eyes at level of toruli 1.55 times as long as longest axis of eye (Fig. 2B); anterior corner of frons producing (Fig. 2C), middle fovea deep and connected with deep and small frontal basin; OOL : POL : OCL = 33 : 24 : 77; vertex distinctly convex, in dorsal view head distinctly enlarged behind eyes at middle and distinctly narrowed in posterior part (Fig. 2D). Antenna with 18 antennomeres, total length 2 times as long as head breadth, length ratio of basal 5 antennomeres: 45 : 21 : 30 : 17 : 17, antennomeres 2 and 3 about 2 times as long as broad, antennomere 4 1.5 times as long as broad (Fig. 2J). Anterior corner of mesoscutal middle lobe distinctly convex, middle furrow shallow; anterior 3/5 of mesoscutellum with shallow middle furrow; metascutellum about 2 times as broad as long. Fore tarsus 2 times as long as tibia; hind femur 2.5 times as long as broad, hind tibia as long as hind tarsus, metabasitarsus distinctly longer than following 3 tarsomeres combined and 0.8 times as long as following 4 tarsomeres together; inner tooth of claw short and triangular, 0.3 times as long as apical tooth (Fig. 2K). Fore wing: apex of cell R1 close, free part of vein Sc close but not touching vein Rs, first abscissa of vein Rs 0.3 times as long as cell 1M, vein 2r interstitial to vein 1r-m, cu-a almost interstitial to vein 1M, vein 2A+3A not touching 1A; hind wing: cell R1 close at apex with a short stalk, cell Rs and M close, anal cell with petiole 0.4 times as long as vein cu-a. Cercus short, 3 times as long as broad (Figs. 2F, I); ovipositor sheath slender, ventral margin straight, total length 0.6 times as long as abdomen, apical sheath 0.95 times the length of basal sheath, apex narrowly round (Fig. 2F); in dorsal view sheath evenly narrowed toward apex (Fig. 2I).

Male. Body length 10–12.5 mm; color and structure similar to female except for: white stripe on lateral of postocellar area short, center of clypeus, lateral of pronotum, anterior of propleuron, center of mesoscutal middle lobe and mesepisternum usually with distinct white maculae, lateral white maculae on tergites 3–7 small and about same in size, lateral macula on tergite 8 very small, tergite 9 without white spot, disc of harpes white; all femora, tibiae and tarsi largely dark orange; basal half of malar space flat, apical half with deep fovea; palpomere 3 of maxillary palp very short, about 0.4 times as long as palpomere 4 and 0.3 times as long as palpomere 5; antenna with 16–19 antennomeres, apical 4 antennomeres black brown, flagellum slender, each flagellomere clearly more than 2 times as long as broad; posterior 1/4 of mesoscutellum and lateral slope smooth; center of abdominal sternites 4–7 with a tuft stiff hairs, posterior margin of sternite 9 shallowly incised.

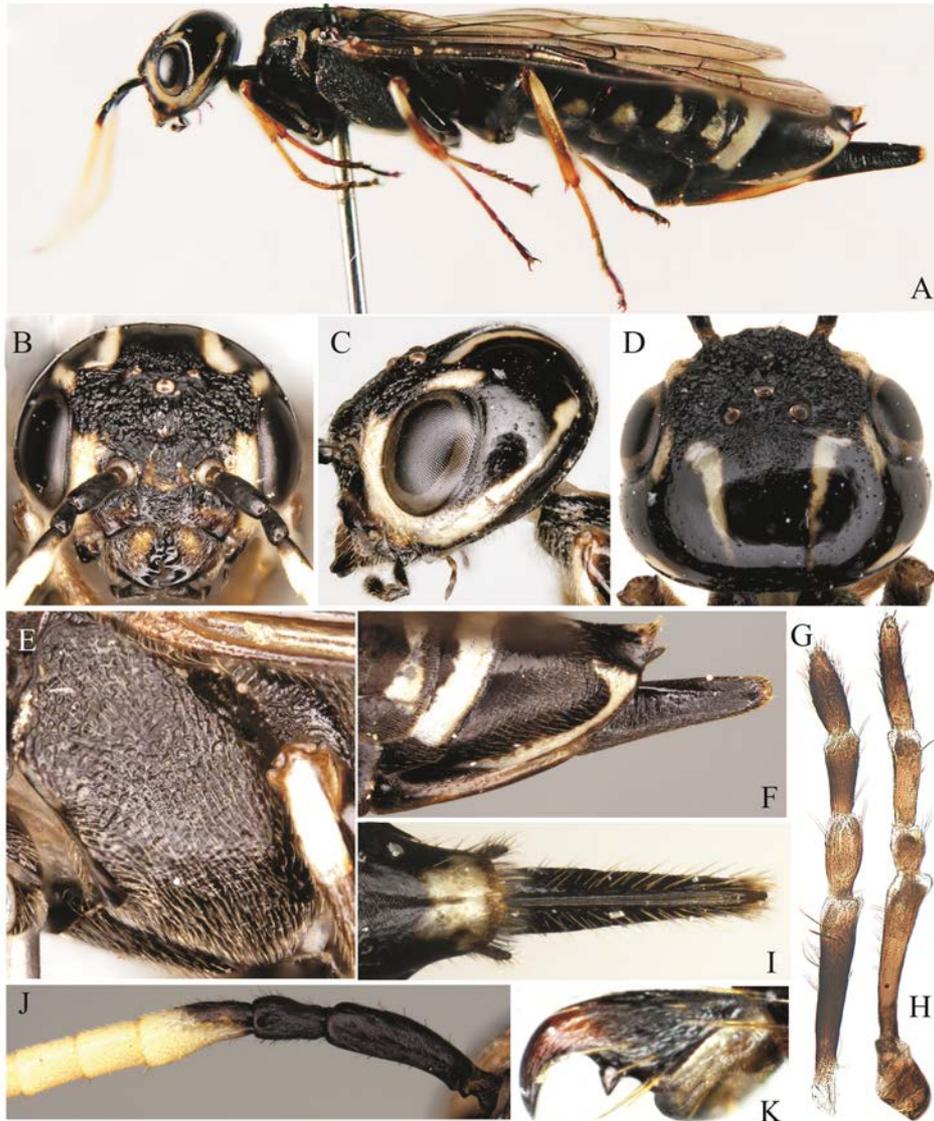


Figure 2. *Xiphydria tianmunica* Wei sp. nov. A. Adult, lateral view; B. Head, frontal view; C. Head, lateral view; D. Head, dorsal view; E. Mesopleuron, lateral view; F. Apex of abdomen and ovipositor sheath, lateral view; G. Maxillary palpomere 2–5; H. Maxillary palpomere; I. Apex of abdomen and ovipositor sheath, dorsal view; J. Antennomeres 1–5; K. Claw. A–G, I–K. Female holotype; H. Male paratype.

Etymology. This species is named after the type locality.

Holotype. ♀, **China**, Zhejiang, Lin'an, Mt. Tianmu, Chanyuan Temple, 119.442°E, 30.323°N, alt. 405 m, 17~18-IV-2018, Zejian LI, Mengmeng LIU & Tingting JI leg.
Paratypes. 5♂, **China**, Zhejiang, Lin'an, peak of Mt. Tianmu, 119.424°E, 30.349°N, alt. 1506 m, 12~13-IV-2018, Zejian LI, Mengmeng LIU & Tingting JI leg.

Distribution. China (Zhejiang).

Remarks. This species is similar to *Xiphydria plurimaculata* G. Xiao & Wu, 1984 (male unknown) from Yunnan, but differs from the latter by the following: female coxae black, the basal 1/3–2/5 of tibia white, other part pale brown, tarsus largely pale brown; the dorsum of head without a pair of hook-like white maculae; mesonotum and all pleura black, only axilla with a white spot; the abdominal tergite 1 without white macula, tergite 2 except for lateral carina and all sternites black; and antenna with 16–19 antennomeres. In *Xiphydria plurimaculata* G. Xiao & Wu, the fore and middle coxae partly white, the hind coxa entirely yellow white, each tibia and basitarsus brown; the dorsum of head with a pair of hook-like white macula, the mesoscutal middle lobe, lateral lobes, mesoscutellum and mesopleuron with distinct white macula; the abdominal tergite 1 with a pair of long white stripes, the tergite 2 except for a narrow middle stripe and sternites 1–4 largely yellow white; and antenna with 24 antennomeres.

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