

DIXIDAE, AXYMYIIDAE, MYCETOBIIDAE,
KEROPLATIDAE, MACROCERIDAE AND DITOMYIIDAE
(DIPTERA) FROM TAIWAN

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The first records of the families Dixidae, Axymyiidae and Mycetobiidae are given from Taiwan. A new subgenus of Keroplatidae, *Xenokeroplatus* (*Tipulokeroplatus*) subgen. n. (type species *X. (T.) gozmanyi* sp. n.), as well as *Dixa foldvarii* sp. n., *Dixa formosana* sp. n., *Dixa nigripleura* sp. n., *Dixella pilosiflagellata* sp. n., *Protaxymyia taiwanensis* sp. n., *Mycetobia formosana* sp. n., *Mesochria simplicipes* sp. n. and *Xenokeroplatus* (*Tipulokeroplatus*) *gozmanyi* sp. n. are described. *Chiasmoneura quinquemaculata* (SASAKAWA, 1966) and *Symmerus* (*Psilosymmerus*) *pectinatus* SAIGUSA, 1966 are reported. With 37 figures.

Key words: Dixidae, Axymyiidae, Mycetobiidae, Keroplatidae, *Tipulokeroplatus*, Macroceridae, Ditomyiidae, new taxa, Taiwan, Oriental region

INTRODUCTION

In the course of our collection trip to Taiwan in 2000 and 2003, we found, among others, representatives of 13 Diptera families, which have not been formerly found on that island (cf. LIN & CHEN 1999). Actually most of them were really captured during our collecting trips, and they were minuten-pinned on the site. In addition, specimens of our interest were selected under a stereomicroscope from large quantity of unnamed specimens in the National Museum of Natural Science, Taichung, Taiwan. Here I publish the first records for three families (Dixidae, Axymyiidae, Mycetobiidae) from Taiwan. Bolitophilidae was published for the first time from Taiwan based on the description of a known and two new species by ŠEVČÍK and PAPP (2004). Two new species and a new genus there have been established the family Lygistorrhinidae (PAPP 2002). The first records of Diadocidiidae for Taiwan and also for the Oriental regions (with descriptions of a new subgenus and new species) was published most recently by PAPP and ŠEVČÍK (2005b). The first Pallopteridae from Taiwan was described by MERZ and SUEYOSHI (2002), the first record of Ctenostylidae was that of KORNEYEV (2001) and the first Anthomyzidae by ROHÁČEK (in prep.). Representatives of four “acalyprate” families (Pseudopomyzidae, Opomyzidae, Xenasteiidae, and Campichoetidae) were published in another paper (PAPP 2005).

All the specimens are double-mounted on minutia pins. The type specimens are preserved in the collection of the Hungarian Natural History Museum (HNHM), Budapest, in the Taiwan Forestry Research Institute, Taipei (TFRI) and in the National Museum of Natural Science, Taichung, Taiwan (NMNS).

In morphological terminology I follow the prevailing usage of each dipterous family. In naming the wing veins, the concept of KRZEMIŃSKI and EVENHUIS (2000) is accepted.

DIXIDAE

The Oriental species of Dixidae are rather little known. STONE (1973) listed 15 species from the Oriental region (but see NOWELL 1980). According to NOWELL (1980), twelve species occur in India and one species each in Sri Lanka, Indonesia and Thailand. Since that time PAPP (in PAPP *et al.* 2006) described a new genus with two new species from Thailand but many more species are to be described from the Oriental region (also from Taiwan, see below).

Below I describe four species but some additional ones left undescribed, e.g. a taxon represented by a conspicuous female specimen (Kaohsiung Hsien, Liukuei, Shan-Ping LTER Site, over/along a creek, April 2, No.18, leg. M. FÖLDVÁRI), whose entire wing basal part is darkened; it has a darker central spot, and dark brown cerci of 0.42 mm long.

Although I took the Oriental species into consideration, no wonder that species related to all the new ones were found in Japan (although no Japanese species was recognised in our material).

Dixa foldvarii sp. n. (Figs 1–3)

Holotype female (HNHM, abdomen with terminalia in a plastic microvial with glycerol): TAIWAN: Kaohsiung Hsien, Liukuei, Shan-Ping LTER Site, creek valley, No.13, Mar 31–Apr 1, 2003, L. PAPP & M. FÖLDVÁRI.

Measurements in mm: body length 2.97, wing length 3.54, wing breadth 1.21.

Head black, proboscis rather short. First flagellomere cylindrical, only both ends narrowed; length 0.21 mm, width ca. 0.025 mm, length/width ratio 7.5–8.0, i.e. between the “realms” of *Dixa* and *Dixella*. Flagellomeres, incl. the apical one, with short hairs only (longest 0.075 mm, apical hairs 0.045 mm).

Scutum shiny dark brown but anterior 2/5 laterally and a pair of oblique dorsocentral lines, as well as scutellum yellowish. Pleura bicolorous: basically dark brown but ventral 2/5 of preepisternum 2, as well as metepimeron and metepisternum yellowish.

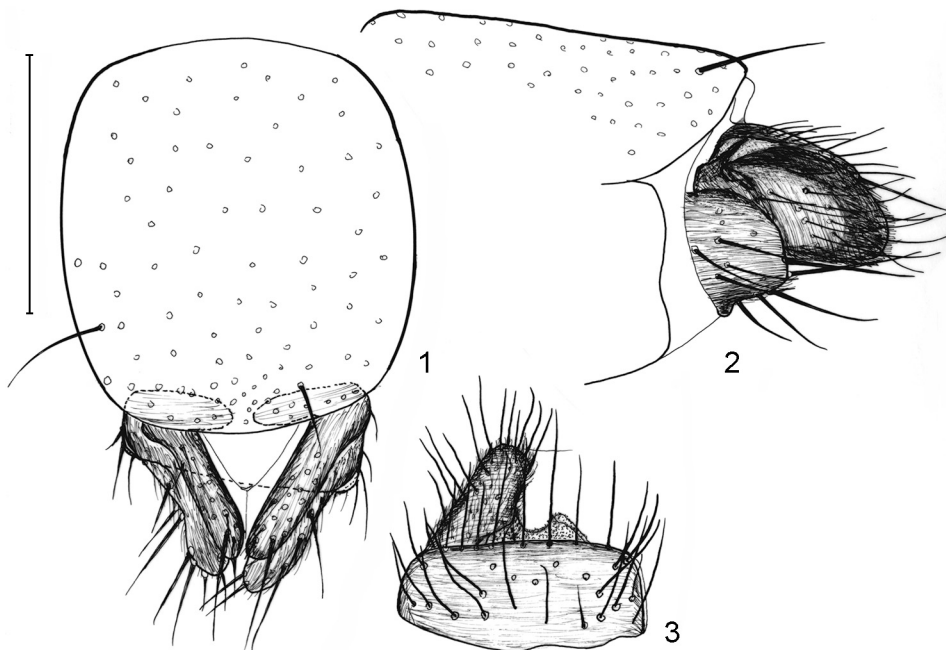
Fore coxa brown, mid and hind coxae yellow, trochanters darker. Femora and tibiae yellow but knees and apices of tibiae brown and tarsi slightly fumose (although their basic colour also yellow).

Wing membrane light brownish, but basal half of wing without any darker hue, veins light brown. Setosity of veins rather strong. A medium-large central brown spot present on apex of Rs, on bases of radial veins and on R-M. Radial fork much longer than its stem. M1–2 (stalk) 0.49 mm, M1 0.56 mm, M2 0.35 mm. Vein Cu2 long, and terminates only 0.16 mm from wing margin. A1 almost straight (except for apex), A2 slightly curved towards costa basally and distinct on 2/5 of distance of base to wing margin.

Abdomen rather thick, dark brown. Tergite 8 (Fig. 1) large, much longer than broad. Sternite 8 (Figs 2–3) broad but short, without a densely setose area. Female cerci shorter than subanal plate (!), rather thin and rounded apically. Lateral processes of subanal plate very high (Fig. 2).

A species of the *D. hikosana* – *trilineata* group (see TAKAHASHI 1958). It differs from the known species by details of the female postabdomen. In NOWELL's (1980) key for the Oriental Dixidae (which was based on EDWARDS' (1934) key) it runs to *D. platystyla* EDWARDS, 1934 (India, Kashmir) but female genitalia serve a solid base for distinction.

Etymology – I name this new species after Dr. MIHÁLY FÖLDVÁRI, my young colleague in the Diptera Collection of the HNHM, who was my partner during the 2003 collection trip to Taiwan.



Figs 1–3. *Dixa foldvarii* sp. n., holotype female, postabdomen and genitalia: 1 = terminalia in dorsal view, 2 = cercus, subanal plate and sternite 8, lateral view, 3 = sternite 8 and left half of subanal plate, ventral view. Scale 0.2 mm

Dixa formosana sp. n.

(Figs 4–6)

Holotype male (HNHM): Ilan Hsien, Fu-Shan LTER Site, over a rocky brook, September 26, 2000, leg. L. PAPP, No. 6.

Paratypes: TAIWAN 2000 (HNHM): 1 male, 1 female: same as for the holotype; 1 male: *ibid.*, lake shore vegetation + along a brook bed, September 26, leg. L. PAPP, No. 7; 1 male: Pingtung Hsien, Kenting, Heng-Chun Tropical Botanical Garden, light traps, October 4–6, leg. L. PEREGOVITS & L. PAPP, No. 15. TAIWAN 2003 (HNHM, TFRI): 4 males, 9 females: Ilan Hsien, Fu-Shan LTER Site, March 26, along /over a small river, No. 4, leg. L. PAPP; 1 female: *ibid.*, No. 6, small creeks and partly dry rocky beds, L. PAPP & M. FÖLDVÁRI; 2 males, 3 females: *ibid.*, March 27, along /over a small river, No. 8, leg. L. PAPP; 5 males: same as No 8, along a forest path, No. 9, L. PAPP & M. FÖLDVÁRI; 18 males, 10 females: Kaohsiung Hsien, Liukuei, Shan-Ping LTER Site, creek valley, No. 13, March 31–April 1, L. PAPP & M. FÖLDVÁRI; 2 males, 1 female: *ibid.*, UV light traps, No. 14, 31.03–04.04., M. FÖLDVÁRI & L. PAPP; 25 males, 6 females: *ibid.*, over/along a creek, April 2–3, L. PAPP, No. 15; 22 males, 5 females: *ibid.*, over/along a creek, April 2, No. 18, leg. M. FÖLDVÁRI; 5 males, 1 female: *ibid.*, along a creek, April 3, No. 19, L. PAPP & M. FÖLDVÁRI. 1 male (NMNS): Taiwan Taipei, Nan Shen Rd., 18/I/1991, C. C. Chiang, Sweeping – NMNS ENT 774–49.

Measurements in mm: body length 2.64 (holotype), 2.63–3.52 (paratypes), wing length 3.63 (holotype), 3.52–4.62 (paratypes), wing breadth 1.16 (holotype), 1.15–1.47 (paratypes).

Head brown, antennae light brown. Palpus slightly longer than 0.60 mm. Proboscis medium-long. First flagellomere fusiform, 0.23 mm long and ca. 0.033 mm thick, i.e. 7 times longer than thick. Longest hairs on first flagellomere 0.055 mm, those on apex 0.05 mm (shorter in females).

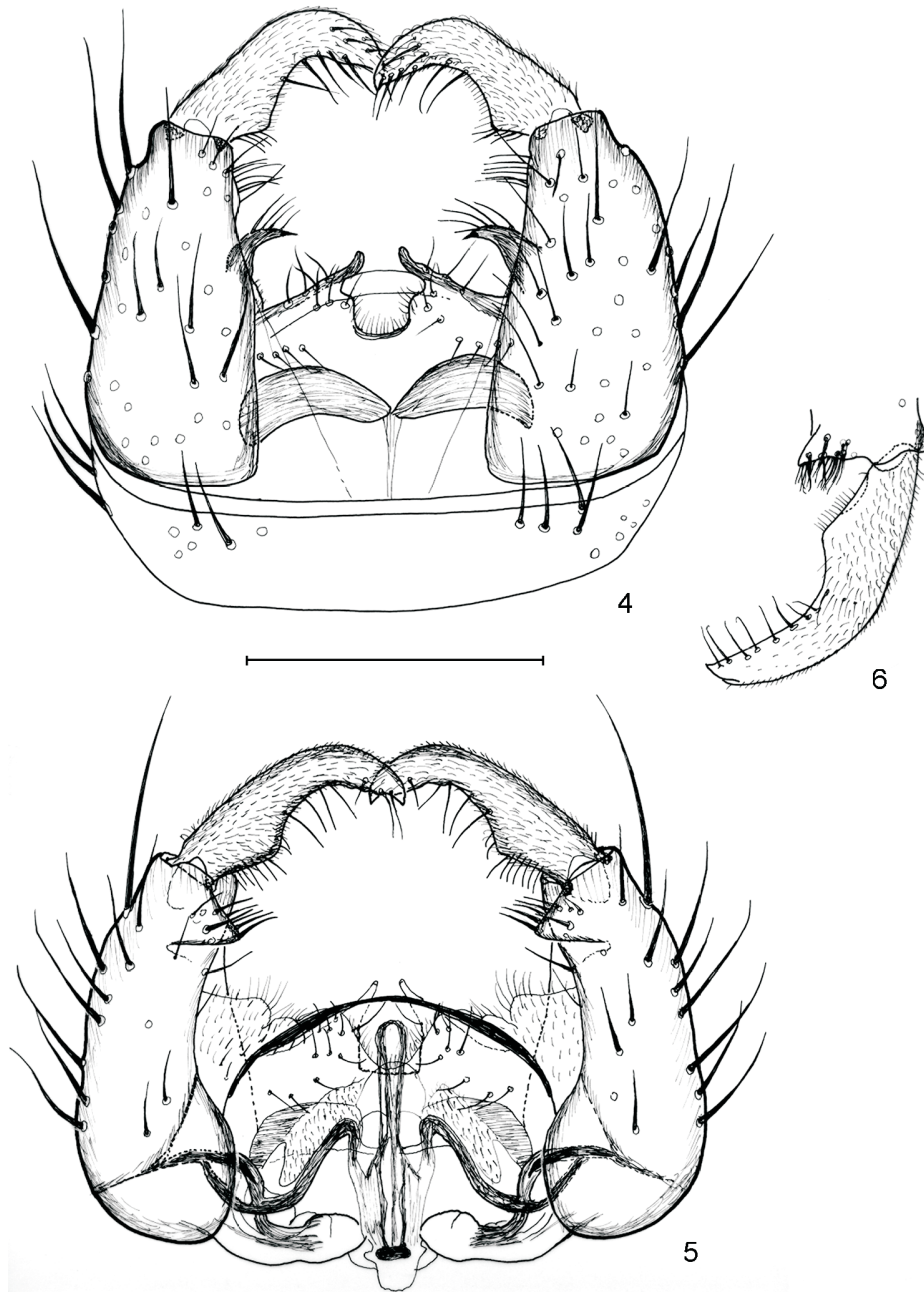
Thorax diffusely bicolorous. Mesonotum with 3 lighter stripes, more precisely lateral 7/20 of anterior part of mesoscutum yellowish, including supra-alar area but the lighter parts involve a pair of diffuse light brown spots dorsal to anterior spiracle. Disc of scutellum also light. Pleura brown but patterned, i.e. with some smaller diffuse lighter areas, on posterior edge of preepisternum 2 (but ventral region of preepst2 as dark brown as dorsal part, in contrast to *D. hikosana*).

Wing membrane light brownish, veins light brown. Setae on veins long, up to 0.06 mm. Basal half of wing slightly darker brown, particularly so for a diffuse quadrate spot at about halfway from base to Cu1-M3. Wing with a diffuse (not too dark) brown spot at apex of Rs, on bases of radial veins and on R-M, which occupies almost the whole breadth of r1 cell, i.e. almost reaching R1. R fork much longer than its stem. M1–2 (stem) 0.47 mm (holotype), M1 0.69 mm, M2 0.44 mm. A2 distinct on 2/3 distance of alular angle to wing margin on Rs to R-M with larger dark spot and also cubital vein.

Legs yellow, except for base of fore coxa, knees (distal apex of femora plus proximal apex of tibiae) and apices of tibiae. Fifth tarsomeres also darkened. Apex of hind tibia dilated: 0.10 mm subapically, while tibia only 0.045–0.05 mm thick at middle.

Abdomen dark brown. Gonocoxites broadly separated both dorsally and ventrally, ventrally with a medial subapical process, which is broad and not digitiform (Figs 5–6). Gonocoxites without a pair of cranially directed processes. Gonostylus light (yellowish), long and curved (Figs 4–6), its medial edge with long setae. Gonostylus completely covered with short hairs. Suspension of aedeagus and parameres trifold.

Female cerci long: 0.32 mm but high (0.10 mm). Their apical and ventral setae only 0.06 mm long and fine. Lateral sclerotized processes of subanal plate thin, much shorter than cerci, at middle with a “humerus” (cf. TAKAHASHI 1958), apex seems rounded (though the sclerotized part connected through a membrane. Behind (cranially to) subanal plate there is a semiquadrate U-shaped sclerite,



Figs 4–6. *Dixa formosana* sp. n., paratype male, genitalia: 4 = tergite 9 and genitalia, dorsal view, 5 = genitalia in ventral view, 6 = gonostylus in broadest extension (a subventral-submedial view). Scale: 0.2 mm

which must be sternite 9 (cf. the description of *D. nigripleura* below). Tergite 9 distinct with some short submarginal and marginal setae. One globose spermatheca of 0.17 mm diameter with smooth surface.

It keys to *D. trilineata* TAKAHASHI, 1958, but female cerci are long. In addition, its wing pattern are different: central spot seems less strong (not as dark) but larger. The Cu spot is much fainter (cf. fig. 1/4 of TAKAHASHI 1958). Both male and female genitalia are distinctly different (Figs 4–6, cf. fig. 3/9–10 and 5/3–4 of TAKAHASHI 1958). Its male cerci are much smaller, male gonostylus is less slender; female cerci are long, etc.

In NOWELL's (1980) key for the Oriental Dixidae it runs to couplet 6 but it is not closely related either to *D. montana* BRUNETTI nor *D. trinotata* EDWARDS (probably the latter is closer). The details of the male genitalia are unique.

Etymology – This new species is named after the classical name of Taiwan: 'Formosa'.

***Dixa nigripleura* sp. n.**
(Figs 7–10)

Holotype male (HNHM): Ilan Hsien, Fu-Shan LTER Site, along/over a small brook, September 27, 2000, No. 11, leg. L. PAPP

Paratypes: TAIWAN 2003 (HNHM, TFRD): 3 males: Kaohsiung Hsien, Liukuei, Shan-Ping LTER Site, creek valley, No. 13, March 31–April 1, L. PAPP & M. FÖLDVÁRI; 27 males, 10 females: ibid., over/along a creek, April 2–3, L. PAPP, No. 15; 1 female: ibid., along a creek, April 3, No. 19, L. PAPP & M. FÖLDVÁRI.

Measurements in mm: body length 2.64 (holotype), 2.14–3.63 (paratypes), wing length 3.07 (holotype), 2.85–3.74 (paratypes), wing breadth 1.04 (holotype), 0.93–1.12 (paratypes).

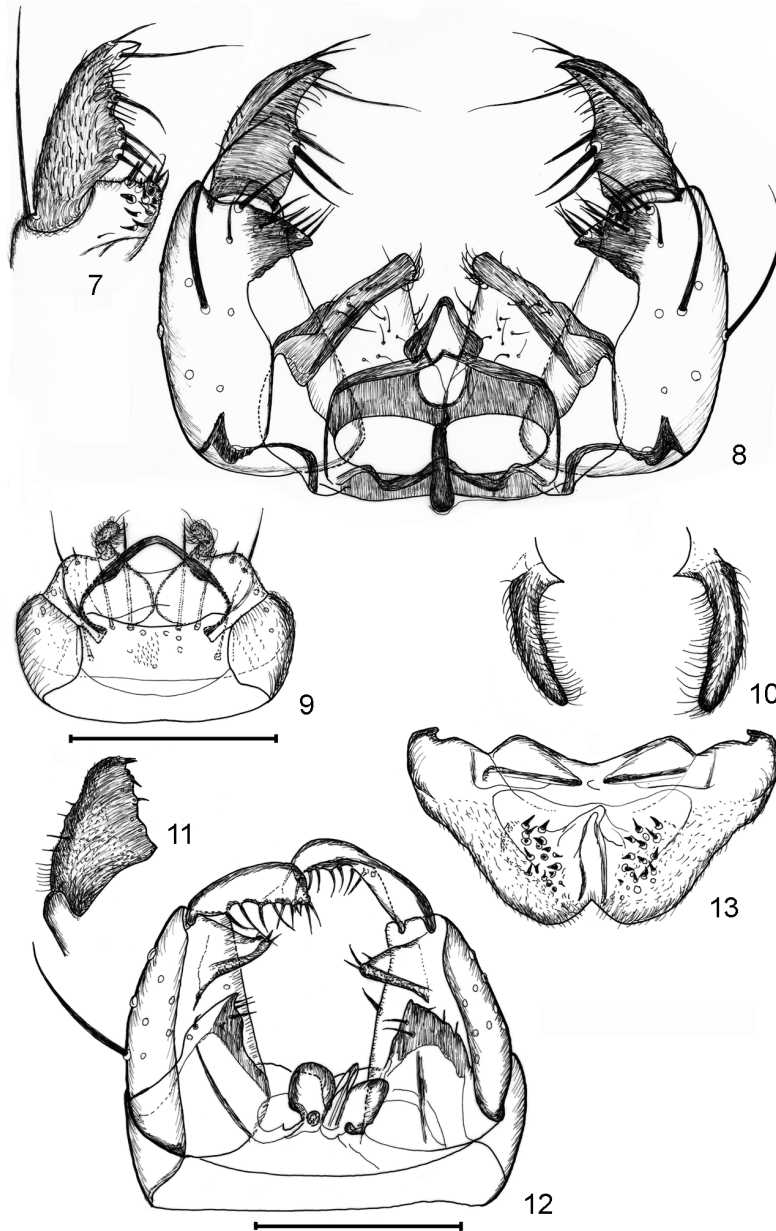
Head black. First flagellomere fusiform, much thicker medially than basally or apically, length 0.165 mm, width 0.023 mm, i.e. 7 times longer than thick. Apical flagellar setae 0.045 mm, longest setae on flagellum 0.04 mm. Mesonotum and pleura all dark.

Legs mainly yellow but basal half of fore coxa, knees, apices of mid and hind tibia and all hind tibia darker.

Wing membrane light brownish, veins brown with strong setosity. Wing with only a distinct but small brown spot only on R-R and R-M. Radial fork much longer than its stem. M1–2 (stem) 0.48 mm, M1 0.47 mm, M2 0.33 mm (holotype) and 0.53, 0.54, 0.34 mm, respectively (a male paratype). A2 discernible on 2/5 of distance from alular angle to wing margin.

Abdomen dark, slender. Male genitalia are strongly different from those of *D. kyushuensis* (TAKAHASHI 1958: figs 3/3–4). Cercus with a basal ventral digitiform lobe (Figs 9–10). Dorsal process on gonocoxite at base of gonostylus is much different. Gonocoxites without a pair of cranially directed processes. Gonostylus (Figs 7–8) light and comparatively short with short curved apex. Gonostylus medially the broadest (Fig. 7), this part is with medially directed setae.

Female cerci extremely long (0.42 mm) with longer apical setae. Lateral sclerotized processes of subanal plate reach only to 2/5 of cercus, i.e. comparatively even shorter than that of *D.*



Figs 7–13. 7–10 = *Dixa nigripleura* sp. n., paratype male, genitalia: 7 = gonostylus, broadest extension, 8 = genitalia, dorsal view, 9 = genitalia, ventral view, 10 = digitiform process of cercus. 11–13 = *Dixella pilosiflagellata* sp. n., paratype male, genitalia: 11 = gonostylus, broadest extension, 12 = genitalia, ventral view, 13 = proctiger plate, subdorsal (inner) view. Scales: 0.2 mm for Fig. 9, 0.1 mm for Figs 7–8, 10–13

kyushuensis (fig. 6/1–3 of TAKAHASHI 1958). The two lateral sclerotized parts look cut apically and fused at their very apex. Tergite 8 much shorter than sternite 8. Sternite 8 medially longer than laterally. A thin sclerite (forms half of a ring) behind (slightly cranially to) and below subanal processes, which must be sternite 9, or, less probably, a part of the subanal plate since it is dorsal to genital opening (see TAKAHASHI 1958: fig. 6/1–2). One globose spermatheca of 0.17 mm diameter with smooth surface.

D. nigripleura sp. n. belongs to the group with long female cerci. It is closely related to *D. kyushuensis* TAKAHASHI, 1958 with its digitiform processes on male cerci. However, male genitalia is distinctly different from those of *D. kyushuensis*: its dorsal process on gonocoxite at base of gonostylus is much different; gonostylus is comparatively short with short curved apex; gonostylus is medially the broadest, and this part bears strong, medially directed setae.

In NOWELL's (1980) key for the Oriental Dixidae it runs to *D. platystyla* EDWARDS, 1934 (India, Kashmir) but male genitalia serves a solid base for distinction. I have no doubt about its relationship to *D. kyushuensis*.

Etymology – This new species is named after its dark thoracic pleura.

In the last phase of producing this MS, it turned out that there was not one but two *Dixa* species in our material with long digitiform cercal processes. A number of genitalia preparation was made and finally only one male and one female were found (Kaohsiung Hsien, Liukuei, Shan-Ping LTER Site, over/along a creek, April 2–3, L. PAPP, No. 15), which were distinct from *D. nigripleura* (that species will be described later together with a number of dixids from the Oriental region). The differentiating characters can be summarised as follow: stalk of R2–3 and base of R5 originate from one point, i.e. no cross-vein between R2–3 and R5; digitiform process of male cerci shorter, tip of gonostylus not acute but rounded, gonostylus slender with a small triangular process on cranial edge of apical 5/6 of gonostylus, no thick setae on gonostylus.

***Dixella pilosiflagellata* sp. n.**

(Figs 11–13)

Holotype male (HNHM): TAIWAN: Kaohsiung Hsien, Liukuei, Shan-Ping LTER Site, UV light traps, No. 14, 31.03–04.04.2003, M. FÖLDVÁRI & L. PAPP.

Paratypes: 1 male (HNHM): same as for the holotype; 1 male (abdomen with genitalia in a plastic microvial with glycerol): *ibid.*, over/along a creek, April 2–3, L. PAPP, No. 15; 1 female (HNHM): Ilan Hsien, Fu-Shan LTER Site, March 26, small creeks and partly dry rocky beds, No. 6, L. PAPP & M. FÖLDVÁRI.

Measurements in mm: body length ca. 2.1 (holotype, not precisely measurable owing to its downcurved abdomen), 2.47–2.64 (paratypes), wing length 2.56 (holotype), 2.95–3.08 (paratypes), wing breadth 0.88 (holotype), 0.99–1.15 (paratypes).

Scutum, and all body dark (the holotype is a teneral specimen, so its colour is lighter). Wing without dark spots.

Head and antennae black. Scape and pedicel with very long setae up to 0.13–0.14 mm. First flagellomere 0.21 mm, width ca. 0.022 mm, i.e. about ten times longer than thick, cylindrical and not fusiform. Apical flagellomeral setae only 0.033 mm, but flagellum, particularly flagellomeres 1–3, with long (0.08 mm) setae.

Thoracic and also abdominal setae very long, ordered into acrostichal, dorsocentral and supra-alar rows, longest ones (postalars) 0.16 mm long. Pleura bare.

Legs with long setae up to 0.18 mm. Legs light brown, coxae and trochanters darker.

Wing light yellowish brown, without darker spots, veins ochre. Radial fork much shorter than stem: R fork stem 0.38 mm, R3 0.51 mm. Vein R2–3 originates from the same point as R5, i.e. no R-R cross-vein present. M1–2 (stem) 0.41 mm, M1 0.37 mm, M2 0.25 mm. Vein A2 hardly discernible, only basal 0.30 mm traceable.

Male genitalia (Figs 11–13) very small (cf. Figs 4/5–6 of TAKAHASHI 1958), diameter less than 0.2 mm. Gonocoxites without a pair of cranially directed processes. There is a pair of basal lobes on gonocoxites, which occupy all the basal width of gonocoxites (Fig. 12). Apical process originates not from the ventral edge but from below gonostyli and this apical lobe is not digitiform, contrarily “typical” species of *Dixella*, other characteristics make probable that relegation. Gonostylus subquadrate (Fig. 11), without long setae. Proctiger plate (Fig. 13) medially with short thick, partly blunt, peg-like black setae. Aedeagus plus parameres asymmetrically situated (Fig. 12).

Female cerci short broad with medium-long setae (abdomen of the unique female not prepared).

I believe, this is a true *Dixella* species. Only *Dixella subobscura* (TAKAHASHI, 1958) is known from Japan, whose wing venation is markedly different from all of the species. In TAKAHASHI’s (1958) key it runs to *Dixa minutiformis* TAKAHASHI, 1958 (which was not described as a *Dixella*), to which this new species may be, though not closely, related. It is rather easy to identify it by the long cilia on its flagellum (so it is named as ‘pilosiflagellata’).

In NOWELL’s (1980) key for the Oriental Dixidae it runs readily to *Dixella barraudi* (FREEMAN, 1948) (India, Punjab) but I do not think that they would be closely related.

Etymology – This new species is named after its long flagellar cilia.

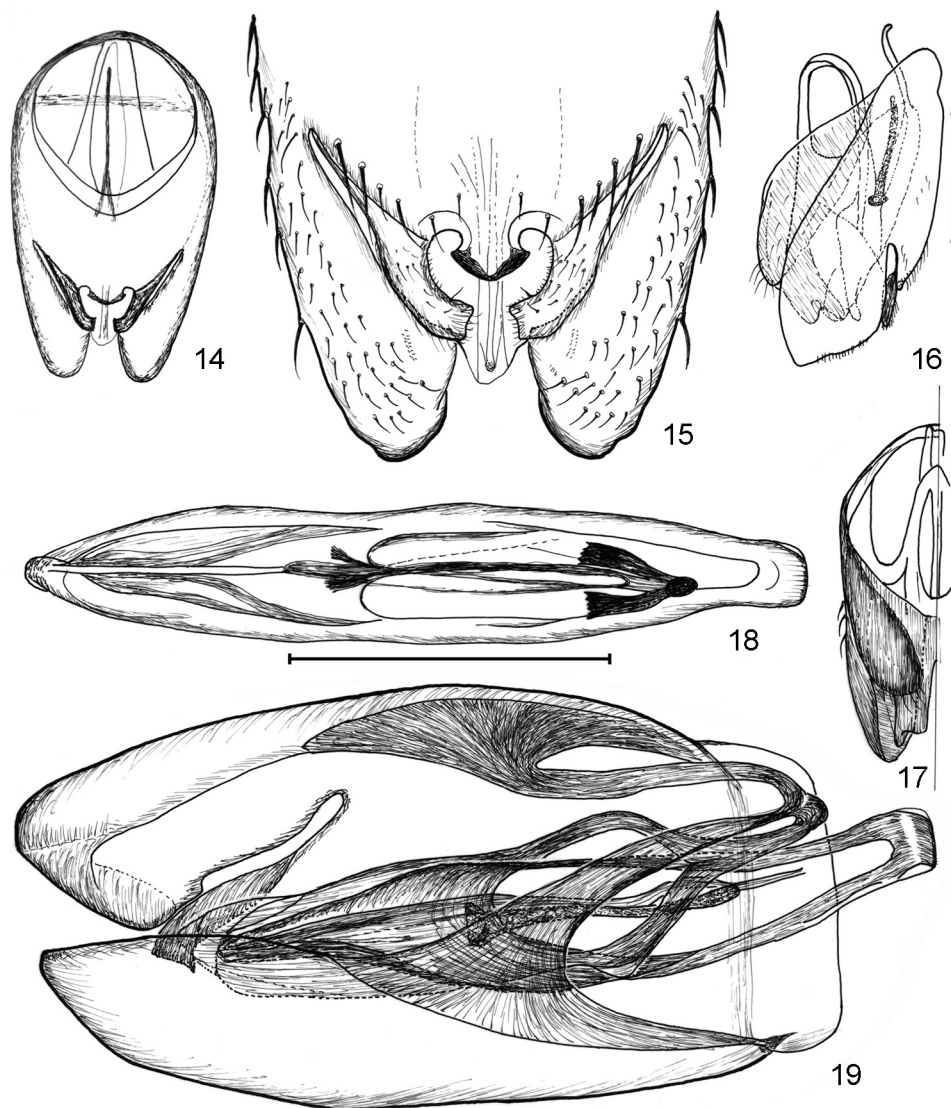
AXYMYIIDAE

***Protaxymyia taiwanensis* sp. n.**

(Figs 14–19)

Holotype male (NMNS): Taiwan Nantou, Nanhuashan, 6/V/1992, YANG & HUANG, Sweeping net – 1447–1160 (damaged greasy individual. glued to a pointed card, apical half of left wing

glued behind the specimen on card; right wing originally wrinkled, now prepared on a slide under a cover glass, legs partly missing; see also below).



Figs 14–19. *Protaxymia taiwanensis* sp. n., holotype male, genitalia: 14 = genitalia in ventral view, 15 = apex of genitalia in higher magnification, 16 = genitalia in lateral view, 17 = genitalia in dorsal view, 18 = aedeagus in dorsal view, 19 = genitalia in a subdorsal view (cerci removed). Scales: 0.5 mm for Figs 14, 16–17, and for Figs 15, 18–19, respectively

Measurements in mm: body length ca. 6.75, wing length 6.96, wing breadth 2.14.

Body greasy dark grey, almost black, scutellum brown, legs including fore coxae yellow (only left fore leg and right hind leg left on the holotype; other legs lost).

Ventral facettes of eye smaller than dorsal ones, but male eye not divided into two. Fore ocellus larger than lateral ones. Five minute palpomeres. Antennae all black. Scape and pedicel as long as first flagellomere, 14 flagellomeres present.

Legs without any special armature, hind tibia strongly swollen apically. Tibiae without ventroapical spines. Hind tarsomeres: 80:32:22:10:26. Pulvilli, and particularly empodium very large. Claws thin curved 0.13 mm from tip to base.

Wing membrane light brown, stigma dark brown on a long, 1.53 mm section. Veins dark brown. An Sc-R1 cross-vein present at 0.60 mm from H. Costa continued slightly distally to R4+5. Length of its section as follow (in mm): H-Sc 2.57, Sc-R1 2.55, R1-R2 0.12, R2-R3 1.22, R3-R4+5 0.36. From M-M to R-M 0.82 mm, from R-M to base of M1-2 fork 0.41 mm, i.e. really twice longer. Length of R4+5 to R-M 0.53 mm. M-M cross-vein 0.07 mm, M3-Cu1 0.48 mm. R2 convex, curved backwards before joining C. R2+3 (R3) "broken" at base of R2-R3 fork, consequently R3 not parallel to R4+5. Rs downcurved, continued in a straight section and S-shaped in its apical third. Cu1 thick, archly downcurved, apex more strongly curved to wing margin. Cu2 present as a faint fold and ends well distally to M3-Cu1. A1 distinct to the level of M3-Cu1 cross-vein. No A2 vein but a very small and closed anal cell present. No anal lobe on wing, basal edge concave (and almost straight from anal cell, i.e. on 1.7 mm), slightly convex up to level of M3-Cu1. Haltere greyish yellow, 1.60 mm long, stalk ca. 1.1 mm long and only 0.07 mm thick at middle.

Abdomen mostly black, a major part of sternites 1-5 and caudal half of sternite 6 and ventral face of "hypandrium" lighter: dirty yellow. Both tergite 8 and sternite 8 long (latter as long as broad), contrarily to *P. melanoptera*.

Male cerci best interpreted as bipartite structures of a spoon-shaped basal part (connection between left and right cerci membranous), which is dark brown and a membranous medial to apical part, which is light brown and ventrally curved (Fig. 16), the latter is without any setae. For me the large, obviously paired sclerites are sternite 8 fused to gonocoxites, where gonocoxites are the larger (cf. KRIVOSHEINA 2000). Gonostyli partly fused to gonocoxites ventro-basally (Figs 15-16, 19). Suspensor apparatus forms a weakly sclerotized shell, which is open both dorsally and ventrally, except for its tip, which goes more caudally (i.e. longer than) to aedeagus. I wonder whether this shell could/must be termed as parameres (cf. WOOD 1991: fig. 9). Ejaculatory apodeme lies in the shell below and cranially to aedeagus (Fig. 19).

I think, this new species of *Protaxymyia* can be compared to *P. melanoptera* MAMAEV et KRIVOSHEINA, 1966. Details of the adult body and genitalia are given also by the figures 3-6, 10, 16-19 of KRIVOSHEINA (2000). YANG's (1993) species, *Protaxymyia sinica*, from S China cannot be closely related. Contrasting *P. sinica*, where thoracic notum is red-brown, the whole body of *P. taiwanica* is dark (dark grey, almost black). Vein R2 convex, curved backwards before joining C. R2+3 "broken" at base of R2-R3 fork, consequently R3 not parallel to R4+5. The Sc vein seems shorter in *P. sinica* and M fork is otherwise shaped. If we compare the male genitalia to WOOD's (1991) figures on *Axymyia furcata* MCATEE, 1921, we may say that they are rather similar as for their basic structure.

MYCETOBIIDAE

Mesochria simplicipes sp. n.

(Figs 20–21)

Holotype male (HNHM, genitalia with abdomen in a plastic microvial with glycerol): TAIWAN: Pingtung Hsien, Kenting, Heng-Chun Tropical Botanical Garden, light traps, October 4–6, 2000. No. 15, leg. L. PEREGOVIĆ & L. PAPP.

Paratype female (HNHM): THAILAND: 8 km E of Doi Anh Kang, over a rocky brook, Nov 2, 2004, No. 17, leg. L. PAPP & M. FÖLDVÁRI (beside Road no. 1249).

Measurements in mm: body length 3.63 (holotype), 3.02 (paratype), wing length 3.86, 4.05, wing breadth 1.48, 1.49.

A comparatively large species. Scutum, pleura and coxae unicolorous mat brown, legs ochre.

Ocellar triangle much protruding, 0.055 mm high, all ocelli directed forward and laterally, respectively. Ocelli large, lateral ones 0.05 mm, apical 0.065 mm. Antennae black, also palpi and proboscis black. Flagellum of 14 flagellomeres. Apical half of apical flagellomere yellow. Ventral facettes of eyes smaller than dorsal ones (male) or equal in size (female).

Mesoscutum without dark patches caudally.

Legs ochre, unicolorous, mid and hind leg without brown bands on femur and tibia, only knees and end of tibiae slightly darkened. Hind coxa with 2 medium-long setae on postero-lateral edge plus 2 (in paratype 1) shorter and thin setae there. Length ratios of tibiae and basitarsi: fore: 79: 72 (in paratype 79: 67), mid 122: 100, hind 145: 97 (x 0.0109 mm). Hind tibia medially on posteromedial surface with a row of 9 black thick setae. Claws rather long (0.065 mm), thin, curved.

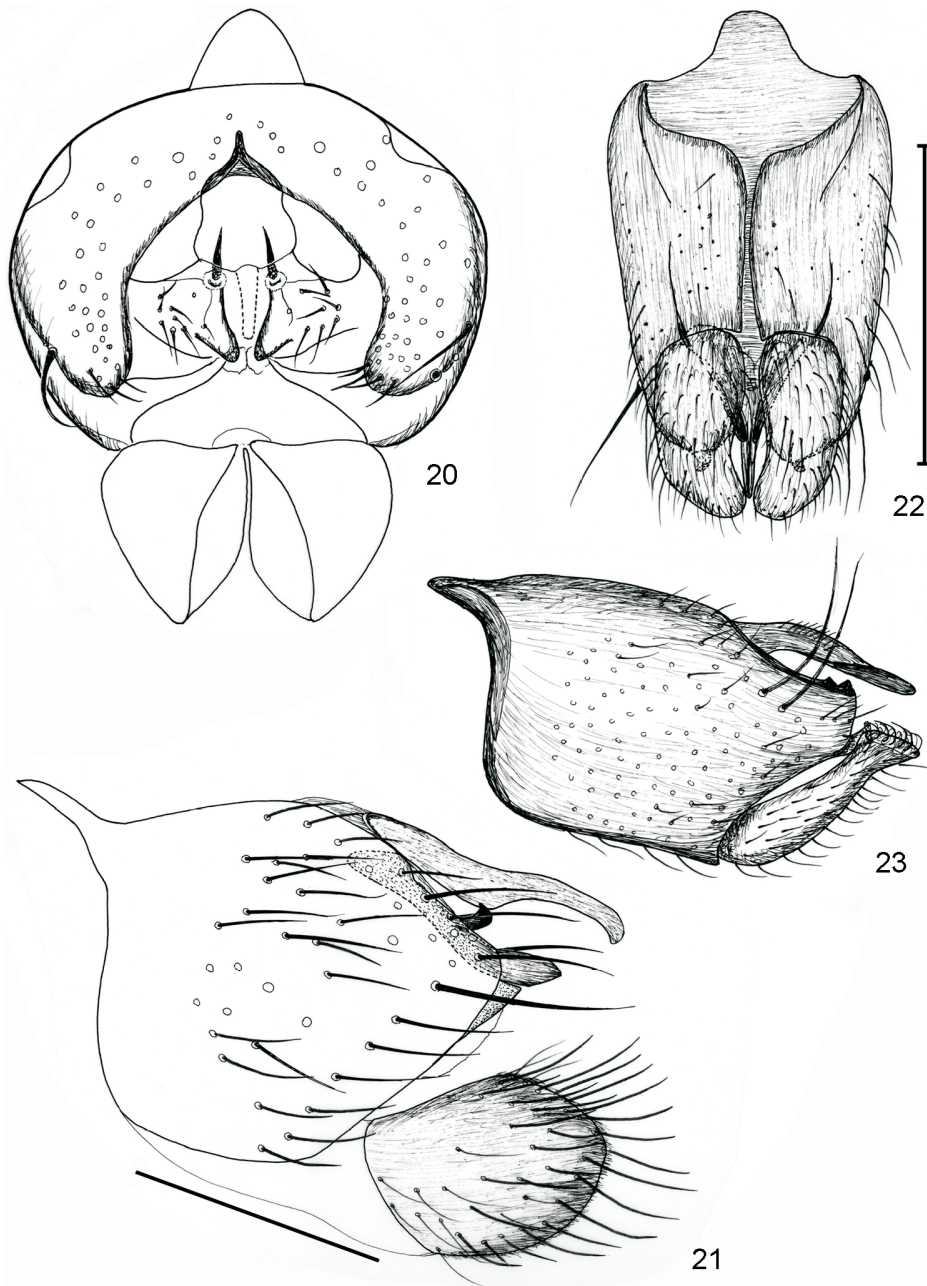
Veins ochre, upper veins, costa and basal section of Cu1 light brown. Subcostal vein rather long (1.37 mm from vein H). Sc, R1, R2+3 and R4+5 setose both dorsally and ventrally. M1 and M2 very faint, only apical parts well visible (yellow). Distance of apex of R5 and M1 shorter than that of M1 and M2 on wing margin. M3 more or less angulately bent distally to its middle (M3 of *M. thaii* L. PAPP, 2006 S-shaped). The most easily detectable characteristic of this new sp. is that Cu1 vein angulately “broken” at middle. Cu2 faint but distinct, detectable even well distally to M-Cu. A1 vein slightly curved in apical half and reaches wing margin but very faint and even disappearing in basal 1/3. A2 present on 2/3 distance of its base to wing margin.

Abdomen rather thick, blackish. All sclerites with evenly distributed short setae. Sternites broad, incl. the 2nd one. Tergites 8 and sternite 8 not fused, sternite 8 very short, 0.12 mm only. Tergite 8 0.13 mm dorsally, forms half of a ring. Cerci (Fig. 20) much different from those of *M. simplicipes*: higher but shorter in profile (cf. figs 18–19 of PAPP *et al.* 2006). Lateral lobe of gonocoxites narrowed apically in profile. Gonostylus (or, process of gonocoxite, Fig. 21) bilobed, dorsal lobe black, strongly dorsally curved, apical lobe sharp. Phallus thin, straight, ca. 0.17 mm long, apically upcurved.

Female cerci without long setae.

This new species was mentioned also in PAPP *et al.* (2006), since its paratype is from Thailand (there erroneously given as a male). The differentiating characters are given in a key for the Oriental species in PAPP *et al.* (2006). It is a matter of course that the date of the description, given there as 2006, has to be changed to 2007.

Etymology – This new species is named so, since mid and hind legs are without brown bands on femur and tibia.



Figs 20–23. Mycetobiidae spp., male genitalia. 20–21 = *Mesochria simplicipes* sp. n., holotype male, genitalia: 20 = caudal view, 21 = lateral view. 22–23 = *Mycetobia formosana* sp. n., holotype male, genitalia: 22 = ventral view, 23 = lateral view. Scales: 0.2 mm for Figs 20–21, 0.5 mm for Figs 22–23

***Mycetobia formosana* sp. n.**
(Figs 22–28)

Holotype male (HNHM, genitalia with abdomen in a plastic microvial with glycerol): TAIWAN: Taipei Hsien, Fu-Shan LTER Site, No. 7, lake shore, UV light, March 25–28, 2003, M. FÖLDVÁRI & L. PAPP.

Paratype female (NMNS, double mounted on a minutia pin after nine years in alcohol, post-abdomen cut and prepared, in a plastic microvial with glycerol): Taiwan Nantou co., Road Nr. 14, 2100 m, NE of Puli, ca. 24°05'N/121°08'E, Meifeng, 25.IX–3.XI. 1997, Malaise-Trap, C. S. LIN & W. T. YANG.

Measurements in mm: body length 4.07 (holotype), 4.40 (paratype), wing length 3.95, 5.00 (paratype), wing breadth 1.54 (holotype), 1.97 (paratype).

A comparatively large species. Body dark brown, flagellum black. Flagellomeres short, e.g. flagellomere 3 0.055×0.10 mm (0.077×0.11 mm in paratype). Apical flagellomere with a spine (male) or just rounded without a spine (female).

Mesonotum rather shiny. Thoracic setae all yellow (most of them broken from paratype). Scutellum with 4 very long (0.45 mm) yellow marginal setae.

Legs all yellow, knees somewhat darker and mid and hind coxae dark brown. Apical 1/3 of hind coxa with 2 long setae laterally. Tibiae thickened. All tibiae with 1 medium-long apicoventral setae each.

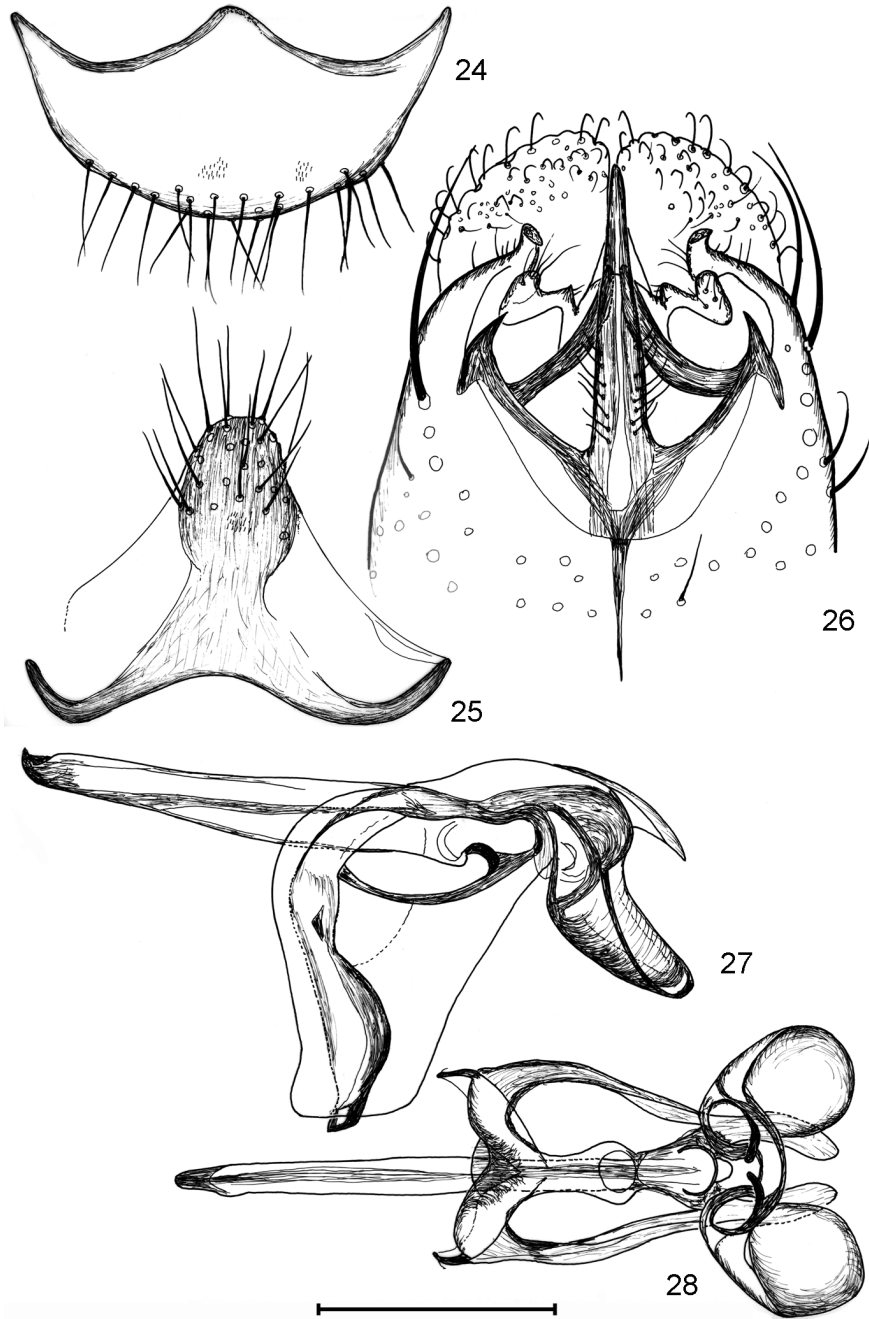
Wing greyish, veins ochre. Costal vein continued slightly more than 1/3 distance between R5 and M1. Sc bare, radial veins, including Rs with long setae both dorsally and ventrally. M1 1.165 mm, M2 0.88 mm, stalk 1.12 mm (on paratype 1.53, 1.10, 1.43 mm, respectively). Vein Cu1 to the Cu1-M3 cross-vein with short setae dorsally. Cu2 present as a short faint “fold” almost to Cu1-M3. A1 distinct to the wing margin, A2 wavelly bent, distinct on 3/4 distance from base to wing margin.

Basal three segments (i.e. both tergites and sternites) ochre, other sclerites dark brown, in female also tergite 3 dark. Preabdominal tergites 1/4 to 3/10 as long as broad with dense short thin setae. Sclerites of 8th abdominal segment lateral to body axis, since rotation of tergite 8 is 90 degrees (i.e. T8 on the left side of abdomen), that of sternite 8 slightly more than 90 degrees (S8 on the right side of abdomen). Sternite 8 as broad as tergite 8 (Figs 24–25), with a wide Y-shaped more sclerotised and coloured central-lateral area with scattered fine setae. Tergite 9 and sternite 9 must be fused to gonocoxites (there is no space between segment 8 and base of gonocoxites to hypothesise that they are membranous). Cerci ventral in position, as in all the known species of the family.

Genitalia rotated 180 degrees. Fig. 26 shows four superimposed “layers” of male genitalia: most dorsal one is that of the sagittal (medial) dorsal process of gonocoxites, below it the pair of adhering pointed process of gonocoxites (? gonostyli), medially the pair of the dark, apically almost meeting gonocoxal processes, the layer above cerci is an intricate plate, which is built on the caudal edge of gonocoxites, and, finally, in this view most ventrally, the large pair of cerci.

Inner genital complex of an intricate form (Figs 27–28), parameres (?) below aedeagus form a concave plate, which has a ridge sagittally.

Female sternite 8 0.30 mm long, 0.45 mm broad, sagittally with a ca. 0.10 mm long narrow incision on its apical 1/3. Cerci 0.17 mm long (i.e. very short), 0.10 mm broad, with narrow, rounded submedial process. Longest cercal hairs only 0.03 mm long. Subanal plate membranous medially but sclerotized and brown melanised laterally and also apically. Two globular spermathecae. Female postabdomen with those intricate sclerites, as in other *Mycetobia* females (back to the caudal margin of tergite 6).



Figs 24–28. *Mycetobia formosana* sp. n., holotype male, postabdomen and genitalia: 24 = tergite 8, dorsal view, 25 = sternite 8, ventral view, 26 = apex of genitalia, dorsal view; 27–28 = genital complex: 27 = lateral view, 28 = ventral view. Scale: 0.2 mm for all

This new species keys to *M. gemella* in MAMAEV's (1968) key but it runs to *M. turkmenica* MAMAEV in his 1987 key. However, while medio-caudal process of gonocoxites in *M. gemella* is very long and bare, less long and with 4 pairs of setae in *M. turkmenica*, this new species has 7–8 pairs of setae on basal part of that process. Details of genitalia (particularly so for the processes of gonocoxites) are species-specific (c.f. fig. 4/1 of MAMAEV 1987).

Male genital parts side by side show well the distinctness of *Mesochria* and *Mycetobia* (Fig. 21 vs. Fig. 23).

KEROPLATIDAE

Xenokeroplatus (Tipulokeroplatus) subgen. n.

Type species: *Xenokeroplatus (Tipulokeroplatus) gozmanyi* sp. n.

Gender: masculine.

Etymology – This new subgenus is named after the very long “tipuliform” legs of the type species.

Rather large species, one of the largest in the genus.

Two ocelli rather close to each other, but their distance from eye margin larger than their own diameter. Flagellomere of 14 segments. Flagellomeres flattened (Fig. 30). Palpus of a single small black scale-like segment. Eyes covered by rather long dense stiff hairs.

Prothorax, and thorax as a whole, small, dorsally covered by mesothorax (Fig. 29). Pleurotergite and metatergite bare. Scutellum bare dorsally, at most with marginal setae.

Costal vein on 3/4 part of R5-M1 distance. R4 short, terminates in costa far from R1. R4–5 setose dorsally. Base of M1 and stem of M fork reduced. M fork and more distal veins bare. Anal vein (A1) short, reduced, just overruns level of Rs.

Hind coxa 2/3 as long as hind femur. Tibial hairs in regular rows, but no longer setae on tibiae. Hind tibia with two combs.

Abdomen very long and slender. Male genitalia comparatively small. Gonocoxites fused in their whole length dorsally, they bear a single (sagittally fused) strongly sclerotized ventral medial process. Gonostylus with a short process on ventral surface.

This new subgenus is easily recognisable. It runs to couplet 9 in EDWARDS's (1925) key, but its pleurotergite bare and at the same time it has only 2 ocelli. In MATILE's (1990) key it runs readily to *Xenokeroplatus* MATILE, 1990. It is as large as largest of those species, which were originally described in the genus (body length 6.57 mm, wing length 4.3 mm vs. 3.5–4.4 mm wing length). The differences of the two subgenera are summarised in this short key (characteristics of the nominate subgenus have been studied on a male of *X. filitarsis* MATILE, 1990, from Papua New Guinea the type species of *Xenokeroplatus*):

- 1 Scutellum bare dorsally, at most with marginal setae. Hind coxa $2/3$ as long as hind femur. Gonocoxites fused in their whole length dorsally. Gonocoxites with a strongly sclerotized ventral medial process. Gonostylus with a short process on ventral surface. Male genitalia comparatively small

Tipulokeroplatus subg. n.

- Scutellum covered by setulae dorsally. Hind coxa only $1/2$ as long as hind femur. Gonocoxites fused only very shortly at base. Gonocoxites without a sclerotized ventral medial process. Gonostylus without a process on ventral surface. Male genitalia rather large Subg. **Xenokeroplatus** MATILE, 1990

Xenokeroplatus (Tipulokeroplatus) gozmanyi sp. n.

(Figs 29–34)

Holotype male (HNHM): TAIWAN: Ilan Hsien, Fu-Shan Botanical Garden, along a forest path, September 25, 2000, leg. L. PAPP, No. 3.

Measurements in mm: body length 6.57, wing length 4.30, wing breadth 1.46.

Fore tibia 1.21 mm long, fore basitarsus 5.14 mm long, i.e. 4.2 times as long as tibia (Fig. 29). Femoral bare stripes not large. No apical thorns on mid tibia (even external reduced), ventral pecten present. Definite ventral setae on tarsi.

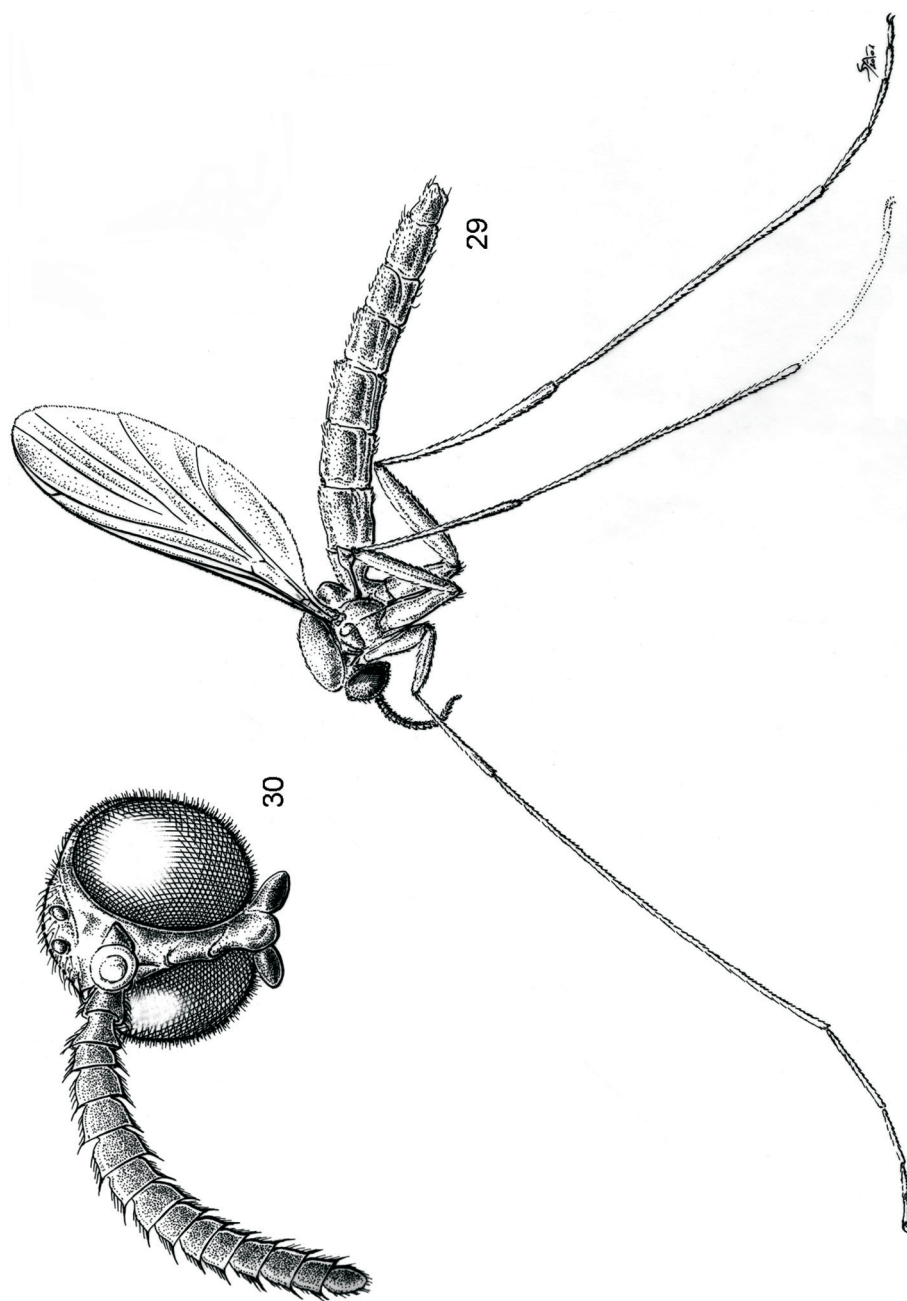
Wing membrane brownish, veins dark brown. Sc vein strong and long, ends not far behind M1-2 base. Vein R1 long, ends at about apical $1/4$ of wing. Postcubitus (Cu2) reaches apical $1/4$ of Cu1, i.e. not reduced at all. Anal vein present, though short, on $1/3$ distance to wing margin.

Male genitalia comparatively small. Cranial part of hypoproct membranous. Gonocoxites fused on their whole dorsal surface, with a large sagittal plate (Fig. 33). Inner surface of gonostyli with evenly distributed long black blunt thorns. Inner genitalia less sclerotized, i.e. more or less membranous and are suspended to the gonocoxites through their pair of basal (ventral) apical broad plates plus a retrograde thin half-of-a-ring chitinous lath (Figs 33–34). In *X. filitarsis* this structure is membranous only (Fig. 36).

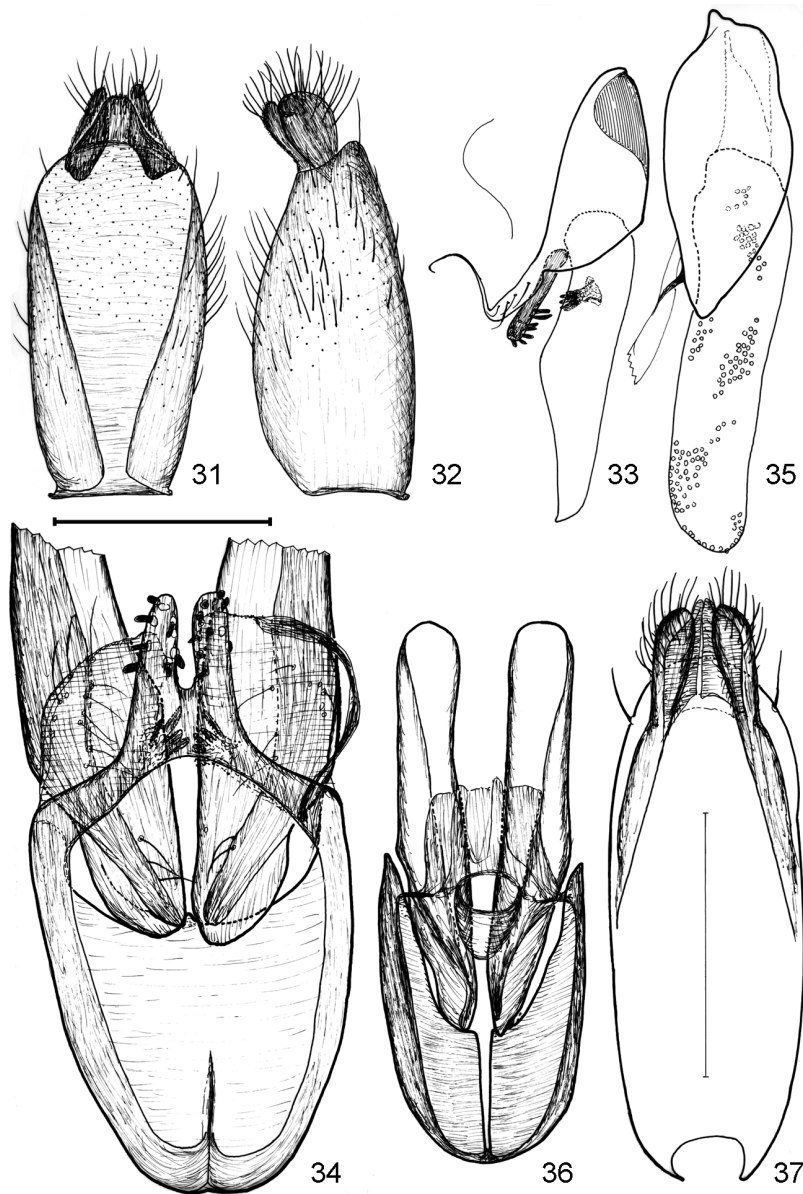
Female unknown.

Xenokeroplatus continentalis L. PAPP, 2006 belongs definitely to the new subgenus with its fused gonocoxites, ventral medial gonocoxal process and with process on the ventral surface of gonostylus, etc. It is necessary to study the other two known species to know their subgeneric relegation. However, based just on its description and MATILE's (1990) figures, *X. steffani* MATILE, 1990 seems to belong to *Tipulokeroplatus*.

Etymology – I name this conspicuous new species to the honour of Dr LÁSZLÓ GOZMÁNY, who was my master in zoological nomenclature and who taught me patiently how to write scientific papers in English.



Figs 29–30. *Xenokeroplatus gozmanyi* sp. n., holotype male (del. A. SZAPPANOS): 29 = habitus in lateral view, 30 = head



Figs 31–37. Genitalia of *Xenokeroplatus* spp. males. 31–34 = *X. (Tipulkeroplatus) gozmanyi* sp. n., holotype male: 31–32 = tergite 9, hypoproct and cerci: 31 = ventral (inner) view, 32 = lateral view; 33 = gonocoxite and gonostylus, lateral view, 34 = gonocoxites and basal half of gonostyli, ventral view (gonostylar setae omitted on Figs 33–34). 35–37 = *X. (Xenokeroplatus) filitarsis* MATILE, 1990: 35 = gonocoxite and gonostylus, lateral view, 36 = same, ventral view (gonostylar setae omitted), 37 = tergite 9, hypoproct and cerci, ventral view. Scales: 0.5 mm for Figs 31–33 and 35–37, 0.2 mm for Fig. 34

All the other keroplatids from Taiwan in the HNHM will be published in another paper(s). Sciarokeroplatinae, a new subfamily of Keroplatidae, was described also from Taiwan (PAPP & ŠEVČÍK 2005a).

MACROCERIDAE

Chiasmoneura quinquemaculata (SASAKAWA, 1966) – Material studied: 2 males (HNHM): TAIWAN: Nantou Hsien, Shuili, forest undergrowth, September 30, 2000, No. 12, leg. L. PAPP. Described and hitherto known only from Taiwan. The original species record (i.e. its description; SASAKAWA, 1966) was not included in the Catalog of the Diptera of the Oriental Region, and as a result, it was not listed in the Taiwan fauna (cf. LIN & CHEN 1999).

The species of *Macrocera* from Taiwan will be discussed in a paper on the Oriental *Macrocera* material of the HNHM later. Contrarily to the conspicuous habitus of the species, the genus seems to be a difficult group of sciaroid flies (see also COHER 1963).

DITOMYIIDAE

I found a ditomyiid fly in the collection of the National Museum of Natural Science, Taichung. This is a male of *Symmerus (Psilosymmerus) pectinatus* SAIGUSA, 1966, which was described from Taiwan. That was not only the first species from Taiwan but at the same time the second true Oriental record of the family Ditomyiidae (*Celebesomyia inocellata* SAIGUSA was described from Sulawesi, see OOSTERBROEK 1998). Interestingly, this species record, and consequently the family itself was not included in the Catalog of the Diptera of the Oriental Region. As a result, the species (and the family) was not included in LIN & CHEN (1999). In the meantime ŠEVČÍK (2000) described another *Symmerus (Psilosymmerus)* from Laos, so below it is the fourth Oriental record of the family.

Symmerus (Psilosymmerus) pectinatus SAIGUSA, 1966 – 1 male (NMNS, de-fected, all but 4 basal flagellomeres lost on both sides): Taiwan Nantou, Meifeng, 26–28/V/1997, C. S. Lin & W. T. Yang, UV light trap – 2680–798.

*

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