New East African species of *Manota* (Diptera, Mycetophilidae)

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Eight new species of *Manota* are added to the African fauna, thus increasing the number of African species from 10 to 18. The new species are *Manota furcata* n.sp., *M. joerni* n.sp., *M. mazumbaiensis* n.sp., *M. montana* n.sp., *M. serrata* n.sp., *M. sespinaea* n.sp., *M. styloides* n.sp. and *M. tridactyla* n.sp. All species are recorded from the West Usambara Mts., NE Tanzania. A key for the identification of the new species is given.

Nouvelles espèces du genre Manota *d'Afrique orientale (Diptera, Mycetophilidae).* - Huit nouvelles espèces de *Manota* s'ajoutent à la faune africaine, le nombre des espèces africaines passe de 10 à 18. Les nouvelles espèces sont *Manota furcata* n.sp., *M. joerni* n.sp., *M. mazumbaiensis* n.sp., *M. montana* n.sp., *M. serrata* n.sp., *M. sespinaea* n.sp., *M. styloides* n.sp. et *M. tridactyla* n.sp. Toutes les espèces ont été trouvées dans la montagne d'Usambara, Tanzania. Une clé d'identification est fournie.

Key words: Mycetophilidae, *Manota*, new species, Afrotropical region, Tanzania.

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INTRODUCTION

The four genera, *Manota* Williston, 1896, *Eumanota* Edwards, 1933, *Paramanota* Tuomikoski, 1966 and *Promanota* Tuomikoski, 1966 are today generally considered as a subfamily in the family Mycetophilidae (Vockeroth, 1981; Matile, 1980). However, the systematic position of this, evidently monophyletic group, has varied through time, and it has frequently been treated as a separate family, Manotidae (e.g. Krivosheina & Mamaev, 1988). A historical review with an emended description of the subfamily is given by Tuomikoski (1966). The most recent contribution to the discussion about the systematical position of Manotinae is given by Zaitzev (1990), suggesting a sister group relationship between Manotinae and the subfamily Sciophilinae in the Mycetophilidae.

The genus *Manota* was described on one species, *M. defecta* from St. Vincent, West Indies (Williston, 1896: 260). Later altogether 17 species have been described from the Palaearctic, Afrotropical, Neotropical, Oriental and Australian region. In addition, one undescribed species has been recognized from the Nearctic (Vockeroth, 1981) Up to present, ten species are known from the Afrotropical region (Matile, 1980): *aureonigra* Matile, 1978, *crassiseta* Matile, 1978, *flavipes* Enderlein, 1910, *fusca* Matile, 1972, *issongo* Matile, 1972,

lachaisei Matile, 1972, *mabokeensis* Matile, 1972, *nigra* Matile, 1972, *saepium* Matile, 1972 and *teocchii* Matile, 1972. Of these, *aureonigra* and *crassiseta* have been recorded from the Comoro Island, *flavipes* from the Seychelles, *lachaisei* from the Ivory Coast, and the remaining from the Central African Republic and Cameroon. Descriptions and drawings of genitalia for all these species are given by Matile (1972, 1978). Three species, *fusca*, *nigra* and *saepium*, are described on females only.

MATERIAL AND METHODS

The present work is based on material collected during an expedition arranged by the Museum of Zoology, University of Bergen, Norway, to locations in the montane evergreen forests in the West Usambara Mountains, NE Tanzania in 1990. A thorough description of the vegetation in these areas is given by Iversen (1991). The field work, which included an extensive use of Malaise traps and sweep net, was mainly executed in the Mazumbai Forest Reserve in the eastern part of the West Usambara. In addition, samples obtained from the same area by a trap operated in 1991 were added to the material. *Manota* is usually considered to be rare (e.g. Matile, 1978), but was well represented in this area. Of a total of 41 males and 19 females, eight species were recognised. Two females could not be identified.

All holotypes and most paratypes were slide mounted in Canada balsam. Drawings were made while the cleared abdomen was placed in glycerol, which makes it possible to manipulate the position of the genitalia. The entire material is deposited in the Museum of Zoology, University of Bergen, Norway (ZMBN), but paratypes will be returned to Tanzania.

The terminology used in the morphological descriptions follows McAlpine (1981). Mesonotum is measured from prescutum to apex of scutellum. Wing length is measured from arculus (ar) to apex of wing (Fig. 1). Palpal ratio is given as the relative length of palpomere III to IV and V (III:IV:V). Two leg ratios, LR (leg ratio) and SV (Schenkel-Schiene-Verhältnis), each calculated for the fore-, mid- and hind legs, are given. LR gives the length of tarsus I to tibia, and SV the length of femur + tibia to tarsus I.

Due to the great resemblance in external morphology, it has been necessary to include some characters which are best studied in microscopic slides. Characters common to all species and some characters considered to be of little taxonomical importance, i.e. that vary within species, are only mentioned in the general description of the morphology. Where nothing else is stated in the species description, characters in females as in males.

GENERAL MORPHOLOGY

Head (Figs 1 and 2). - Eyes hairy. Three ocelli situated on top of head in a more or less straight line; median ocellus usually about half the size of laterals. Lateral ocellus is situated about half its own width from the eye margin, and about 1 to 1.5 times its own width from the median ocellus. Occiput brown with a row of 10-12 strong projecting setae on each side. Antennae inserted above the middle of the head. Flagellum with 14 flagellomeres. Each flagellomere is laterally flattened. Flagellum shorter, and each flagellomere more compressed in females. Flagellum 1.6 to 2.2 times as long as mesonotum in males, and about 0.7 to 1.5 times in females. Scapus and pedicellus brown to yellowish, flagellum brown, but flagellomere I to III may be somewhat paler. Face whitish to light brown with numerous brown setae;

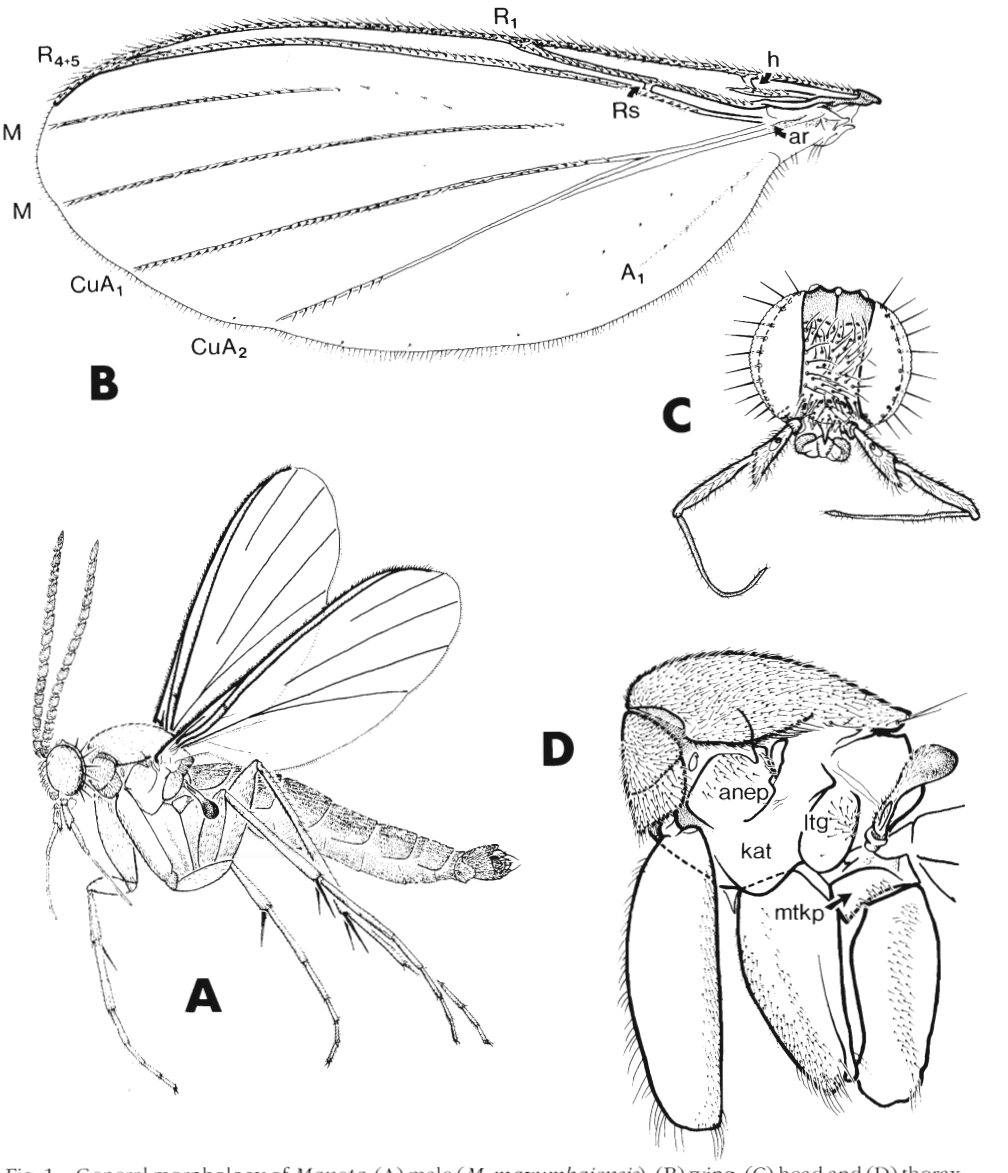

Fig. 1. - General morphology of *Manota*. (A) male (*M. mazumbaiensis*), (B) wing, (C) head and (D) thorax. Abbreviations: A_1, anal vein; anep, anepisternum; ar, arculus; CuA_1, CuA_2, anterior branches of cubitus; h, humeral; ltg, laterotergite; M_1, M_2, posterior branches of media; mtkp, metakatepisternum; kat, katepisternum; R_1, anterior branch of radius; R_{4+5}, fused posterior branches of radius; Rs, radial sector.

clypeus yellowish with about 20 yellow setae. Each stipes presented as a separate, triangular sclerite ventrally of the labial palpus, below the maxillary segment (Fig. 2). Each stipes with 6 to 12 setae. Each palpus 5-segmented, basal segment very small. Third palpomere with sensory pit on basal half and with 3 to 4 strong, curved setae apically. Fourth palpomere attached about 1/2 to 1/3 from apex of third palpomere, and may bear a small knob-like processus apically. Labella small with pseudotracheae and prestomal teeth.

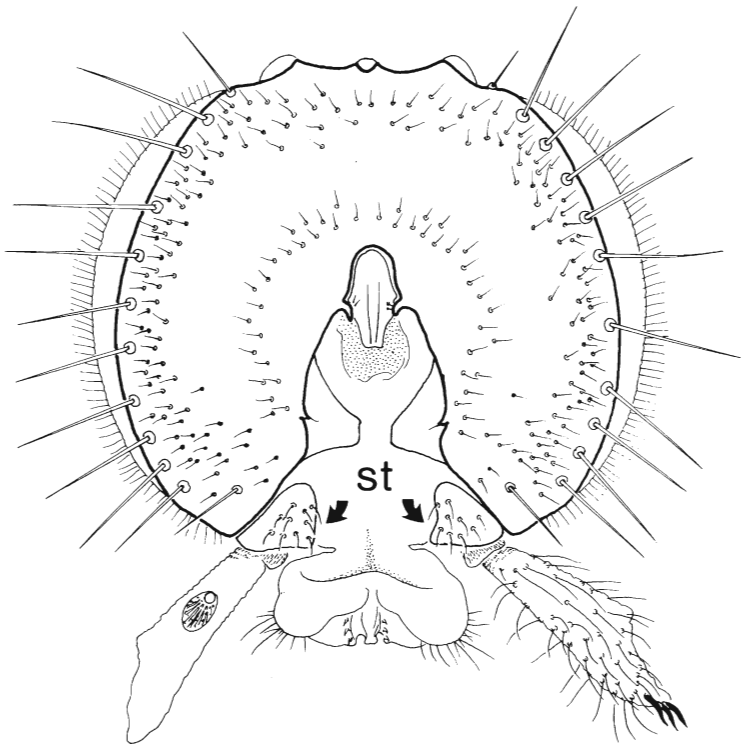

Fig. 2. - Head of *M. mazumbaiensis* (posterior view) showing the position of stipes (st).

Thorax (Figs 1, 3 and 4). - Scutum light to dark brown, sometimes somewhat darker medially, covered with fine setae. Scutellum with 2-6 strong, erect setae. Thoracic sclerites brown, usually somewhat paler than scutum. Antepronotum and proepisternum both strongly setose and fused along a transverse suture. Anepisternum partly divided dorsally by the anepisternal cleft, into a large anterior and a much smaller posterior part. Anterior part always with setae, posterior with or without setae. The anepisternal cleft may be deep or shallow (Fig. 3). Ventrally anepisternum is more or less fused with katepisternum; anapleural suture indistinct. Katepisternum with or without setae ventrally. Laterotergite bare or with setae. Mediotergite bare. Metakatepisternum with several small setae, which position may vary between species (Fig. 4). Knob of halter dark brown. - Wing membrane brownish with numerous microtrichia, irregularly arranged. Venation reduced (Fig. 1). Subcosta small, setose, and ending free. Crossvein h faint, but usually traceable. R_1 ending in costa well before middle of wing, R_{4+5} near apex of wing. A small crossvein between these two, Rs, is traceable. Costa produced well beyond tip of R_{4+5}. Stem of media and basal section of M_1 and M_2 reduced, but may sometimes be traced as a row of setae. CuA_1 and CuA_2 both long with a short common stem. A_1 present. A restricted number of small setae situated in a line between CuA_2 and A_1 probably represent a fold line. - Coxa pale yellowish to light brown, mid and hind femur usually somewhat darker, especially in proximal and distal ends. Apex of fore tibia with an ovate, depressed area antereoventrally, equipped with numerous yellow trichia. Trichia and setae on tibia arranged in regular rows. Except for three strong and several small apical setae on fore tibia, a

restricted number of dorsal, and posterior setae may be present. Tibial spurs (1 : 2 : 2) well developed, serrate. Tarsal claws with two teeth. Empodium present.

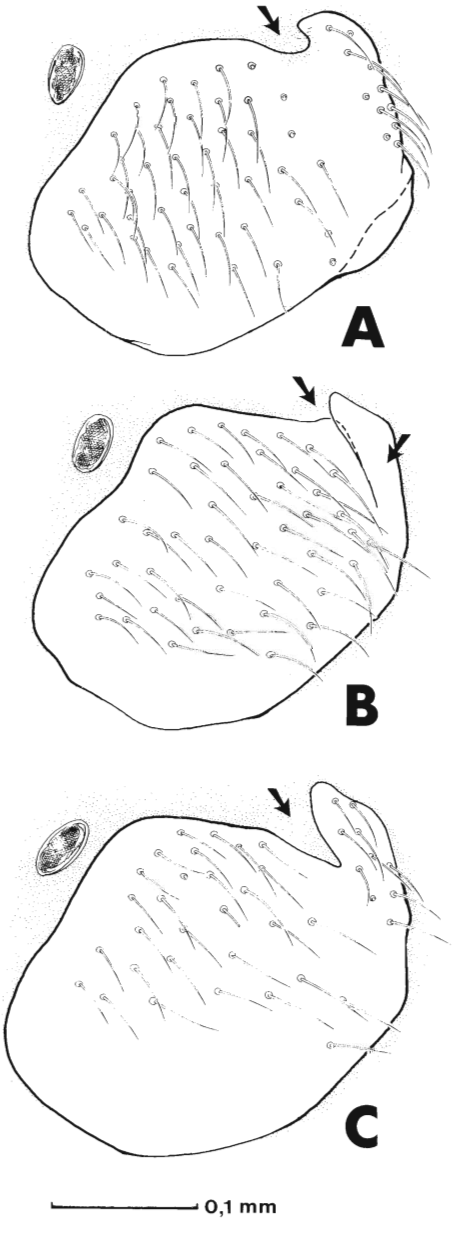

Fig. 3. - Anepisternum of (A) *M. montana* (B) *M. joerni* and (C) *M. mazumbaiensis*.

Abdomen. - Tergites light brown to brown, sternites light brown. - Male. Abdominal segments 7 and 8 reduced. Tergite 8 (Tg 8) forming an ovate sclerite above the gonocoxite. Sternite 9 (St 9) may be traceable as a separate sclerite, but more often fused with the gonocoxites, thus forming a ventrally closed hypandrium. Tergite 9 membraneous. Aedeagus variable in shape, attached basally to the gonocoxal apodemes. Epiproct membraneous. Cerci well developed with numerous setae. Hypoproct distinct, often more or less triangular with several apical setae. Gonocoxites with a number of megasetae apically and along the mediodorsal border, varying in both shape and position. A pair of simple or bilobed gonostyli always present. Each lobe may bear several apical, straight or curved setae. - Female. Sternite 8 with two apical lobes, each with numerous setae. Four strong protuberances behind Tergite 8, each with a very long, curved seta, probably represent parts of the reduced Segment 9 and/or 10. Cercus I large and fused along most of, or entire median margin, cercus II small. Epiproct well developed with ventrolateral extensions surrounding the more or less triangular hypoproct. Hypoproct with 2 to 6 strong apical setae. Spermatheca sac-like, membraneous. Spermathecal ducts join just before, or well before the gonopore.

All species here described show great similarities to the species described from Central Africa and the Comoro Islands, but can be easily distinguished on details in the male genitalia (see Matile, 1972, 1978). Three of these species are described on females only, but differ both in the colouration of the occiput (black in *nigra* and *fusca*), face, flagellum, mesonotum and mesopleuron (all black in *nigra*), in the uniform colouration of the scutum (three longitudinal bands in *fusca*) and in the outlining of the lobes on Sternite 8 (very strong apical setae in *saepium*).

DESCRIPTIONS

Manota joerni n. sp.

(Figs 3b, 5a and 7a)

Material

Holotype ♂ (ZMBN 132): TANZANIA, Tanga region, W.Usambara Mts., Mazumbai, 2.-6.11.1990. Paratypes: Same locality, 2 ♂ 2.-6.11.1990, 2 ♀ 12-20.11.1990, 1 ♂ 1 ♀ 20.-26.11.1990, 1 ♂ 26.-29.11.1990, 6 ♂ 2 ♀ (Allotype) 4.-12.02.1991.

Etymology

Named after the botanist Jørn E. Bjørndalen.

Diagnostic characters

The only species with the combination laterotergite bare and katepisternum with setae.

Description

Male (n=5). - Flagellum 1.6 to 1.7 times as long as mesonotum. - Head. Flagellum 1.27-1.38 mm. Flagellomere VI about twice as long as wide. Stipes with 11-13 setae. Sensory pit on third palpomere elongated. Palpomere 4 with a distinct, small processus apically. Palpal ratio: 1 : 1.3 : 1.6-1.8. - Thorax. Length of mesonotum: 0.74-0.90 mm. Anepisternum with 36 to 53 setae. Anepisternal cleft distinct and posterior lobe bare (Fig.3b). Katepisternum with 10-24 setae. Laterotergite bare. Metakatepisternum with 19-25 setae. - Wings. Total length: 2.00-2.23 mm. - Legs. Fore tibia with 4-5 dorsal and 0-2 posterior setae. LR: 1.08-1.26, 0.71-0.73, 0.45-0.48; SV: 1.95-2.21, 2.49-2.60, 3.62-3.93. - Genitalia (Fig. 5a). St9 present as a round sclerite ventrally of the gonocoxite. Hypoproct with 2 strong, apical setae. Apical part of each gonocoxite with a group of dark setae dorsally, a median processus with one seta and a ventral processus with one long, apically rounded seta. Gonostylus large, simple, and laterally flattened with numerous ventral setae.

Female (n=5). - Flagellum 0.7 to 0.9 times as long as mesonotum. - Head. Flagellum 0.67-0.74 mm. Flagellomere

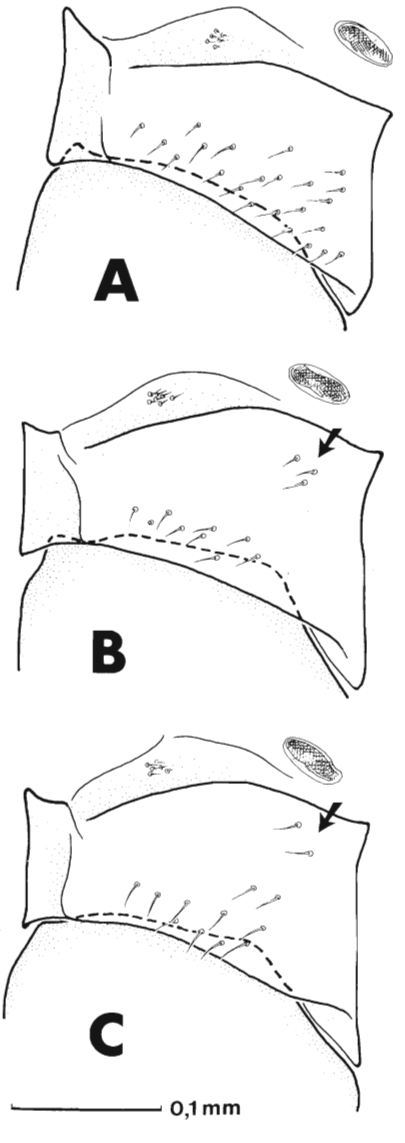

Fig. 4. - Metakatepisternum of (A) *M. tridactyla* - male, (B) *M. styloides* - male and (C) *M. styloides* - female.

VI about as long or slightly longer than wide. Stipes with 10-15 setae. Palpal ratio: 1 : 1.3-1.5 : 1.7-2.0. - Thorax. Scutum and scutellum 0.83-0.94 mm. Anepisternum with 47 to 59 setae. Katepisternum with 14-30 setae. Laterotergite bare. Metakatepisternum with 18-25 setae. - Wings. Total length: 2.16-2.37 mm. - Legs. Fore tibia with 5-7 dorsal and 0-3 posterior setae. LR: 1.19-1.27, 0.71-0.77, 0.44-0.49; SV: 1.89-2.04, 2.43-2.56, 3.70-4.00. - Genitalia (Fig. 7a). Spermathecal ducts joining just before gonopore. Hypoproct with two strong apiical setae.

Manota furcata n. sp.

(Fig. 5b)

Material

Holotype ♂ (ZMBN 133): TANZANIA, Tanga region, W.Usambara Mts., Mazumbai, 20.-26.11.1990. Paratypes: Same locality, 1♂ 2.-6.11.1990,1♂ 26.-29.11.1990.

Etymology

From latin, *furca*, fork, referring to the bilobed apical setae on the male gonocoxite.

Diagnostic characters

The only species which lacks setae on both laterotergite and katepisternum.

Description

Male (n=3). - Flagellum 1.6 to 1.7 times as long as mesonotum. - Head. Length of flagellum: 1.26-1.39 mm. Flagellomere VI about twice as long as wide. Stipes with 3-6 setae. Sensory pit on third palpomere rounded. Fifth palpomere attached a small distance from apex of fourth. Palpal ratio: 1 : 1.8-1.9 : 1.9-2.4. - Thorax. Length of mesonotum: 0.74-0.85 mm. Anepisternum with 42-47 setae. Anepisternal cleft distinct, and posterior lobe wide and bare. Katepisternum and laterotergite bare. Metakatepisternum with 6-11 setae. - Wings. Total length : 1.93-2.16 mm. - Legs. Fore tibia with 4-6 dorsal and 2-3 posterior setae. LR: 1.11-1.20, 0.71-0.78, 0.44-0.45; SV: 2.19-2.30, 2.48-2.67, 3.96-4.03. - Genitalia (Fig. 5b). Tg8 with apical border jagged, and with a deep incision medially. St 9 partly fused with the gonocoxites. Hypoproct with numerous apical setae. Dorsomedial border of each gonocoxite with numerous megasetae, among them a peculiar, forked seta situated apically. Gonostylus large, broad and simple.

Female unknown.

Manota serrata n. sp.

(Figs 5c and 7b)

Material

Holotype ♂ (ZMBN No. 134): TANZANIA, Tanga region, W.Usambara Mts., Mazumbai, 26.-29.11.1990. Paratypes: Same locality, 2♂ 2.-6.11.1990, 1♂ (Allotype) 12.-20.11.1990, 4♂ 1♀ 20.-26.11.1990, 1♂ 26.-29.11.1990, 1♀ 26.11.-4.12.1990.

Etymology

From latin, *serratus*, serrated, referring to the outlining of the male gonocoxite.

Diagnostic characters

Together with *sespinaea* the only species with setae on both katepisternum and laterotergite, but the two species can only be separated on characters in the genitalia.

Description

Male (n=5). - Flagellum 1.9 times as long as mesonotum. - Head. Length of flagellum: 1.24-1.49 mm. Flagellomere VI about two times as long as wide. Stipes with 7-11 setae. Sensory pit on

third palpomere elongated. Palpal ratio: 1 : 1.6-1.9 : 2.3-2.6. - Thorax. Length of mesonotum: 0.63-0.83 mm. Anepisternum with 19-43 setae. Anepisternal cleft distinct, and posterior lobe with 9-16 setae. Laterotergite with 23-37 setae. Katepisternum with 2-7 setae. Metakatepisternum with 6-15 setae. - Wings. Total length: 1.84-2.09 mm. - Legs. Fore tibia with 3-5 dorsal setae. LR: 1.15-1.28, 0.72-0.77, 0.44-0.48; SV: 2.04-2.13, 2.44-2.58, 3.70-3.92. - Genitalia (Fig. 5c). St9 not traceable, apparently fused with the gonocoxites. Hypoproct with numerous apical setae. Dorsomedial border of each gonocoxite with a row of 8 to 10 strong setae, situated close together. Apical part of gonocoxites with a membraneous, flattened lobe ventrally, bearing 2 setae, and a distinct, club-shaped megaseta dorsally. Gonostylus shallowly bilobed, somewhat flattened with numerous curved setae dorsally, and one strong apicoventral seta.

Female (n=2). - Flagellum 1.0 to 1.1 times as long as mesonotum. - Head. Length of flagellum: 0.83-0.91 mm. Flagellomere VI 1.3 to 1.4 times as long as wide. Stipes with 6-9 setae. Palpal ratio: 1 : 1.6-1.9 : 2.3-2.6. - Thorax. Length of mesonotum: 0.82-0.83 mm. Anepisternum with 37-38 setae. Anepisternal cleft distinct, and posterior lobe with 11-13 setae. Laterotergite with 42-46 setae. Katepisternum with 5 setae. Metakatepisternum with 17 setae. - Wings. Total length: 2.16-2.19 mm. - Legs. Fore tibia with 4-5 dorsal setae. LR: 1.15, 0.76, 0.47-0.50; SV: 2.08-2.13, 2.43, 3.55-3.67. - Genitalia (Fig. 7b). Cercus I completely fused. Hypoproct rounded, 6 strong apical setae situated in a more or less straight line. Spermathecal duct joining distinctly before gonopore.

***Manota sespinaea* n. sp.**

(Figs 5d and 7c)

Material

Holotype ♂ (ZMBN 135): TANZANIA, Tanga region, W.Usambara Mts., Mazumbai, 31.10.1990. Paratypes: Same locality, 1 ♂ 3.11.1990, 1 ♀ (Allotype) 20.-26.11.1990, 1♂ 26.11.1990.

Etymology

From latin, *sex*, six, and *spinae*, spines, referring to the number of megasetae on the male gonocoxite.

Diagnostic characters

Together with *serrata* the only species with setae on both katepisternum and laterotergite, but the two species can only be separated on characters in the genitalia.

Description

Males (n=3). - Flagellum 1.9 to 2.2 times as long as mesonotum. - Head. Length of flagellum: 1.71-1.81 mm. Flagellomere VI 2.3 to 2.4 times as long as wide. Stipes with 4-7 setae. Sensory pit on third palpomere elongated. Palpomere 4 without apical processus. Palpal ratio: 1 : 1.4-1.6 : 2.1-2.6. - Thorax. Length of mesonotum: 0.78-0.87 mm. Anepisternum with 17-23 setae. Anepisternal cleft distinct, and posterior lobe with 10-16 setae. Katepisternum with 4-10 setae. Laterotergite with 26-31 setae. Metakatepisternum with 15-16 setae. - Wings. Total length 2.12-2.32 mm. - Legs. Fore tibia with 5-6 dorsal and 1-2 posterior setae. LR: 1.13-1.25, 0.70-0.73, 0.45-0.46; SV: 2.00-2.07, 2.55-2.64, 3.76-3.85. - Genitalia (Fig. 5d). Close to *serrata*. Hypoproct with a wide, setose apical margin. Dorsomedial border of gonocoxite with an irregular row of 6 well separated setae. Apical part of each gonocoxite with a ventral membraneous processus with 2-3 curved setae. Gonostylus shallowly bilobed, dorsally rounded, and with 2 strong apicoventral setae.

Female (n=1). - Flagellum 1.5 times as long as mesonotum. - Head. Length of flagellum: 0.88 mm. Flagellomere VI

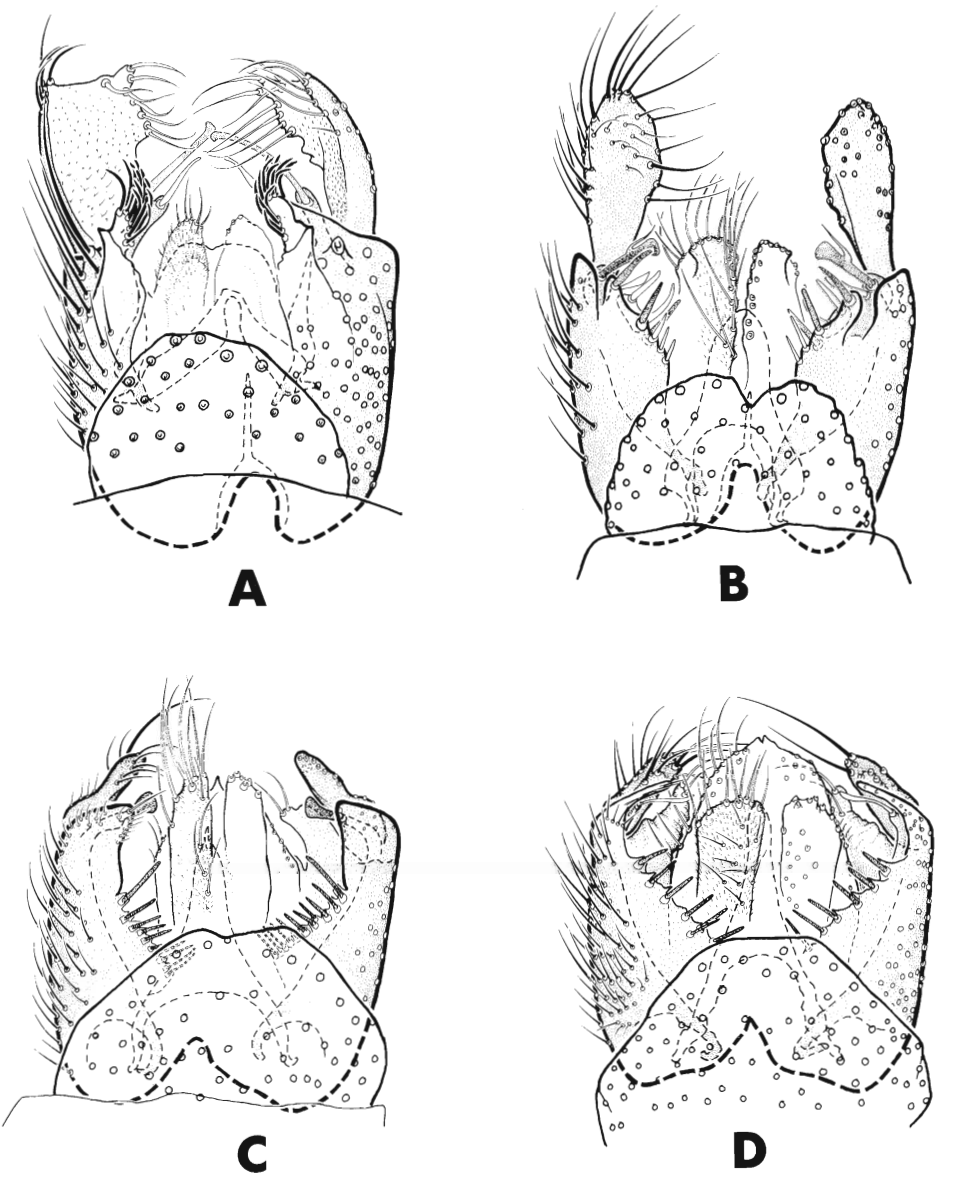

Fig. 5. - Male genitalia, dorsal view, of (A) *M. joerni*; (B) *M. furcata*; (C) *M. serrata* and (D) *M. sespinaea*.

about 1.5 times as long as wide. Stipes with 4-5 setae. Palpal ratio: 1: 1.3 : 2.2. - Thorax. Length of mesonotum: 0.61 mm. Anepisternum with 14 setae. Anepisternal cleft distinct, and posterior lobe with 12 setae. Katepisternum with 6 setae. Laterotergite with 25 setae. Metakatepisternum with 18 setae. - Wings. Total length 2.05 mm. - Legs. Fore tibia with 4 dorsal and 1 posterior setae. LR: 1.22, 0.72, 0.49; SV: 2.04, 2.55, 3.61. - Genitalia (Fig. 7c). Very close to *M. serrata*. Cercus 1 completely fused. Hypoproct tapered; 6 strong apical setae situated in a triangular arrangement. Spermathecal duct joining distinctly before gonopore.

Manota tridactyla n. sp.

(Figs 4a and 6a)

Material

Holotype ♂ (ZMBN 138): TANZANIA, Tanga region, W.Usambara Mts., Mazumbai, 2.-6.11.1990. Paratype: Same locality, 1 ♂ 4.-12.02.1991.

Etymology

From greek, *treis*, three, and *dactylos*, fingers, referring to the outlining of the median apodeme on the male gonocoxite.

Diagnostic characters

Laterotergite with setae, katepisternum bare, anepisternal cleft distinct and metakatepisternum with more than 20 setae.

Description

Male (n=2). - Flagellum 1.8 to 1.9 times as long as mesonotum. - Head. Length of flagellum: 1.33-1.71 mm. Flagellomere VI about three times as long as wide. Stipes with 9-12 setae. Sensory pit on third palpomere elongated. Palpal ratio: 1: 1.6-1.7 : 2.5-2.7. - Thorax. Length of mesonotum: 0.74-0.88 mm. Anepisternum with 31 to 47 setae. Anepisternal cleft distinct and posterior lobe with 7-8 setae. Katepisternum bare. Laterotergite with 31-36 setae. Metakatepisternum with 23-27 setae (Fig. 4a). - Legs. Fore tibia with 2-3 dorsal setae. LR: 1.10-1.18, 0.73-0.75, 0.46; SV: 2.03-2.09, 2.52-2.53, 3.82-3.87. - Wings. Total length: 1.84-2.34 mm. - Genitalia (Fig. 6a). Tg8 broad and shield like, with a small median incision. Gonocoxites fused along a distinct ventromedian line. Hypoproct tapered with several apical setae. Gonocoxite with a dorsomedial lobe bearing 3 megasetae, in addition to 4 apical megasetae. Gonostylus weakly sclerotized, bilobed with a small median processus. Dorsal lobe small; ventral lobe pointed with numerous setae.

Female unknown.

Manota styloides n. sp.

(Figs 4b, 4c and 6b)

Material

Holotype ♂ (ZMBN 150): TANZANIA, Tanga region, W.Usambara Mts., Mazumbai, 26.11.1990. Paratypes: Same locality, 1 ♂ 3 ♀ (Allotype) 26.11.-4.12.1990; Tanga region, W.Usambara Mts., Mponde Forest, 1 ♂ 30.11.-6.12.1990.

Etymology

From greek, *stylos*, a style, referring to the sharp, pointed setae found apically on the male gonocoxite.

Diagnostic characters

Katepisternum bare, laterotergite with setae and metakatepisternum with less than 15 setae, of which at least one, usually 3-4, are situated anteriodorsally.

Description

Males (n=3). - Flagellum 1.8 to 1.9 times as long as mesonotum. - Head. Length of flagellum : 1.27 -1.40 mm. Flagellomere VI about 2 times as long as wide. Stipes with 8-10 setae. Palpomere 4 without apical processus. Sensory pit elongated. Palpal ratio: 1 : 1.4-1.6 : 2.4. - Thorax. Length of mesonotum: 0.69-0.76 mm. Anepisternum with 32-44 setae. Anepisternal cleft distinct, and posterior lobe with 5-8 setae. Katepisternum bare and laterotergite with 26-40 setae. Metakatepisternum with 12-13 setae of which a group of 3 to 4 is situated anteriodorsally (Fig. 4b). - Wings. Total length: 1.84-2.02 mm. - Legs. Fore tibia with 2-3 dorsal setae. LR: 1.05-1.10, 0.70-0.78, 0.46; SV: 2.15-2.23, 2.40-2.65, 3.80-3.86. - Genitalia (Fig. 6b). Hypoproct with numerous apical setae. Dorsomedial border of gonocoxite with a distinct protuberance, bearing 3-5

megasetae situated close together. Apical part of gonocoxite with a small median processus with one sharp, style-like seta. Gonostylus bilobed. Dorsal lobe small, ventral with 4 strong apical setae.

Females (n=3). - Flagellum 0.9 to 1.1 times as long as mesonotum. - Head. Length of flagellum : 0.71-0.77 mm. Flagellomere VI 1.2 to 1.3 times as long as wide. Stipes with 7-8 setae. Palpal ratio: 1 : 1.4-1.6 : 2.1-2.5. - Thorax. Length of mesonotum: 0.70-0.83 mm. Anepisternum with 32-44 setae. Anepisternal cleft distinct, and posterior lobe with 3-10 setae. Katepisternum bare and laterotergite with 28-40 setae. Metakatepisternum with 12-15 setae of which a group of 1 to 4 is situated anteriodorsally (Fig. 4c). - Wings. Total length: 2.05-2.23 mm. - Legs. Fore tibia with 2 dorsal setae. LR: 1.10-1.14, 0.75-0.79, 0.48-0.52; SV: 2.12-2.18, 2.38-2.15, 3.43-3.72. - Genitalia. Very close to *montana* and *mazumbaiensis*. Tg8 much smaller than in *mazumbaiensis*, but the species can not be separated from *styloides* based on structures in the female genitalia.

***Manota mazumbaiensis* n. sp.**

(Figs 2, 3c and 6c)

Material

Holotype ♀ (ZMBN 136): TANZANIA, Tanga region, W.Usambara Mts., Mazumbai, 26.-29.11.1990. Paratypes: Same locality, 3 ♂♂ 1 ♀ (Allotype) 2.-6.11.1990, 1 ♂ 4.-6.11.1990, 1 ♀ 7.-12.11.1990, 1 ♂ 26.11.-4.12.1990, 1 ♂ 26.-29.11.1990, 1 ♂ 1.-8.06.1991.

Etymology

Named after the Mazumbai Village in the West Usambara Mts., Tanzania.

Diagnostic characters

Katepisternum bare, laterotergite with setae, anepisternal cleft distinct and metakatepisternum with less than 15 setae of which none are situated anteriodorsally.

Description

Males (n= 5). - Flagellum 1.9 to 2.0 times as long as mesonotum. - Head. Length of flagellum:1.33-1.72 mm. Flagellomere VI about 2 times as long as wide. Stipes with 9-11 setae. Sensory pit on third palpomere elongated. Palpomere 4 without apical processus. Palpal ratio: 1 : 1.4-1.6 : 2.1-2.5. - Thorax. Length of mesonotum: 0.76-0.92 mm. Anepisternum with 28-42 setae. Anepisternal cleft distinct, and posterior lobe with 6-10 setae (Fig. 3c). Katepisternum bare and laterotergite with 16-29 setae. Metakatepisternum with 7-13 setae. - Wings. Total length 1.91-2.28 mm. - Legs. Fore tibia with 1-2 dorsal setae. LR: 1.11-1.19, 0.71-0.75, 0.44-0.46; SV: 2.08-2.15, 2.50-2.64, 3.82-4.00. - Genitalia (Fig. 6c). Apical border of Tg8 jagged with several long setae. Hypoproct with numerous apical setae. Dorsomedial border of each gonocoxite with one distinct spatula-like megaseta; apical part with a group of two blunt and one broad, spatula-like megasetae. Gonostylus bilobed. Dorsal lobe rounded with numerous curved setae; ventral lobe with 3 strong setae.

Female (n=2). - Flagellum 1.3 to 1.4 times as long as mesonotum. - Head. Length of flagellum: 0.95-1.23 mm. Flagellomere VI about 1.4 times as long as wide. Stipes with 10-12 setae. Palpal ratio: 1 : 1.6 : 2.6. - Thorax. Length of mesonotum: 0.7-0.9 mm. Anepisternum with 23-36 setae. Anepisternal cleft distinct, and posterior lobe with 7-11 setae (Fig. 3c). Katepisternum bare and laterotergite with 16-35 setae. Metakatepisternum with 10-13 setae. - Wings. Total length 2.12-2.30 mm. - Legs. Fore tibia with 2 dorsal setae. LR: 1.15-1.23, 0.74-0.75, 0.49-0.50; SV: 1.96-2.09, 2.50-2.51, 3.51-3.63. - Genitalia. Very close to

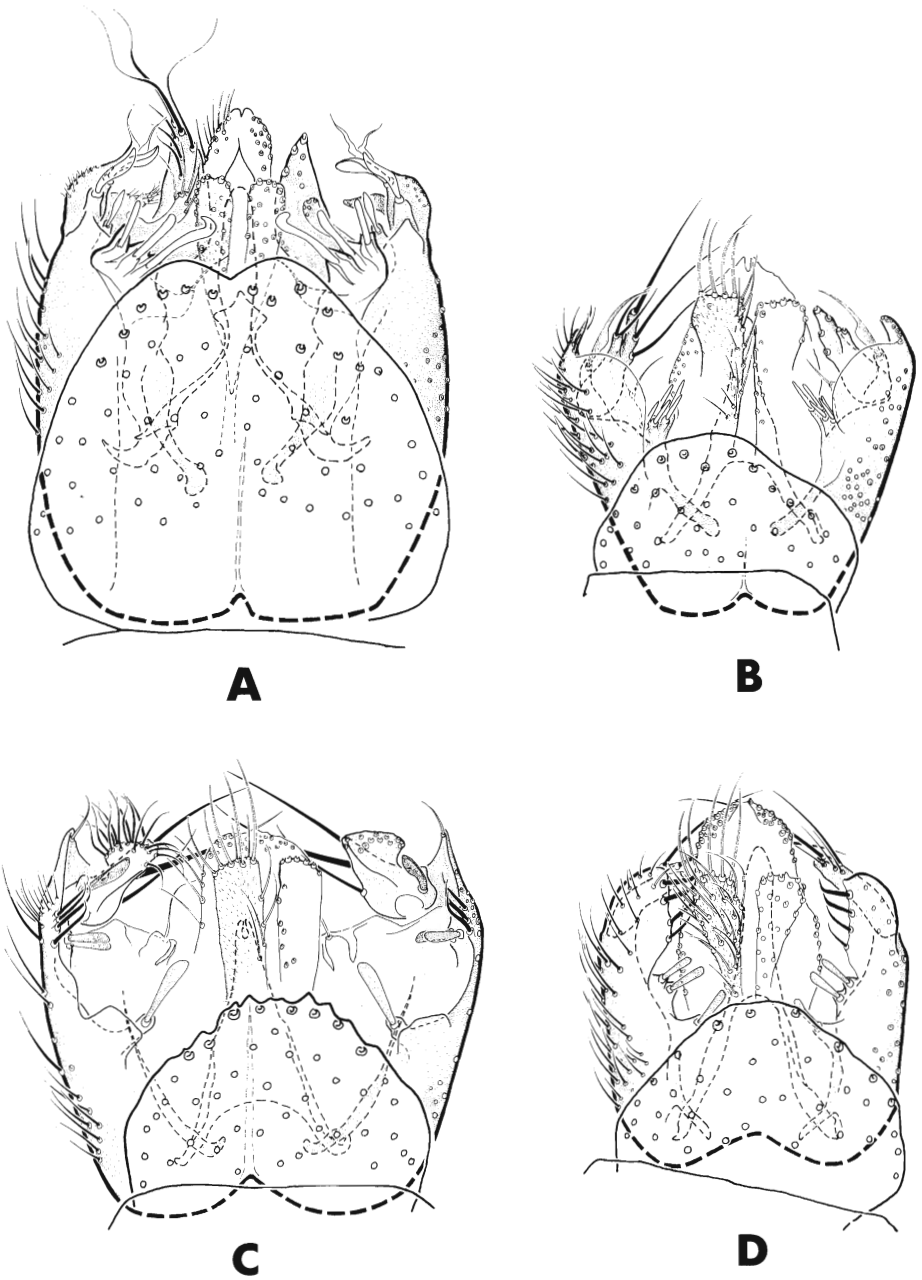

Fig. 6. - Male genitalia, dorsal view, of (A) *M. tridactyla*; (B) *M. styloides*; (C) *M. mazumbaiensis* and (D) *M. montana*.

montana and *styloides*, but apical setae on Tg8 stronger and much longer than in these species, more than half as long as cercus I.

***Manota montana* n. sp.**
(Figs 3a, 6d and 7d)

Material

Holotype♂ (ZMBN 137): TANZANIA,

Tanga region, W.Usambara Mts., Mazumbai, 20.-26.11.1990. Paratype: Same locality, 1♀ 30.10.1990, 1 ♀ (Allotype) 2.-6.11.1990.

Etymology

From latin, *montanus*, belonging to the mountains.

Diagnostic characters

Katepisternum bare, laterotergite with setae, anepisternal cleft weak and metakatepisternum with 11-23 setae, of which none are situated anteriodorsally.

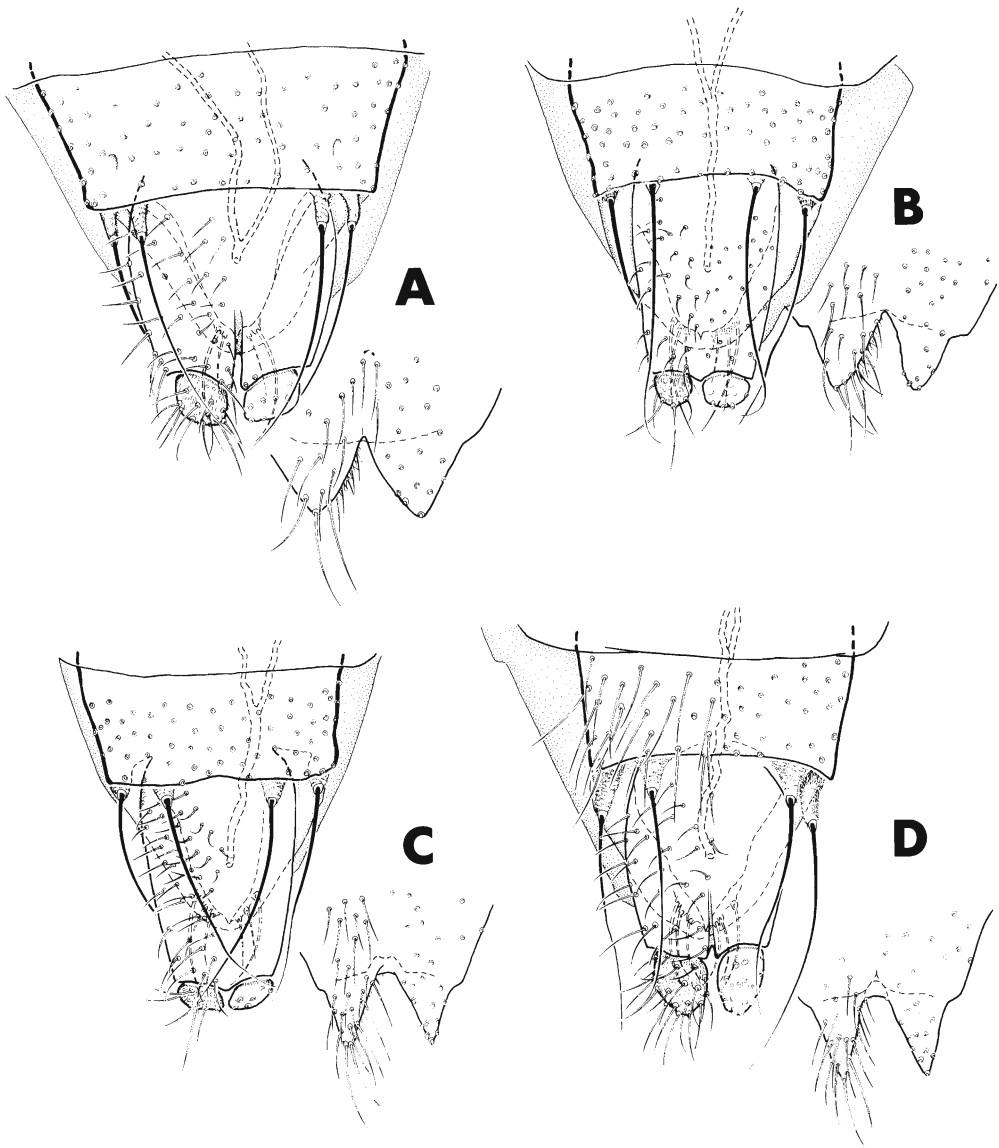

Fig. 7. - Female genitalia of (A) *M. joerni*, (B) *M. serrata*, (C) *M. sespinaea* and (D) *M. montana*. Left: dorsal view (hypoproct with terminal setae and spermathecal ducts shown in broken lines) ; right: lobes of sternite 8.

Description

Males (n=2). - Flagellum 2.1 times as long as mesonotum. - Head. Length of flagellum: 1.66 -1.78 mm. Flagellomere VI 2.4 times as long as wide. Stipes with 10-11 setae. Palpomere 4 without apical processus. Sensory pit elongated. Palpal ratio 1 : 1.3-1.4 : 2.0. - Thorax. Length of mesonotum: 0.8 mm. Anepisternum with 44-45 setae. Anepisternal cleft weak; posterior lobe with 11-16 setae (Fig. 3a). Katepisternum bare and laterotergite with 29-35 setae. Metakatepisternum with 11-16 setae. - Wings. Total length: 1.76-1.79 mm. - Legs. Fore tibia with 2 dorsal and 0-1 posterior setae. LR: 1.13-1.19, 0.71-0.72, 0.44-0.45; SV: 2.04-2.12, 2.54-2.55, 3.85-3.96. - Genitalia (Fig. 6d). Hypoproct very broad basally and with numerous apical setae. Dorsomedial border of gonocoxite with a protuberance, bearing 3 well separated megasetae, an additional much smaller seta may be present. Apicodorsal part of each gonocoxites with a row of 4 slightly curved setae. Gonostylus bilobed. Dorsal lobe somewhat flattened with 5-6 curved setae, ventral with 4 strong apical seta.

Females (n=2). - Flagellum 0.9 times as long as mesonotum. - Head. Length of flagellum: 0.70-0.86 mm. Flagellomere VI 1.3 to 1.4 times as long as wide. Stipes with 8-10 setae. Palpal ratio: 1 : 1.4-1.7 : 2.2-2.4. - Thorax. Length of mesonotum: 0.70-0.86 mm.Anepisternum with 37-63 setae. Anepisternal cleft weak; posterior lobe with 9-23 setae. Katepisternum bare and laterotergite with 35-55 setae. Metakatepisternum with 13-23 setae. - Wings. Total length: 2.27-2.76 mm. - Legs. Fore tibia with 3 dorsal and 0-1 posterior setae. LR: 1.19-1.24, 0.73-0.78, 0.46-0.47; SV: 2.00-2.04, 2.50, 3.68-3.80. - Genitalia (Fig. 7d) Very close to *styloides* and *mazumbaiensis*. Tg8 is much smaller than in *mazumbaiensis*, but the species can not be separated from *styloides* based on structures in the female genitalia.

KEY TO THE NEW SPECIES

1. – Laterotergite without setae; males with large gonostyli 2
   – Laterotergite with setae; males with small gonostyli 3

2. – Katepisternum with 10-30 minute setae. Male gonocoxite with a group of megasetae situated apically (Fig. 5a) ..... *joerni* n. sp.
   – Katepisternum bare. Male gonocoxite with a distinct bilobed megaseta apically (Fig.5b) ..... *furcata* n. sp.

3. – Katepisternum with at least some minute setae 4
   – Katepisternum bare 5

4. – Mediodorsal border of male gonocoxites each with a row of at least 10 megasetae (Fig. 5c); female hypoproct with 3 apical setae arranged in a more or less straight line (Fig. 7b) ..... *serrata* n. sp.
   – Mediodorsal border of male gonocoxites each with a row of 6 megasetae (Fig.5d); female hypoproct with 3 apical setae of in a triangular arrangement (Fig. 7c) .... *sespinaea* n. sp.

5. – Anepisternal cleft weak (Fig. 3a). Mediodorsal border of male gonocoxites each with a row of 3 well separated megasetae (Fig. 6d) .... *montana* n. sp)
   – Anepisternal cleft well developed (Fig.3c). Male gonocoxites with megasetae arranged otherwise 6

6. – Metakatepisternum with at least one seta situated anteriodorsally (Fig. 1b, c). Males gonocoxites with a style like megaseta apically and a distinct group of megasetae medially (Fig.6b) ..... *styloides* n. sp.
   – Metakatepisternum without setae anteriodorsally. Outlining of male gonocoxites otherwise 7

7. – Metakatepisternum with more than 20 setae. Males with border of Tg8 even (Fig.6a) ..... *tridactyla* n. sp.
   – Metakatepisternum with less than 15 setae. Males with border of Tg 8 jagged (Fig. 6c) .... *mazumbaiensis* n. sp.

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