

A REVISION OF THE GENUS *MYCTERELLA* KERTESZ (DIPTERA: LAUXANIIDAE)

ILAN YAROM<sup>1</sup>, AMNON FREIDBERG<sup>1</sup> and LASZLO PAPP<sup>2</sup>

<sup>1</sup>Department of Zoology, The George S. Wise Faculty of Life Sciences, Tel Aviv University, Ramat Aviv 69978, Israel <sup>2</sup>Zoological Department, Hungarian Natural History Museum, Baross u.13, Budapest H-1088, Hungary

ABSTRACT

The genus *Mycterella* Kertész with 3 species is revised. *M. luteifasciata* and *M. nigra* from Israel are described as new. *M. jovis* Kertész from Crete is redescribed, and a lectotype is designated for it. *Mycterella* is redefined, and its relationships with other genera are discussed. A key to the species is provided. **KEY WORDS:** Diptera; *Lauxaniidae*; *Mycterella jovis* Kertész; *M. luteifasciata* n.sp.; *M. nigra* n.sp.; Israel; Crete.

INTRODUCTION

The genus *Mycterella* was erected by Kertész (1912) for a single species from Crete, *M. jovis* Kertész (1912). During a recent survey of the Lauxaniidae of Israel (Yarom, 1986) two undescribed species were discovered that, in our opinion, should also be placed in this genus. This discovery prompted a study of the type series of *M. jovis* and resulted in this paper. The paper contains an assessment of the relationships between *Mycterella* and other closely related genera, redescription of the genus *Mycterella* and its type species, designation of a lectotype for the latter, and descriptions of the new species.

Descriptions are composite: For the most part, information given in the generic description is not repeated in the species description. Terminology essentially follows that of McAlpine (1981). Holotypes and most paratypes of the new species are deposited at the entomological collection of Tel Aviv University (TAU). Some paratypes have been deposited at the British Museum (Natural History), London, UK, (BMNH), Hungarian Natural History Museum, Budapest, Hungary (HNHM) and National Museum of Natural History, Smithsonian Institution, Washington DC, USA (USNM).

## GENUS *MYCTERELLA* KERTÉSZ

*Mycterella* Kertész 1912:541 (type species: *Mycterella jovis* Kertész, by monotypy); Frey 1927:19 (comparison with *Poichilus*); Czerny 1932:32 (revision of Palaearctic Lauxaniidae); Stuckenberg 1971: 501, 510, 513, 525, 568 (key to Old World genera of Lauxaniidae, and discussion); Papp 1984:207 (catalogue of Palaearctic Diptera).

*Head:* Frons distinctly projecting in front of eye, sparsely setulose laterally and anteriorly and slightly depressed in anterior 0.33; fronto-orbital plates mostly parallel, but slightly convergent anteriorly; anterior and posterior orbital setae reclinate; distance between these setae approximately 0.8 times as long as the distance between posterior orbital and inner vertical setae; ocellar setae inserted within ocellar triangle; median occipital sclerite sunken anteriorly, flat; fronto-facial angle angular, 70°-100°; face markedly concave, in front view about 0.33 times as wide as head; parafacial and face broadened ventrally; eye oval, about 1.25 times as high as long; proboscis without any peculiarities; palpus elongate; antennae elongate, longer than face, inserted at or below mid-height of eye, more or less porrect, widely separated by small but distinct facial carina; all three antennal segments visible; scape and pedicel cup-like, the latter slightly longer than the former; 1st flagellomere elongate, with truncate apex, 4-6 times as long as pedicel and 3.5-5 times as long as high, predominantly dark brown to black, with yellowish base; arista thick and yellow at base, gradually narrowing towards middle, with dense white pubescence which gives it a thicker appearance.

*Thorax:* Scutum slightly convex, 1.3 times as long as wide; scutellum triangular with rounded corners, dorsally flat, 1.6-1.7 times as wide as long and about 0.3 times as long as scutum. Setae: 1 postpronotal; 2 notopleurals; 1 presutural; 3 supra-alars; 0+3 or 1+3 dorsocentrals; 0 or 1 prescutellar; 1 proepisternal; 1 anepisternal; 1 (pair) basal scutellars, parallel or slightly convergent; 1 (pair) apical scutellars, parallel or slightly divergent. Legs: yellow or brown or a combination of yellow, brown and black; forefemur with posterodorsal, posterior and posteroventral rows of setae and a dark brown preapical spot anteriorly; all tibiae with preapical dorsal spine and apicoventral spine; spines of mid tibia usually longer, and spines of hind tibia usually shorter. Wing Hyaline or infuscated, with or without distinct pattern. Halteres: base and stem mostly yellowish; knob mostly brown or yellowish-brown.

*Abdomen:* Male Terminalia: Epandrium wider than long; surstylus strongly concave; gonopods (parameres) separated, often branched and with pointed apices; aedeagus membranous; aedeagal apodeme as long as epandrium or longer, in profile distinctly wider apically; ejaculatory apodeme very small; hypandrium arched, especially in lateral view; cercus small and oval. Female Terminalia: Very distinctive, consisting of the following three very large parts: tergite 8, which is prolonged distally and carries the epiproct, cercus and hypoproct; sternite 8, which is trough-like; and "a middle complex", situated between the tergite and sternite, which in lateral view is composed of 1-3 sclerites and, apparently, is also derived from segment 8; 3 spermathecae, with smooth surface, present (Fig. 19); 2 spherical, smaller ones situated close to each other on one branch of the spermathecal duct, and a 3rd oval, larger one is carried on a separate branch.

## Taxonomic relationships

*Mycterella*, a monotypic genus, was little known until the present study. The discovery of 2 additional species necessitates a change in the concept of this genus and, at the same time, affords us with an opportunity to better understand both its limits and relationships with closely related taxa. Even during its monotypic stage, the separation of *Mycterella* from other Old World genera (Kertész, 1912; Czerny, 1932; Stuckenberg, 1971) was unsatisfactory. In the following section we are, therefore, treating this subject in some detail.

In the West Palaearctic, *Mycterella* is similar to the lauxaniine genera *Lauxania* Latreille, *Paroecus* Becker and *Pachycerina* Macquart in having an elongate antenna (1st flagellomere at least 2.5 times as long as high) and a more or less incrassate arista, whose dense pubescence gives it an even thicker appearance. Although apparently related to at least some of these genera, *Mycterella* is easily distinguishable from them. In *Lauxania*, the antenna is more elongate (1st flagellomere 8 times as long as high), and the upper part of the face convex, whereas in *Mycterella* the 1st flagellomere is 3.5-5 times as long as high and the face is concave. In addition, species of *Lauxania* are smaller than species of *Mycterella* and have a stout, not elongate, body. In *Paroecus*, the antenna is shorter (1st flagellomere about 2.5 times as long as high), the arista is incrassate to beyond the middle and covered by dense black hairs, whereas in *Mycterella* the arista is incrassate at about its basal 0.33, and its hairs are white. Moreover, in the 2 species of *Paroecus* (one of which, from Mt. Hermon, is still undescribed; Yarom, 1986), the male has a conspicuous patch of small, dense, black setulae apicoventrally on the hind tibia, an ornamentation lacking in *Mycterella*. In *Pachycerina* the face is convex, the frontofacial angle broad and rounded, the anterior orbital seta inclinate, the arista with black pubescence and the face usually with a round black spot laterally, whereas in *Mycterella* the frontofacial angle is angular and usually acute, both orbital setae reclinate and the face without a round spot laterally.

*Calliopum* Strand and especially its species with elongate antenna, such as *C. elisae* (Meigen), may also be related to this group of genera. However, in most species of this genus the antenna is short (1st flagellomere 1.5-2 times as long as high), and the arista is neither incrassate nor with dense pubescence. In addition, species of *Calliopum* are usually stouter than species of *Mycterella* and entirely or almost entirely dark, often with metallic sheen, whereas *Mycterella* species are considerably yellowish or brownish.

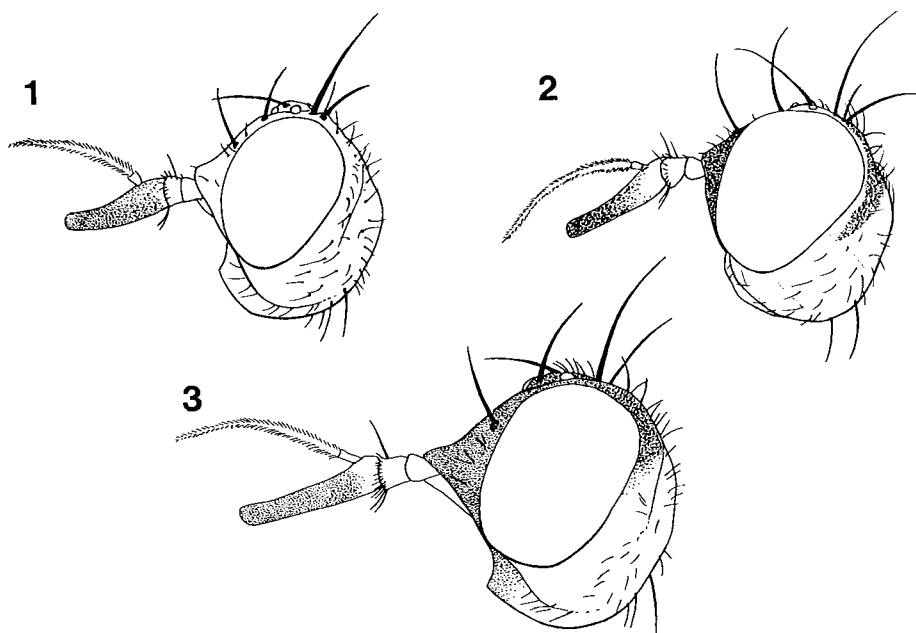
The male and female terminalia in the above-mentioned genera, except for *Mycterella*, have not been studied comprehensively. However, the data, available for some of the species (Remm & Elberg, 1979; Papp, 1978) allow for some preliminary conclusions. Despite the intrageneric (interspecific) variations, each of these genera has characteristic terminalia. The male terminalia of *Mycterella* are distinguished from those of the other genera by a combination of asymmetrical, branched, curved, long and pointed gonopods, very large aedeagal apodeme and very small ejaculatory apodeme. The female terminalia are characterised by the prolongation of tergite 8, the elongate, trough-like sternite 8 and the highly developed "middle complex".

In addition to these genera, *Mycterella* shows superficial resemblance to *Camptoprosopella* Hendel (New World) and *Poichilus* Frey (Oriental). However,

*Camptoprosopella* differs from *Mycterella* by having proclinate and inclinate anterior orbital setae and only one katepisternal seta (Kertész, 1912), and *Poichilus*, with the costal setulae reaching as far as vein  $r_{4+5}$ , belongs to the subfamily Homoneurinae and is not at all related to *Mycterella* (Stuckenberg, 1971).

#### KEY TO SPECIES OF MYCTERELLA

1. Head, scutum and scutellum shiny brown or yellowish brown; palpus mostly black; acrostichal setulae in 6 rows; wing infuscate, with light brown tone and with a dark brown costal band occupying the space between vein C and middle of cell  $r_{2+3}$  (Fig. 4) . . . . . *M. jovis* Kertész
- Head colouration a combination of yellow and black; scutum mostly or entirely black; scutellum black; palpus brownish; acrostichal setulae in 4 rows; wing different . . . . . 2
2. Face yellow; parafacial mostly black; scutum predominantly black, with a longitudinal yellow stripe medially; 1+3 dorsocentral setae; prescutellar setae lacking; wing uniformly smoky yellow, without pattern (Fig. 5); abdominal tergites and sternites yellowish-brown . . . . . *M. luteifasciata* n.sp.
- Face black; parafacial yellow; scutum entirely black; 0+3 dorsocentral setae; 1 prescutellar seta present; wing dark brown to black on anterior margin and strongly infuscated posteriorly; abdominal tergites shiny black, sternites yellowish-brown . . . . . *M. nigra* n.sp.



Figs. 1-3. *Mycterella* spp. head, in profile. 1. *M. jovis* Kertész. 2. *M. luteifasciata* n.sp.  
3. *M. nigra* n.sp.

*Mycterella jovis* Kertész

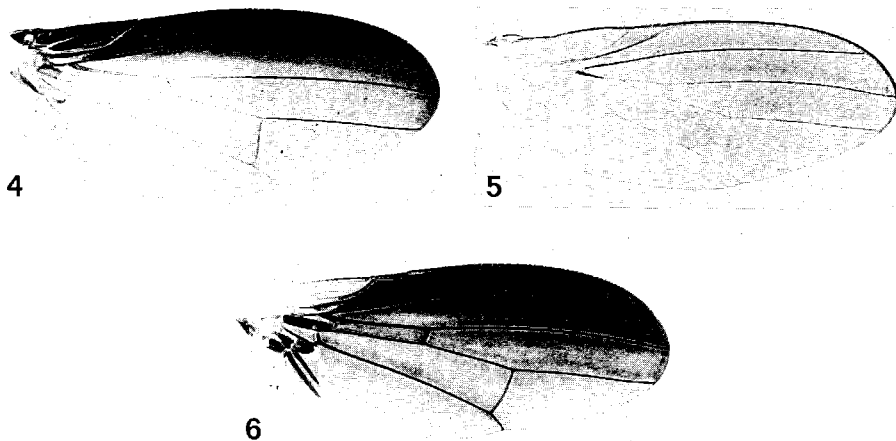
(Figs. 1, 4, 7, 10, 13, 16)

*Mycterella jovis* Kertész, 1912:542; Czerny, 1932:32 (revision of Palaearctic Lauxaniidae); Stuckenberg, 1971:568 (key to Old World genera); Papp, 1984:207 (catalogue of Palaearctic Diptera).

Description: As in the generic description, but with the following details: length of body 4-4.5 mm; length of wing 3.5-4 mm.

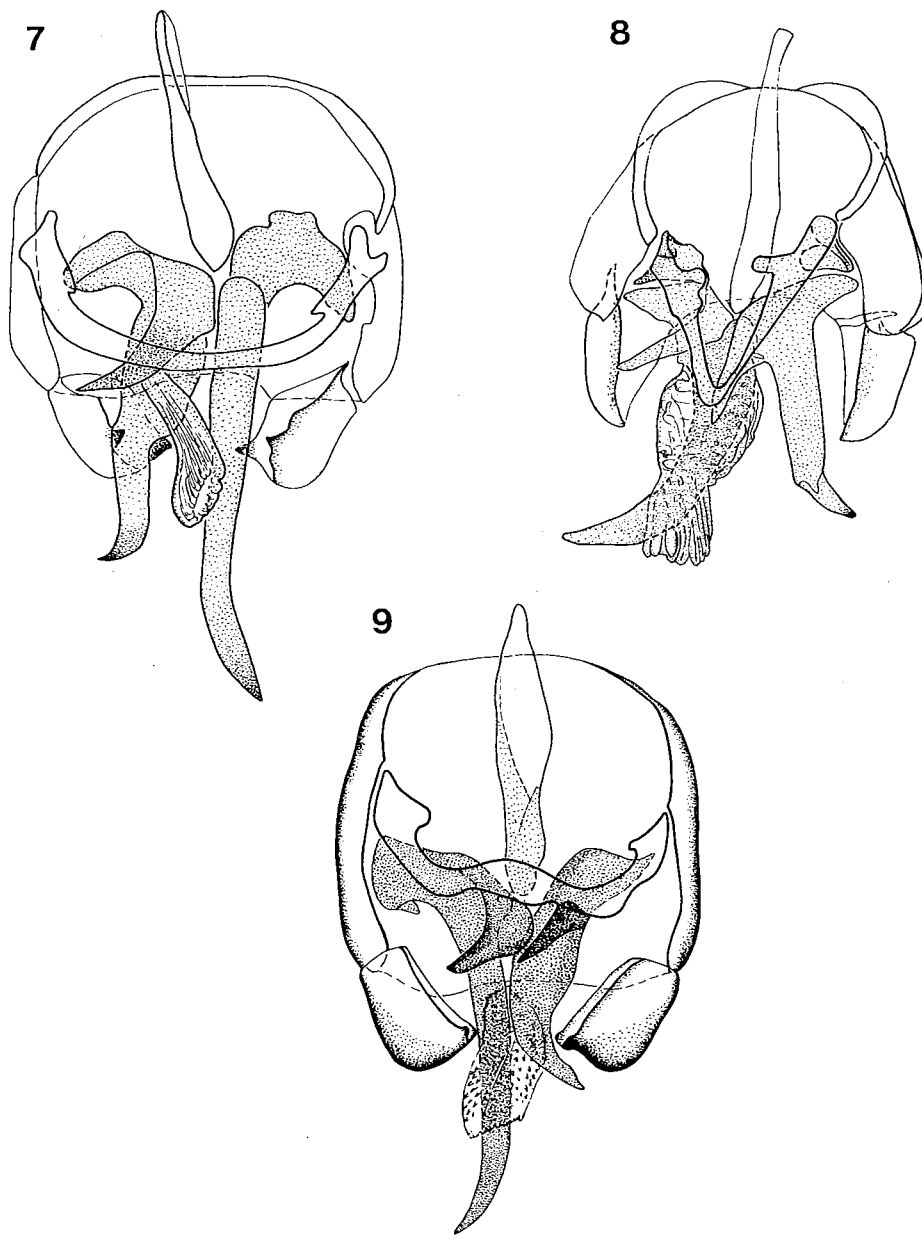
Head: (Fig. 1): Shiny brown or yellowish-brown; ocellar triangle dark brown; frons laterally with dark brown longitudinal stripe extending into occiput; face yellowish-brown; palpus mostly black with yellowish-brown base; frons equally wide at vertex and at anterior border, and 1.1 times as wide as long; length:height:width ratio of head = 6.3:7.2:10; fronto-facial angle 80°-90°; eye 1.3 times as high as long; 1st flagellomere 4.1 times as long as pedicel, 3.6 times as long as high.

Thorax: Predominantly shiny brown, with broad yellow band extending from postpronotal lobe through wing root and posterior spiracle and reaching subscutellum, which is yellow (Kertész, in 1912, mentions 4 indistinct stripes on the scutum, 1 additional strong brown stripe on pleura and a delicate reddish-yellow stripe from postpronotal lobe to wing root; these were not observed, possibly having faded with time). Setae: 0+3 dorsocentrals; 6 rows of acrostichal setulae; 1 prescutellar. Legs predominantly brown; foretarsus black; 3 distal tarsomeres of mid and hind legs black. Wing (Fig. 4): Infusate with light brown tone, and dark brown costal band covering the area between vein C and middle of cell  $r_{2+3}$ .

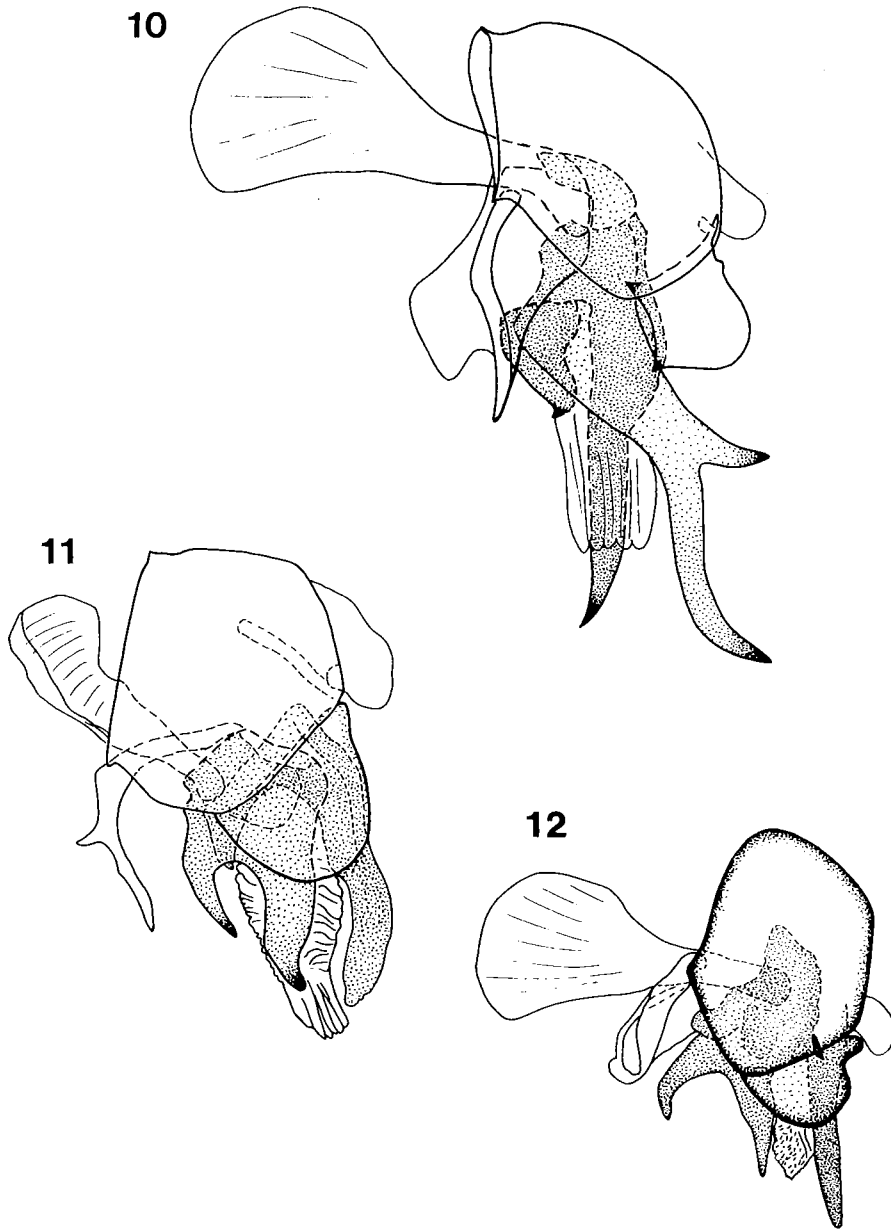


Figs. 4-6. *Mycterella* spp. right wing. 4. *M. jovis* Kertész. 5. *M. luteifasciata* n.sp. 6. *M. nigra* n.sp.

Abdomen: Tergites and sternites, including terminalia, brownish. Male terminalia: (Fig. 7, 10): Epandrium, surstylus and cercus brownish; surstylus medially with 2 dark teeth; left gonopod 1.3 times as high as right gonopod, branched at mid-height; right gonopod branched at base; aedeagus tube-like, widened at end; in profile, aedeagal apodeme distally 3 times as wide as basally. Female terminalia (Fig. 13, 16): Sternite 8 ventrally with longitudinal slit; "middle complex" composed of 3 parts: dorsal part, in



Figs. 7-9. *Mycterella* spp. male terminalia, ventral view. 7. *M. jovis* Kertész.  
8. *M. luteifasciata* n.sp. 9. *M. nigra* n.sp.



Figs. 10-12. *Mycterella* spp. male terminalia, in profile. 10. *M. jovis* Kertész.  
11. *M. luteifasciata* n.sp. 12. *M. nigra* n.sp.

profile, leaf-like; middle part membranous, and its posterior part partly covered by the dorsal part; ventral part composed of 2 strongly sclerotized and nearly parallel elements, both curved and sharply pointed at apex, but right element longer than left element.

**MATERIAL EXAMINED:** Lectotype ♀ (designated here) labelled: "Crete, Biró/Antr. Iovis, Mt. Ida [1]906 / *Mycterella jovis* [black handwriting] det. Kertész, [printed] typus [red handwriting] / *Mycterella jovis* Kertész, lectotype ♀ selected by Yarom, Freidberg & Papp [red label]" (HNHM). Paralectotypes: 7 ♂♂, 8 ♀♀, same collecting data as lectotype (a few specimens with the Roman number "VI" on the underside of the second collecting label, which probably stands for June; 1 headless ♂ with Kertész's determination label as above; 2 headless ♀♀); additional paralectotype labeled: "Crete, Biró / Mt. Ida, 2200 m" (1 ♂). (Most paralectotypes in HNHM; 1 ♂, 1 ♀ in TAU).

**NOTE:** Czerny (1932) examined a pair of specimens from Becker's collection which were taken from Kertész's series. We have not studied these specimens but we believe that they are deposited in the Zoologisches Museum, Humboldt Universität, Berlin, DDR.

*Mycterella luteifasciata* n.sp.

(Figs. 2, 5, 8, 11, 14, 17)

**Description:** As in the generic description, but with the following additional details: Length of body and wing 3.5-4 mm.

**Head** (Fig. 2): Frons, parafacial and upper occiput shiny black; face, gena, postgena and proboscis brownish-yellow; palpus yellowish-brown, somewhat darker at apex; length:height:width ratio of head = 6.7:7.1:10; frons 1.25 times as wide at vertex as at anterior border and 1.1 times as long as wide; fronto-facial angle 90°-100°; eye 1.25 times as high as long; 1st flagellomere 4.7 times as long as pedicel and about 4 times as long as high.

**Thorax:** Scutum and scutellum mostly shiny black, moderately microtomentose; scutum medially with yellow oblong stripe sometimes reaching scutellum; 1+3 dorsocentral setae; 4 rows of acrostichal setulae, the lateral row inserted at the border between the black and yellow; prescutellar setae lacking; Legs: Foreleg mostly yellow, but foretibia, except base, mostly brown, foretarsus dark brown; mid and hind legs yellow. Wing (Fig. 5): Uniformly smoky yellow, without pattern.

**Abdomen:** Tergites and sternites, including terminalia, yellowish-brown; tergite 3 laterally with 2-4 setae distinctly longer than median setae, especially in female. Male terminalia (Figs. 8, 11): Right gonopod distinctly curved, 1.5 times as high as left gonopod; both gonopods branched at base; aedeagus swollen and wrinkled at base and folded at apex; aedeagal apodeme in profile gradually broadened, distally 3 times as wide as basally; cercus 0.5 times as high as epandrium. Female terminalia (Figs. 14, 17): Prolongation of tergite 8 extending posteriorly beyond sternite 8; sternite 8 distinctly bends dorsally at about 60°, "middle complex" composed mainly of 1 leaflike part and 2 slender sclerites at base.



**MATERIAL EXAMINED:** Holotype ♂, labelled: "Israel, Mt. Hermon 1700 m, 16.VI.1977, A. Freidberg / *Mycterella luteifasciata*, Holotype ♂, det. Yarom, Freidberg & Papp, [red label]." Allotype ♀ and Paratypes 19 ♂♂, 5 ♀♀, same collecting data, but collected by A. Freidberg and Z. Feler. Additional paratypes, all from Israel, Mt. Hermon as follows: 2000 m, 8.VIII.1974, F. Nachbar (1 ♀), 9.VI.1979, F. Kaplan (1 ♂); 1800 m, 9.VII.1975, A. Freidberg (3 ♂♂); 1700 m, 20.V.1983, I. Nussbaum (5 ♂♂), 9.VI.1983, A. Freidberg and I. Nussbaum (12 ♂♂, 5 ♀♀), 11.VI.1976, D. Simon (1 ♂), 22.VI.1973, A. Freidberg (2 ♂♂, 2 ♀♀), 2.VIII.1982, A. Freidberg (2 ♂♂); 1650 m, 9.VI.1983, Y. Zvik (2 ♂♂, 1 ♀), 8.VII.1975, A. Freidberg and M. Kaplan (6 ♂♂); 1600 m, 9.VI.1983, I. Yarom (9 ♂♂, 8 ♀♀), 12.VII.1984, A. Freidberg and I. Yarom (11 ♂♂, 9 ♀♀), 2.VIII.1982, F. Kaplan (1 ♂).

**NOTE:** Most adults were collected at an altitude of 1600-1700 m by sweeping oaks (*Quercus boissieri* Reut. and *Q. libani* Oliv.).

**ETYMOLOGY:** This species is named after its yellow longitudinal scutal stripe.

### *Mycterella nigra* n.sp.

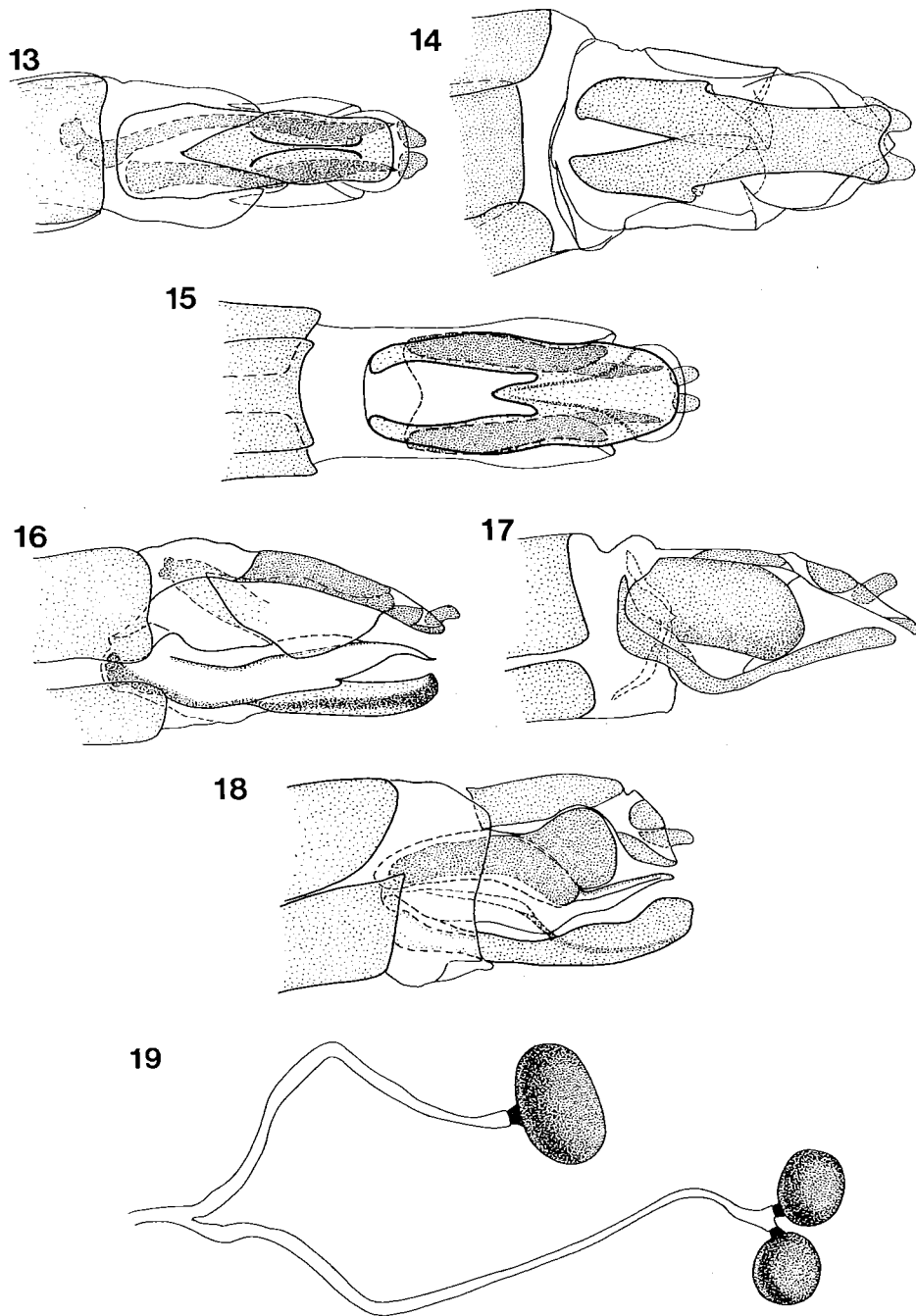
(Figs. 3, 6, 9, 12, 15, 18, 19)

**Description:** As in the generic description, but with the following additional details: Length of body: 4.5 mm. Length of wing: 4-4.5 mm.

**Head** (Fig. 3): Frons, frontofacial area, most of face, upper occiput and median occipital sclerite shiny black; parafacial, gena, lower occiput, postgena and proboscis yellow to yellowish-brown; palpus yellowish-brown; length:height:width ratio of head = 6.9:7.1:10; frons at vertex as wide as at anterior border, and 1.1 times as long as wide; fronto-facial angle 70°; eye 1.2 times as high as long, with 3 dark green stripes on dark purple background, seen better in fresh specimens; 1st flagellomere 6 times as long as pedicel and 5 times as long as high.

**Thorax:** Scutum and scutellum shiny black, all other parts yellowish-brown. Setae: 0+3 dorsocentrals; acrostichals in 4 rows; 1 prescutellar. Legs: Forecoxa and foretrochanter yellow; forefemur brown; foretibia and foretarsus black; mid and hind legs mostly yellow, 3 distal tarsomeres darker. Wing (Fig. 6): Predominantly blackish with darker brown to black area between vein C and middle of cell  $r_{4+5}$ , but this area is not sharply defined from other infuscated parts; posterior areas of cells  $cua_1$  and  $m$  with light brown tone; cell  $bc$ , base of cell  $c$  and the area around vein  $CuA_2$  yellowish to transparent.

**Abdomen:** Tergites, epandrium and surstylus shiny black, sternites and cercus brownish; tergites 3 and 4 laterally with 3 relatively long setae, especially in female. Male terminalia (Figs. 9, 12): Right gonopod 1.6 times as high as left gonopod; gonopods branched at base, aedeagus with file-like surface; aedeagal apodeme, in profile, distally 5 times as wide as basally; cercus small, 0.25 times as high as epandrium. Female terminalia (Figs. 15, 18): Prolongation of tergite 8 curved; "middle complex" consists of 3 parts: dorsal part in profile pear-like; middle part banana-like; ventral part with sharp point posteriorly; spermathecae as in Fig. 19.



Figs. 13-19. *Mycterella* spp. female: 13-15. terminalia, in ventral view. 13. *M. jovis* Kertész. 14. *M. luteifasciata* n.sp. 15. *M. nigra* n.sp. 16-18. terminalia, in profile. 16. *M. jovis* Kertész. 17. *M. luteifasciata* n.sp. 18. *M. nigra* n.sp. 19. *Mycterella nigra* n.sp., spermathecae.

MATERIAL EXAMINED: Holotype ♂ labelled: "Israel, Har [Mt.] Dov, 8.VI.1983, A. Freidberg / *Mycterella nigra*, Holotype ♂, det. Yarom, Freidberg & Papp [red label]". Allotype ♀ and paratypes 7 ♂♂, 9 ♀♀, same collecting data, but collected by A. Freidberg, I. Yarom and Y. Zvik. Additional paratypes, all from Israel: Mt. Hermon, 2000 m, 1.VI.1985, I. Nussbaum (1 ♂); 1700 m, 9.VI.1983, A. Freidberg (4 ♂♂, 11 ♀♀); Har Dov, 2.VII.1984, A. Freidberg and F. Kaplan (3 ♂♂, 2 ♀♀).

NOTE: Most adults were collected at an altitude of 1500 m (on Mt. Dov) or 1700 m (on the adjacent Mt. Hermon), by sweeping *Acer monspessulanum* L. and *Quercus* sp.

ETYMOLOGY: This species is named after its predominantly black colouration.

#### ACKNOWLEDGEMENTS

We wish to thank Mr. W. Ferguson for the drawings, Mr. A. Shoob for the photographs, Mrs. F. Kaplan for her comments, Dr. I. Moor for translating German texts, the collectors of the flies, especially Mr. I. Nussbaum, and Ms. N. Paz for typing the manuscript.

#### REFERENCES

- Czerny, L. 1932. Lauxaniidae. In: Die Fliegen der Palaearktischen Region. E. Lindner ed. (5)50. 76 pp. 1 pl. 37 figs. E. Schweizerbart'sche Verlagsbuchhandlung. Stuttgart.
- Frey, R. 1927. Philippinische Dipteren. IV. Fam. Lauxaniidae. *Acta Societatis pro Fauna et Flora fennica* 56(8):1-44.
- Kertész, K. 1912. Über einige Muscidae acalyptratae. *Annales Musei Nationalis Hungarici* 10:541-548.
- McAlpine, J.F. 1981. Morphology and Terminology – Adults. In: Manual of Nearctic Diptera. J.F. McAlpine et al. eds. Monograph 1(27):9-63, 146 figs. Agriculture Canada Research Branch, Ottawa.
- Papp, L. 1978. Contribution to the Revision of the Palaearctic Lauxaniidae (Diptera). *Annales Historico-Naturales Musei Nationalis Hungarici* 70:213-231.
- Papp, L. 1984. Family Lauxaniidae. In: Catalogue of Palaearctic Diptera. A. Soós and L. Papp eds. 9:193-217. Akadémiai Kiadó, Budapest.
- Remm, E. and Elberg, K. 1979. Terminalia of the Lauxaniidae (Diptera) found in Estonia, Latvia and Lithuania. In: Dipterologilisi Uurimusi: 66-117. Tartu.
- Stuckenberg, B.R. 1971. A review of the Old World genera of Lauxaniidae (Diptera). *Annals of the Natal Museum* 20(3):499-610.
- Yarom, I. 1986. The Lauxaniidae of Israel. M.Sc. Thesis submitted to Tel Aviv University (Dept. Zoology), 128 pp. 152 figs. (In Hebrew with English summary).