Two new species of the genus *Luzonomyza* from CHINA (Diptera, Lauxaniidae)

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Abstract

Two species *Luzonomyza gaimarii* sp. nov. and *Luzonomyza hirsuta* sp. nov. are described as new to science. A key to separate species of the genus is provided.

**Key words:** Diptera, Lauxaniidae, *Luzonomyza*, new species, China

Introduction

The genus *Luzonomyza* Malloch, 1929 (Lauxaniidae: Lauxaniinae: Trigonometopini) is a small genus with seven previously known species (see Appendix for list of species), distributed in the Oriental Region (Papp, 2007). One of these species, *Luzonomyza sinica* Shatalkin, 1998, is known from China. This genus is characterized by the following features: head triangular in lateral view; frons projecting upwards, with brown stripes and short setulae on anterior half; ocellar setae very short; frons-face angle acute; face long and sloping, with a row of short setulae on ventral half of parafacial inner margin, only a few of species with distinct facial keel between base of antennae; gena with a row of long setae extending from median section up to parafacial, but not in the same line as short setulae on the ventral half of parafacial inner margin; mesonotum with wide brown stripes, and with three post-sutural dorsocentral setae; wing hyaline with pale or dark brown on upper half, crossveins r-m and dm-cu with brown spots; abdomen yellow, with brown or black posterior margin or spots.

Here two species *Luzonomyza gaimarii* sp. nov. and *Luzonomyza hirsuta* sp. nov. are described as new to science. A key to known species of the genus *Luzonomyza* is provided.

Material and methods

The general terminology follows Cumming & Wood (2009). Genitalia preparations were made by macerating the apical portion of the abdomen in the warm lactic acid for half an hour. After examination, the genitalia was transferred to glycerin and stored in a microvial pinned below the specimen. Specimens examined were deposited in the Entomological Museum of China Agricultural University, Beijing, China (CAUC).

Taxonomy

A key to the known species of the genus *Luzonomyza* Malloch

[Modified from Papp, 2007]

1. Whole tarsi yellow .......................................................... *L. vietnamensis* Papp
- At least fore tarsomeres 4–5 black
- Male surstylar lobe with broad, slightly bifid apex, which is concave in lateral view
- Male surstylar lobe not bifid apex in lateral view
- Wing unicolorous
- Wing patterned
- Wing hyaline, very faintly yellow-tinged along anterior margin; halter yellow with knob faintly brown-tinged; male epandrium without dorsoapical processes; postgonites simple and long
- Wing brown unicolorous; knob of halter rather dark; male epandrium with extremely long dorsoapical processes, postgonites short with characteristic apex
- Hind femur without long anteroventral seta; surstylus tapering distally and incurved (Fig. 5); basal phallus recurved and
- Fore tarsomeres 3–5 black; surstylus without long setae
- Male genitalia with epandrium having strong dorsoapical processes (Figs 5, 13)
- Male genitalia with epandrium lacking dorsoapical processes
- Palpus yellow; at least fore tarsomeres 3–5 black
- Palpus black; fore tarsomeres 4–5 black
- Fore tarsomeres 2–5 blackish brown, mid and hind tarsomeres 4–5 brown, hind femur without long anteroventral seta. Halter yellow except knob pale brown. Epandrium with a pair of long black conical dorsoapical processes in lateral view; surstylus tapering distally and incurved; basal phallus recurved and extended posteriorly to pointed tip (Fig. 7); distiphallus with a pair of thin processes distally, and a pair of thin processes extending out from rounded postgonite (Fig. 6)
- Hind femur without long anteroventral seta; surstylus tapering distally and incurved (Fig. 5); basal phallus recurved and extended posteriorly to pointed tip (Fig. 7); distiphallus with a pair of thin processes distally, and a pair of thin processes extending out from rounded postgonite (Fig. 6)

**Luzonomyza gaimarii** sp. nov.  
(Figs 1–7)

**Diagnosis.** Palpus yellow. Fore tarsomeres 2–5 blackish brown, mid and hind tarsomeres 4–5 brown, hind femur without long anteroventral seta. Halter yellow except knob pale brown. Epandrium with a pair of long black conical dorsoapical processes in lateral view; surstylus tapering distally and incurved; basal phallus recurved and extended posteriorly to pointed tip; distiphallus with a pair of thin processes distally, and a pair of thin processes extending out from rounded postgonite.

**Description.** MALE. Body length 4.1–4.3 mm, wing length 3.9–4.0 mm.

Head yellow. Frons with a blackish brown median stripe in a broad dark rectangular area extending from anterior margin to ocellar triangle and with short setulae on anterior 1/2; nearly 1.4 times longer than wide and parallel-sided; ocellar triangle grayish black; ocellar setulae very small, hair-like; anterior fronto-orbital seta (situated at middle of fronto-orbital plate) reclinate, shorter than the posterior. Facial keel distinct on upper 1/2 between bases of antennae; parafacial with sparse short setulae, and six black short setae between parafacial ventral corner and gena; gena with wide brown stripe, about 1/3 height of eye. Antenna yellow, 1st flagellomere rounded apically, about 1.5 times longer than high; arista brown, pubescent. A black velvety round spot present between eye and base of antenna. Proboscis mostly yellow except pale brown tip; palpus yellow.

Thorax brownish yellow, with grayish white pruinosity. Mesonotum with four wide brown stripes, two brown median stripes extending to tip of scutellum; 0+3 dorsocentral setae, acrostichal setae in 2 rows; prescutellar setae shorter than 1st post-sutural dorsocentral setae; anepisternum yellowish brown except lemon yellow on upper margin and katepisternum blackish brown with grayish white pruinosity; 1 anepisternal seta, 1 katepisternal seta. Scutellum yellow, with grayish white pruinosity and a pair of wide brown stripes. Legs mostly yellow, fore tarsomeres 2–5 blackish brown, mid and hind tarsomeres 4–5 brown. Fore femur with 4 posteroventral setae, 8 posterdorsal setae, fore tibia with 1 preapical anterodorsal seta and 1 short apicoventral seta. Mid tibia with 1 strong preapical anterodorsal seta and 1 strong apicoventral seta. Hind femur with 1 weak preapical anterodorsal seta; hind tibia with 1 preapical anterodorsal seta and 1 short apicoventral seta. Wing (Fig. 3) brown along costal margin extending to M1, a brown spot each on crosseins r-m and dm-cu; subcostal cell brown; costa with 2nd (between R1 and R2), 3rd (between R2 and R4-5) and 4th (between R4-5 and M2) sections in proportion of 7.7: 1:1; r-m at middle of discal cell; ultimate and penultimate sections of M1 in proportion of 1: 1.3; ultimate section of CuA3 about 1/8 of penultimate. Halter yellow except knob pale brown.

Abdomen yellow, male tergites 1–6 each with black posterior margin. Male genitalia (Figs 4–7): epandrium with a pair of long black conical dorsoapical processes in lateral view; surstylus tapering distally and incurved, with dense long setae; hypandrium broad with a pair of lateral concavities, narrow apically; postgonite

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Figures 1–3. Luzonomyza gaimarii sp. nov. Male. 1. habitus, lateral view; 2. head and thorax, dorsal view; 3. wing.
FIGURES 4–7. Luzonomyza gaimarii sp. nov. Male. 4. syntergite 7+8 and epandrium, lateral view; 5. epandrial complex, posterior view; 6. phallus complex, ventral view; 7. phallus complex, lateral view. Scale 0.1 mm.

semicircular; basal phallus recurved and extended posteriorly to pointed tip; distiphallus with a pair of thin processes distally, and a pair of thin processes extending out from rounded postgonite; phallapodeme slender claviform in ventral view and broad knife-like in lateral view. Ejaculatory apodeme bent.

FEMALE. Unknown.

Type material. Holotype male (CAUC), Yunnan: Menglun, No. 55 area, 920 m, 24. IV. 2007, Hui Dong. Paratype (CAUC): 1 male, Yunnan: data same as above.

Distribution. China (Yunnan).

Remarks. The new species is similar to Luzonomyza sinica Shatalkin, 1998 from Thailand and China in the following characters: wing with brown along costal margin extending to M₁, a brown spot each on r-m and dm-cu. But it can be separated from the latter by the surstylus tapering and being incurved with dense long setae. In L. sinica Shatalkin, the surstylus forms a dorsoapically directed process without setae in posterior view.
Etymology. The new species is named after the dipterist Stephen D. Gaimari who makes great contributions to Entomological research and gives the author Li Shi so much kind help and support.

Luzonomyza hirsuta sp. nov.
(Figs 8–15)

Diagnosis. Palpus yellow. Fore tarsomeres 2–5 blackish brown, mid and hind tarsomeres 4–5 brown, hind femur with a long anteroventral seta. Halter yellow. Epandrium with a pair of short black conical dorsoapical processes in lateral view; surstylus bluntly rounded, not incurved distally; basal phallus blunt and not recurved; distiphallus with distal processes broader, and lacking processes extending out near rounded postgonite.

Description. MALE. Body length 3.9 mm, wing length 3.5 mm. FEMALE. Body length 3.9–4.1 mm, wing length 3.5–3.7 mm.

Head yellow. Frons with a blackish brown median stripe in a broad dark rectangular area extending from anterior margin to ocellar triangle and with short setulae on anterior 1/2, about 1.6 times longer than wide and parallel-sided; ocellar triangle grayish black; ocellar setae very small, hair-like; anterior fronto-orbital (situating at middle of fronto-orbital plate) reclinate, shorter than the posterior. Facial keel distinct on upper 1/2 between bases of antennae; parafacial with sparse short setulae and six black short setae between parafacial ventral corner and gena; gena with brown stripe, about 1/3 height of eye. Antenna yellow, 1st flagellomere rounded apically, about 1.4 times longer than high; arista brown, pubescent. A black velvety round spot present between eye and base of antenna. Proboscis mostly yellow except pale brown tip; palpus yellow.

Thorax brownish yellow, with grayish white pruinosity. Mesonotum with four wide brown stripes, two brown median stripes extending to tip of scutellum; 0+3 dorsocentral setae, acrostichal setulae in 2 rows; prescutellar setae shorter than 1st post-sutural dorsocentral setae; anepisternum yellowish brown and katepisternum blackish brown with grayish white pruinosity; 1 anepisternal seta, 1 katepisternal seta. Scutellum yellow, with grayish white pruinosity and a pair of wide brown stripes. Legs mostly yellow, fore tarsomeres 2–5 blackish brown, mid and hind tarsomeres 4–5 brown. Fore femur with 4 posteroventral setae and 8 posterodorsal setae, fore tibia with 1 preapical anterodorsal seta and 1 short apicoventral seta. Mid tibia with 1 strong preapical anterodorsal seta and 1 strong apicoventral seta. Hind femur with 1 weak preapical anterodorsal seta and 1 long anteroventral seta; hind tibia with 1 preapical anterodorsal seta and 1 short apicoventral seta. Wing (Fig. 10) brown along costal margin extending to M₁, a weak brown spot each on crossveins r-m and dm-cu; subcostal cell brown; costa with 2nd (between R₁ and R₂⁺₃), 3rd (between R₂⁺₃ and R₄⁺₅) and 4th (between R₄⁺₅ and M₁) sections in proportion of 6.3: 1:1.3; crossvein r-m at middle of discal cell; ultimate and penultimate sections of M₁ in proportion of 1: 1.3; ultimate section of CuA₁ about 1/7 of penultimate. Halter yellow.

Abdomen yellow, male tergites 1–6 (female 1–7) each with black posterior margin. Male genitalia (Figs 11–15): epandrium with a pair of short black conical dorsoapical processes in lateral view; surstylus bluntly rounded, not incurved distally, with dense apical setae; hypandrium broad with a pair of lateral concavities; postgonite elliptical; basal phallus blunt and not recurved; distiphallus with distal processes broader, and lacking processes extending out near rounded postgonite; phallapodeme very slender in ventral view and broad claviform in lateral view. Ejaculatory apodeme short and straight.

Type material. Holotype male (CAUC), Yunnan: Xishuangbanna, Mengla, Menglin plant garden, 570 m, 22. IV. 2007, Hui Dong. Paratypes: 1 female (CAUC), Yunnan: data same as above; 1 female (CAUC), Yunnan: Xishuangbanna, Mengyang, 1100–1300 m, 28. X. 1998, Wanzhi Cai.

Distribution. China (Yunnan).

Remarks. The new species is very similar to Luzonomyza gaimarii sp. nov. from China (Yunnan) in the following characters: frons with a blackish brown median line in a broad dark rectangular area extending from anterior margin to ocellar triangle; parafacial with six black short setae between parafacial ventral corner and gena; antenna yellow and arista brown; palpus yellow; mesonotum with four wide brown stripes, two brown median stripes extending to tip of scutellum; legs mostly yellow, except fore tarsomeres 2–5 blackish brown and mid and hind tarsomeres 4–5 brown; wing brown along costal margin extending to M₁, a brown spot each on r-m and dm-cu; abdomen yellow, male tergites 1–6 each with a black posterior margin. But it can be separated from the latter by the hind femur having 1 long anteroventral seta; the epandrium having a pair of short black conical dorsoapical
FIGURES 11–15. *Luzonomyza hirsuta* sp. nov. Male. 11. syntergite 7+8 and epandrium, lateral view; 12. surstylus, ventral view; 13. epandrial complex, posterior view; 14. phallus complex, ventral view; 15. phallus complex, lateral view. Scale 0.1 mm.
processes in lateral view; the surstylus being bluntly rounded and not incurved distally; the phallus having a pair of broad apical processes. In Luzonomyza gaimarii sp. nov., the hind femur has no long anteroventral seta; the epandrium has a pair of long black conical dorsoapical processes in lateral view; the surstylus is tapering and incurved; the phallus has a pair of thin apical processes and a pair of subapical thin processes extended out near postgonite.

Etymology. Latin, *hirsuta*, meaning hairy, referring to the surstylus having dense apical setae; a feminine adjective.

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References


APPENDIX. Known species list of the genus Luzonomyza.

*Luzonomyza gaimarii* sp. nov. Oriental: China (Yunnan).
*Luzonomyza hirsuta* sp. nov. Oriental: China (Yunnan).
*Luzonomyza japonica* (Sasakawa, 2002). Oriental: Japan (Ryukyus).