

## EIGHT NEW SPECIES OF THE SUBGENUS PHORTICA (DIPTERA: DROSOPHILIDAE, AMIOTA) FROM GUANGDONG PROVINCE, SOUTHERN CHINA

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**ABSTRACT** Seven new species belonging to the *Amiota variegata* species-complex and another new species of *Amiota* (*Phortica*) are reported from Guangdong, China.

### INTRODUCTION

Up to the present, a total of 42 species of *Amiota* (*Phortica*) have been recorded from the world: 25 spp. from the Oriental Region, 8 spp. from the Palaearctic Region, 5 spp. from the Ethiopian Region, 2 spp. from New Guinea, and 1 sp. from each of Australia, the Nearctic and Neotropical Regions (Wheeler, 1981, 1986; Zhang and Gan, 1986). From mainland China, a total of 9 species including 4 endemics have been recorded, mostly from the southern part: 4 spp. from Yunnan, 4 spp. from Guangdong and 1 sp. from Beijing and Zhejiang (Zhang and Gan, 1986; Okada, 1988, Peng *et al.* 1989). Based upon collections from Guangdong Province, this paper adds 8 new species to the faunal list of this subgenus in mainland China. The resulting total number of 12 species recorded from Guangdong is the largest in the Oriental Region, followed by Taiwan (10 spp.), Yunnan (4 spp.) and Sumatra (3 spp.), suggesting that the southern part of China including Taiwan is an evolutionary center of this subgenus.

All the holotypes and a part of paratypes are deposited in the Guangdong Institute of Entomology, Guangzhou, China, and the remaining paratypes in the Entomological Institute, Hokkaido University, Sapporo, Japan.

### Subgenus *Phortica* Schiner

*Phortica* Schiner, 1862, Wien, ent. Monatschr., 6: 433; Okada, 1971: 96; Măca, 1977: 116.

Type species: *Drosophila variegata* Fallén, 1823.

**Diagnosis:** Anterior reclinate orbital shorter than other orbitals; face, humerus and wing base without milky white spots; arista not bare at least in female; carina undeveloped;  $R_{4+5}$  and M distally convergent (Okada, 1971; Máca, 1977).

#### A. variegata Species-complex

*A. variegata* species-complex, Máca, 1977: 115.

**Diagnosis:** Anterior paramere distally tripartite (Máca, 1977).

Okada (1977) regarded the medially protruded caudal black band on 3rd to 5th tergites as a diagnostic character of this complex, and included *A. omega* Okada, 1977 and *A. cardua* Okada, 1977 in this complex. However, those species have anterior paramere distally bipartite. Zhang and Gan (1986) also included two other species having anterior paramere distally bipartite, *A. pseudogigas* Zhang et Gan, 1986 and *A. flexuosa* Zhang et Gan, 1986, in this complex. These four species are different not only in anterior paramere but also in other characters of male genitalia from other members of this complex to such an extent that they should be excluded from this complex.

Other characters commonly seen in the following 7 new species of this complex are first described below.

**Head:** Eye brownish red, bare. Arista without terminal fork. Frons pollinose, medially with several minute hairs. Posterior reclinate orbital situated nearer to inner vertical than to proclinate. Face pollinose. Clypeus medially white, laterally black. Cheek medially to anteriorly darker. Vibrissa long, stout; other orals small. Palpus grayish yellow, basally blackish, with 1 prominent apical and several moderate lateral setae.

**Thorax:** Mesoscutum and thoracic pleura orange brown, with brownish black patches and pollinose pattern. Humeral 1. Acrostichal hairs in ca. 8 irregular rows. Prescutellars present. Anterior scutellar slightly longer than posterior.

**Legs** yellowish gray; tibiae with 3 black rings. Preapicals small, but present on all tibiae; apicals on fore and mid tibiae. Mid tarsus with 2 rows of minute cuneiform bristles on inner and outer sides. Hind tarsus with 1 row of minute cuneiform bristles on outer side and 1 row of recurved hairs on underside. Fore metatarsus as long as 3 succeeding tarsal joints together; mid metatarsus as long as rest together; hind metatarsus slightly longer than 2 succeeding together.

**Wing** hyaline. Veins brownish yellow. Crossveins clouded; posterior oblique and slightly sinuate. Discal and 2nd basal cells separated by crossvein.  $R_{2+3}$  slightly curved to costa at tip. Haltere white.

**Abdominal tergites** yellow, with brownish black pattern.

**Periphallalic organs:** Epandrium pubescent caudomedially to dorsally and anteroventrally, with several bristles in caudomedial to dorsal part and robust apodeme along anterior margin; heel prominently protruded anteriorly; toe indistinct; caudoventral margin slightly constricted. Surstylus slightly curved inward, with numerous setae on distal part of inner surface. Cercus separate from epandrium, entirely setigerous and pubescent. Membrane between epandrium

and cercus entirely pubescent. Decasternum composed of median piece and 1 pair of lateral arms connecting surstyli with each other; pubescent plate present between decasternum proper and cerci.

**Phallic organs:** Aedeagus composed of outer membranous tube, sclerotized median rod, and sometimes basal and lateral processes. The membranous part is not shown in the figures of this paper, and the median rod is subsequently called aedeagus as in other authors. The membranous part reaches up to vertical lobe of posterior paramere, which is called dorsal mantle according to Okada's (1977) terminology. Aedeagus curved ventrad and then forward, basally contiguous to apodeme by means of rod; apodeme with well developed, distally bifurcated vertical rod. Anterior paramere attached to tip of vertical rod. Novasternum narrow, arcuate; caudal ends contiguous to caudolateral corners of posterior paramere and heels of epandrium.

***Amiota (Phortica) pi* sp. nov. (Figs. 1,2)**

**Diagnosis:** Dorsal mantle with 2 pairs of strongly sclerotized horn-like processes apically and basally; apical process longer than basal (Fig. 2, m).

**Male.** Body length *ca.* 3.7 mm (range: 3.65–3.84). Thorax length (including scutellum) *ca.* 1.8 mm (1.76–1.86).

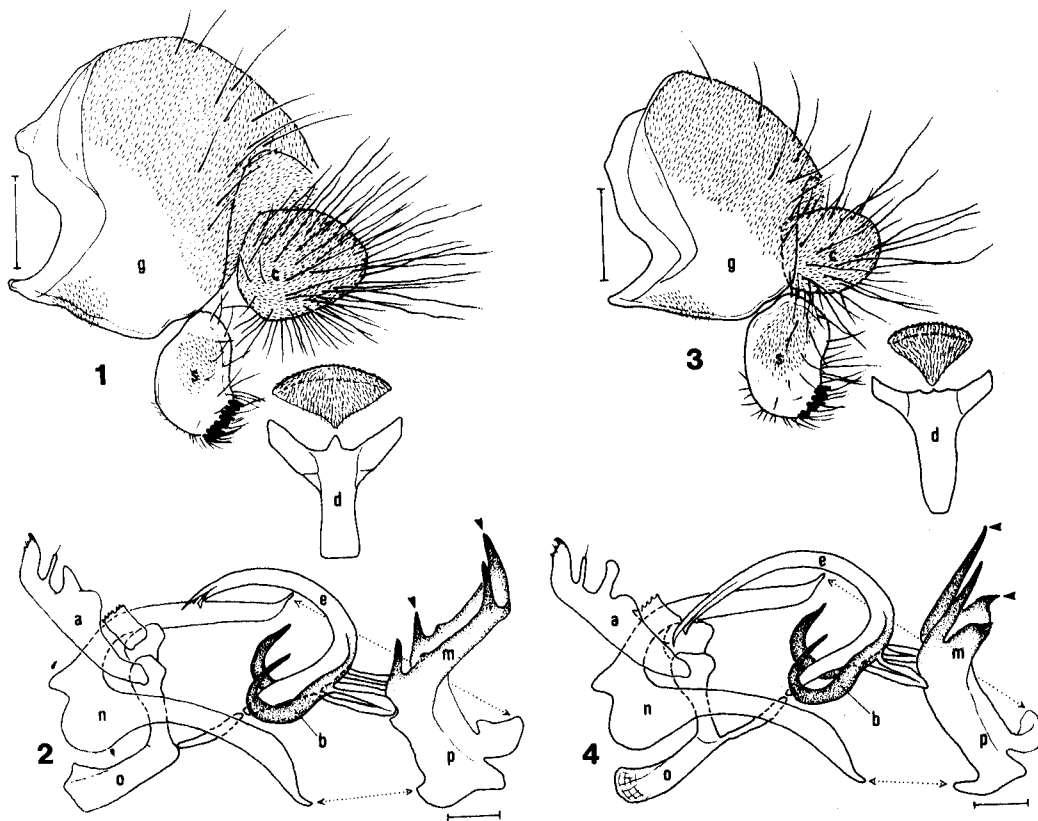
**Head:** Antenna grayish brown; 3rd joint paler. Arista with *ca.* 5 (4–6) upper and 3 or 4 lower branches in addition to distal fine branches. Frons slightly narrower than  $1/2$  of head width (mean = 0.48, 0.46–0.49, measured at level of anterior ocellus), orange brown; upper lateral corners and ocellar triangle black; lower median part darker; periorbit narrowly white. Anterior reclinate orbital *ca.*  $1/2$  (0.47, 0.43–0.53) length of posterior reclinate; proclinate slightly longer (1.10, 1.06–1.12) than posterior reclinate. Face grayish yellow; carina low, narrow. Cheek orange brown, *ca.*  $1/10$  (0.10, 0.09–0.11) as broad as maximum diameter of eye.

**Thorax:** Scutellum grayish yellow, with median large black patch posteriorly bifurcated and 1 pair of pale brown patches anterosublaterally, whitish on apical and lateral margins. Humerus yellowish white. Anterior dorsocentral *ca.*  $5/9$  (0.55, 0.50–0.57) length of posterior; length distance of dorsocentrals *ca.*  $1/4$  (0.25, 0.23–0.26) cross distance. Prescutellar *ca.*  $1/2$  (0.50, 0.46–0.54) length of posterior dorsocentral. Anterior / posterior scutellar *ca.* 1.1 (1.04–1.13). Sterno-index *ca.* 0.9 (0.84–0.92).

**Legs:** Femora basally to medially dark brown; ultimate tarsal joints darker.

**Wing:**  $C_1$ -bristle not differentiated. Wing indices:  $C$  *ca.* 2.2 (2.05–2.49),  $4V$  *ca.* 3.2 (2.89–3.28),  $4C$  *ca.* 1.7 (1.55–1.78),  $5x$  *ca.* 1.0 (0.99–1.06),  $Ac$  *ca.* 3.9 (3.65–4.00),  $C_3$ -fringe *ca.* 0.7 (0.64–0.78).

**Abdomen:** The 1st and 2nd tergites black sublaterally and on lateral margins; caudal black bands on 3rd to 5th medially and laterally protruded, with 1 pair of yellow patches near lateral margins; 6th with medially interrupted black patch.



Figs. 1-4. 1, 2, *Amiota (Phortica) pi* sp. nov. 3, 4 *Amiota (Phortica) pseudopi* sp. nov. 1, 3: Periphallallic organs; 2, 4: phallic organs (lateroventral view). c, Cercus; d, decasternum; g, epandrium; s, surstylus; a, anterior paramere; b, basal process; e, aedeagus; m, dorsal mantle; n, novasternum; o, aedeagal apodeme; p, posterior paramere. (Scale-line = 0.1 mm.)

Periphallallic organs (Fig. 1): Epandrium broad, with *ca.* 12 (9-15) bristles. Surstylus longer than broad, concave on dorsolateral margin; outer surface submedially pubescent, with *ca.* 10 long and *ca.* 2 short bristles; inner surface apically with *ca.* 16 wedge-shaped teeth in irregular rows. Cercus oval in lateral view. Median piece of decasternum elongate, caudomedially with triangular projection variable in size; caudal pubescent plate triangular.

Phallic organs (Fig. 2): Aedeagus with 1 pair of basal processes strongly sclerotized and hook-like shaped, apically trifid; median process apically pointed; lateral process dorsapically with small triangular claw. Apical process of anterior paramere largest, apically with 1 sensillum, 2 small subapical and 1 large ultimate claws; median process slender, apically with 1 sensillum; proximal process tongue-shaped, without ornamentation. Aedeagus and basal processes caudally connected to basal part of dorsal mantle by 2 pairs of bridges; inner bridge attached to aedeagus and outer bridge to basal process.

Holotype ♂, 8-18. VI. 1986. Paratypes, 1 ♂, 28. XII. 1986-6. I. 1987; 1 ♂, 22-31. I. 1987; 1 ♂, 16-22. IV. 1987; China: Dinghushan, Guangdong Province, ex traps (T. X. Peng).

**Distribution.** China: Guangdong.

**Relationships.** This species is closely related to *A. orientalis* Hendel, 1914, but clearly distinguishable from the latter in the shape of dorsal mantle (the latter having fan-shaped dorsal mantle, cf. Okada, 1977, Fig. 2-C).

**Amiota (Phortica) pseudopi** sp. nov. (Figs. 3,4)

**Diagnosis.** Dorsal mantle with 2 pairs of strongly sclerotized processes; basal process very long; apical small (Fig. 4, m).

This species is very close to the foregoing species. The following description is made referring only to the differences from the latter.

Male. Body length *ca.* 3.7 mm (3.21–4.41). Thorax length *ca.* 1.8 mm (1.46–1.96).

Head: Arista with 5 or 6 upper and *ca.* 4 (3–4) lower branches. Frons slightly narrower than 1/2 of head width (0.48, 0.47–0.50). Anterior reclinate orbital *ca.* 4/9 (0.46, 0.41–0.50) length of posterior reclinate; proclinate as long (1.01, 0.97–1.07) as posterior reclinate. Cheek narrower than 1/10 of maximum diameter of eye (0.09, 0.07–0.09).

Thorax: Anterior dorsocentral *ca.* 5/9 (0.55, 0.48–0.60) length of posterior; length distance of dorsocentrals *ca.* 2/7 (0.27, 0.24–0.30) cross distance. Prescutellar *ca.* 1/2 (0.52, 0.48–0.56) length of posterior dorsocentral. Anterior / posterior scutellar *ca.* 1.1 (1.01–1.10). Sterno-index *ca.* 0.9 (0.87–0.97).

Wing indices: C *ca.* 2.2 (2.00–2.31), 4V *ca.* 2.8 (2.64–2.93), 4C *ca.* 1.6 (1.46–1.64), 5x *ca.* 0.9 (0.80–1.06), Ac *ca.* 3.8 (3.36–4.26), C3-fringe *ca.* 0.7 (0.70–0.75).

Periphallallic organs (Fig. 3): Epandrium with *ca.* 12 bristles. Surstylus with *ca.* 10 long and *ca.* 3 short bristles on outer surface and *ca.* 12 wedge-shaped teeth apically on inner surface. Median piece of decaesternum caudomedially with small projection.

Holotype ♂, 29. V–7. VI. 1986, Paratypes, 1 ♂, 5–13. VII. 1986; 1 ♂, 6–13. VII. 1986; 3 ♂♂, 22. I–11. II. 1987; China: Dinghushan, Guangdong Province, ex traps (T. X. Peng).

**Distribution:** China: Guangdong.

**Relationships:** This species is closely related to the foregoing species, *A. pi* sp.n. but clearly distinguishable from the latter by the diagnostic character.

**Amiota (Phortica) gamma** sp. nov. (Figs. 5–8)

**Diagnosis:** Aedeagus apically with 2 pairs of processes; inner process slender, long, nearly straight, outer process triangular, curved dorsad like beak; dorsolateral margin subapically with small triangular projections variable in size and number (Fig. 6, e).

Some characters commonly seen in *A. pi* are not referred to in the following description.

Male. Body length *ca.* 4.2 mm (3.84–4.41). Thorax length *ca.* 1.7 mm (1.56–1.87).

Head: Antenna grayish yellow. Arista with *ca.* 4 (4–5) upper and *ca.* 3 (2–3) lower branches. Frons *ca.* 1/2 (0.50, 0.49–0.50) as wide as head, medially with large, triangular

black patch including ocellar triangle, anteriorly whitish. Anterior reclinate orbital *ca.* 1 / 2 (0.51, 0.45–0.61) length of posterior reclinate; proclinate slightly longer (1.07, 1.00–1.27) than posterior reclinate. Face whitish above. Cheek grayish yellow, *ca.* 1 / 8 (0.13, 0.10–0.14) as broad as maximum diameter of eye.

Thorax: Scutellum yellow, with median large black patch posteriorly bifurcated, whitish on apical margin. Anterior dorsocentral *ca.* 5 / 9 (0.54, 0.45–0.59) length of posterior; length distance of dorsocentrals *ca.* 2 / 7 (0.28, 0.24–0.30) cross distance. Prescutellar *ca.* 1 / 2 (0.50, 0.38–0.56) length of posterior dorsocentral. Anterior / posterior scutellar *ca.* 1.1 (1.00–1.12). Sterno–index *ca.* 0.9 (0.83–0.96).

Legs: Fore femur basally to medially black; mid femur basally darker; hind femur basally and medially darker.

Wing indices: C *ca.* 2.2 (1.97–2.35), 4V *ca.* 3.0 (2.67–3.24), 4C *ca.* 1.6 (1.45–1.69), 5x *ca.* 0.9 (0.75–1.06), Ac *ca.* 3.5 (3.15–3.96), C3–fringe *ca.* 0.7 (0.72–0.74).

Abdomen: The 3rd and 4th tergites with medially protruded, caudal black band not reaching to lateral margins, and narrowly black on lateral margins; 5th with medially and laterally protruded, caudal black band; 6th nearly entirely black except median line.

Periphallalic organs (Fig. 5): Epandrium moderate in width, with *ca.* 11 (8–13) bristles. Surstylus with *ca.* 9 (8–10) long and *ca.* 6 (2–8) short bristles on outer surface and *ca.* 22 (17–26) wedge-shaped teeth apically on inner surface. Cercus oval with somewhat oblique anterior margin. Median piece of decasternum slightly longer than broad; caudal pubescent plate much broader than long.

Phallic organs (Figs. 6–8): Basal process small, simply shaped. Apical process of anterior paramere with 3 teeth apically and 1 sensillum subapically; median process shaped finger-like, without ornamentation; proximal process slender, apically with 1 tooth. Aedeagus and basal process connected to basal part of dorsal mantle by anteriorly bifurcated bridge; ventral bridge distally dilated and fused to basal process. dorsal bridge curved and fused to basal part of aedeagus. Dorsal mantle elongate, spoon-shaped, basally quadrate.

Holotype ♂, China: Dinghushan, Guangdong Province, 24. I. 1987, by sweeping around human eyes (M. J. Toda). Paratypes, 3 ♂ ♂, same locality as holotype 22–31. I. 1987; 5 ♂ ♂, Guangzhou, Guangdong Province, 21–27. II. 1987; ex traps (T. X. Peng).

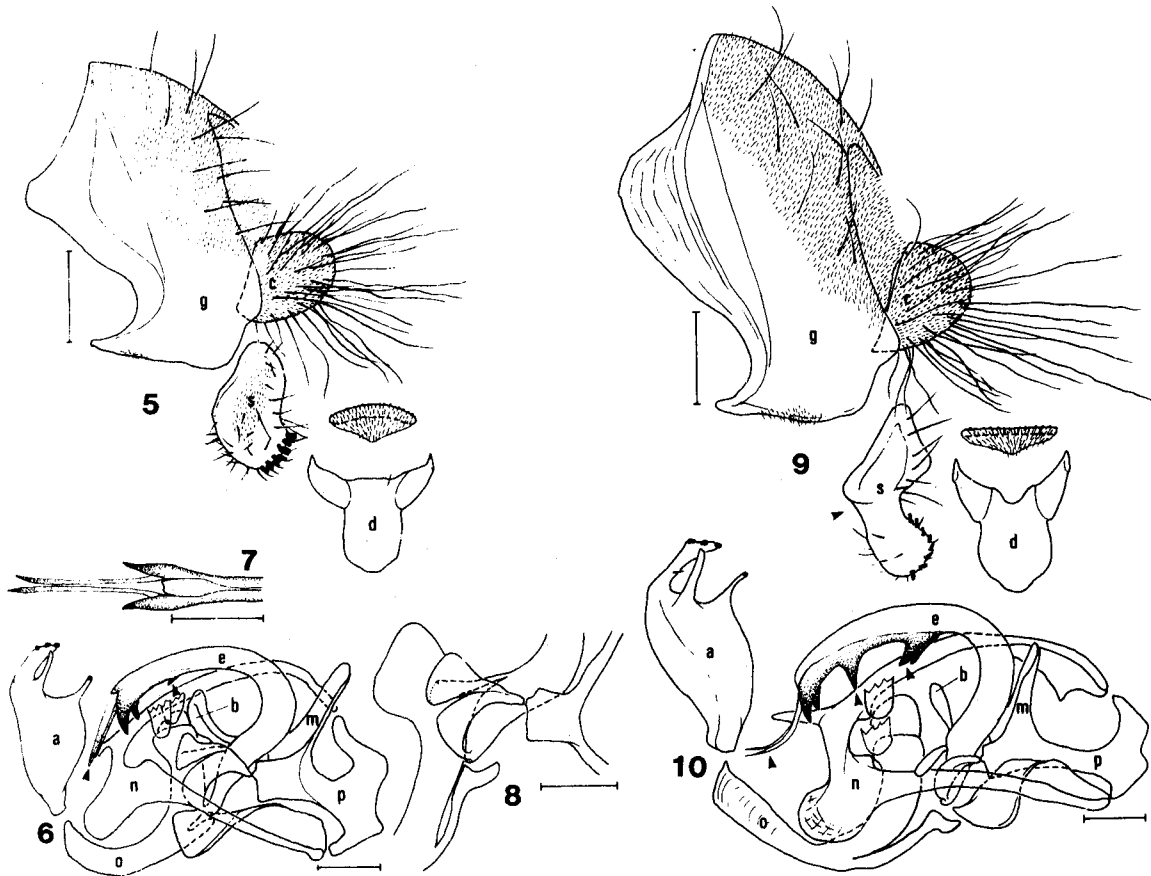
**Distribution,** China : Guangdong.

**Relationships.** This species somewhat resembles *A. psi* Zhang et Gan, 1986 in the structure of anterior paramere and basal part of aedeagus, but clearly distinguishable from the latter in having no long lateral processes on aedeagus (cf. Zhang and Gan, 1986, Fig. 1–B,C).

**Amiota (Phortica) eugamma** sp. nov. (Figs. 9,10)

**Diagnosis.** Surstylus elongate, medially constricted, not pubescent on outer surface (Fig. 9, s). Aedeagus apically with 2 pairs of processes; inner process slender, long, gently

curved forward; outer process triangular, curved dorsad like bead; dorsolateral margins with 1 large triangular projection subapically on right side and 1 pair of large triangular projections submedially (Fig. 10, e).



Figs. 5–10. 5–8, *Amiota (Phortica) gamma* sp. nov. 9, 10, *Amiota (Phortica) eugamma* sp. nov. 5,9: Periphallic organs; 6,10: phallic organs (lateroventral view); 7: apical part of aedeagus (ventral view); 8: basal part of aedeagus (lateral view). (Scale-line = 0.1 mm.)

This species is very close to the foregoing species, *A. gamma*. The following description is made referring only to the differences from the latter.

Male. Thorax length *ca.* 1.8 mm.

Head: Arista with *ca.* 6 upper and *ca.* 3 lower branches. Frons *ca.* 1/2 (0.50) as wide as head, mostly black, laterally triangularly orange brown. Anterior reclinate orbital *ca.* 1/2 (0.49) length of posterior reclinate; proclinate slightly longer (1.05) than posterior reclinate. Cheek orange brown, *ca.* 1/10 (0.10) as broad as maximum diameter of eye.

Thorax: Anterior dorsocentral *ca.* 4/7 (0.58) length of posterior; length distance of dorsocentrals *ca.* 3/10 (0.30) cross distance. Prescutellar *ca.* 4/7 (0.57) length of posterior dorsocentral. Anterior / posterior scutellar *ca.* 1.1. Sterno-index *ca.* 0.9. Wing: C<sub>1</sub>-bristle 1, but less differentiated. Wing indices: C *ca.* 1.9, 4V *ca.* 2.9, 4C *ca.* 1.7, 5x *ca.* 1.1, Ac *ca.* 3.9, C3-fringe *ca.* 0.7.

Abdomen: Caudal black bands on 3rd and 4th tergites medially and laterally protruded, with 1 pair of large yellow patches posteriorly interrupting band near lateral margins.

Periphalic organs (Fig. 9): Epandrium with *ca.* 11 bristles. Surstylus with *ca.* 7 long and *ca.* 4 short bristles on outer surface and *ca.* 25 wedge-shaped teeth distally on inner surface. Median piece of decaesternum with median notch on caudal margin.

Phallic organs (Fig. 10): Basal process not connected to posterior paramere by bridge. Basal part of aedeagus connected to basal part of dorsal mantle by curved bridge.

Holotype ♂, China: Dinghushan, Guangdong Province, 22–31. I. 1987, ex trap (T.X.Peng).

**Distribution.** China: Guangdong.

**Relationships.** This species is closely related to the foregoing species, *A. gamma* sp. n., but clearly distinguishable from the latter by the diagnostic characters.

#### ***Amiota (Phortica) tau* sp. nov. (Figs. 11, 12)**

**Diagnosis.** Aedeagus apically bifurcated, medially with 1 pair of small warts on dorsolateral margins (Fig. 12, e). Basal process situated sub-basally, composed of 2 strongly sclerotized processes; ventral process longer, curved dorsad, with small triangular warts and fine wrinkles on surface; dorsal process hook-shaped, with smooth surface (Fig. 12, b).

Some characters commonly seen in *A. pi* are not referred to in the following description.

Male. Thorax length *ca.* 1.9 mm.

Head: Antenna with 2nd joint orange brown and 3rd grayish yellow. Arista with *ca.* 5 upper and *ca.* 2 lower branches. Frons slightly narrower than 1/2 of head width (0.48); ocellar triangle including surrounding area black; periorbit somewhat widely white. Anterior reclinate orbital *ca.* 2/5 (0.40) length of posterior reclinate; proclinate slightly shorter (0.99) than posterior reclinate. Carina darker, somewhat broad below. Cheek grayish yellow, *ca.* 1/8 (0.13) as broad as maximum diameter of eye.

Thorax: Anterior dorsocentral *ca.* 5/9 (0.55) length of posterior; length distance of dorsocentrals *ca.* 3/10 (0.30) cross distance. Prescutellar *ca.* 5/9 (0.54) length of posterior dorsocentral. Anterior / posterior scutellar *ca.* 1.03. sterno-index *ca.* 0.9.

Legs: Femora basally and medially darker; tarsi with apical 2 joints darker.

Wing indices: C *ca.* 2.2, 4V *ca.* 2.9, 4C *ca.* 1.6, 5x *ca.* 0.9, Ac *ca.* 3.8, C3-fringe *ca.* 0.7.

Abdomen: Caudal black band on 3rd tergite medially and laterally protruded, with 1 pair of large yellow patches posteriorly interrupting band near lateral margins; caudal black bands on 4th and 5th medially and laterally protruded, with 1 pair of yellow or indistinct patches near lateral margins; 6th mostly black except median line.

Periphallic organs (Fig. 11): Epandrium with *ca.* 9 bristles. Surstylus elongate; outer surface not pubescent, with *ca.* 10 long and *ca.* 6 short bristles; inner surface apically with *ca.* 22 wedge-shaped teeth. Cercus somewhat triangular. Median piece of decaesternum broader than long; caudal median process fused to triangular, pubescent plate.

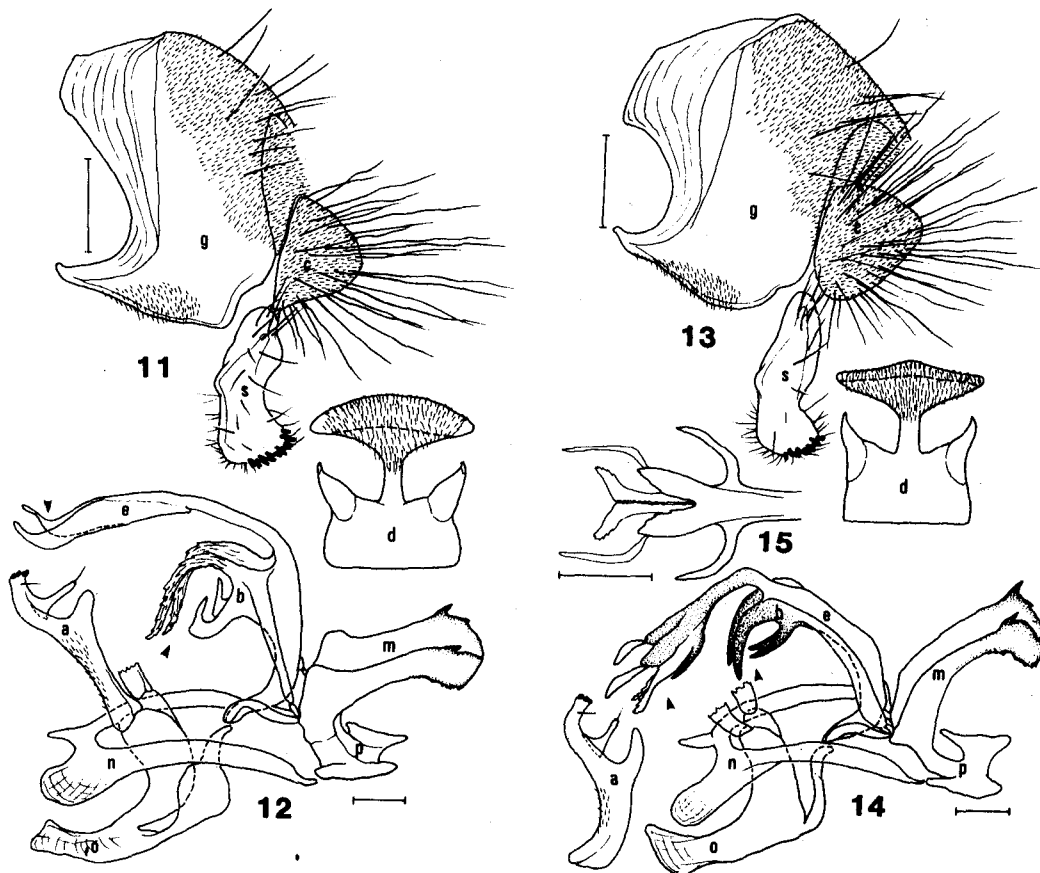


Phallic organs (Fig. 12): Rod connecting aedeagus and apodeme medially dilated. Anterior paramere submedially slightly pubescent; apical process apically truncate and with *ca.* 3 black teeth, subapically with 1 sensillum. Basal parts of aedeagus and basal processes connected to basal part of dorsal mantle by short and long bridges, respectively. Dorsal mantle apically not bilobed and with 1 pair of small sclerotized projections at anterior corners and irregular serration on caudal margin.

Holotype ♂, China: Dinghushan, Guangdong Province, 31. I–11. II. 1987, ex trap (T. X. Peng).

**Distribution.** China: Guangdong.

**Relationships.** This species is unique in the shape of the basal process of aedeagus, so that it is easily distinguishable from the other members of the subgenus *Phortica*.



Figs. 11–15. 11,12, *Amiota (Phortica) tau* sp. nov. 13–15, *Amiota (Phortica) pseudotau* sp. nov. 11,13: Peripheral organs; 12,14: phallic organs (lateroventral view); 15: apical part of aedeagus (ventral view). (Scale-line = 0.1 mm.)

***Amiota (Phortica) pseudotau* sp. nov. (Figs.13–15)**

**Diagnosis.** Aedeagus apically bifurcated and with 2 pairs of processes; inner pair situated dorsally, distally divergent, serrate on apical and inner margins, basally with sclerotized lateral process curved forward; outer pair slender, less sclerotized, extending forward from tips of bifurcated plate (Figs. 14, 15, e). Basal process situated at middle part of aedeagus, composed of 2 strongly sclerotized processes with smooth surface; ventral process longer, curved dorsad; dor-

sal process curved forward (Fig. 14, b).

This species is very close to the foregoing species, *A. tau*. The following description is made referring only to the differences from the latter.

Male. Thorax length *ca.* 1.7 mm (1.46–1.96).

Head: Antenna grayish yellow. Arista with *ca.* 5 (4–5) upper and *ca.* 3 (2–3) lower branches. Frons slightly narrower than  $1/2$  of head width (0.48, 0.45–0.50); ocellar triangle black. Anterior reclinate orbital *ca.*  $5/9$  (0.53, 0.48–0.63) length of posterior reclinate; proclinate slightly longer (1.07, 1.03–1.09) than posterior reclinate. Carina narrow. Cheek *ca.*  $1/8$  (0.13, 0.10–0.16) as broad as maximum diameter of eye.

Thorax: Anterior dorsocentral *ca.*  $5/9$  (0.56, 0.51–0.60) length of posterior; length distance of dorsocentrals *ca.*  $1/3$  (0.32, 0.29–0.34) cross distance. Prescutellar *ca.*  $5/9$  (0.53, 0.50–0.58) length of posterior dorsocentral. Anterior / posterior scutellar *ca.* 1.0 (1.01–1.02). Sterno-index *ca.* 0.8 (0.73–0.90).

Wing:  $C_1$ -bristle 1, but less differentiated. Wing indices: C *ca.* 2.2 (2.08–2.36), 4V *ca.* 2.9 (2.70–3.12), 4C *ca.* 1.6 (1.43–1.75), 5x *ca.* 1.0 (0.89–1.07), Ac *ca.* 4.0 (3.80–4.24), C3-fringe *ca.* 0.7 (0.71–0.74).

Abdomen: Sixth tergite with medially interrupted brown patches.

Periphallic organs (Fig. 13): Epandrium with *ca.* 7 bristles. Surstylus with *ca.* 8 long and *ca.* 4 short bristles on outer surface and *ca.* 27 wedge-shaped teeth apically on inner surface.

Phallic organs (Fig. 12): Dorsal mantle apically bilobed.

Holotype ♂, China: Nankunshan, Gangdong Province, 17, 18. VII. 1986 (T. X. Peng). Paratypes, 2 ♂♂, China: Dinghushan, Guangdong Province, 31. I–11. II. 1987, ex traps (T. X. Peng).

**Distribution.** China: Guangdong.

**Relationships.** This species is closely related to the foregoing species, *A. tau*, but clearly distinguishable from the latter by the diagnostic characters.

#### ***Amiota (Phortica) lambda* sp. nov.** (Figs. 16, 17)

**Diagnosis.** Humerus orange brown. Aedeagus well sclerotized, apically round, with 1 subapical projection on right dorsolateral margin and 2 pairs of long lateral processes submedially; anterior process extending posterodorsad and continuous to base of dorsal mantle, posterior process extending anterodorsad and apically pointed (Fig. 17, e).

Some characters commonly seen in *A. pi* sp. n. are not referred to in the following description.

Male. Thorax length *ca.* 2.1 mm.

Head: Antenna with 2nd joint orange brown and 3rd grayish yellow. Arista with *ca.* 5 upper and *ca.* 3 lower branches. Frons *ca.*  $1/2$  (0.50) as wide as head. Anterior reclinate orbital *ca.*  $4/9$  (0.46) length of posterior reclinate; proclinate slightly longer (1.05) than posterior reclinate. Face dark below; carina somewhat broad below. Cheek grayish yellow, *ca.*  $1/9$  (0.12)

as broad as maximum diameter of eye.

Thorax: Anterior dorsocentral *ca.* 5/9 (0.54) length of posterior; length distance of dorsocentrals *ca.* 2/7 (0.28) cross distance. Prescutellar *ca.* 1/2 (0.52) length of posterior dorsocentral. Anterior / posterior scutellar *ca.* 1.03. Sterno-index *ca.* 0.8.

Legs: Fore and mid femora basally to medially dark brown; hind femur basally and medially darker; tarsi with apical 2 joints darker.

Wing indices: C *ca.* 2.0, 4V *ca.* 2.9, 4C *ca.* 1.7, 5x *ca.* 0.9, Ac *ca.* 3.6, C3-fringe *ca.* 0.8.

Abdomen: First tergite black on lateral margins; 2nd with medially interrupted, laterally broad, caudal black band; 3rd to 5th with medially and laterally protruded, broad, caudal black band; 6th mostly black; caudal bands on 2nd to 5th with small, indistinct, paler patches near lateral margins.

Periphallic organs (Fig. 16): Epandrium especially broad in upper part, with *ca.* 13 bristles; heel extraordinarily protruded anteriorly. Surstylus somewhat narrow above; outer surface not pubescent, with *ca.* 8 long and *ca.* 10 short bristles; inner surface apically with *ca.* 24 wedge-shaped teeth. Cercus somewhat quadrate. Median piece of decasternum elongate; lateral arms long; caudal pubescent plate ventromedially much protruded.

Phallic organs (Fig. 17): Basal process absent. Apical process of anterior paramere triangular, with 1 stout tooth apically and *ca.* 3 sensilla subapically; proximal process apically round. Basal part of aedeagus connected to basal part of dorsal mantle by 1 pair of rod-like bridges and 1 pair of broad, triangular plates. Dorsal mantle elongate, spoon-shaped, slightly curved backward, more or less sclerotized on lateral margins. Posterior paramere submedially with 1 pair of small, strongly sclerotized, acutely pointed, triangular pieces.

Holotype ♂, China: Dinghushan, Guangdong Province, 31. I–11. II. 1987, ex trap (T. X. Peng).

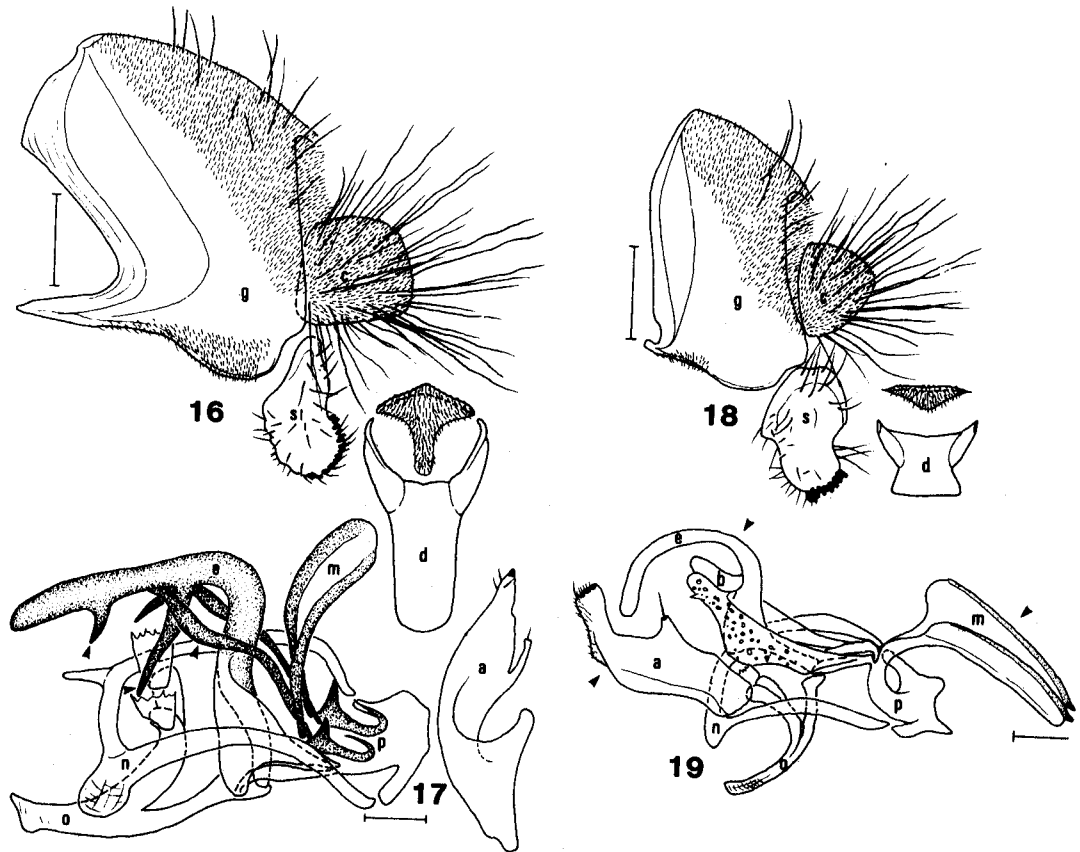
**Distribution.** China: Guangdong.

**Relationships.** This species somewhat resembles *A. psi*. Zhang et Gan, 1986, *A. variegata* (Fallén, 1823) or *A. semivirgo* Máca, 1977 in having long lateral processes on aedeagus, but clearly distinguishable from the latter two species by the detailed structure of aedeagus.

### Species Other Than the *A. variegata* Species-complex

***Amiota (Phortica) excrescentiosa* sp. nov** (Figs. 18, 19)

**Diagnosis.** Crossveins clear. Aedeagus somewhat hook-shaped, apically round (Fig. 19, e). Basal process apically round, subapically with small acute projection on dorsal margin (Fig. 19, b). Anterior paramere distally bipartite; apical process large, apically truncate and with 3 black teeth and 1 sensillum, pubescent on apical and outer lateral margins; proximal process small, triangular, apically with 1 sensillum (Fig. 19, a). Dorsal mantle curved backward, basally very narrow and forming stalk, submedially much dilated and bilobed, more or less sclerotized on lateral margins, apically with 1 pair of small, sclerotized, acute projections (Fig. 19, m).



Figs. 16–19. 16, 17, *Amiota (Phortica) lambda* sp. nov. 18, 19, *Amiota (Phortica) excrescentiosa* sp. nov. 16, 18: Peripheral organs; 17, 19: phallic organs (lateroventral view. (Scale-line = 0.1 mm.)

Some characters commonly seen in the above species of the *variegata* complex are not referred to in the following description.

Head: Eye red. Antenna with 2nd joint orange yellow and 3rd grayish yellow. Arista with *ca.* 5(4–6) upper and *ca.* 3(3–4) lower branches. Frons slightly narrower than  $1/2$  of head width (0.48, 0.46–0.50), darker at upper lateral corners; ocellar triangle black; periorbit narrowly white. Anterior reclinate orbital *ca.*  $4/7$  (0.58, 0.59–0.63) length of posterior reclinate; proclinate slightly longer (1.14, 1.05–1.25) than posterior reclinate. Face grayish yellow; carina low, narrow. Cheek posteriorly yellowish white, medially to anteriorly orange brown, *ca.*  $1/9$  (0.11, 0.09–0.12) as broad as maximum diameter of eye. Palpus grayish brown, apically pale.

Thorax: Scutellum grayish yellow, with pale brown patches, whitish on apical and lateral margins. Humerus yellowish white. Anterior dorsocentral *ca.*  $1/2$  (0.51, 0.46–0.64) length of posterior; length distance of dorsocentrals *ca.*  $1/4$  (0.24, 0.21–0.29) cross distance. Prescutellar *ca.*  $5/9$  (0.56, 0.51–0.64) length of posterior dorsocentral. Anterior / posterior scutellar *ca.* 1.1 (1.04–1.14). Sterno-index *ca.* 0.9 (0.84–0.97).

Legs: Fore femur darker basally and on submedial inner surface; mid and hind femora basally darker; tarsi with apical 2 joints darker. Hind metatarsus with 1 row of several short recurved hairs on underside.

Wing:  $C_1$ -bristle not differentiated. Third costal section distally with several small warts on underside. Wing indices: C ca. 2.0 (1.83–2.19), 4V ca. 3.3 (3.13–3.47), 4C ca. 1.9 (1.76–1.96), 5x ca. 1.0 (0.89–1.00), Ac ca. 3.7 (3.52–3.96), C3-fringe ca. 0.7 (0.66–0.78).

Abdomen: First tergite with 1 pair of small black patches on lateral margins; 2nd with 1 pair of large trapezoid black patches sublaterally and 1 pair of small triangular black patches at posterolateral corners; 3rd and 4th with broad caudal black band medially slightly protruded and 1 pair of small, triangular black patches at posterolateral corners; 5th with medially broad, laterally narrowing caudal black band; 6th entirely black except median line.

Periphallalic organs (Fig. 18): Epandrium broad, with ca. 7 bristles; apodeme narrow; heel pointed, but less protruded. Surstylus broad above, medially abruptly narrowing; outer surface not pubescent, with ca. 12 long and ca. 10 short bristles; inner surface apically with ca. 17 wedge-shaped teeth. Cercus triangular. Median piece of decasternum slightly broader than long, anteriorly broadened; caudal pubescent plate small.

Phallic organs (Fig. 19): Aedeagal apodeme and vertical rod slender. Basal part of aedeagus and basal processes connected to basal part of dorsal mantle by rod-shaped and broad plate-shaped bridges, respectively. Basal process and plate-shaped bridge with numerous irregularly shaped small warts on surface.

Holotype ♂, China: Dinghushan, Guangdong Province, 24. I. 1987, by sweeping around human eyes (M. J. Toda). Paratypes 7 ♂ ♂, China: Guangzhou, 21–27. II. 1987, ex trap (T.X.Peng).

**Distribution.** China: Guangdong.

**Relationships.** This species is different not only in anterior paramere but also in several other characters from the members of the *variegata* complex as described above, though sharing some characters with them. This species rather resembles *A. subradiata* Okada, 1977 in having epandrium with narrow apodeme and heel less protruded, and dorsal mantle curved backward and basally much narrowing, but clearly distinguishable from the latter by the diagnostic characters.

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# 广东 *Amiota* 属 *Phortica* 亚属八新种

(双翅目: 果蝇科)

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## 摘 要

本文描述了来自中国广东的果蝇科八新种, 为 *Amiota* 属 *Phortica* 亚属, 其中七新种隶属于 *Amiota variegata* 种组。所有正模标本保存于广东省昆虫研究所 (中国, 广州); 副模标本分别保存于广东省昆虫研究所和北海道大学昆虫研究所 (日本, 札幌)。

1. *Amiota (Phortica) pi* 新种(图 1, 2) 广东
2. *Amiota (Phortica) pseudo pi* 新种(图 3, 4) 广东
3. *Amiota (Phortica) gamma* 新种(图 5~8) 广东
4. *Amiota (Phortica) eugamma* 新种(图 9, 10) 广东
5. *Amiota (Phortica) tau* 新种(图 11, 12) 广东
6. *Amiota (Phortica) pseudotau* 新种(图 13~15) 广东
7. *Amiota (Phortica) lambda* 新种(图 16, 17) 广东
8. *Amiota (Phortica) excrescentiosa* 新种(图 18, 19) 广东

中国寄生蛀干害虫的膜翅目新记录<sup>①</sup>  
NEW RECORDS OF HYMENOPTERA PARASITIZING  
WOOD-BORING INSECTS FROM CHINA

1988-1989年夏季,在对大兴安岭火烧迹地上蛀干害虫天敌的调查中,发现膜翅目新记录属1个,新记录种4个,隶属两个科。现将各属、种及其寄主报导如下:

姬蜂科 Ichneumonidae

1. 汤氏姬蜂 *Townesia* sp.

Ozols, 1962. *Latvijas Ent.* 6:12.

此属为新记录属,此种已知分布于我国的大兴安岭。

寄主:蛀干害虫。

茧蜂科 Braconidae

2. 天牛刻柄茧蜂 *Atanycolus denigrator* (Linnaeus, 1758)

Linnaeus, 1758. *Syst. nat.*, Ed. 10, I:563. (*Ichneumon denigrator*)

分布:大兴安岭、德国、法国、奥地利、英国、希腊、芬兰、瑞士、苏联、南斯拉夫、意大利、瑞典、匈牙利、捷克。

寄主:云杉小黑天牛 *Monochamus sutor* L.、灰长角天牛 *Acanthocinus aedilis* L.、长角小灰天牛 *A. griseus* Fabricius、光胸断眼天牛 *Tetropium castaneum* L.、青杨楔天牛 *Saperda populnea* L.和松皮天牛 *Rhagium inquisitor* L. 幼虫。

3. 天牛皱领盾胸茧蜂 *Aspicolpus pzanus* (Watanabe, 1931)

Watanabe, 1931. *Ins. Mats.* 6:28.

分布:大兴安岭、日本。

寄主:灰长角天牛 *A. aedilis* L.、光胸断眼天牛 *T. castaneum* L.、长角小灰天牛 *A. griseus* F.和云杉小黑天牛 *M. sutor* L. 幼虫。

4. 天牛齿腿茧蜂 *Wroughtonia dentator* (Fabricius, 1804)

Fabricius, 1804. *Syst. Piez.* P.114. (*Pimpla dentator*)

分布:大兴安岭、日本、欧洲、亚洲西部。

寄主:灰长角天牛 *A. aedilis* L.、光胸断眼天牛 *T. castaneum* L.、长角小灰天牛 *A. griseus* F.和云杉小黑天牛 *M. sutor* L. 幼虫。

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