

## Five new species and a new record of *Manota* (Diptera: Mycetophilidae) from Sulawesi

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**Abstract.** The following new species of *Manota* Williston, 1896 (Diptera: Mycetophilidae) are described from South Sulawesi (Indonesia): *Manota abscissa* sp. nov., *M. aciculata* sp. nov., *M. licina* sp. nov., *M. loricata* sp. nov., and *M. paulula* sp. nov. A new record of *M. pectinata* Hippa, 2006 from Sulawesi is also included, which represents the second record of the species from this island. In total, six species of Manotinae are currently known to occur in Sulawesi.

**Key words.** Insecta, Diptera, Sciaroidea, Manotinae, fungus gnats, taxonomy, Indonesia, Oriental Region, Australasian Region

### Introduction

Fungus gnats (Diptera: Mycetophilidae) of the predominantly tropical subfamily Manotinae form a rather uniform and well-defined group that has been proved to be monophyletic in the studies based on both morphological (HIPPA et al. 2005) and molecular characters (ŠEVČÍK et al. 2013). Of the 4 genera included, only *Manota* Williston, 1896 is distributed worldwide with more than 200 described species (cf. HIPPA 2007, HIPPA et al. 2011, HIPPA & KURINA 2012).

The species inventory of the genus *Manota* in the Oriental Region during the past 10 years has raised the number of species from one (SENIOR-WHITE 1922) to 84 (PAPP 2004; HIPPA 2006, 2007, 2008, 2009, 2011; HIPPA & PAPP 2007; HIPPA & ŠEVČÍK 2010). There is also one species in common in the Palearctic Region (HIPPA et al. 2011) and one in the Oceanian Region (HIPPA & PAPP 2007). Most of the species are known from the northern parts of the Oriental Region and only a few from the Indomalayan Archipelago (HIPPA 2008, HIPPA & ŠEVČÍK 2010).

The mycetophilid fauna of the Indonesian island Sulawesi is still poorly known, with only a few species recorded (KURINA 2005, HIPPA & ŠEVČÍK 2010, ŠEVČÍK & HIPPA 2010, ŠEVČÍK & KJÆRANDSEN 2012). Concerning the *Manota* fauna of Sulawesi, only one named species, *M. pectinata* Hippa, 2006, was reported earlier (HIPPA & ŠEVČÍK 2010) and an unnamed species was mentioned by MATILE (1993).

We publish here new data based on the relatively small material from the little-studied southwestern part of the island to demonstrate once again the character of *Manota* as an open-ended taxon in the sense of BICKEL (2009). The number of Manotinae species currently known to occur in Sulawesi now totals 6.

### Material and methods

The material was collected and preserved in ethanol. The abdomen or only the apical part of the abdomen was detached from the specimen and macerated in warm concentrated potassium hydroxide (KOH). We also detached the hypopygium beyond segment 8. After washing in water and dehydration in stages of increasing concentrations of alcohol we mounted them in 'Euparal' between two pieces of cover slip, which allows the specimen to be studied from both sides under a compound microscope. These preparations are now attached to normal microscope slides by two strips of adhesive tape across their edges and are easily detached when needed. Other parts of the body were not macerated, but after dehydration we mounted the whole flies as they were in 'Euparal', lying on their side. The descriptions of the hypopygium should only be taken as rough guidelines to interpret the drawings. The colour of most specimens studied seems rather faded, making the pattern of paler and darker areas difficult to interpret. The morphological terminology follows HIPPA & PAPP (2007) except for the tegmen, which is here called aedeagus. The latter term is more logical because in *Manota* the vas deferens terminates at the apex of this structure. The terminology is also explained in Fig. 1. Illustrations were made with the aid of a drawing tube attached to a Leitz Diaplan compound microscope.

We include Sulawesi in the Oriental Region according to e.g. GROOTAERT (2009).

The material is deposited in the Muséum National d'Histoire Naturelle, Paris (MNHN) and in the private collection of Jan Ševčík (JSOC).

### Taxonomy

#### *Manota abscissa* sp. nov.

(Figs 1A–D)

**Type material.** HOLOTYPE: ♂, INDONESIA: SOUTH SULAWESI: 'Bulusaraung forêt secondaire altitude, au sol, Site 2-1, Grand Malaise 3, 18–27.8.2007, INDO710M1B' (MNHN). PARATYPES: 3 ♂♂ with the same data as holotype; 1 ♂, INDONESIA: SOUTH SULAWESI: 'Bulusaraung, forêt secondaire altitude, 04°55.861'S, 119°45.369'E, 1066 m, Site 1-1, Grand Malaise 1, 18–27.8.2007, INDO708M1B' (MNHN).

**Description of male. Colour.** Head brown, face and clypeus paler brown. Antenna brown or scapus and pedicellus paler brown. Mouth parts yellowish. Thorax pale brown, preepisternum 2 ventrally paler. Legs yellowish, coxa 3 infuscated at base. Wing pale brownish. Halter pale brown with blackish knob. Abdomen brown, sternites paler than tergites. All setosity pale, yellowish or brownish. **Head.** Antennal flagellomere 4, Fig. 1A. Palpomere 3 of maxillary palpus with apicomeres thumb-like extension, with 4–5 apically curved sensilla; palpomere 4 with parasegment; palpomere 5 ca. 1.3 times longer than palpomere 4. Number of strong postocular setae 10–11. **Thorax.** Anepisternum setose, with 42–54 setae; anterior basallare

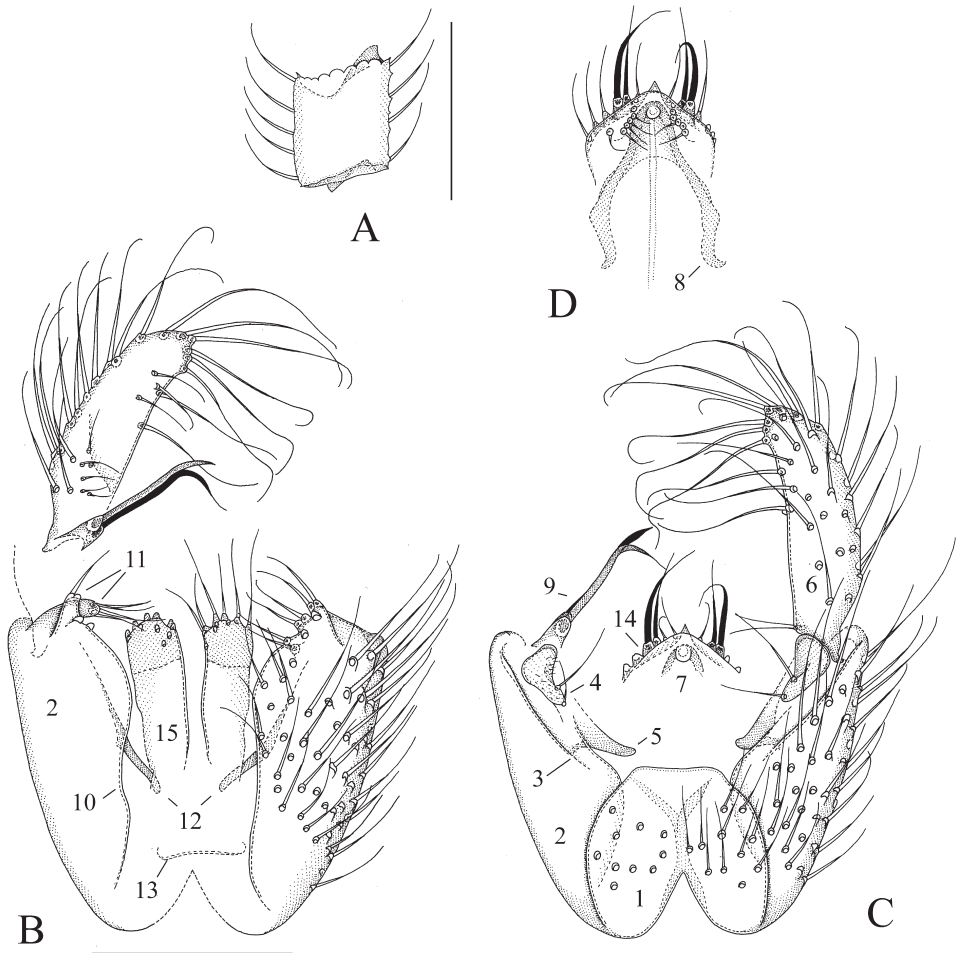


Fig. 1. *Manota abscessa* sp. nov. (holotype). A – antennal flagellomere 4, lateral view. B – hypopygium, dorsal view. C – hypopygium, ventral view. D – hypoproct and aedeagus, ventral view. Scales 0.10 mm. 1 = sternite 9, 2 = gonocoxa, 3 = ventral mesial margin of gonocoxa, 4 = parastylar lobe, 5 = paraapodemal lobe, 6 = gonostylus, 7 = apex of aedeagus, 8 = aedeagal apodeme, 9 = juxtagonostylar setae, 10 = dorsal mesial margin of gonocoxa, 11 = lobes at dorsal posterior margin of gonocoxa, 12 = gonocoxal apodemes, 13 = tergite 9, 14 = hypoproct, 15 = cercus.

non-setose; preepisternum 2 setose, with 15–18 setae; laterotergite setose, with 18–27 setae; episternum 3 setose, with ca. 10 setae. **Legs.** Mid and hind tibial organs absent. **Wing.** R1 meeting C well on the basal half of the costal margin; the sclerotized part of M2 extending near to the level of the tip of R1; wing length 1.6–1.8 mm. **Hypopygium** (Figs 1B–D). Lateral margin of tergite 9 free from the gonocoxa, convex, posterior part submembranous, transverse, not quite reaching the middle of gonocoxa, anterior margin deeply incised, the setae similar to the ventral setae of gonocoxa. Ventral mesial margin of gonocoxa simple; the ventral setae

of gonocoxa unmodified, those at the mesial margin long. Parastylar lobe subtriangular, with two setae at the anterior narrower part. Paraapodemal lobe large. Dorsal mesial margin of gonocoxa simple, slightly bulging towards the medial line on the posterior half, posteriorly with a weak setose lobe. Gonocoxa without any posterolateral lobe. The dorsal setae of gonocoxa unmodified, similar to those on the ventral side. Two juxtagonostylar megasetae, both are similar long, strong megasetae, the ventral one apically curved, the dorsal one apically almost straight, both arising from a common basal body which is ca. one fourth of the length of the megasetae. No other setae on the dorsal side of gonocoxa that deviate from the general setosity. Gonostylus large, elongate. Ventral side of gonostylus with very long setae, except mesially on the basal half non-setose, dorsal side almost non-setose except for a few short setae subbasally and subapically. Aedeagus elongate subtriangular, with weak lateral shoulders. Hypoproct extending posteriorly to the base of gonostyli, number of its ventral setae (sternite 10) ca. 6 on each half, arranged in a row. Cerci mesially separate.

**Differential diagnosis.** Setose anepisternum, setose preepisternum 2, setose laterotergite, simple subtriangular, not apically deeply bilobed or unusually elongated aedeagus and medially separate cerci combine *Manota abscissa* sp. nov. with five other Oriental species: *M. aciculata* sp. nov., *M. angustata* Hippa, 2006, *M. biunculata* Hippa, 2007, *M. inusitata* Hippa & Papp, 2007 and *M. ovata* Hippa, 2006. It is distinguished from *M. aciculata* sp. nov. and *M. inusitata* by lacking megasetae in any position on its gonostylus. It is distinguished from *M. ovata* by having the ventral setae on the hypoproct arranged in a row on both halves, not in a patch, and by having the mesial marginal area on the basal half of the gonostylus non-setose (with long setae in *M. ovata*). It is distinguished from *M. angustata* by lacking a prominent setose lobe apicomediales on the gonostylus.

**Etymology.** The name is a Latin adjective, *abscissus*, *-a*, *-um*, meaning cut off, referring to the dorsal one of the juxtagonostylar megasetae, which seems as if being cut off at the apex.

### *Manota aciculata* sp. nov.

(Figs 2A–D)

**Type material.** HOLOTYPE: ♂, INDONESIA: SOUTH SULAWESI: 'Karaenta, forêt subprimaire sèche, 05°02.633 S, 119°44.316 E, 325 m, sur karst, Borne 25, Grand Malaise 4, 17–26.8.2007, INDO706M1B' (MNHN). PARATYPES: 10 ♂♂ with the same data as holotype (MNHN, JSOC).

**Description of male.** **Colour.** Head brown, face and clypeus paler brown. Antenna brown or scapus and pedicellus paler brown. Mouthparts yellowish. Thorax paler or darker brown. Legs yellowish. Wing pale grayish brown, halter pale brown with blackish knob. Abdomen brown, sternites paler than tergites. All setosity pale, yellowish or brownish. **Head.** Antennal flagellomere 4, Fig. 2A. Palpomere 3 of maxillary palpus with apicomediales thumb-like extension, with 4–5 apically curved sensilla; palpomere 4 with parasegment; palpomere 5 ca. 1.4 times longer than palpomere 4. Number of strong postocular setae 9–11. **Thorax.** Anepisternum setose, with 25–65 setae; anterior basalar non-setose; preepisternum 2 setose, with 5–22 setae; laterotergite setose, with 9–27 setae, episternum 3 setose, with ca. 5–19 setae. **Legs.** Mid and hind tibial organs absent. **Wing.** R1 meeting C well on the basal half of the costal margin; the sclerotized part of M2 extending near to the level of the tip of R1; wing length 1.2–1.7 mm. **Hypopygium** (Figs 2B–D). Lateral margin of tergite 9 free from the gonocoxa,

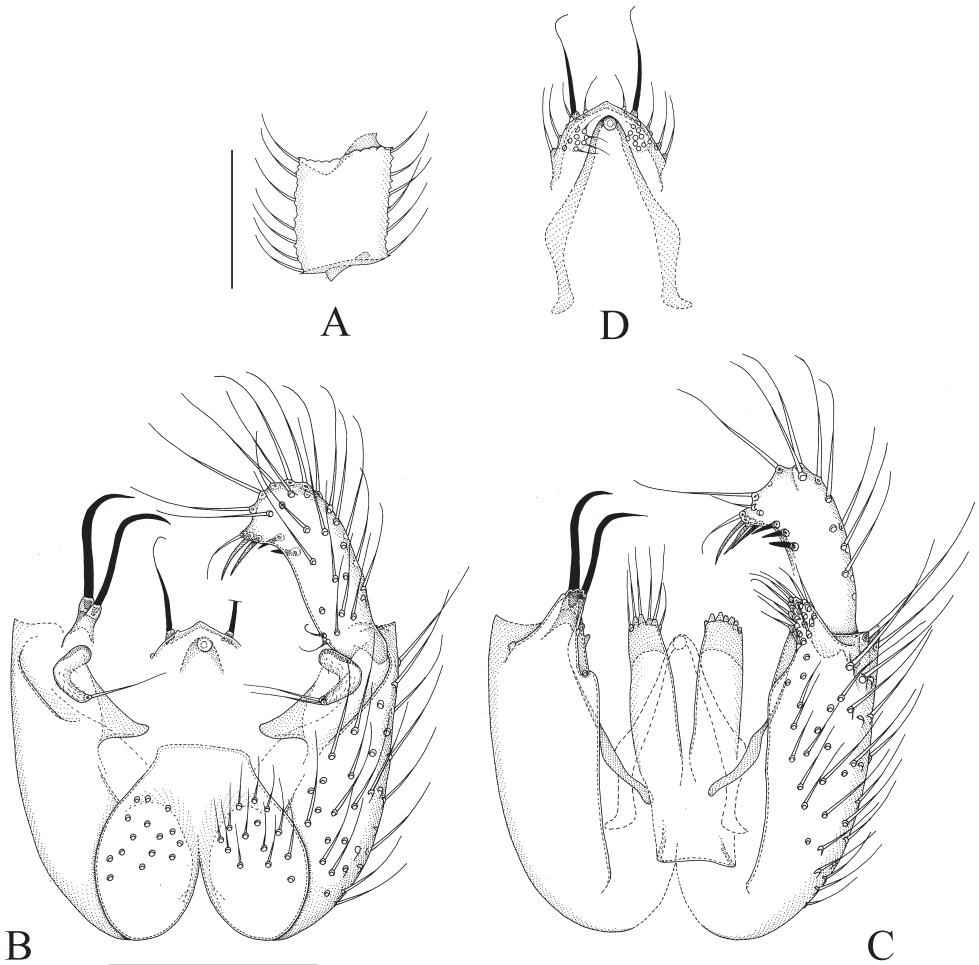


Fig. 2. *Manota aciculata* sp. nov. (A – paratype; B, C, D – holotype). A – antennal flagellomere 4, lateral view. B – hypopygium, ventral view. C – hypopygium, dorsal view. D – hypoproct and aedeagus, ventral view. Scales 0.10 mm.

convex, posterior part submembranous, transverse, extending to the middle of gonocoxa, anterior margin deeply incised, the setae weaker than the ventral setae of gonocoxa. Ventral mesial margin of gonocoxa simple, the ventral setae of gonocoxa unmodified. Parastylar lobe sickle-shaped, with two setae at anterior end. Paraapodemal lobe large. Dorsal mesial margin of gonocoxa simple, posteriorly with a thumb-like setose lobe. Gonocoxa without a posterolateral lobe. The dorsal setae of gonocoxa unmodified, similar to those on the ventral side. Two juxtagonostylar megasetae, both are similar long, strong apically curved megasetae which are arising from a common basal body, about one third of the length of the megasetae. No other

setae on the dorsal side of gonocoxa that deviate from the general setosity. Gonostylus large, elongate, with apicomerial lobe. Ventral side of gonostylus with long setae, dorsal side with similar setae at lateral margin, the apicomerial lobe with a couple of stronger setae deviating from other setosity at its margin and, with a row of 2–3 short subapical, submesial megasetae on the dorsal side. Aedeagus elongate subtriangular, with weak lateral shoulders. Hypoproct extending posteriorly to the middle of gonostyli, number of its ventral setae (sternite 10) ca. 10 on each half, arranged in a group. Cerci mesially separate.

**Differential diagnosis.** Setose anepisternum, setose preepisternum 2, setose laterotergite, apically simple, not deeply bilobed or unusually elongated, aedeagus and medially separate cerci combines *Manota aciculata* sp. nov. with five other Oriental species: *M. abscissa* sp. nov., *M. angustata*, *M. biunculata*, *M. inusitata* and *M. ovata*. It is distinguished from *M. abscissa* sp. nov., *M. angustata* and *M. ovata* by having megasetae on the gonostylus and from *M. inusitata* by having its three short megasetae, much shorter than the width of gonostylus, placed subapically on the dorsal side near the mesial margin, in *M. inusitata* the megasetae are long, longer than the width of gonostylus, and they are placed in a transverse apical row.

**Etmology.** The Name is a Latin adjective, *aciculatus*, *-a*, *-um*, meaning ‘bearing small spines’, referring to the small spine-like megasetae on the gonostylus.

### *Manota licina* sp. nov.

(Figs 3A–E)

**Type material.** HOLOTYPE: ♂, INDONESIA: SOUTH SULAWESI: ‘Bulusaraung forêt secondaire altitude, au sol, Site 2-1, Grand Malaise 3, 18–27.8.2007, INDO710M1B’ (MNHN).

**Description of male. Colour.** Head brown, face and clypeus paler brown. Antenna pale brown. Mouthparts yellowish. Thorax pale brown. Legs yellowish, coxa 3 infuscated at base. Wing pale brownish, halter pale brown with blackish knob. Abdomen brown, sternites very pale. All setosity pale, yellowish or brownish. **Head.** Antennal flagellomere 4, Fig. 3A. Palpomere 3 of maxillary palpus with apicomerial thumb-like extension, with 5 apically curved sensilla; palpomere 4 with parasegment; palpomere 5 ca. 1.4 times longer than palpomere 4. Number of strong postocular setae 11. **Thorax.** Anepisternum setose, with 62 setae; anterior basalare non-setose; preepisternum 2 setose, with 35 setae; laterotergite non-setose; episternum 3 setose, with at least 4 setae (the exact number not countable in the slide). **Legs.** Mid and hind tibial organs absent. **Wing.** R1 meeting C well on the basal half of the costal margin; the sclerotized part of M2 extending near to the level of the tip of R1; wing length 1.6 mm. **Hypopygium** (Figs 3B–E). Lateral margin of tergite 9 free from the gonocoxa, convex, posterior part submembranous, transverse, extending to the middle of gonocoxa, anterior margin deeply incised, the setae weaker than the ventral setae of gonocoxa except for one unusually strong and long seta on each half. Ventral mesial margin of gonocoxa simple, the ventral setae of gonocoxa unmodified. Parastylar lobe elongate subtriangular, with 3 setae at anterior narrower end. Paraapodemal lobe small, in Fig. 3B posteriorly from the parastylar lobe, marked also in Fig. 3C. Dorsal mesial margin of gonocoxa simple, posteriorly with a large thumb-like lobe with an aggregation of blunted megasetae. Gonocoxa with a large posterolateral lobe with a couple of strong setae basolaterally and a few smaller setae on apical part. Otherwise the dorsal

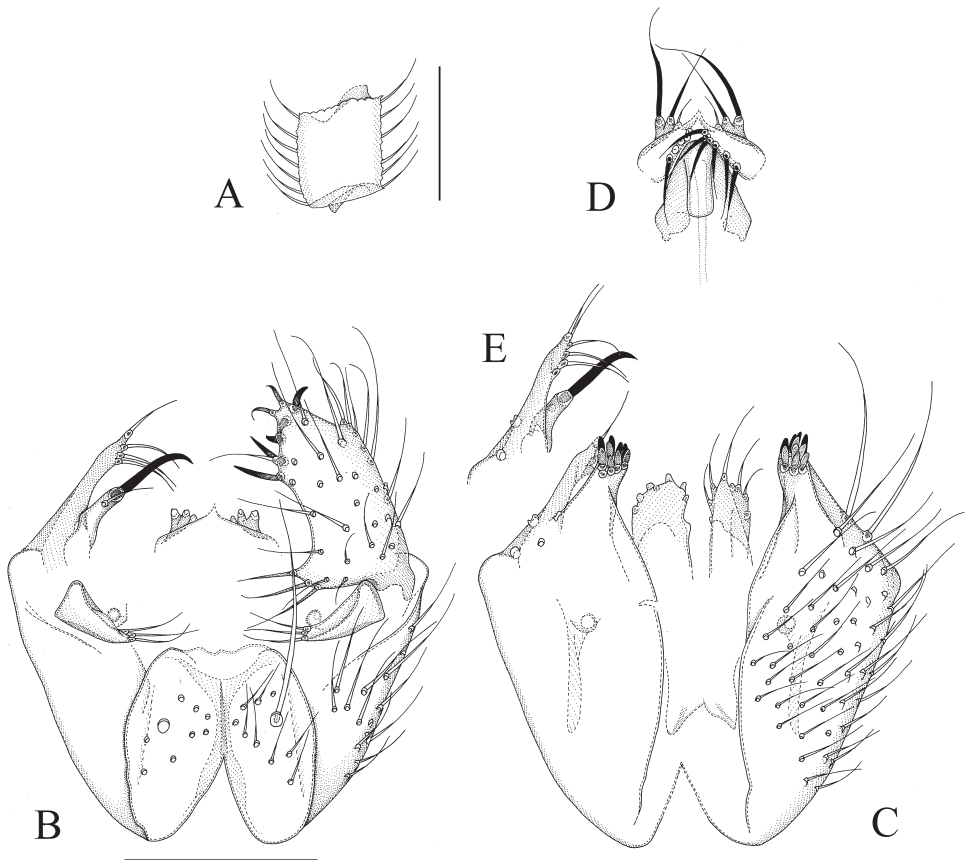


Fig. 3. *Manota licina* sp. nov. (holotype). A – antennal flagellomere 4, lateral view. B – hypopygium, ventral view. C – hypopygium, dorsal view. D – hypoproct and aedeagus, ventral view. E – posterior part of gonocoxa, dorsal view. Scales 0.10 mm.

setae of gonocoxa unmodified, similar to those on the ventral side. Two juxtagonostylar setae present, the dorsal one a stout apically curved megaseta arising from a basal body which is over half the length of megaseta, the ventral one of the juxtagonostylar setae an unmodified seta arising from the side of the basal body of the latter. No other setae on the dorsal side of gonocoxa that deviate from the general setosity. Gonostylus large, broad, with basomesial heel-like lobe, the ventral side setose, the dorsal side largely non-setose, the marginal setae of the heel-like lobe a little stronger than the others, on apical third of gonostylus there are 7 marginal or dorsal megasetae which are curved dorsad. Aedeagus short subtriangular, without distinct lateral shoulders, the apex curved ventrad, the curved part very long; in the single specimen it seems as the aedeagal apodemes have lost contact with the gonocoxal apodemes and the aedeagus may appear in an unnatural position. Hypoproct extending posteriorly to



the middle length of gonostylus, number of its ventral setae (sternite 10) 5–6 on each half, these setae are very strong and are arranged in a row. Cerci mesially separate.

**Differential diagnosis.** *Manota licina* sp. nov. is similar to *M. paulula* sp. nov. For distinguishing characters, see under the latter. These two species are not especially similar to any other *Manota* and they are difficult to run in the key to Oriental and Palearctic *Manota* (see HIPPA 2011). Among the numerous Australasian species with setose anepisternum, setose preepisternum 2, non-setose laterotergite, non-setose anterior basalare, with the ventral setae of the hypoproct arranged in 2 rows flanking the apex of aedeagus, the species are distinguished by their broad flattened gonostylus with a group of strong dorsally directed setae or megasetae at apex and by their juxtagonostylar megasetae consisting of a strong megaseta and a fine unmodified seta arising from the long basal body of the former. *Manota licina* sp. nov. and *M. paulula* sp. nov. are not quite different from *M. gemella* Hippa, 2007 from Amboine, Maluku Utara, Indonesia. Also it has similar juxtagonostylar setae, the ventral setae of the hypoproct are arranged almost in rows and the posterodorsal lobes of the gonocoxa are similar to *M. paulula* sp. nov. Apicomesially on the gonostylus, on the dorsal side, there is a row of curved setae, but they are weak and in this respect different from the strong setae in *M. licina* sp. nov. and *M. paulula* sp. nov. *Manota gemella* differs from the both others by having a small lobe near the middle of the mesial margin of gonostylus. All the three species have the setae on tergite 9 strikingly different in size. In the general appearance of their hypopygium all the discussed species may recall the Oceanian *M. bicuspis* Hippa, 2007, *M. evexa* Hippa, 2007, *M. hamulata* Colless, 1966, *M. orthacantha* Hippa, 2007, *M. pacifica* Edwards, 1928, *M. parilis* Hippa, 2007, *M. pentacatha* Hippa, 2007, *M. sricula* Hippa, 2007, as well as the Oriental *M. acehensis* Hippa & Ševčík, 2010 but differ by having the ventral setae of hypoproct in a row, not widely spread on the ventral surface.

**Etymology.** The name is a Latin adjective, *licinus*, *-a*, *-um*, meaning bent upwards, referring to the dorsally bent megasetae at the apex of the gonostylus.

### *Manota loricata* sp. nov.

(Figs 4A–D)

**Type material.** HOLOTYPE: ♂, INDONESIA: SOUTH SULAWESI: 'Bulusaraung, forêt secondaire altitude, 04°55.861'S, 119°45.369'E, 1066 m, Site 1-1, Grand Malaise 1, 18–27.8.2007, INDO708M1B' (MNHN).

**Description of male.** **Colour.** Head dark brown, face and clypeus brown. Antenna brown, scapus, pedicellus and three basal flagellomeres paler brown. Mouthparts yellowish. Thorax brown, preepisternum 2 ventrally paler. Legs yellowish, coxa 3 infuscated at base. Wing brownish, halter pale brown with blackish knob. Abdomen brown, sternites paler than tergites. All setosity pale, yellowish or brownish. **Head.** Antennal flagellomere 4, Fig. 4A. Palpomere 3 of maxillary palpus with apicomesimal thumb-like extension, with 4 apically curved sensilla; palpomere 4 with poorly expressed parasegment; palpomere 5 ca. 1.3 times longer than palpomere 4. Number of strong postocular setae 10. **Thorax.** Anepisternum setose, with 43 setae; anterior basalare setose, with 15 setae; preepisternum 2 setose, with 11 setae; laterotergite setose, with 30 setae; episternum 3 setose, with 11 setae. **Legs.** Mid and hind tibial organs absent. **Wing.** R1 meeting C well on the basal half of the costal margin; the sclerotized part of M 2 extending near to the level of the tip of R1; wing length 1.7 mm. **Hypopygium** (Figs



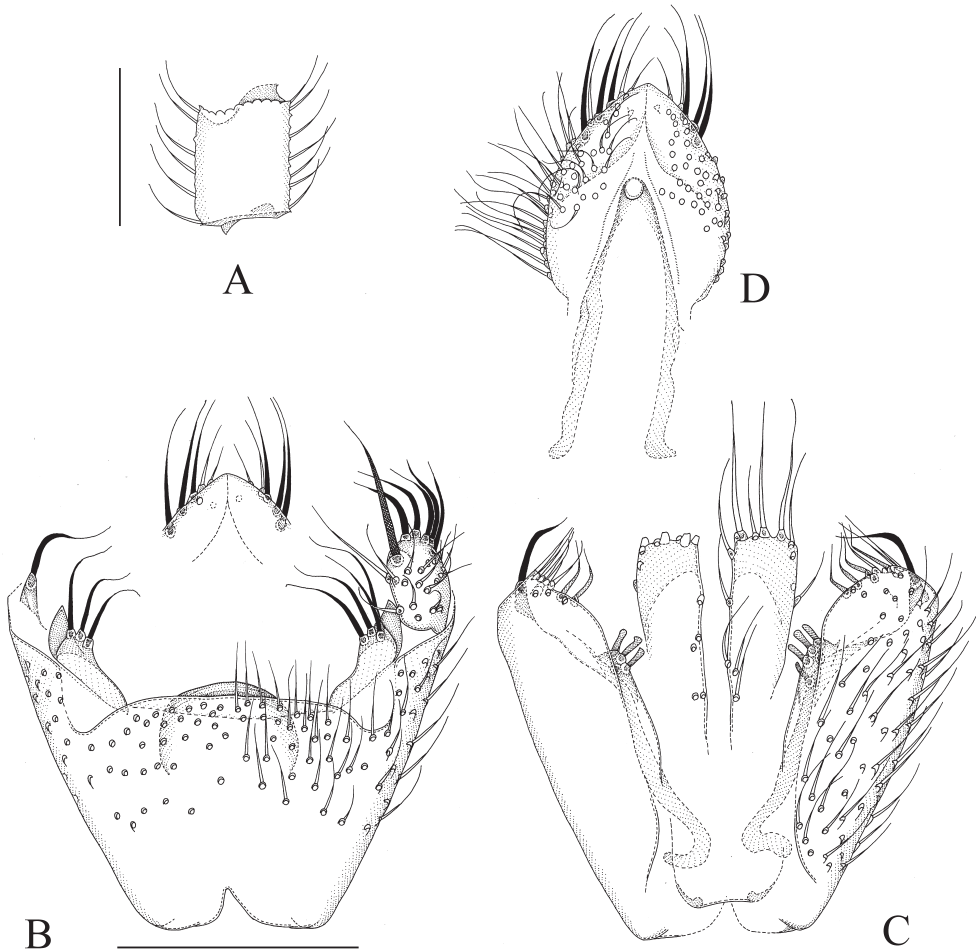


Fig. 4. *Manota loricata* sp. nov. (holotype). A – antennal flagellomere 4, lateral view. B – hypopygium, ventral view. C – hypopygium, dorsal view. D – hypoproct and aedeagus, ventral view. Scales 0.10 mm.

4B–D): Tergite 9 laterally fused with gonocoxa, posterior margin extending well over the middle length of gonocoxa, anterior margin deeply incised, the setae similar to ventral setae of the gonocoxa. On the dorsal side of the posterior part of sternite 9 there is a semicircular sclerotized lobe. Ventral mesial margin of gonocoxa simple, the ventral setae of gonocoxa unmodified. Parastylar lobe large, bilobed, with 3–4 very strong setae. Paraapodemal lobe not identifiable. Dorsal mesial margin of gonocoxa simple, posteriorly with a few conspicuous angled setae. Gonocoxa without a posterolateral lobe. Otherwise the dorsal setae of gonocoxa unmodified, similar to those on the ventral side. One juxtagonostylar seta present, it is a curved acute megaseta arising from basal body which is ca. one third of the length of

the seta. Anteriorly from the juxtagonostylar megaseta there is a plate-like lobe bearing 4–5 short blunted megasetae. Gonostylus small oval, with indistinct mesial lobe, the ventral side setose, dorsal side non-setose, the mesial lobe with a very strong long seta, the apical margin with strong curved setae. Aedeagus elongate subtriangular, without distinct lateral shoulders, the apex curved ventrad. Hypoproct large, extending posteriorly over the apices of gonostyli, number of its ventral setae (sternite 10) ca. 30, these setae widely distributed over the ventral surface. Cerci mesially separate.

**Differential diagnosis.** *Manota loricata* sp. nov. belongs to a large group of species which have setose anepisternum, setose laterotergite, setose anterior basalare and which have the sternite 9 laterally fused with the gonocoxa. It differs from all by having a sclerotized semi-circular lobe dorsally from the posterior part of tergite 9. This lobe is evidently homologous with a more or less large membranous part in the same position seen in a number of the reminiscent species. In the key to Oriental and Palaearctic *Manota* (cf. HIPPA 2011), *M. loricata* sp. nov. runs to *M. simplex* Hippa, 2006 known from Borneo, Peninsular Malaysia and Thailand. The modified setae posteriorly on the dorsal mesial margin of the gonocoxa are in *M. loricata* sp. nov. less modified, longer and more like usual setae when compared with the almost megaseta-like flame-shaped setae in *M. simplex*. Further, *M. loricata* sp. nov. differs from *M. simplex* by having a well-developed juxtagonostylar megaseta, by having fewer megasetae on the lobe at the dorsal mesial margin of the gonocoxa (4–5 contra ca. 10) and by having a short oval gonostylus with unusually strong setae instead of an elongated gonostylus with only fine setae. The short oval shape of the gonostylus with the coarse setosity and the extremely coarse setosity of the parastylar lobe alone distinguish *M. loricata* sp. nov. from any other known *Manota*.

**Etymology.** The name is a Latin adjective, *loricatus*, *-a*, *-um*, meaning ‘with cuirass’, referring to the cuirass-like lobe at the male tergite 9.

### *Manota paulula* sp. nov.

(Figs 5A–D)

**Type material.** HOLOTYPE: ♂, INDONESIA: SOUTH SULAWESI: ‘Karaenta, forêt subprimaire sèche, 05°01.662’S, 119°44.392’E, 254 m, au sol, Borne 27, Grand Malaise 2, 17–26.8.2007, INDO704M1B’ (MNHN).

**Description of male.** **Colour.** Head brown, face and clypeus paler brown. Antenna pale brown. Mouthparts yellowish. Thorax pale brown. Legs yellowish, coxa 3 infuscated at base. Wing pale greyish brown, halter pale brown with blackish knob. Abdomen brown, sternites very pale. All setosity pale, yellowish or brownish. **Head.** Antennal flagellomere 4, Fig. 5A. Palpomere 3 of maxillary palpus with apicomésial thumb-like extension, with 5 apically curved sensilla; palpomere 4 with parasegment; palpomere 5 ca. 1.4 times longer than palpomere 4. Number of strong postocular setae 9. **Thorax.** Anepisternum setose, with 49 setae; anterior basalare non-setose; preepisternum 2 setose, with 30 setae; laterotergite non-setose; episternum 3 setose, with 12 setae. **Legs.** Mid and hind tibial organs absent. **Wing.** R1 meeting C well on the basal half of the costal margin; the sclerotized part of M2 extending near to the level of the tip of R1; wing length 1.4 mm. **Hypopygium** (Figs 5B–D). Lateral margin of tergite 9 free from the gonocoxa, curved, posterior part submembranous, convex, extending to the middle of gonocoxa, anterior margin deeply incised, the setae varying in size, some being weaker

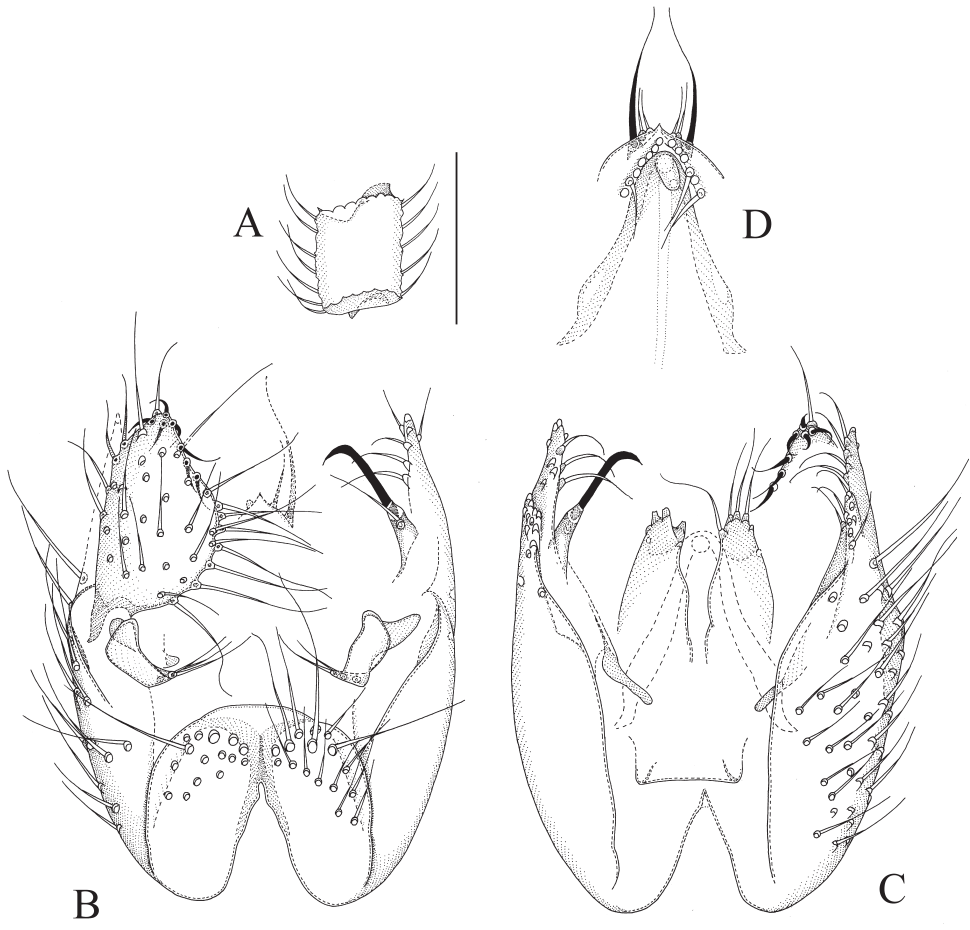


Fig. 5. *Manota paulula* sp. nov. (holotype). A – antennal flagellomere 4, lateral view. B – hypopygium, ventral view. C – hypopygium, dorsal view. D – hypoproct and aedeagus, ventral view. Scales 0.10 mm.

than the setae on the gonocoxa, some equal in size and a few even stronger. Ventral mesial margin of gonocoxa simple, the ventral setae of gonocoxa unmodified. Parastylar lobe elongate subquadrangular, basally rather distinctly bilobed, with 3 setae at anterior end. Paraapodemal lobe small, in Fig. 5B seen posteriorly from the parastylar lobe. Dorsal mesial margin of gonocoxa simple, posteriorly with a ridge-like setose lobe. Gonocoxa with a large posterolateral lobe with a couple of setae basolaterally and a few setae on apical part. Otherwise the dorsal setae of gonocoxa unmodified, similar to those on the ventral side. Two juxtagonostylar setae present, the dorsal one a stout apically curved megaseta arising from a basal body which is over half the length of megaseta, the ventral one of the juxtagonostylar setae an unmodified seta arising from the side of the basal body of the latter. No other setae on the dorsal side of

gonocoxa that deviate from the general setosity. Gonostylus large, broad, almost semicircular, the ventral side setose, the dorsal side largely non-setose, at apical and apicomerial margin there are ca. 7 short setae curving dorsad. Aedeagus elongate subtriangular, without distinct lateral shoulders, the apex curved ventrad, the curved part long. Hypoproct extending posteriorly to the middle length of gonostyli, number of its ventral setae (sternite 10) 6–7 on each half, these setae very strong and arranged in a row. Cerci mesially separate.

**Differential diagnosis.** *Manota paulula* sp. nov. is similar to *M. licina* sp. nov.. The species can, however, easily be distinguished by the following characters: 1) in *M. paulula* sp. nov. the setosity on sternite 9 includes several weaker and stronger setae, in *M. licina* sp. nov. the setae are weak except for one very strong and long seta on both sides, 2) in *M. paulula* sp. nov. the basomesial part of gonostylus is rounded, in *M. licina* sp. nov. there is a heel-like lobe, 3) in *M. paulula* sp. nov. there are seven strong setae at the apical margin of the gonostylus, in *M. licina* sp. nov. these setae are thick megasetae, and 4) in *M. paulula* sp. nov. the posteromesial lobe on the dorsal side of the gonocoxa is weak and with usual setae, in *M. licina* sp. nov. the lobe is strong and apically armed with numerous blunted megasetae.

**Etymology.** The name is a Latin adjective, *paululus*, *-a*, *-um*, meaning ‘very small’, referring to the small size of the fly.

## New record

### *Manota pectinata* Hippa, 2006

**Material examined.** 1 ♂, INDONESIA: SOUTH SULAWESI: ‘Bulusaraung, forêt secondaire altitude, au sol, Site 2-1, Grand Malaise 3, 18–27.8.2007, INDO710M1B’ (MNHN).

**Remarks.** This is a widespread species, hitherto known from Thailand (HIPPA & PAPP 2007), Peninsular Malaysia (HIPPA 2006), Sabah (Borneo), and Dumoga Bone National Park in North Sulawesi (HIPPA & ŠEVČÍK 2010).

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