

***Curiosimusca*, gen. nov., and three new species in the family Aulacigastridae from the Oriental Region (Diptera: Opomyzoidea)**

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Abstract

A new genus, *Curiosimusca*, and three new species (*C. khooi*, *C. orientalis*, *C. maefangensis*) are described from specimens collected in the Oriental Region (Malaysia, Thailand). *Curiosimusca* is postulated to be the sister group of *Aulacigaster* Macquart and for the present is the only other genus included in the family Aulacigastridae (Opomyzoidea). Morphological evidence is presented to document our preliminary hypothesis of phylogenetic relationships.

Key words: Aulacigastridae, Diptera, systematics, Oriental Region

Introduction

While preparing a monograph on the family Aulacigastridae (Rung & Mathis in prep.), we discovered several specimens of enigmatic flies from Malaysia and Thailand. The specimens from Malaysia had been identified and labeled as “possibly Aulacigastridae.” Our subsequent study of these specimens has revealed them to be the closest extant relatives of *Aulacigaster* Macquart, which until now has been the only recently included genus in the family Aulacigastridae. The primary purpose for this paper is to describe these curious flies as a new genus, only the second genus for the family Aulacigastridae, and to describe its three included new species from the Oriental Region. As background and to provide context for the descriptions, we present a brief historical review and diagnosis for the family Aulacigastridae. We also present evidence, all morphological, to substantiate a hypothesis of phylogenetic relationships.

The Aulacigastridae are a relatively small family of flies that are associated with slime fluxes of deciduous trees (Robinson 1953, Cole & Streams 1970, Davis & Zack 1978,

Mathis & Freidberg 1994, Hilger & Kassebeer 2000) or with the phytotelmata of bromeliads (AR, personal observations) and are found in the Afrotropical, Holarctic, Neotropical and Oriental Regions. The family has received increased attention during the last decade; not only because it has revealed surprising diversity and species richness, but also because of challenges that its classification and characterization have posed to systematists. The Aulacigastridae are currently classified in the superfamily Opomyzoidea (J. F. McAlpine 1989), as the sister-group of the family Periscolididae.

Characterization of Aulacigastridae differs widely among authors (see below), and up to five genera have been assigned to the family in addition to the nominate genus. Duda (1924) first accorded familial status to the Aulacigastridae, and recent authors (Mathis & Freidberg 1994, Papp 1998a, Baptista 1998 and Hilger & Kassebeer 2000) have adopted a monotypic characterization for the family. A broader characterization of the family includes the genera *Cyamops* Melander, *Stenomicro* Coquillett, *Planinasus* Cresson and a fossil species from Baltic amber, *Protoaulacigaster electrica* Hennig. Hennig (1958, 1965, 1969, 1971) first advocated this characterization, followed by Griffiths (1972, with the exclusion of *Stenomicro*), Teskey (1987) and J. F. McAlpine (1989). D. K. McAlpine (1978, 1983) proposed a rather different characterization and classification in which he: (1) transferred the genera *Stenomicro*, *Cyamops* (1978) and *Planinasus* (1983) from the Aulacigastridae to the Periscolididae, (2) excluded *Protoaulacigaster electrica* from the Aulacigastridae and (3) described two new genera in the family: *Ningulus* McAlpine (Afrotropical Region) and *Nemo* (Australasian Region). Freidberg (1994) proposed the family Neminidae for *Ningulus*, *Nemo* and his new Afrotropical genus, *Nemula*; he was followed by Barraclough (1993). A result of Freidberg's classification is a return to a monotypic concept for Aulacigastridae. Most recently, Evenhuis (1989, 1994a, 1994b) listed *Protoaulacigaster electrica* in *Aulacigaster* and Roháček (1998) tentatively transferred the genus *Echidnocephalodes* Sabrosky from the Anthomyzidae to the Aulacigastridae.

Methods and materials

General. We have adopted the descriptive terminology of J. F. McAlpine (1981) with the modifications noted below. We follow Sabrosky (1983) in using the term *microtomentum* rather than pruinosity or pollinosity. Setae posterior to the pseudovibrissal seta are called peristomal setae. The nomenclature for structures of the male terminalia follows Cumming, Sinclair & Wood (1995). Acronyms for institutions used in the text are as follows:

AM	Australian Museum, Sydney, Australia.
HNHM	Hungarian Natural History Museum, Budapest, Hungary.
USNM	former United States National Museum, collections in the National Museum of Natural History, Smithsonian Institution, Washington, D.C., United States.

Procedures. Label data from holotypes are quoted verbatim as they appear on the label with a slash (/) denoting the end of a label. Clarifying comments are included within brackets.

Because specimens are small, study and illustration of the male and female terminalia required use of a compound microscope. Photographs were taken with an Auto-Montage Digital Imaging System[®], using a Wild Photomakroskop M400[®] stereomicroscope. The photographs were enhanced, formatted and arranged on plates in Adobe PhotoShop[®].

The following ratios are used in the descriptions (two males and two females were measured for each species when available, cases to the contrary are indicated under the appropriate species' description):

1. Head ratio: the greatest height divided by the greatest width.
2. Scutal ratio: the greatest length of scutum divided by the greatest width of scutum.
3. Costal vein ratio: the straight-line distance between the apices of R_{2+3} and R_{4+5} (costal section III) divided by the distance between the apices of R_1 and R_{2+3} (costal section II).

Systematics

Family Aulacigastridae

Diagnosis. The family Aulacigastridae is distinguished from other opomyzoid families by the following combination of characters: Body predominantly dark brown to black. Fronto-orbital setae 2; postocellar and interfrontal setae absent. Pedicel lacking a dorsal cleft. Greater ampulla present. Cell dm+bm flat, lacking a longitudinal crease or fold; crossvein r-m at midlength or toward base of combined length of cell dm+bm; subcosta partially fused with vein R_1 apically. Male abdomen with 6 visible tergites; surstylus fused with epandrium; hypandrial bridge present; female with 3 spermathecae.

Description. Adult: Coloration: Body predominantly dark brown to black. Frons often with anterior 1/4–1/2 yellowish, pale brown or orange. Scutum typically uniformly microtomentose; pleura white microtomentose on ventral half in some species of *Aulacigaster*. Wing hyaline or infusate, brown.

Morphology: Body robust (scutal ratio 1.10–1.35), or elongate (scutal ratio 1.50–1.75).

Head: Head higher than long (head ratio less than 0.9), or longer than high (head ratio higher than 1.1); face completely sclerotized, often projected, easily visible in profile; gena narrow, usually less than 1/3 width of 1st flagellomere. Ocellar seta absent or present; postocellar seta absent; medial vertical seta typically mesocline; seta at most 3/4 length of lateral vertical seta; fronto-orbital setae 2, in some species with posterior seta medial to and almost horizontally aligned with anterior seta; setulae between fronto-orbital setae 1-

2, one proclinate; interfrontal setae absent; peristomal setae consisting of weak (*Aulacigaster*) to strong (*Curiosimusca*) setae posterior to pseudovibrissal seta. First flagellomere round, oval or triangular; arista unsegmented, sometimes naked and straight, but often rayed and zigzagged, if present, rays alternating dorsal and ventral on apical 2/3 of arista.

Thorax: Anepisternum bare (*Curiosimusca*) or bearing 1–2 setae along posterior margin (*Aulacigaster*); greater ampulla present; dorsocentral setae 0+1 or 0+2; scutellar setae 1 or 2, apical setae nearly parallel, curved posteriorly; prosternum (basisternum) large, approximately as wide as long, with a medial groove and precoxal bridge. Wing: Costal vein with humeral and subcostal breaks (*Curiosimusca*) or with subcostal break only (*Aulacigaster*). Cell dm+bm flat, lacking a longitudinal crease or fold; crossvein r-m at midlength or slightly basal of combined length of cell dm+bm; subcosta partially fused with vein R₁ apically; vein R₁ often with apical kink.

Male abdomen and terminalia: 6th “tergite” large, representing fused 6th tergite with 7th and 8th syntergosternites (=circumverted 7th and 8th segments); 6th sternite asymmetrical and fused with 6th tergite on left side. Abdominal sternites narrower than respective tergites, with sternites slightly increasing in width posteriorly (*Aulacigaster*), or as wide as respective tergites (*Curiosimusca*). Surstylus fused with epandrium; cerci membranous to strongly sclerotized, separate or partially fused basally; hypandrial bridge present; phallus short, partially sclerotized; phallapodeme projected ventrally on both sides, shielding base of phallus.

Female abdomen and terminalia: Postabdomen distinctly shorter than preabdomen. Spermathecae 3, often with ventral digitiform projections.

Immatures (only known for *Aulacigaster*): Larva (3rd instar): Subcylindrical, amphipneustic, bearing a long, partially retractile terminal respiratory tube; integument white, almost transparent, covered with minute spicules and sensory setae, or smooth; 3 thoracic and 8 abdominal segments present; abdominal segments with ventral creeping pads bearing minute spicules; last abdominal segment with a small perianal pad; anterior spiracle small, retracted into a deep, narrow pocket; posterior spiracles on apex of respiratory tube, joined together at their base, bifurcating posteriorly; cephalopharyngeal skeleton slender with well-developed mandible bearing 2 pairs of accessory teeth; hypopharyngeal and tentoropharyngeal sclerites separate. Pupa: light brown, oval in shape, with prothoracic spiracle completely everted.

Distribution. Worldwide, excluding Australasian and Oceanian Regions.

Discussion. *Curiosimusca* shares with *Aulacigaster* the following characters of which most are also present in some other families of Opomyzoidea and may indicate phylogenetic relationships. These character data are being tested within a more extensive and comprehensive quantitative phylogenetic analysis (Rung, Mitter & Mathis in prep.).

1. Postocellar seta absent. The postocellar seta is absent in several isolated opomyzoid taxa, although it is present in most Acalyptrates. Hennig (1958, 1969, 1971) and J. F.

- McAlpine (1989) considered the absence of the postocellar seta to be a synapomorphy for the Aulacigastridae, including *Cyamops*, *Stenomicro* and *Planinasus*.
2. Greater ampulla present. The greater ampulla corresponds to a basal swelling of the pleural wing process (at mediodorsal margin of the anepimeron that articulates with the wing). It is usually absent in Acalyptrates but is present in the opomyzoid families Periscelididae and Aulacigastridae. It is also present in the Acalyptrate family Psilidae (Diopsoidea), Tephritidae (Tephritoidea) and most if not all Calyptrates. J. F. McAlpine (1989) based the monophyly of Periscelididae plus Aulacigastridae on the presence of a greater ampulla.
 3. Vein R₁ with a preapical kink. Roháček (1998) mentioned this character as being unique to Anthomyzidae and Opomyzidae, but it occurs in Agromyzidae (Agromyzinae), *Aulacigaster* and *Curiosimusca*. In some Aulacigastridae, this kink is better developed and reaches the costal vein, whereas in other (undescribed) species, it is nearly unnoticeable.
 4. Crossvein bm-cu absent. This crossvein is usually present in the Opomyzoidea, being absent also in some Neurochaetidae, some *Stenomicro*, some Australian and Oceanic species of *Cyamops* (Baptista & Mathis 2000), *Nemula longarista* (Neminidae) (Friedberg 1994: 476, Fig. 10), Asteiidae and Xenasteiidae (Papp 1998b: 306, Fig. 26.2).
 5. Presence of a hypandrial bridge. When the hypandrium is closed posteriorly, forming a ring around the base of the phallus, it is sometimes said to have a hypandrial bridge. A closed hypandrium is present in the Clusiidae (Soós 1987: 856, Fig. 70.8), Anthomyzidae (Roháček 1998b: 270, Fig. 22.19) and Opomyzidae (Vockeroth 1987: 884, Fig 74.10), besides the Aulacigastridae. It also occurs in other Acalyptrate families, sometimes receiving other names. J. F. McAlpine (1989: 1456) considered the absence of a hypandrial bridge to be a synapomorphy for the Opomyzoidea and the presence of a hypandrial bridge to be a secondary acquisition.
 6. Shape of the distiphallus. The distiphallus is relatively membranous, bears two internal rod-like sclerites and is minutely haired, resembling a brush apically. The phallus of *Echidnocephalodes barbatus* (incertae sedis) also has internal rod-like sclerites.
 7. Male abdomen with six visible pregenital segments (tergites and sternites) and with the 6th “tergite” apparently representing the fusion of the true 6th tergite with the 7th and 8th syntergosternites (=circumverted 7th and 8th segments)(Fig. 12). The 6th sternite is asymmetrical and is fused with the 6th tergite on the left side.

Key to Extant Genera of Aulacigastridae

1. Ocellar setae minute, hair-like, at most 1/8 length of lateral vertical seta; mesonotal setulae more or less organized in rows; anepisternum setose posteriorly; katepisternal setae 2; sternites of male and female abdomen narrower than respective tergites.....
..... *Aulacigaster* Macquart

- Ocellar setae long, at least 3/4 length of lateral vertical seta (Fig. 3); mesonotal setulae scattered over scutum, not organized in rows; anepisternum bare posteriorly; katapisternal setae 3; sternites of male and female abdomen, as wide as respective tergites
..... *Curiosimusca*, gen. nov.

***Curiosimusca*, gen. nov.**

Type species. *Curiosimusca khooi*, sp. nov., by present designation.

Diagnosis. *Curiosimusca* is distinguished from *Aulacigaster* by the following combination of characters: ocellar seta well developed (Fig. 3) (minute in *Aulacigaster*), anepisternal setae absent (present in *Aulacigaster*); mesonotum with many scattered setulae (setulae fewer and in regular rows in *Aulacigaster*), dorsocentral setae 0+1 (0+2 in *Aulacigaster*); 1 pair of scutellar setae (2 pairs in *Aulacigaster*); 3 katapisternal setae (2 in *Aulacigaster*); a well-sclerotized cercus (membranous in *Aulacigaster*).

Description. Adult: Coloration: Body predominantly dark brown to black; frons with anterior 1/4–1/3 yellowish to light brown; face often bearing a microtomentose stripe (Fig. 2); wing typically infusate, often with white spots on crossveins (Figs. 5, 11, 15).

Morphology: Head: Head ratio between 0.5–1.1. First flagellomere round (Figs. 3, 9). Ocellar seta present, well developed (Fig. 3). Peristomal vestiture consisting of strong setae following pseudovibrissal seta. Arista appearing bare.

Thorax: Anepisternum without posterior setae; katapisternum with 3 setae toward dorsal margin. Wing: Costal vein weakened (with breaks) at level of humeral and subcostal veins; vein R_{2+3} elongate, costal vein ratio less than 0.09.

Abdomen: Male abdomen and terminalia: Sternites as wide as respective tergites. Epandrium as an inverted U with surstyli at ventral margin, partly fused to epandrium; male internal structures including a well-developed hypandrial bridge (dorsal extensions of hypandrium); distiphallus relatively membranous or partially sclerotized, minutely haired and resembling a brush apically. Female abdomen and terminalia: Cercus not strongly sclerotized; 3 sclerotized spermathecae.

Etymology. *Curiosimusca* is of Latin derivation and is a combination of “*curiosus*,” meaning odd, strange or curious and “*musca*,” meaning fly. The generic name is feminine.

Key to Species of *Curiosimusca*

1. Apex of wing between veins R_{2+3} and M infusate, unicolorous with remainder of wing, lacking white spots but crossveins dm-cu and r-m partially white; crossvein r-m aligned with apex of vein R_1 (Fig. 5) *C. khooi*, sp. nov.

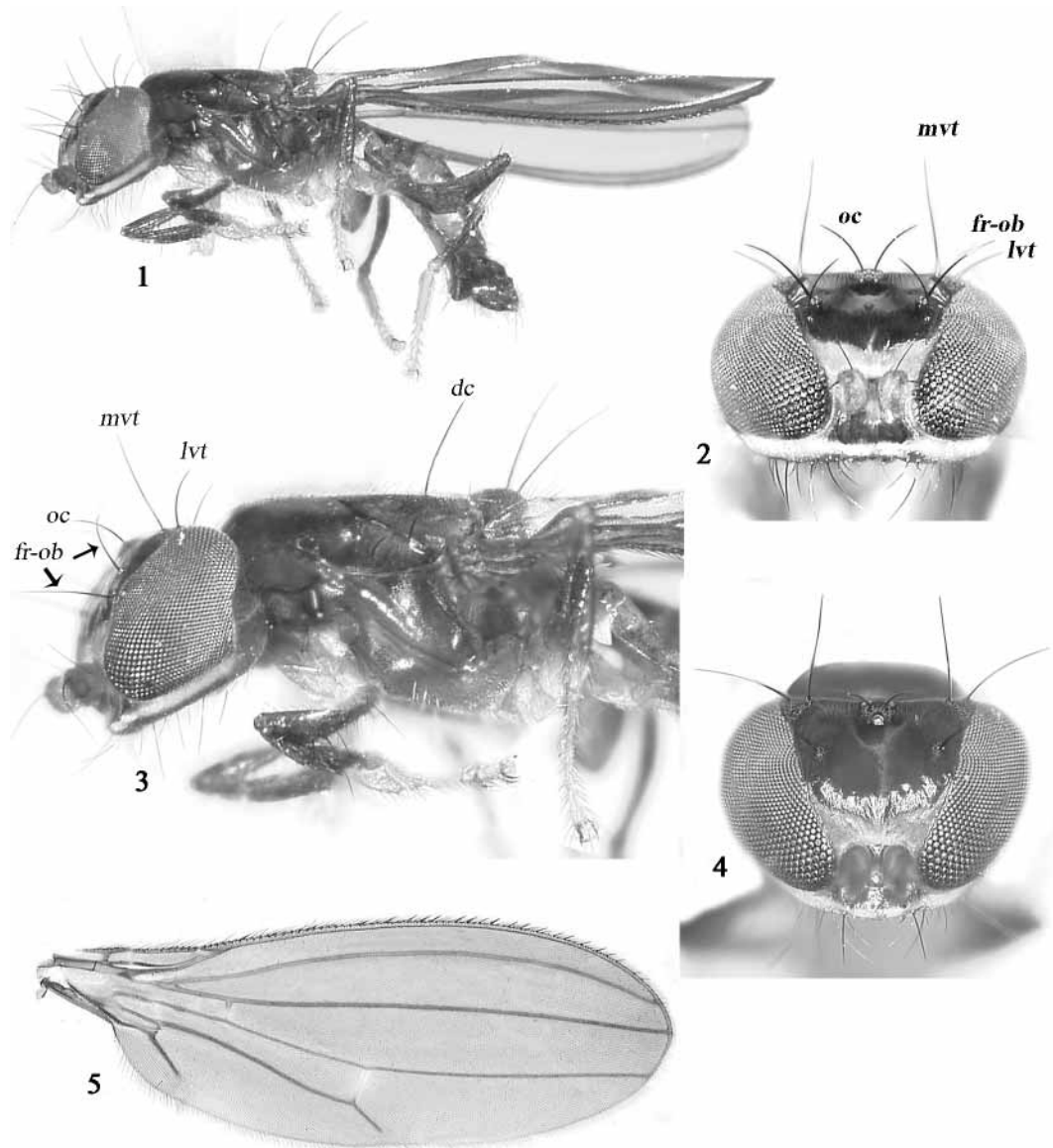
- Apex of wing between veins R_{2+3} and M with transversely oval, white spot, contrasted with mostly infusate remigium; both crossveins (r-m and dm-cu) with white spots over them; crossvein r-m distinctly aligned distal to apex of vein R_1 2
- 2. Wing cell r_1 with 2 conspicuous, elongate spots and cell r_{2+3} with 3 spots (subapical 2 spots partially to wholly fused)(Fig. 15); ventral half of face not greatly projected anteriorly *C. maefangensis*, sp. nov.
- Wing cell r_1 mostly infusate, lacking 2 conspicuous, elongate spots and cell r_{2+3} with 1 spot at alignment with crossvein dm-cu (Fig. 11); ventral half of face greatly projected anteriorly (Fig. 9)..... *C. orientalis*, sp. nov.

***Curiosimusca khooi*, sp. nov. (Figs. 1–8)**

Diagnosis. This species is distinguished from congeners by the following combination of characters: Face not strongly projected anteriorly, wing mostly brown infusate, crossveins dm-cu and r-m partially white but neither covered with a white spot.

Description. Coloration and vestiture: Frons (Fig. 4) mostly dark brown, shiny, very sparsely microtomentose, with more microtomentum around bases of vertical setae; ocellar tubercle very sparsely microtomentose; anterior margin of frons slightly lighter in color, light brown. Antenna light brown, appearing darker from some angles of view. Face (Fig. 2) light brown, usually with thin white, microtomentose stripe at ventral margin as a continuation of genal stripe, sometimes facial portion of stripe weakly developed. Palpus light brown. Thorax (Figs. 1, 3) uniformly dark brown, moderately microtomentose. Wing (Fig. 5) with exception of portions of crossveins r-m and dm-cu uniformly infusate, moderately brown; posterior portion of crossvein r-m slightly whitish; anterior portion of crossvein dm-cu white; crossvein r-m aligned with apex of vein R_1 ; halter dark brown but with apex of knob whitish. Forecoxa pale, light brown, slightly darker at base; forefemur and foretibia dark brown, with apical 1/5 of foretibia light brown; foretarsus concolorous with apex of foretibia, with apical 2 tarsomeres darker brown; mid- and hindcoxa pale, almost white; base of mid- and hindfemora concolorous with respective coxa, remainder of mid- and hindfemora dark brown; tibiae dark brown except light brown apex, which is concolorous with respective tarsi; hindtibia with basal 1/3 pale brown to almost white. Abdomen dark brown to black, darker laterally and along posterior margins of tergites, moderately microtomentose; base of syntergosternite 6–8 moderately microtomentose, remainder of syntergosternite and epandrium bare, shiny.

Morphology: Head: Slightly longer than high in lateral view, head ratio 0.59 (Fig. 3); considerably wider than high in anterior view (Fig. 2); ventral portion of face slightly projected. Eye oval, obliquely oriented to general plane of head. Wing (Fig. 5): Costal vein ratio 0.067; crossvein r-m aligned transversely with apex of vein R_1 and basal to midlength of combined cell dm-bm.



FIGURES 1–5. *Curiosimusca khooi*, sp. nov. 1, Habitus of male (Malaysia, Selangor: Genting Highlands; 03°24'N 101°48'E), lateral view. 2, Head, anterior view. 3, Head and thorax, lateral view (oc = ocellar seta; dc = dorsocentral seta; fr-ob = fronto-orbital seta; lvt = lateral vertical seta; mvt = medial vertical seta). 4, Head, anterodorsal view. 5, Wing, dorsal view.

Male terminalia: epandrial height in lateral view (Fig. 6) about twice width; surstylus in lateral view (Fig. 6) oriented posteroventrally and at angle to orientation of epandrium, surstylus generally straight (not angulate), thumblike, broadly attached basally to epandrium, generally with setulae evenly distributed, these better developed along posteroventral surface; cercus (Figs. 6, 8) very well sclerotized, elongate, dorsal 1/2 wider than ventral 1/2 in posterior view (Fig. 8) shallowly arched laterally, parallel-sided and nearly

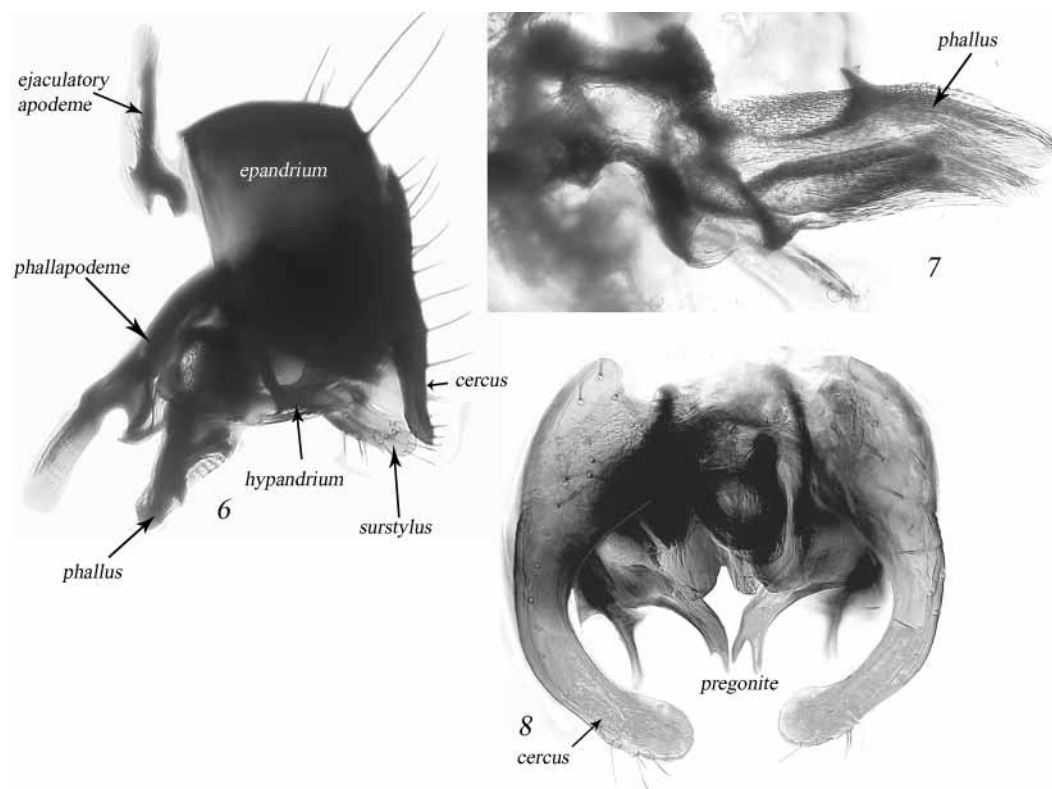
meeting ventrally, setulae more or less uniformly scattered; phallapodeme projected ventrally on both sides, shielding phallus; distiphallus with 2 internal, rod-like sclerites (Fig. 7).

Measurements and ratios: Body length 3.10–3.50 mm. Wing (Fig. 5) length 2.75–2.95 mm; width 1.00–1.10 mm.

Type material. The holotype male is labeled “THAILAND, [Nan:] Doi Phu Kha [sometimes transliterated as Doi Phu Kha] N[ational]P[ark], No 18[,], 26–27.11.2003 [26–27 Nov 2003]/UV light, leg. Peregovits, Flödvari, Körösi, Szappanos & Maklári-Kis/Aulacigastridae Undescribed genus [handwritten]/ HOLOTYPE ♂ *Curiosimusca khooi* Rung, Mathis & Papp HNHM [red].” The holotype is double mounted (minuten in a rectangular card), is in excellent condition and is deposited in the HMNH. Paratypes are as follows: same locality data as the holotype (1♂; USNM). MALAYSIA. Selangor: Genting Highlands (03°24′N 101°48′E), 8 Aug 1986, K. C. Khoo (1♂, 2♀, 1?; AM, USNM).

Type locality. THAILAND. Nan. Doi Phu Kha National Park (19°12′N, 100°59′E).

Distribution. Oriental: Malaysia (Selangor), Thailand (Nan).



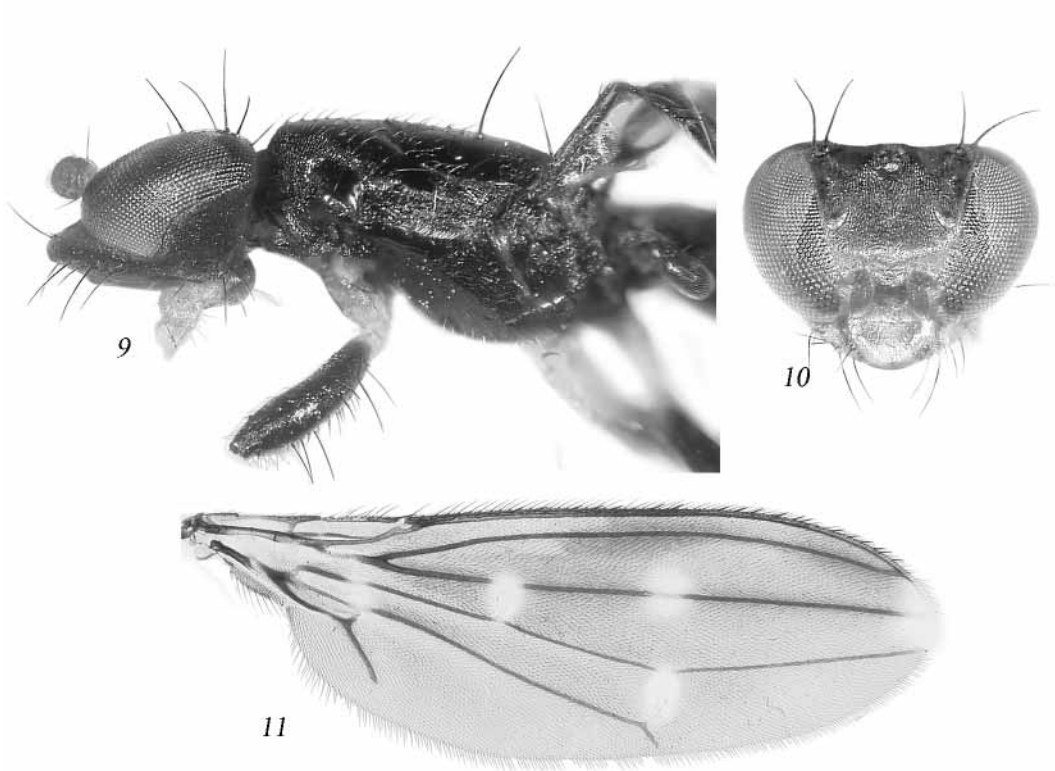
FIGURES 6–8. *Curiosimusca khooi*, sp. nov. 6, Male terminalia, lateral view. 7, Phallus, lateral view. 8, Cerci and pregonites, posterior view.

Etymology. The species epithet, *khooi*, is a Latin genitive patronym to recognize K. C. Khoo, who has contributed significantly to research on Opomyzoidea (Khoo 1985) and who collected the specimens of the type series from Malaysia.

Remarks. A collector of the holotype, Dr. M. Flödvári, wrote that this specimen was collected in a valley associated with a secondary forest and at an elevation of 1700 m. The UV light was positioned to attract insects from the valley.

***Curiosimusca orientalis*, sp. nov. (Figs. 9–14)**

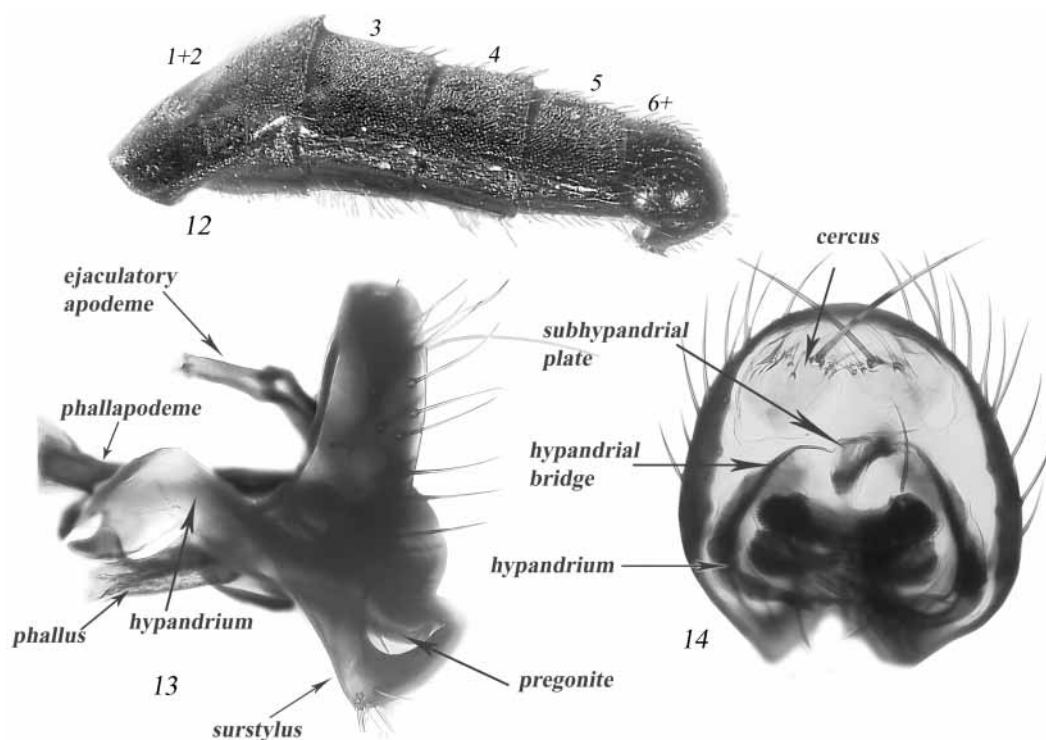
Diagnosis. This species is distinguished from congeners by the following combination of characters: Face strongly projected anteriorly, wing mostly brown infuscate but with several white spots, especially over crossveins dm-cu and r-m.



FIGURES 9–11. *Curiosimusca orientalis*, sp. nov. 9, Head and thorax, lateral view. 10, Head, dorsal view. 11, Wing, dorsal view.

Description. Coloration and vestiture: Frons (Fig. 10) mostly dark brown, weakly shiny, moderately microtomentose with microtomentum continued to bases of vertical setae, with small area between ocellar tubercle and vertical setae bare, shiny; ocellar tuber-

cle moderately microtomentose; anterior margin of frons slightly lighter in color, brown. Antenna brown, appearing darker from some angles of view. Face brown, with sparsely white microtomentose stripe at ventral margin much weaker than genal stripe. Palpus brown. Thorax uniformly dark brown, sparsely microtomentose, partially shiny; dorsal portion of anepisternum shinier. Wing (Fig. 11) maculate, mostly darkly infusate, with white spots as follows: cell r_1 variegated in coloration, without distinct white spots; cell r_{2+3} with 2 spots, larger spot at midlength, more strongly developed toward posterior portion of cell, apical spot of cell part of larger, apical spot of wing; cell r_{4+5} with small white spot at middle of anterior margin, apical spot part of larger, apical wing spot; crossveins r-m and dm-cu with transversely oval spots over them; crossvein r-m distinctly aligned distal to apex of vein R_1 ; halter with base light brown, most of knob dark brown, with apex of knob whitish. Forecoxa light brown; forefemur and foretibia dark brown with extreme apices slightly lighter; foretarsus light brown; mid- and hindcoxa pale, almost white; base of mid- and hindfemora concolorous with respective coxa, remainder of mid- and hindfemora and tibiae dark brown but with apex of tibiae light brown, concolorous with respective tarsi. Abdomen (Fig. 12) uniformly dark brown, moderately microtomentose; base of syntergosternite 6–8 moderately microtomentose, remainder of syntergosternite and epanandrium bare, shiny.



FIGURES 12–14. *Curiosimusca orientalis*, sp. nov. 12. Abdomen, lateral view. 13, Male terminalia, lateral view. 14, Same, posterior view.

Morphology: Head: Conspicuously longer than high in lateral view, head ratio nearly 0.50 (Fig. 9); considerably wider than high in anterior view; ventral portion of head conspicuously projected. Eye (Fig. 9) oval with posteroventral margin concave, obliquely oriented to general plane of head. Thorax: Costal vein ratio 0.07 (Fig. 11); crossvein r-m aligned transversely well beyond apex of vein R_1 and at midlength of combined cell dm-bm.

Male terminalia: epandrial height in lateral view (Fig. 13) about 3X width; surstylus in lateral view (Fig. 13) angulate, elbowed, somewhat L-shaped, setulose only on external surface of angle; cercus (Fig. 14) weakly sclerotized, mostly membranous, about as wide as high, bearing a large seta dorsally and 4–5 much shorter setulae laterally and medially, not generally setulose; phallapodeme projected posteriorly, not ventrally and shielding phallus; distiphallus with 2 internal, rod-like sclerites.

Measurements and ratios: Body length 3.50 mm. Wing (Fig. 11) length 2.90–3.10 mm; width 1.10–1.25 mm.

Type material. The holotype male is labeled “THAILAND, [Nan:] Tham Sakoen N[atational]P[ark] 30.11.2003 [30 Nov 2003] 19°23’N 100°38’E/along creek at forest border leg. A. Szappanos/HOLOTYPE ♂ *Curiosimusca orientalis* Rung, Mathis & Papp HNHM [red].” The holotype is double mounted (minuten in a triangular card), is in good condition (right wing removed and slide mounted; abdomen removed, dissected, with parts in an attached microvial) and is deposited in the HNHM.

Type locality. THAILAND. Nan. Tham Sakoen National Park (19°23’N, 100°38’E).

Distribution. Oriental: Thailand (Nan).

Etymology. The species epithet, *orientalis*, refers to the zoogeographic region where this species has been collected.

Remarks. This species and *C. maefangensis* are more similar to each other than either is to *C. khooi*, and these similarities probably represent synapomorphies, which indicate a closer phylogenetic relationship. The similarities are especially evident in the maculation pattern and venation of their wings (see respective descriptions and photos of wings).

***Curiosimusca maefangensis*, sp. nov. (Fig. 15)**

Diagnosis. This species is distinguished from congeners by the following combination of characters: Face slightly projected anteriorly, wing mostly brown infusate but with several white spots, especially over crossveins dm-cu and r-m.

Description. Coloration and vestiture: Frons mostly dark brown, weakly shiny, moderately microtomentose with microtomentum continued to bases of vertical setae, with small, lunate area immediately lateral of ocellar tubercle bare, shiny; ocellar tubercle moderately microtomentose; anterior margin of frons very slightly lighter in color, brown. Antenna brown, appearing darker from some angles of view. Face brown, with sparsely white microtomentose stripe at ventral margin much weaker than genal stripe. Palpus

brown. Thorax uniformly dark brown, sparsely microtomentose, partially shiny; dorsal portion of anepisternum shinier. Wing (Fig. 15) maculate, mostly darkly infusate, with white spots as follows: cell r_1 with 2 elongate, white spots, more apical spot about twice length of more basal spot; cell r_{2+3} with 4 spots, more basal spot toward anterior margin of cell, immediately adjacent to more basal spot in cell r_1 , 2nd spot large, traversing cell, 3rd spot like more basal spot, at anterior margin of cell, apical spot part of larger, apical spot of wing; cell r_{4+5} with spot at middle of anterior margin, apical spot part of larger, apical white spot; crossveins r-m and dm-cu with transversely oval spots over them; crossvein r-m distinctly aligned distal to apex of vein R_1 ; halter with immediate base pale, whitish, remainder of base light brown, most of knob dark brown, with apex of knob whitish. Forecoxa light brown to whitish; forefemur and foretibia appearing brown to light brown, extreme apex of tibia slightly lighter; foretarsus light brown; mid- and hindcoxa pale, almost white; base of mid- and hindfemora concolorous with respective coxa, remainder of mid- and hindfemora and tibiae brown, with apex of mid- and hindfemora dark brown, mid- and hindtibiae dark brown although base of hindtibia whitish; mid- and hindtarsi light brown. Abdomen brown, tergites becoming darker laterally, moderately microtomentose.

Morphology: Head: Conspicuously longer than high in lateral view; considerably wider than high in anterior view, head ratio nearly 0.50; ventral portion of head slightly projected. Eye oval with posteroventral margin concave, obliquely oriented to general plane of head. Thorax: Costal vein ratio 0.089; crossvein r-m aligned transversely well beyond apex of vein R_1 and at midlength of combined cell dm-bm.

Measurements and ratios: Body length 3.55 mm. Wing (Fig. 15) length 2.25 mm; width 1.00 mm.



FIGURES 15. *Curiosimusca maefangensis*, sp. nov. 16, Wing, dorsal view.

Type material. The holotype female is labeled “THAILAND, [Chiang Mai:] Fang, Mae Fang N[atational]P[ark], Doi Pha Hom Pok [variant transliteration of Doi Pha Hom Pog] 22–23.11.2003 [22–23 Nov 2003]/2000m, along creek and forest road, Földvári, No11/HOLOTYPE ♀ *Curiosimusca maefangensis* Rung, Mathis & Papp HNHM [red].” The holotype is double mounted (minuten in a rectangular card), is in good condition (cuticle greasy; right wing removed and slide mounted) and is deposited in the HNHM.

Type locality. THAILAND. Chiang Mai. Fang: Mae Fang National Park, Doi Pha Hom Pog [or Pok] (20°07'N, 99°12'E). Doi Pha Hom Pog is Thailand's second highest mountain, and the holotype was collected at an elevation of 2000m.

Distribution. Oriental: Thailand (Chiang Mai).

Etymology. The species epithet, *maefangensis*, refers to Mae Fang National Park in Thailand, where this species has been collected.

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