

SEVEN NEW SPECIES OF MANOTINAE (DIPTERA:
MYCETOPHILIDAE) FROM ASIA AND PAPUA NEW GUINEA

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Three new species of *Manota* (*M. bilobata* sp. n., Taiwan; *M. delyorum* sp. n., N Korea; *M. meilingae* sp. n., Taiwan), two new species of *Eumanota* (*E. jani* sp. n., Papua New Guinea; *E. parahumeralis* sp. n., Taiwan), and one species each of *Paramanota* (*P. schachti* sp. n., Taiwan) and of *Promanota* (*P. formosana* sp. n., Taiwan), are described. Tuomikoski's concept of genera is corroborated, i.e. *Promanota* Tuomikoski, 1966 is reinstated. With 30 figures.

Key words: Mycetophilidae, Manotinae, *Eumanota*, *Manota*, *Paramanota*, *Promanota*, new species, N Korea, Taiwan, Papua New Guinea

Manotinae is a small subfamily of the Mycetophilidae. Their status have been debated for a period of time (e.g. TUOMIKOSKI 1966) but most modern workers (e.g. SØLI *et al.* 2000 and BECHEV 2000) accept them as a subfamily.

Hitherto eight species of four genera of Manotinae have been described from the Oriental region (cf. BECHEV 2000, SØLI 2002), as follow:

Eumanota humeralis EDWARDS, 1933: 132 (Malaysia, Sabah, Mt. Kinabalu)

Eumanota leucura EDWARDS, 1933: 132 (Malaysia, Sabah, Mt. Kinabalu); type species of *Eumanota* EDWARDS, 1933

Eumanota malukuensis SØLI, 2002: 50 (Indonesia, Maluku)

Eumanota suthpensis SØLI, 2002: 51 (Thailand, Chiang Mai Prov., Doi Suthep)

Eumanota racola SØLI, 2002: 50 (Thailand, Phang Nga Prov., Koh Ra)

Promanota malaisei TUOMIKOSKI, 1966: 216 (Myanmar, "Burma"); type species of *Promanota* TUOMIKOSKI, 1966 (included in *Eumanota* by SØLI 2002)

Manota orientalis SENIOR-WHITE, 1922: 117 (Sri Lanka, "Ceylon")

Paramanota orientalis TUOMIKOSKI, 1966: 220 (Myanmar, "Burma"); type species of *Paramanota* TUOMIKOSKI, 1966

Recently SØLI (2002) revised *Eumanota* and described three Oriental species.

Of the four genera, only *Manota* has a distribution outside the Oriental region with 2 Palearctic, 1 Nearctic, 18 Afrotropical, 3 Neotropical and 3 Australian species (cf. BECHEV 2000). No additional descriptions of new taxa but SØLI's (2002) were published after 1966 from the Oriental region (we may add ŠEVČÍK's (2002) description of the second Palearctic species of *Manota* from China).

In the course of two collecting trips to Taiwan in 2000 and 2003 respectively, nine manotine specimens were captured. In addition, a loan of five specimens was made from the Taichung Museum. These 14 specimens belong to five species; all of them are new to science. A *Manota* specimen from North Korea was found in the collection of the HNHM, and a specimen from Papua New Guinea was sent by Dr. J. ŠEVČÍK. Both represent species new to science.

The type specimens are preserved in the collection of the National Museum of Natural History, Entomology, Division of Zoology (NMNH), Taichung, Taiwan, in the Hungarian Natural History Museum (HNHM), Budapest and in Jan ŠEVČÍK's private collection (coll. J. Š.).

***Eumanota jani* sp. n.**

(Figs 1–4)

Holotype: male, PAPUA NEW GUINEA, Madang prov., Hapurpi village, nr. Halopa mission, 700 m a.s.l., 5°05'S, 145°41'E, primary rain forest, February 2001, AMARI & NOVOTNÝ leg. (Malaise trap) coll. J. Š. (right hind tarsus, right hind tarsomeres 3–5 and fore tibial spur lost; genitalia with segment 8 in a plastic microvial with glycerol).

Measurements in mm: body length 3.80, wing length 3.63, wing breadth 1.17, length of palpus 2.30.

Entire body, including abdominal tergites dark brown.

Face 0.23 mm broad with dense strong black setae. Postocular setae strong. Antennae dark brown, flagellum 2.36 mm long with 0.03 mm long dense hairs. Basal flagellomere 0.115 mm long, 0.10 mm broad, penultimate flagellomere 0.155 mm long and 0.045 mm broad, apical one 0.175 mm long and 0.04 mm broad. Palpi wax yellow, more than 2 times as long as thorax.

Length of thorax 1.11 mm. Scutum dark brown, pleura incl. epimera somewhat lighter. Anteprepronotum and propleuron with strong black setae. Dorsal 1/3 of anepisternum and laterotergite with short setae, caudal part of laterotergite with long black setae. Katepisternum, metepisternum and metatergite (metanotum) bare. Scutellum with 6 long marginal setae (1 broken off).

Coxae yellow, except small apical parts. Femora dark brown, except for basal ca. 3/5 of hind femur, which is yellow. Anterior half of fore coxa with medium-long stiff black setae. Tibiae and tarsi yellow (ochrous). Tibiae with well ordered rows of short black setulae; anteroventral, antero-dorsal and posterodorsal rows of short setae on mid and hind tibiae, fore tibia only with anteroventral and posteroventral rows. Length of femur, tibia, first tarsomere and tibial spurs (in mm): fore: 1.10, 0.715, 0.99, 0.44; mid: 1.32, 1.32, 1.24, 0.385, 0.185; hind: 1.32, 3.11, 1.155, 0.53, 0.265.

Wing light brown, apical 2/5 of wing darker brown. Veins dark brown. Costal fringe short, wing margin otherwise with extremely short fringe of brown hairs. All veins dorsally with short black setulae. Costa almost reaches M_1 . Base of M_1 faint. Vein Sc about 2 times as long as Hu, also setose. Cross-vein R-M shorter than R_2 (which is 0.088 mm), R_1 0.44 mm long, Rs 0.67 mm long. Cu_2 (cf. KRZEMIŃSKI & EVENHUIS 2000) distinct on a section of ca. 1/3 of Cu_1 . Anal vein runs close to Cu-s, distinctly dark brown, continued to ca. 4/5 of Cu_1 . Cells m_2 and m_3 with about 20 short perpendicular macrotrichia dorsally, anal region (down from Cu-s) with more numerous similar macrotrichia. Halteres white.

Abdomen dark brown. Tergite 9 and proctiger (Fig. 1) 1.38× as long as gonocoxites, otherwise similar to those of *E. leucura* (cf. fig. of SØLI 2002). Gonocoxites robust, fused on a little more than half of their length, caudal apex almost straight. Gonostylus (Figs 3–4) transverse with a sharp medio-caudal apex and 2 short but thick setae subapically; lateral parts of gonostylus with numerous longer setae. Parameres slender, almost straight. Aedeagus slender with narrowly rounded apex.

Female unknown.

Etymology: This new species is named after Dr. JAN ŠEVČÍK (Slezské zemské muzeum, Opava, Czech Republic) for his support of our efforts to build up a Mycetophiloidea collection in the HNHM and for his achievements in Diptera taxonomy.

Eumanota jani sp. n. is an easily recognizable species. Male genitalia are similar to *E. malukuensis* with regard to the shape of gonocoxites and inner genitalia. However, shape of tergite 9 and particularly shape and armature of gonostylus are distinctly different; its bicolorous hind femur is also conspicuous.

***Eumanota parahumeralis* sp. n.**

(Figs 5–8)

Holotype: male. TAIWAN, Fu-Shan Botanical Garden, 700 m – along a forest path, Sep 25, 2000, leg. L. Papp, No. 3. (HNHM, hind tarsomere 2–5 lost.)

Paratypes: 1 male (HNHM, right 2 apical flagellomeres, left mid tarsus and hind tarsomeres 2–5 as well as right mid tarsomeres 2–5 lost): TAIWAN, Nantou Hsien: Suili – forest undergrowth, Sep 30, 2000, leg. L. Papp, No. 12; 1 male (NMNS, wings greasy and wrinkled, formerly prepared from alcohol, consequently most of setae lost, left mid tarsomeres 2–5 and right mid tarsomeres 3–5 lost): TAIWAN, Nantou, Jenai Chunyang, VIII-IX/12–8/1998, C.S. Lin & W. T. Yang, Malaise trap – NMNS ENT 3028–178.

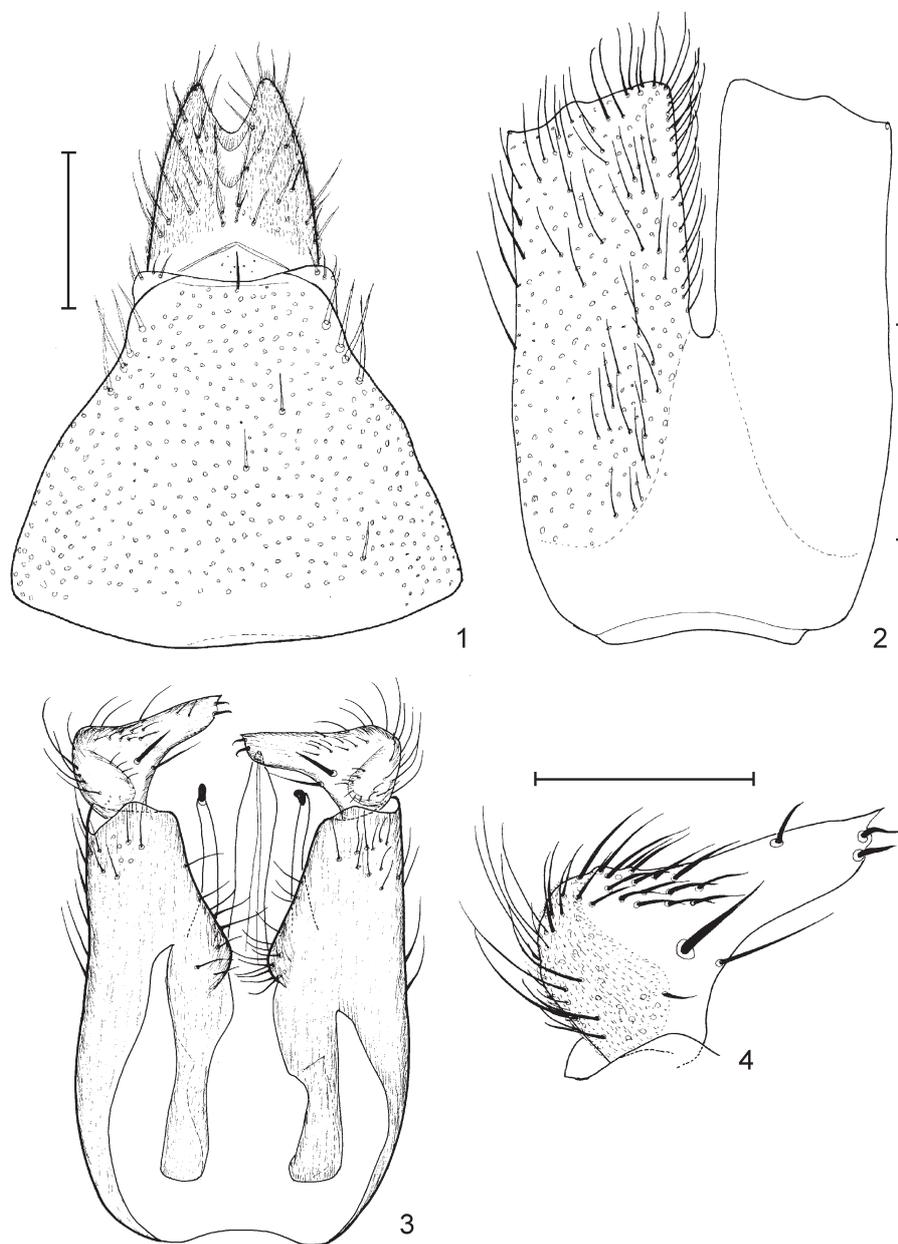
Measurements in mm: body length 4.15 (holotype), 4.10, 3.95 (paratypes), wing length 3.30 (holotype), 3.30, 3.20, wing breadth 1.34 (holotype), 1.24 and not measurable.

Scutum brown, lateral parts of mesonotum, notopleura and pleura (mainly) ochre with dorsal part of anepisternum and anepimeron diffuse brown, whole laterotergite and lateral parts of mediotergite brown.

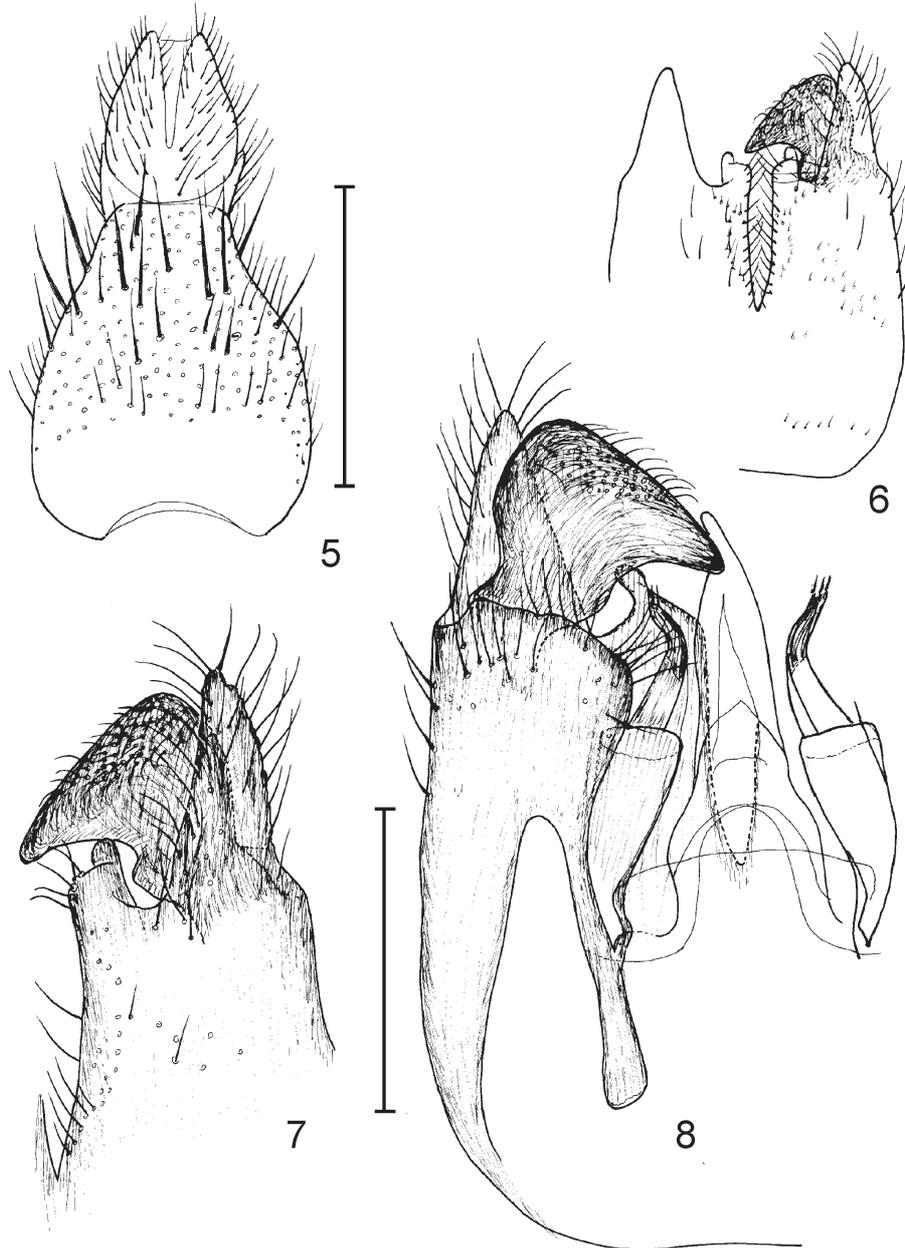
Head 0.595 mm high, 0.495 mm long, yellow, medial part of occiput fuscous brown. Face not only broad (0.20 mm on holotype) but with numerous thick black setae. Lateral ocelli close to eye margin, distance only 0.03 mm. Complete row of long postocular setae present. Flagellum of holotype ca. 2.00 mm long (slightly curved, i.e. not precisely measurable. Apical flagellomere 0.198 mm long, 0.05 mm broad, penultimate one 0.138 mm long, 0.06 mm broad. Palpus whitish, not precisely measurable but longer than fore coxa, i.e. longer than 1.55 mm.

Length of thorax 1.32 mm (holotype). Anepisternum with small setae on anterior and dorsal parts and with 4 very long setae, laterotergite with long setae, particularly caudally and dorsally.

Wing light brown, veins darker brown. Wing membrane with perpendicular short dorsal macrotrichia in m1, m2 and m3 cells distally, as well as similar but more numerous macrotrichia on anal region. Length of M stalk 0.20 mm (holotype), length of Sc vein 0.22 mm, R₁ 0.65 mm, R₂ 0.072 mm, R-M 0.77 mm. Stalk of halteres light brown, knob fuscous dark brown.



Figs 1–4. *Eumanota jani* sp n., holotype male, genitalia: 1= tergite 9 and proctiger, dorsal view, 2 = gonocoxites, ventral view, 3 = gonocoxites and gonostyli, dorsal view (tergite 9 and proctiger removed), 4 = gonostylus in higher magnification, dorsal view. Scales: 0.4 mm for Fig 1, 0.2 mm for Figs 2–3, 0.1 mm for Fig. 4



Figs 5–8. *Eumanota parahumeralis* sp. n., paratype male, genitalia: 5 = tergite 9 and proctiger, dorsal view, 6 = gonocoxites and right gonostylus, ventral view, 7 = right gonocoxite and gonostylus, ventral view, 8 = right gonocoxite and gonostylus with genitalia, dorsal view (tergite 9 and proctiger removed). Scales: 0.4 mm for Figs 5–6, 0.2 mm for Figs 7–8

Legs yellow, incl. coxae, apices of coxae brown. Length of femur, tibia, first tarsomere and tibial spurs (in mm, measured on holotype): fore: 1.25, 0.835, 0.88, 0.53; mid: 1.385, 1.63, 0.935, 0.65, 0.41; hind: 1.54, 2.30, 1.10, 0.68, 0.44.

Abdomen dark brown, sternites 1–5 lighter. Cerci and entire proctiger white. Tergite 9 much narrowed caudally (Fig. 5), though caudal edges rounded, width caudally less than half of subbasal width. Tergite 9 with several long and thick setae. Cerci broad in dorsal view, covered by setulae of even thickness. Gonocoxites fused in their 1/2 ventrally (sagittally) (Fig. 6), their mediodorsal process thin, with a blunt medioventral and very large, subtriangular lateral processes (lobes) (Fig. 7). Gonostylus blunt apically, with a blunt medial apex. Gonostylus covered by dense short setae only. Aedeagus long, apex narrow; parameres short with latero-clinate apical setae (Fig. 8).

Female unknown.

E. parahumeralis sp. n. is close to *E. humeralis* EDWARDS, 1933 known from Malaysia, Sabah, Mt Kinabalu. The medially directed gonostylar tip is blunt in *E. parahumeralis* (sharp in *humeralis*) and its length / transversal breadth ratio is also different (longer in *parahumeralis*). The shape of gonostylus also resembles that of *E. racola* [author and year is already given in the list of species in the introduction]. However, gonocoxite of *E. parahumeralis* has a pair of blunt medioventral and a pair of large lateral subtriangular processes caudally (latter ones are easily seen without preparation). If SØLI's (2002) fig. 8 depicts the lateral lobe of *E. humeralis* correctly, the difference in this respect is massive and most distinctive. If the tip of that process was broken (to which there is no reference in the paper), the extent of difference is unknown. It is certain that the difference in the shape of medial processes between the two species is distinct. The cerci of the new species seem broader (Fig. 5, cf. fig. 10 of SØLI) and the bare basal area of tergite 9 is larger.

***Promanota formosana* sp. n.**

(Figs 9–12)

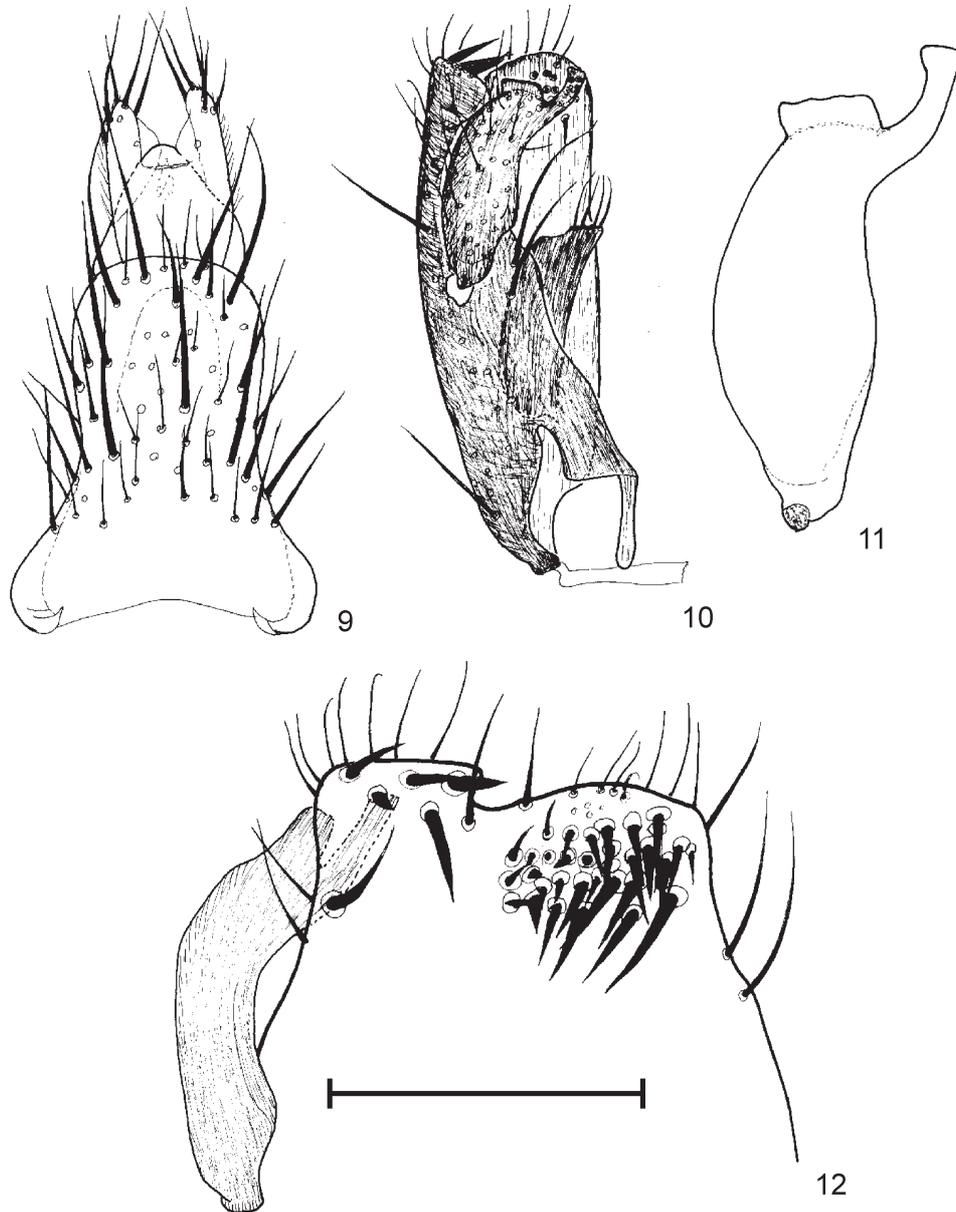
Holotype male (HNHM, 2 right apical flagellomeres lost): TAIWAN: Ilan Hsien, Fu-Shan LTER Site, Sep 26, 2000, leg. L. Papp, No. 7 – lake shore vegetation and along a brook bed.

Paratypes: 1 male (HMNH, abdomen with genitalia in a plastic microvial with glycerol): *ibid.*, Fu-Shan Botanical Garden, 700 m – along a forest path, Sep 25, 2000, leg. L. Papp, No. 3; 1 male (HNHM, abdomen with genitalia in a plastic microvial with glycerol): TAIWAN, Nantou Hsien: Suili – forest undergrowth, Sep 30, 2000, leg. L. Papp, No. 12.

Measurements in mm: body length 3.30 (holotype), 2.47, 2.53 (paratypes), wing length 2.42 (holotype), 2.00, 2.20, wing breadth 1.13 (holotype), 0.845, 0.99.

Head higher than half fore coxal length. Face narrow, at middle 0.05 mm broad, with only a pair of lateral rows of thin setae. Whole lateral ocelli outside of antennal bases.

Flagellum 14-segmented, apical segment of flagellum (0.09 mm long) 2 times as long as penultimate (length and breadth 0.04 mm). Flagellum may be dark or yellow, “rather long” if flagello-



Figs 9–12. *Promanota formosana* sp. n., paratype male, genitalia: 9 = tergite 9 and proctiger, dorsal view, 10 = right gonocoxite and gonostylus, dorsal view, (tergite 9 and proctiger removed), 11 = right gonostylus, in higher magnification, 12 = apex of gonocoxite with contour of gonostylus, medial (inner) view. Scales: 0.2 mm for Figs 9–10, 0.1 mm for Figs 11–12

meres do not touch each other, or “rather short” on specimens, where flagellomeres are touching; length on the holotype in mm. Middle flagellomeres longer than broad. Palpus brown, much shorter than fore coxa, i.e. 0.36 mm vs 0.715 mm (holotype), 0.33 mm vs 0.615 mm (paratype).

Length of thorax 0.99 mm (holotype). Scutellum with 6 marginal and 4 submarginal (more dorsal) very long setae. A number of mesonotal setae are longer than scutellum.

Wing evenly light brown, veins only slightly darker. Entire wing covered by retroflexed dense macrotrichia. Macrotrichia present on all veins also ventrally (incl. Sc). Macrotrichia on radial veins particularly long: dorsally up to 0.07 mm, ventrally to 0.09 mm. Costal vein on 5/6 section of wing margin to M_1 . Stalk of M fork long, 0.32 mm on a paratype. R_1 0.44 mm, R_2 0.08 mm on the same specimen. Both Cu_2 and A_1 present only as vein shadows, 1/3 and 1/2 as long as Cu_1 , respectively. Stalk of halteres brown, knob black.

Legs light brown. Length of femur, tibia, first tarsomere and tibial spurs (in mm, measured on holotype): fore: 0.77, 0.67, 0.57, 0.285, mid: 0.96, 1.02, 0.74, 0.35, 0.26; hind: 1.10, 1.57, 0.605, 0.42, 0.275.

Tergite 8 bare, sternite 8 linguliform with 4 thin setae apically. Tergite 9 long, linguliform, with several extremely long setae (Fig. 9), proctiger long.

Gonocoxites not fused at all. Gonocoxite (Fig. 10) apically slightly bilobed, medial lobe (Fig. 12) with numerous short stiff pointed setae on medial surface, lateral lobe with less numerous (5–6) but longer perpendicular setae. Gonostylus (Fig. 11) inserted dorsolaterally on gonocoxite, with a strong, black, blunt subapical tooth.

Female unknown.

Promanota malaisei TUOMIKOSKI, 1966 has a pair of long setae on tergite 8 (fig. 2 of TUOMIKOSKI); tergite 8 of *P. formosana* is bare. In *P. malaisei* macrotrichia are present only on a part of its veins ventrally, while on all veins in *P. formosana*. The insertion and the shape of the apical tooth also seem to be different (Fig. 11, cf. fig. 2 of TUOMIKOSKI 1966). Some smaller differences found in the description of *P. malaisei* and observed on the type specimens are probably less distinctive: palpi are ochreous in *malaisei*, brown in *formosana*, scutellum with about a dozen short bristly marginal hairs in *malaisei* and 6+4 long setae in *formosana*. *P. malaisei* must be a larger species with wing length 3.7 mm vs 2.00–2.42 mm in *formosana*.

I am convinced *Promanota* TUOMIKOSKI, 1966 is distinct from *Eumanota* EDWARDS, 1933. The two genera may be distinguished by the following features:

<i>Eumanota</i>	<i>Promanota</i>
robust flies	rather slender flies
face broad	face narrow
head at most as high as half the length of fore coxa	head higher than half length of fore coxa
palpus at least as long as fore coxa	palpus much shorter than fore coxa
apical segment of flagellum less than 1.5 times longer than penultimate	apical segment of flagellum nearly twice longer than penultimate

<i>Eumanota</i>	<i>Promanota</i>
only part of wings with sparse straight macrotrichia	whole wing covered by retroflexed dense macrotrichia
gonocoxites fused in at least 1/3 of their length	gonocoxites not fused
gonostylus without a strong subapical tooth	gonostylus with a strong black subapical tooth

It is true that a list of differences does not prove monophyly. Only when polarity is deduced can synapomorphies be recognized.

***Manota bilobata* sp. n.**
(Figs 13–17)

Holotype: male, TAIWAN: Kaohsiung Hsien, Liukuei, Shan-Ping LTER Site – creek valley, No.13, Mar 31–Apr 1, 2003, L. Papp & M. Földvári. (HNHM, abdomen with genitalia in a plastic microvial with glycerol, otherwise intact.)

Paratypes: 1 female (HNHM, left mid leg, right hind tarsomeres 2–5 lost): *ibid.*, UV light traps, March 31–April 4, No. 14, M. Földvári & L. Papp; 1 female (HNHM, right hind leg, left fore tarsomeres 2–5, left hind tarsomeres 3–5 and right flagellum lost): TAIWAN: Taipei Hsien, Fu-Shan LTER Site, No. 7 – lake shore, UV light, March 25–28, 2003, M. Földvári & L. Papp; 1 male (HNHM, damaged, mid and hind legs, right fore tibial spur and left flagellomeres 8–14 lost): TAIWAN: Taipei, Nanshih Chiao, Han-Lo-Da, 450 m – rocky forest undergrowth, Sep 23, 2000, leg. L. Papp, No. 1; 1 male (NMNS, left hind leg lost, prepared from alcohol, so body and wings wrinkled; abdomen with genitalia in a plastic microvial with glycerol): TAIWAN: Nantou, Yuchig Lienhunchi, IV-V/9–10/1998, C.S. Lin & W. T. Yang, Malaise trap – NMNS ENT 3028–971.

Measurements in mm: body length 2.64 (holotype), 2.28, 2.70 (paratype males), 2.47, 3.10 (paratype females), wing length 2.26, 2.00, 2.20 (paratype males), 2.28, 2.70 (paratype females), wing breadth ca. 0.85 (holotype), 0.85, not measurable, ca. 0.87 and 1.25 (paratypes).

Thorax mostly ochre, caudal part of thorax incl. scutellum and mediotergite diffuse brown (one of the female paratypes with almost completely dark thorax).

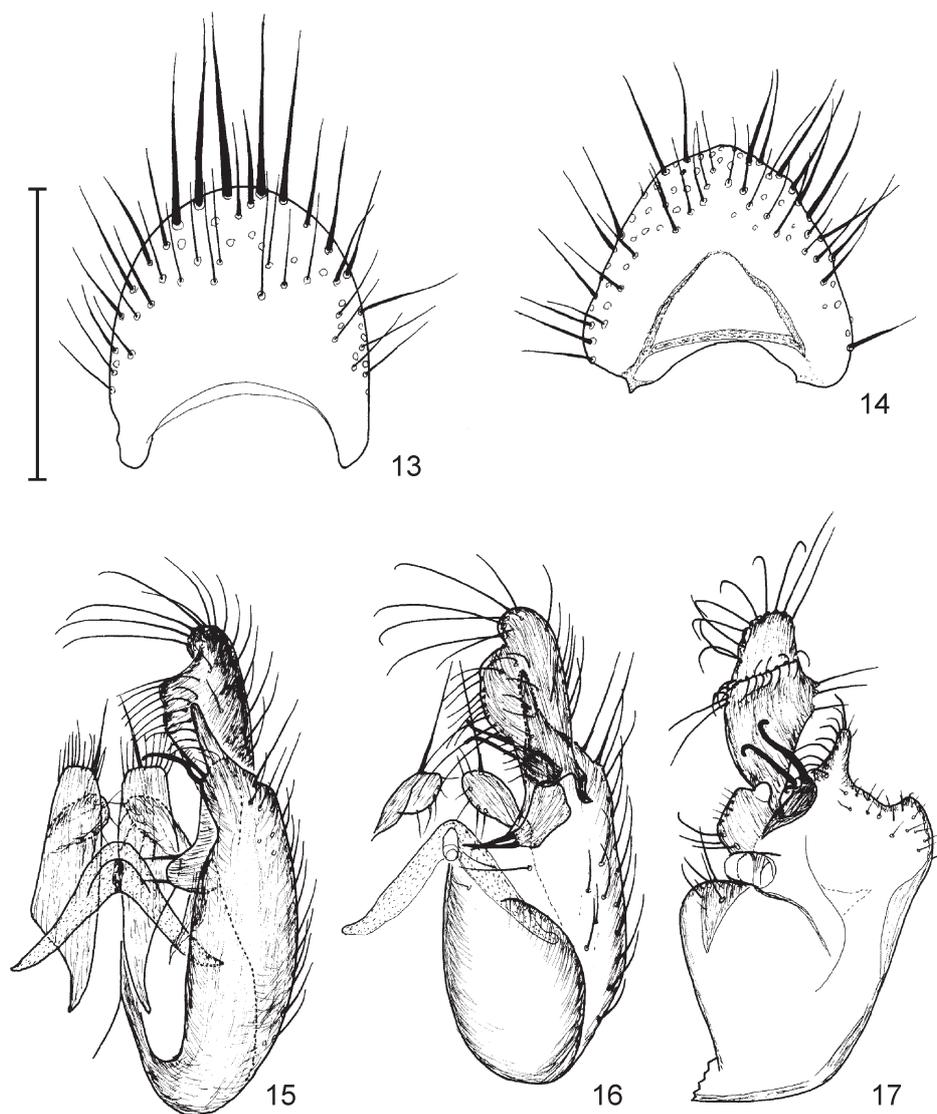
Eyes with evenly distributed medium-long hairs. Facial setae yellowish at middle, dark over clypeus and along eyes, or all facial setae dark. Postocellar setae black. Longest postocular setulae 0.065–0.09 mm. Scape, pedicel and flagellomeres dark. Flagellum of holotype ca. 1.25 mm long (much curved). Flagellomeral hairs dense, 0.025 mm, apically 0.035 mm long. Palpi white or whitish yellow, ca. 0.55 mm long on holotype, ca. 0.48 mm on one male, 0.75 mm long on one female paratype.

Anepisternum with dense hairs, katapisternum pilose on anteroventral part (badly visible), laterotergite bare. Scutellum with 2 pairs of long black marginal setae.

Wing light brownish with brown veins. Costal section from H to R₁ 0.715 mm, from R₁ to R₅ 1.01 mm, extant sections of M₁ 0.485 mm (to wing margin), M₂ 1.31 mm long. Halteres ochreous with blackish knob.

Legs yellow. Length of femur, tibia, first tarsomere and tibial spurs (in mm, measured on holotype): fore: 0.605, 0.46, 0.50, 0.34, mid: 0.95, 0.95, 0.57, 0.42, 0.32; hind: 1.05, 1.36, 0.605, 0.46, 0.39.

Abdomen dark brown, sternites 1–5 lighter. Postabdomen incl. segment 9 ochre. Tergite 9 longer than broad (Fig. 13), apically with some longer thick setae. Sternite 9 (Fig. 14) subtriangular, its setae are shorter but more numerous than on tergite 9.



Figs 13–17. *Manota bilobata* sp n., holotype male, genitalia: 13 = tergite 9, dorsal view, 14 = sternite 9, ventral view; 15–16 = left gonocoxite and gonostylus with genitalia: 15 = dorsal view, 16 = ventral view; 17 = gonocoxite (without the bulbous ventral lobe) and gonostylus, medial (inner) view. Scale: 0.2 mm for all

Cerci, which bear some minute black thornlets apically. Gonocoxite (Figs 15–16) with a bulbous ventral lobe and with 2 long thick, apically curved black setae at the base of gonostylus (Fig. 17). Gonocoxites close to each other. Gonostylus long, setose, bilobed (Figs 15–17). Hypoproct with a pair of long but not thick setae and with several short setulae. Aedeagus short and triangular.

Female body and wing length probably slightly larger than in males (see above). Postabdomen ochre, cerci with evenly distributed hair-like setae not longer than 0.035 mm. The females were identified by the body colour and by the colour of facial and fore coxal setae.

M. bilobata sp. n. is easily separable from the other Taiwanese species of *Manota* by its black postocular setae and partly dark fore coxal setae. It belongs to that species-group of the true *Manota*, where the laterotergite is bare and the katepisternum is pilose (anepisternum is with dense hairs); in these respects it is similar to *M. chinensis* and *M. delyorum*. The distinctive features are in the male genitalia: The gonocoxite has only 2, not particularly thick megasetae near gonostylar base (cf. SØLI 1993), and the gonostylus is bilobed with both lobes bearing longer setae.

***Manota delyorum* sp. n.**

(Figs 18–21)

Holotype: male, [North] KOREA, De Sang-san, 10 km NE Pyongyang, 1. VII. 1977 – No. 332 – netting in grasses [Olivér György] DELY & [Ágnes, Mrs Dely] DRASKOVITS. (HNHM, abdomen with genitalia treated with NaOH and preserved in a plastic microvial with glycerol.)

Measurements in mm: body length 2.32, wing length 2.09, wing breadth 0.79.

Anterior parts of body and legs ochreous, anepisternum, more distal pleura and mesonotum light brown.

Flagellum ca. 1.12 m long (much curved). Face yellow, 0.187 mm broad at middle (head 0.385 mm broad), with numerous pale setae. Palpus ca. 0.45 mm long. Both the colour and reflexion of postocular setulae yellow.

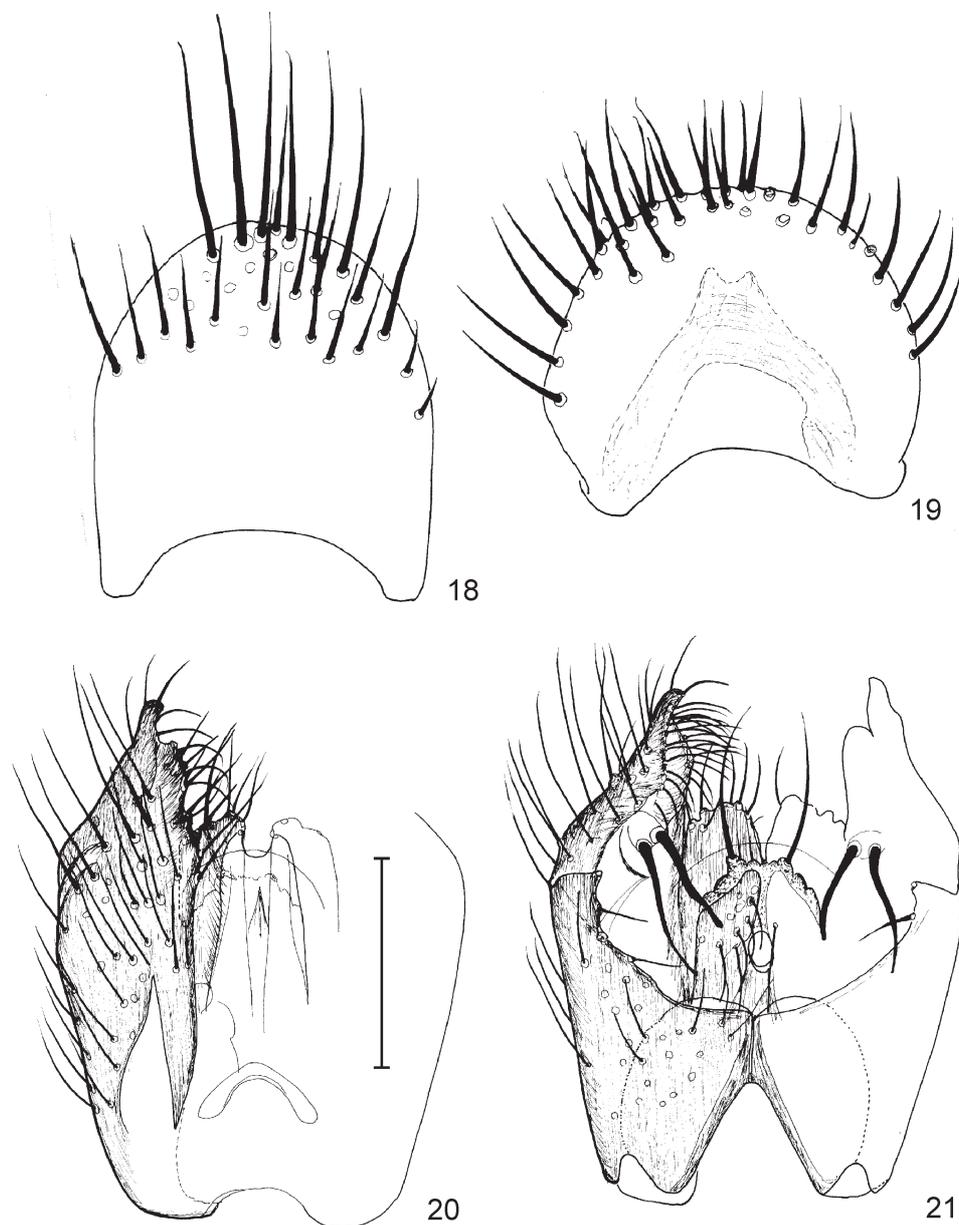
Anepisternum with pale setulae, katepisternum pilose, laterotergite and mediotergite bare. Scutellum with a pair of very long setae and several short setae.

Wing light brownish. Costa distinct on 5/6 section to M_1 . Vein Sc ends free, visible on a 0.06 mm long section. Costal section from H to R_1 0.61 mm, from R_1 to R_5 0.95 mm, extant sections of M_1 0.46 mm (to wing margin), M_2 1.17 mm long. Cu_2 distinct to the level of R_1 conjointment with costa. A_1 long, 0.67 mm, also with macrotrichia on dorsal surface.

Legs light brown. Fore coxa 0.825 mm long, 0.31 mm at broadest, all fore coxal setae yellow. Length of femur, tibia, first tarsomere and tibial spurs (in mm, measured on holotype): fore: 0.59, 0.45, 0.46, 0.31, mid: 0.78, 0.92, 0.66, 0.31, 0.30; hind: 0.85, 1.20, 0.55, 0.42, 0.36.

Abdomen light brown. Sternite 9 (Fig. 19) hemispherical, shorter than broad, with medium-long but thick marginal setae. Tergite 9 (Fig. 18) shield-shaped, broadly rounded caudally with long thick setae not only caudally but also on apical 1/3 of disc.

Gonocoxites narrowly separated (Figs 20–21), much shorter medially than laterally (Fig. 21). Gonostylus long, slightly bilobed, subbasally with a process with 2 extremely long setae (Fig. 21). In-



Figs 18–21. *Manota delyorum* sp n., holotype male, genitalia: 18 = tergite 9, dorsal view, 19 = sternite 9, ventral view, 20 = right gonocoxite and gonostylus, dorsal view, 21 = left gonocoxite and gonostylus with genitalia, ventral view. Scale: 0.1 mm for all

ner genitalia medially with 3 pairs of sclerotized lamellae, medial pair (hypoproct) with a pair of extremely long thick setae (Fig. 21).

Etymology: I name this new species after Dr Olivér György Dely (deceased) and Dr Ágnes Dely-Draskovits, the collectors of the holotype.

This is the third Palaearctic species of *Manota* (see ŠEVČÍK 2002). It is easily distinguishable from *M. unifurcata* LUNDSTRÖM, 1913 by body features alone: anepisternum is setulose, katapisternum is pilose, while in *M. furcata* not only the laterotergite but also the anepisternum and katapisternum are bare. Contrary to *M. delyorum*, tergum 9 is very short and slightly bilobed apically in *M. furcata*. Both the colour and reflection of postocular setae are yellow in the new species. Its genitalia are much different from those of *M. chinensis*: gonostylus is without the massive medial process and without long setae; and tergite 9 is much longer (Fig. 18, cf. fig. 1 of ŠEVČÍK 2002). There are a number of species with genitalia of similar structure in the Afrotropical region (e.g. *M. styloides* SØLI, 1993: 1 male (HNHM): Tanzania, Tanga region, Amani, 1–18 II. 1987, leg. Mahunka, Zicsi).

***Manota meilingae* sp. n.**

(Figs 22–25)

Holotype: male, TAIWAN, Kaohsiung, Liukuei, 4–6/IX 1989, K. W. Huang, Sweep net – [NMNS ENT] 526–220. (NMNS, abdomen with genitalia treated with NaOH and preserved in a plastic microvial with glycerol.) A damaged specimen: palpi lost, flagellomeres 7–14 lost on both antennae, left hind leg, spurs of right hind tibia and lateral spur of right mid tibia, as well as most mesonotal and scutellar setae lost.

Measurements in mm: body length 2.12, wing length 1.78, wing breadth ca. 0.73.

Face yellow, frons and occiput darker brown, thorax brown, abdomen dark brown, legs yellow, apical tarsomeres fuscous yellow.

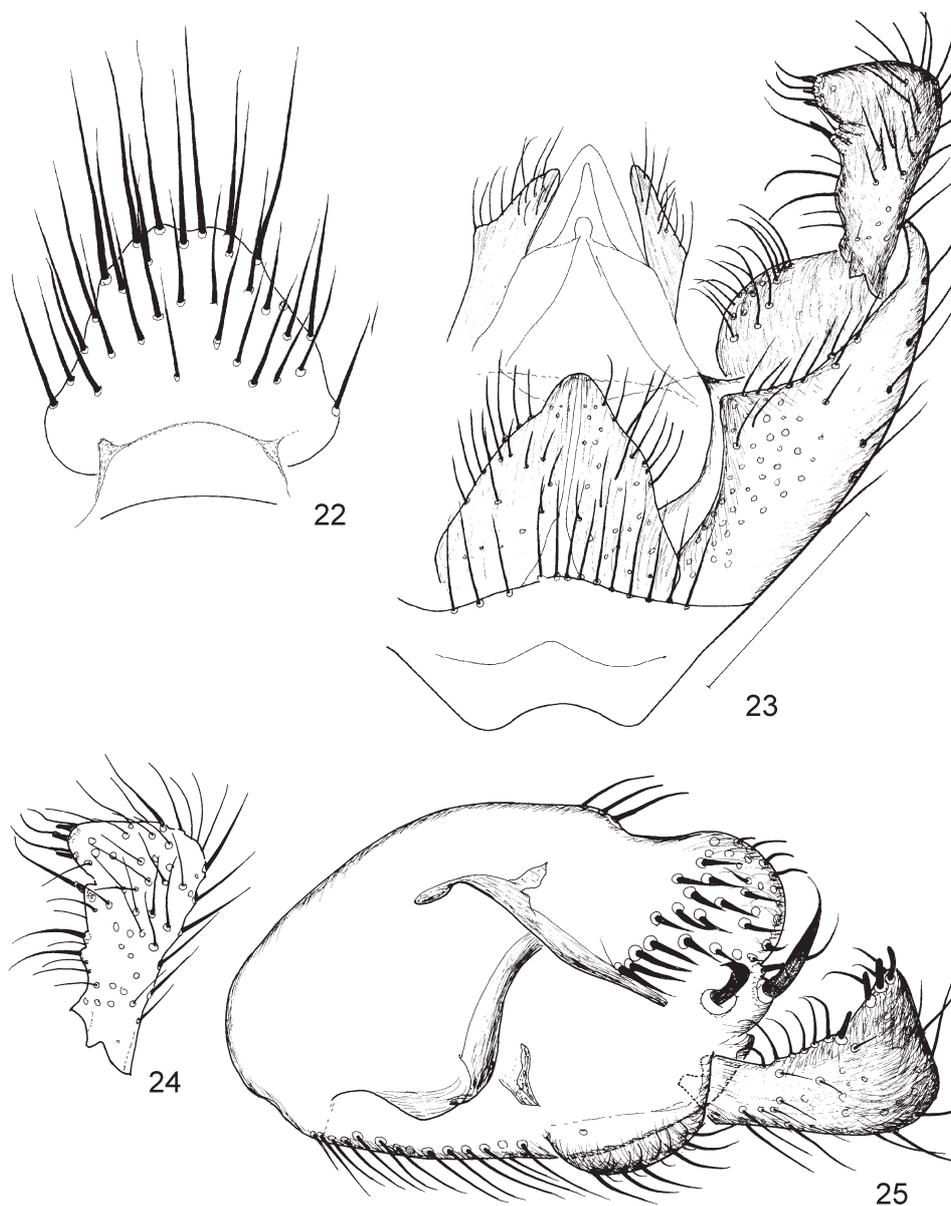
Face 0.165 mm broad at middle (head 0.32 mm broad), with numerous pale setae. Scape, pedicel and two basal flagellomeres yellow, other flagellomeres darker brown. Both the colour and reflection of most of the postocular setulae yellow but some setae about middle height of eye are darker, almost black.

Anepisternum pilose, but katapisternum and laterotergite bare. Scutellar setae not measurable.

Wing light brownish, veins only slightly darker. Costa distinct on 5/6 section to M_1 . Costal section from H to R_1 0.44 mm, from R_1 to R_5 0.815 mm, extant sections of M_1 0.44 mm (to wing margin), M_2 0.925 mm long. Cu_2 distinct to the level of R_1 conjointment with costa.

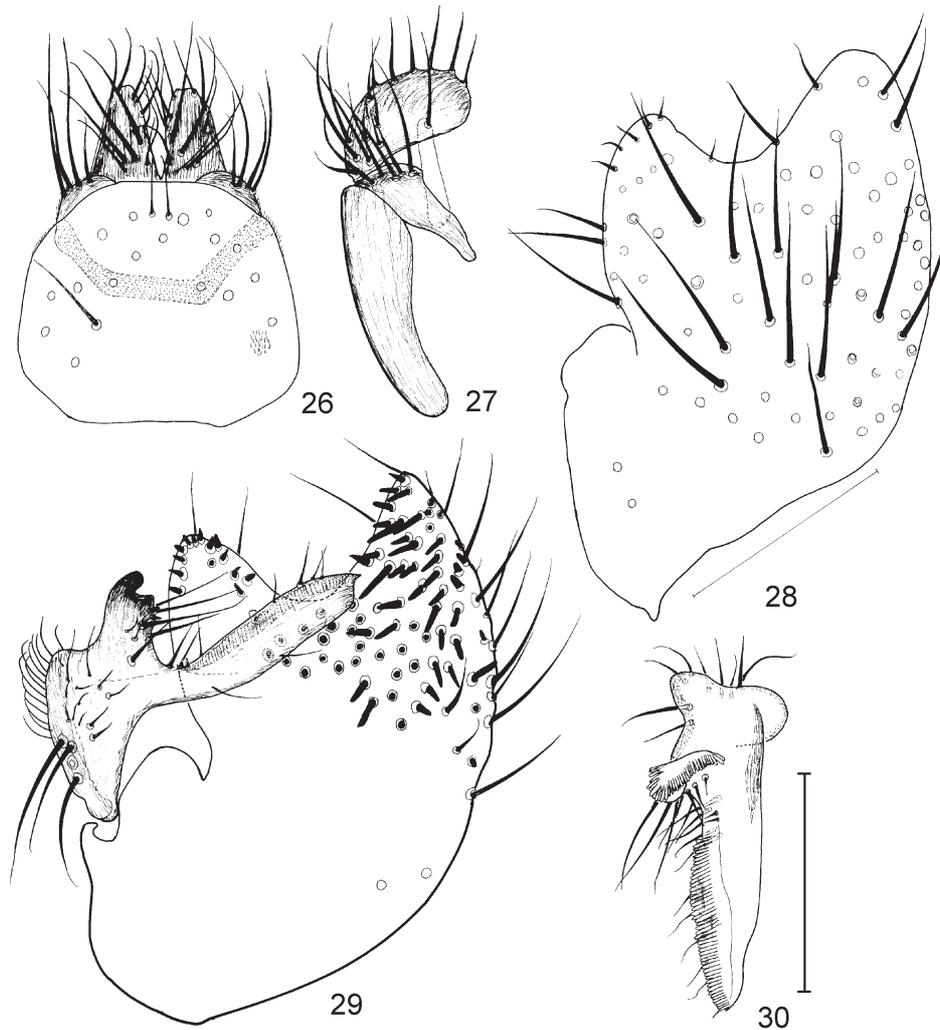
Fore coxa 0.68 mm long, 0.25 mm at broadest, all fore coxal setae yellow. Length of femur, tibia, first tarsomere and tibial spurs (in mm, measured on holotype): fore: 0.495, 0.42, 0.41, 0.24, mid: 0.60, 0.75, 0.54, 0.24, 0.21; hind: 0.69, 1.00, 0.46, and not measurable.

Tergum 9 (Fig. 22) different from the known Palaearctic and Oriental species (see also under *M. delyorum*): as long as broad, narrowing caudally but broadly rounded there, with sparse but very long (and almost evenly long) setae. Gonocoxites broadly separated, edge medially on the medial wall with 2 strong thick, sharp black thorns (Fig 25); thick setae below them are almost perpendicular



Figs 22–25. *Manota meilingae* sp n., holotype male, genitalia: 22 = tergite 9, dorsal view, 23 = right gonocoxite and gonostylus with genitalia, ventral view, 24 = gonostylus, broadest extension, 25 = gonocoxite and gonostylus, medial (inner) view. Scale: 0.1 mm for all

to the wall of gonocoxite, consequently look shorter on Fig. 25 than their real length. No extremely long setae on any part of gonocoxites. Gonostylus broadest subapically, i.e. apical part transverse (Figs 23–24), without long thorns but with medium-long setae and 3 blunt black shorter teeth subapically. Aedeagus subtriangular, weakly sclerotized.



Figs 26–30. *Paramanota schachti* sp. n., paratype male, genitalia: 26–27 = tergite 9 and proctiger: 26 = in broadest extension, subventral (!) view, 27 = in sublateral view; 28 = gonocoxite and gonostylus in broadest extension of the gonostylus, in submedial (inner) view (most of the inner setae point toward us, lateral setae omitted), 29 = gonocoxite in sublateral view (most of the setae omitted, only bases faithfully marked), 30 = gonostylus in caudal view. Scales: 0.2 mm

Etymology: I name this new species after Miss MEI-LING CHAN, assistant curator and Collection Manager of Entomology, Division of Zoology, National Museum of Natural Science, Taichung, Taiwan, for her kind hospitality during our visits in her institution and for the loan of material, incl. the above holotype.

This is a small species of *Manota*. All fore coxal setae and all postocular setae are yellow in contrast to the other Taiwanese species (*M. bilobata*). However, the true distinctive features are in the male genitalia, where the shape of the two strong thick, pointed black thorns on the inner wall of gonocoxite (Fig. 25) seem particularly characteristic.

***Paramanota schachti* sp. n.**

(Figs 26–30)

Holotype male (NMNS, right hind tarsomeres 3–5 lost but otherwise intact): TAIWAN: Nantou Co., Road No. 14. Meifeng, 2100 m, NE of Puli, ca. 24° 05' N/121° 08' E, 25.IX.–3.XI. 1997, Malaise trap, S. Lin & W. T. Yang.

Paratype male (head lost, abdomen with genitalia in glycerol, HNHM): same data.

Measurements in mm: body length 3.32 (holotype), ca. 3.55–3.60 (paratype, 3.27 *without head*), wing length 3.69 (holotype), 3.96 (paratype), wing breadth 1.45 (holotype), 1.52 (paratype).

Scape, pedicel and basal 6 flagellomeres yellow, apical 8 flagellomeres brown. Scape much longer than pedicel, latter one globular. Flagellum 1.48 mm long with 0.03 mm long hairs. Basal flagellomeres flattened laterally, much broader than long (4th flagellomere 0.088 mm long and 0.11 mm broad). Palpus only 0.67 mm long. An eye-bridge of more-than-two-but-less-than-three ommatidia broad present. Ocelli large and close to each other: mid ocellus 0.06 mm broad, distance to laterals 0.045 mm (lateral edge of laterals are within the space defined by antennal bases). Ventral 3/5 of facial plate and clypeus brown, upper part of face yellow.

Length of thorax 1.045 mm (holotype), 1.07 mm (paratype). Scutum dark brown, pleura light brown. Anepisternum, katapisternum, laterotergite and mediotergite all bare.

Wing light brown, veins darker light brown. Veins, incl. A_1 with dorsal macrotrichia, R veins macrosetose also ventrally. Costal vein distinct on ca. 6/7 section to M_1 . Costal fringe short, other marginal hairs of wing very short. Basal trunk of R with 5–6 very long setae dorsally. Subcostal vein upcurved to C but with faint appendix parallel to R_1 , as in fig. 6 of TUOMIKOSKI (1966). Costal length from H to Sc 0.20 mm, Sc to R_1 1.35 mm, R_1 to R_5 1.365 mm. M_1 - M_2 fork and stalk reduced, length of M_1 0.605 mm (holotype), 0.88 mm (paratype), length of M_2 1.67 mm and 1.91 mm (measured from wing margin). Vein M_3 distinct almost to wing margin. Cu_2 very short, distinct on less than 1/3 section of Cu_1 . A_1 though faint, its last seta set only 0.10 mm apart from wing margin. Halteres light brown with ochreous stalk.

Legs light brown. Tibial microchaetae not ordered, or ordered not into parallel rows on apical parts of tibiae. Length of femur, tibia, first tarsomere and tibial spurs (in mm, measured on holotype): fore: 1.00, 0.69, 0.77, 0.20; mid: 1.31, 1.265, 0.92, 0.51, 0.32 (spurs of paratype 0.55, 0.36); hind: 1.36, 2.035, 0.69, 0.517, 0.33.

Abdomen darker brown, with perpendicular long setae laterally on tergites. Abdomen not flattened (cf. TUOMIKOSKI (1966) for *P. orientalis*). Sternites almost as broad as abdomen. Sternites 1 and 2 bare and divided sagittally, sternite 1 with large V-shaped membranous medial area. Lateral setae on tergite 2 extremely long (up to 0.26 mm). Tergites 6 and 7 with long black setae also discally. Sternite 7 as long as tergite 7, tergite 7 nearly as long as tergite 6 (cf. TUOMIKOSKI 1966 for *P. orientalis*). Sternite 8 and tergite 8 both short and lateral in position in relation to the body axis.

Tergite 9 short and broad, i.e. subquadrate (Fig. 26), with 20–21 setae only. Cerci broad and even more deep (Fig. 27), a sclerotized half of a ring inserted between edges of cerci and tergum 9. Gonocoxites not fused medially. Gonocoxal lobes subdorsal in position, consequently tergum 9 and cerci are subventral! Gonocoxite dorsally (i.e. on outer side) with numerous medium-long setae (Fig. 29), ventral (inner) side of both lobes with short strong, mostly blunt, perpendicular, peg-like setae. Gonostylus inserted on the short subventral part of gonocoxite (Fig. 28). Gonostylus (Fig. 30) bilobed: medially directed lobe with a long pecten of short black teeth, caudally directed lobe shorter with a shorter pecten of similar teeth. Aedeagus broad, not much longer than broad, weakly sclerotized. Parameres slender, weakly sclerotized.

Female unknown.

Etymology. I name this new species after Dr WOLFGANG SCHACHT (Zoologisches Staatssammlung, München, Germany), who found the type specimens in the Malaise trap materials of the Taichung Museum, in honour of his activities for the survey in the Diptera fauna of Taiwan.

I have no doubt about the generic relegation of this new species. The male genitalia differ in several respects from those of *P. orientalis*, mainly by its apically bilobed gonocoxal lobe. Also tergite 9 and details of proctiger are different (Fig. 26, cf. fig. 4 of TUOMIKOSKI 1966).

TUOMIKOSKI's (1966) statement about "coxites ... as two broad lobes which are provided with spiny bristles on their dorsal surface" (see his figs 3, 4) may reflect that he was unaware of the extra torsion of the male genitalia in *Paramanota*.

I am the first student, who has had the opportunity to study all four genera of Manotinae simultaneously. I am undecided whether *Paramanota* and the other three genera together form a monophyletic group. The distinct eye bridge is a unique feature, the shape of the subcostal vein is particularly interesting. The ocelli are large and close to each other. Male genitalia are peculiar with more torsion than any other mycetophilids known to me. The reduction of the M_1 - M_2 fork and of its stalk may be a convergent feature in true manotines on the one side, and in *Paramanota* on the other. However, this is only a list of a number of peculiar features, and a proper phylogenetic analysis would be necessary for taking decision.

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