

ORIGINAL ARTICLE

# Two new species of *Hartigia* Schiødte from China (Hymenoptera: Cephidae)

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**Abstract** Two new species of *Hartigia* Schiødte, 1838 from China are described: *H. maculothoracica* **sp. nov.** from Xinjiang and *H. fuscicosta* **sp. nov.** from Jilin. A diagnosis of *Hartigia* and a key to *Hartigia maculothoracica* and its relatives are provided.

**Key words** Cephidae, Hartigiinae, *Hartigia*, new species, China.

## 1 Introduction

*Hartigia* Schiødte, 1838 is the second largest genus of Cephidae with 31 known species. It is a Holarctic genus but most species distribute in eastern Asia. Among the 31 known species, 6 are recorded from N. America, 6 are from Europe and North Africa, and the remaining 19 species are all recorded from eastern Asia (Taeger *et al.*, 2010).

Ten *Hartigia* species have been recorded from China (Wei & Nie, 1996, 1997; Wei *et al.*, 2006). Wei & Nie (1996) provided a key to Chinese species of the genus till then.

The genus is diagnosed by: the 6th maxillary palpomere as long as the 4th palpomere; hind tibia with one pre-apical spur; pronotum elongate and usually as long as or longer than broad; left mandible bidentate, inner tooth shorter than outer tooth and with a distinct shoulder; malar space usually longer than pedicellum; occipital carina distinct; claw bifurcate, without basal lobe; forewing with vein 1r joining pterostigma at base and 2r meeting pterostigma beyond middle; hind wing with cells Rs and M closed; ovipositor sheath distinctly bent ventrally, apical sheath shorter than basal sheath; lancet with toothed sutures, serrulae usually acute and without minute teeth.

## 2 Materials and methods

The type specimens of the new species are deposited in the Insect Collection of Central South University of Forestry and Technology, Changsha, Hunan, China (CSCS) and Insect Collection of Yeungnam University, Gyeongsan, Korea (YUK).

Images of adults were taken using a digital camera with a series of images montaged using Helicon Focus (©HeliconSoft). Images of genitalia were taken using Moticam<sup>®</sup> 5000 via Motic<sup>®</sup> BA400 and NIKON<sup>®</sup> D700 via Motic<sup>®</sup> SMZ-168. All images made for this study are deposited in the Morphbank database.

The following abbreviations are used: OOL = distance between the eye and outer edge of lateral ocellus; POL = distance between the mesal edges of the lateral ocelli. Terminology of sawfly genitalia follows Ross (1945). Terminology of wing venation follows Niu and Wei (2010).

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### 3 Results

#### 3.1 *Hartigia fuscicosta* sp. nov. (Figs 1–10)

Female. Body length 15–18 mm. Body and legs black, basal 0.65 of mandibles, lower half of inner orbit, a reversed V-shape macula on supraclypeal area (sometimes separated at middle), a minute dot on upper orbit, a short stripe on latero-posterior corner of second tergite, a large and curved stripe on lateral of tergites 3–4, shiny yellow; anterior side of fore femur near apex, anterior side of fore tibia, yellow brown; fore and middle tibiae black brown. Wings hyaline, extreme narrow apical margin dark brown, vein C and posterior margin of pterostigma fuscous, anterior margin of pterostigma black brown. Body hairs black brown.

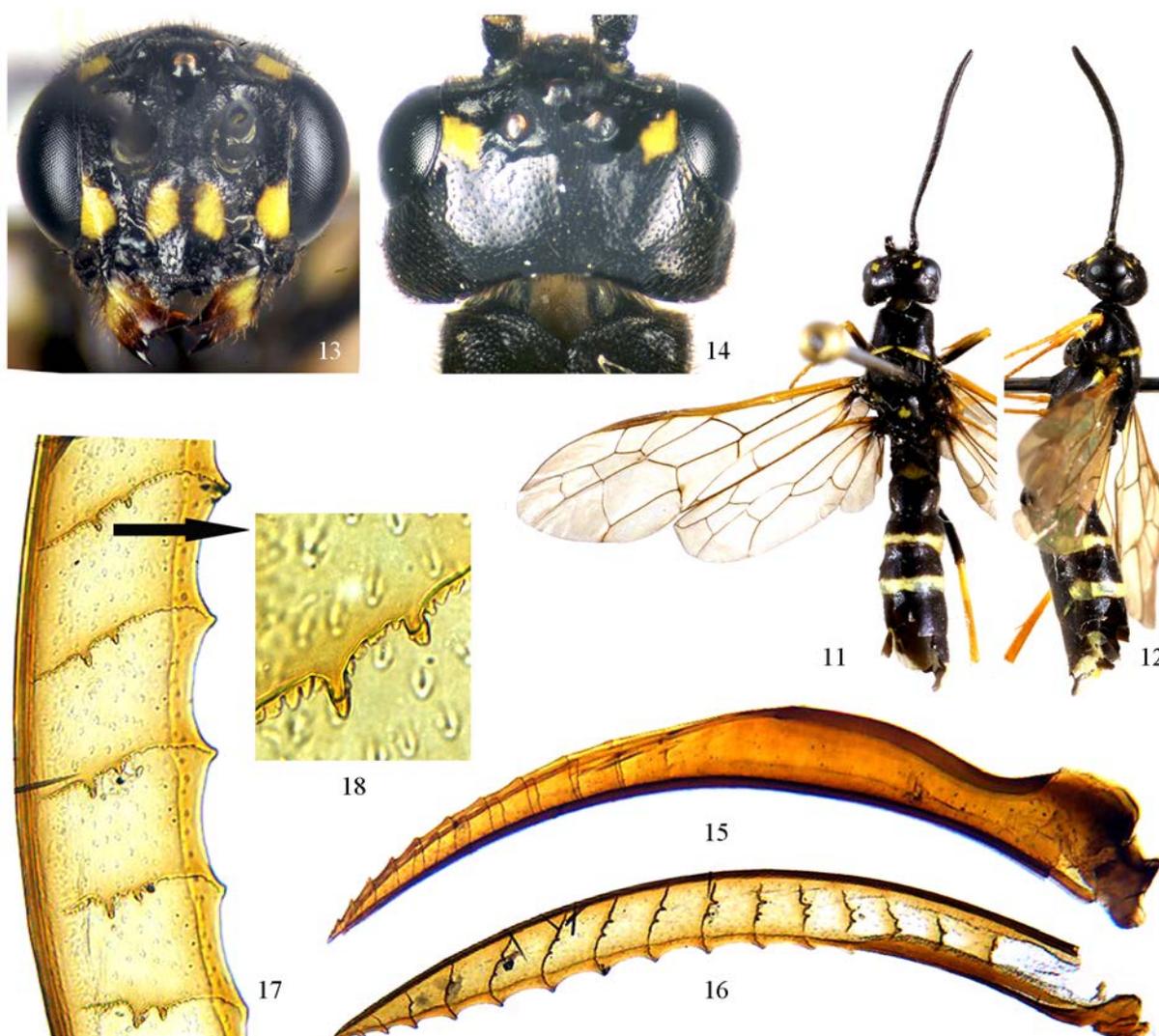
Hairs on dorsum of head and upper half of mesopleuron about as long as diameter of lateral ocellus. Ocellar area, upper half of inner orbit, lower 0.4 of postorbit impunctate and without microsculpture, strongly shiny; supraclypeal area



Figs 1–10. *Hartigia fuscicosta* sp. nov. 1. Female, adult, dorsal view. 2. Male, adult, dorsal view. 3. Female, head, dorsal view. 4. Female, head, front view. 5. Male, head, front view. 6. Ovipositor sheath, lateral view. 7. Ovipositor sheath, dorsal view. 8. Lance. 9. Lance. 10. 5th–8th annuli of lancet.

weakly rugose and sparsely punctured, shiny; lower half of inner orbit and upper 0.6 of postorbit microsculptured, less shiny; frons coriaceous, feebly shiny; postocellar area and temple minutely and sparsely punctured, interspaces polished; dorsum of pronotum minutely and sparsely punctured, more densely punctured laterally; mesonotum including most part of mesoscutellum densely punctured, interspaces between punctures coriaceous, less shiny, posterior margin of mesoscutellum smooth, shiny; metapostnotum and first abdominal tergum densely microsculptured, very weakly shiny; mesepisternum densely and minutely punctured, interspaces strongly microsculptured, almost dim; mesepimeron densely microsculptured, dim; abdominal tergites 2–10 minutely and densely punctured, interspaces polished, shiny.

Malar space 0.85 times as long as scape and 2 times as long as diameter of middle ocellus (Figs 4, 5); occipital carina extending to top of postorbit; area between toruli weakly and roundly elevated; distance between toruli 1.1 times as long as distance between torulus and inner margin of eye (Fig. 3); middle fovea obscure, frons without middle furrow; interocellar furrow absent, postocellar furrow very shallow; POL: OOL= 7: 8; postorbit 0.8 times as long as eye in dorsal view and weakly narrowed backwards, posterior margin of head distinctly but not strongly concave (Fig. 3). Antenna with 27–28 antennomeres, pedicellum slightly broader than long, third antennomere 1.2 times as long as fourth antennomere, flagellum slightly incrassated beyond sixth antennomere. Pronotum as long as posterior breadth, middle longitudinal furrow indistinct, anterior margin feebly carinate and weakly incised with depth about 1/9 length of pronotum, posterior



Figs 11–18. *Hartigia maculothoracica* **sp. nov.** 11. Female, adult, dorsal view. 12. Female, adult, lateral view. 13. Female, head, front view. 14. Female, head, dorsal view. 15. Lance. 16. Lancet. 17. 5th – 9th annuli of lancet. 18. Middle of 9th annulus.

margin deeply and triangularly incised. Cell 1Rs about as long as 2Rs. Metabasitarsus 1.15 times as long as following three tarsomeres together, claw with inner tooth shorter than apical tooth. Ovipositor sheath slightly longer than metabasitarsus, apical sheath distinctly broadened toward base and about 0.85 times as long as basal sheath, dorsal margin roundish (Fig. 6); in dorsal view sheath slightly broadened toward base and about 3 times as long as cercus (Fig. 7). Lance slender, apical 0.55 with acute dorsal teeth (Fig. 8); lancet distinctly broadened at middle with 18 annuli, annular sutures distinctly toothed, two large annular teeth of middle sutures far remote to each other, serrulae narrowly rounded toward apex (Fig. 10).

Male. Body length 15 mm. Body color and structure similar to female except for: supraclypeal area largely, inner margins of propleura, a large macula on ventral side of fore and middle coxae, small apical dot on ventral side of hind coxa and each trochanter, anterior side of fore and middle femora and tibiae, shiny yellow; posterior margin of abdominal sternites 7–8 straight, sternite 9 much shorter than sternite 8, apical margin obtusely truncate; harpe narrow, about 2.2 times as long as broad, apical margin round.

Distribution. China (Jilin).

Etymology. The specific epithet refers to the dark brownish costal vein of the new species.

Holotype ♀, Jilin, Baihe, Mt. Changbai, Bingshuiquan (42°09'00"N, 128°11'30"E; elev. 1240m), 24 July 2012, coll. Ze-Jian Li, Meng-Meng Liu. Paratypes: 6♀, same data as the holotype (CSCS); 1♀, Jilin, Mt. Changbai, Canyon Stone Forest, (42°11'02"N, 128°11'01"E; elev. 1135 m), 8 July, 2014, coll. Biao Chu; 3♀, Jilin, Mt. Changbai, fire tower, (42°04'58"N, 128°13'43"E; elev. 1400 m), 9 July, 2014, coll. Biao Chu; 1♂, China, Jirin [Jilin], Yanbian, Housihe (42°32'13"N, 128°16'33"E; elev. 590 m), 23 July 2010, coll. Jong-Wook Lee (YUK).

Remarks. This new species is close to *H. etorofensis* Takeuchi, 1955 from Sakhalin Island of northeastern Asia but differs from it by antenna with 27–28 antennomeres; temples and postocellar area shiny, without distinct microsculpture; the posterior side of fore tibia and entire fore tarsus dark brown in female, and the anterior side of middle femur and middle tibia shiny yellow in male; the vein C dark brown. In *H. etorofensis* Takeuchi antenna with 30 antennomeres; temples and postocellar area dull and strongly coriaceous; the fore tibia and fore tarsus yellow in female, and the anterior side of middle femur and middle tibia black in male; the vein C and base of pterostigma yellow.

### 3.2 *Hartigia maculothoracica* sp. nov. (Figs 11–18)

Female. Body length 14 mm (Fig. 11). Body and legs black, a band near base of mandible, four short vertical facial bands below toruli, a large rhomb like macula on upper orbit, a small macula on middle of postorbit, narrow posterior margin of pronotum, a central spot on mesoscutellum, dorsal corner of mesepisternum (Fig. 12), lateral posterior corner of abdominal tergites 2 and 6, broad posterior band on tergites 3, 4, 7 and 8, shiny yellow; a large oval macula on outer side of hind coxa, a long stripe on anterior side of fore femur, basal third of each tibia shiny yellow, apical 2/3 of each tibia and each tarsus yellow brown, apical tarsomeres of each tarsus dark brown. Wings hyaline, vein C yellow, pterostigma brown and clearly darker than vein C, other veins dark brown. Body hairs dark brown.

Hairs on frons slightly longer than diameter of middle ocellus, hairs on postocellar area and thorax as long as diameter of lateral ocellus. Clypeus very densely punctured; supraclypeal area and lower inner orbits shallowly and sparsely punctured, shiny; interspace between toruli, frons, ocellar area and middle of inner orbits densely coriaceous, dim; depressed area of upper inner orbit and anterior of lower postorbit polished, shiny; postocellar area, postorbit largely and temple distinctly and evenly punctured, interspaces between punctures very weakly microsculptured, shiny; dorsum of pronotum moderately punctured, shiny, lateral more densely punctured; scutum densely punctured, interspaces between punctures feebly coriaceous, shiny; dorsum of mesoscutellum very weakly punctured, strongly shiny, lateral side sparsely punctured; metapostnotum and first abdominal tergum densely microsculptured, very weakly shiny; mesepisternum densely and minutely punctured, interspaces microsculptured, almost dim, upper corner of mesepisternum smooth; mesepimeron densely microsculptured, dim; abdominal tergites 2–10 densely punctured at middle, anterior and posterior margin smooth, shiny; sternites densely punctured.

Malar space 0.8 times as long as scape and 1.8 times as long as diameter of middle ocellus (Fig. 13); occipital carina extending to middle of postorbit; area between toruli very weakly elevated; distance between toruli 1.1 times as long as distance between torulus and inner margin of eye (Fig. 14); middle fovea shallow, frons flat, without middle furrow; interocellar furrow and postocellar furrow broad and shallow; POL= OOL; postorbit 0.85 times as long as eye in dorsal view and very weakly narrowed backwards, posterior margin of head roundly concave (Fig. 14). Antenna with 26

antennomeres, pedicellum slightly broader than long, third antennomere 1.4 times as long as fourth antennomere, flagellum slightly incrassated beyond sixth antennomere. Pronotum about 0.8 times as long as its posterior breadth, middle longitudinal furrow distinct, anterior margin feebly carinate and deeply incised with depth about 1/5 length of pronotum, posterior margin shallowly and triangularly incised. Cell 1Rs clearly longer than 2Rs. Metabasitarsus 1.15 times as long as following three tarsomeres together, claw with inner tooth shorter than apical tooth. Ovipositor sheath slightly longer than metabasitarsus (ovipositor sheath lost after dissection). Lance slender, apical 0.35 with small dorsal teeth (Fig. 15); lancet very weakly broadened at middle with 16 annuli, middle annular sutures each with 2 larger teeth and many minute teeth, two large annular teeth close to each other (Figs 17–18), middle serrulae triangular (Figs 16–17).

Male. Unknown.

Distribution. China (Xinjiang).

Etymology. The specific epithet refers to the yellow macula on the top of mesepisternum.

Holotype ♀, Xinjiang, Bole, Xia'eroxili (82°04'33"E, 45°13'17"N; elev. 1263 m), 19 July 2007, coll. Yi-Hai Zhong (CSCS).

Remarks. This new species is close to *H. xanthosoma* (Eversmann, 1847) and *H. linearis* (Schrank, 1781) from Europe. The three species can be separated by the following key.

1. Pterostigma clearly darker than vein C; posterior margin of head clearly concave in dorsal view; pronotum with a deep longitudinal furrow, anterior margin deeply incised to a depth about 1/5 length of pronotum; frons and first abdominal tergum densely coriaceous and dim; postocellar area and temple distinctly and evenly punctured; POL=OOL. China ... ***H. maculothoracica* sp. nov.**  
Pterostigma yellow brown and not darker than vein C; posterior margin of head almost straight in dorsal view; pronotum with an indistinct longitudinal furrow, anterior margin shallowly incised to a depth about 1/8 length of pronotum; frons and first abdominal tergum feebly coriaceous and distinctly shiny; postocellar area and temple minutely and very sparsely punctured; POL distinctly shorter than OOL. Europe ..... 2
2. Third antennomere about 1.5 times as long as fourth antennomere; face usually entirely black, at most with a small yellow mark; face with sparse punctures; middle fovea obscure; host plant: *Filipendula ulmaria* (L.) Maxim ..... ***H. xanthosoma* (Eversmann, 1847)**  
Third antennomere about 1.3 times as long as fourth antennomere; face usually with a large yellow mark; face without distinct punctures; middle fovea distinct, about as large as middle ocellus; host plant: *Agrimonia eupatoria* L. .... ***H. linearis* (Schrank, 1781)**

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