

**THE RHINOPHORIDAE (DIPTERA) OF ISRAEL**

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**ABSTRACT**

Twenty two species of Rhinophoridae are recorded from Israel, and a key for their separation is given. Three new genera, *Baniassa* n. gen., *Callidesia* n. gen and *Metoplisa* n. gen. are established. Twelve new species are described: *Baniassa fascipennis* n. sp., *Callidesia pictipennis* n. sp., *Metoplisa carbonaria* n. sp., *Melanophora asetosa* n.sp., *Oplisa grandiloba* n. sp. *Oplisa pollinosa* n. sp. *Phyto armadillonis* n. sp., *Phyto latifrons* n. sp., *Phyto luteisquama* n. sp., *Stevenia flaviventris* n. sp., *Stevenia hertingi* n. sp., and *Tromodesia angustifrons* n. sp.

*Armadillo officinalis* Desmarest (Isopoda) is recorded as host of *Phyto armadillonis* and *Porcellio laevis* Latreille (Isopoda) as host of *Phyto luteisquama*.

**INTRODUCTION**

Until recently there has been no agreement among authors on the taxonomic status of the rhinophorids (woodlice flies). Seguy (1941) and Herting (1961) treated them as a subfamily (Rhinophorinae) of the Calliphoridae, whereas Belanovsky (1951), Sabrosky and Amaud (1965), Guimares (1971) regarded them as a subfamily of the Tachinidae. Hennig (1952) kept them as a sub-family in the Calliphoridae, but later (1973) considered them as a separate family. More and more authors accorded them family status (Brues 1954, Stackelberg 1962, Rhodendorf 1964, Lehrer 1966) . Crosskey (1977) in his review of the Afrotropical Rhinophoridae gave detailed description of the family and discussed the reasons for assigning family status to this group. According to Crosskey the Rhinophoridae include 23 genera with about 85 species. Most species are Palaearctic, 22 Afrotropical, 5 Nearctic, 4 Oriental and 1 species is Holarctic.

Very little was published about the Rhinophoridae of Israel. Villeneuve (1934) described *Stevenia inops* (synonym of *S. angustifrons* Villeneuve) from Rehovot. In the "Prodromus Faunae Palaestinae" (Bodenheimer, 1937) only a single species (included in the Tachinidae) was listed. Herting (1961) in his revision of the Palaearctic rhinophorids described 2 new species from Israel: *Phyto pauciseta* and *Chaetostenvenia* (= *Paykullia*) *kugleri*. He considered a black male collected at Zichron-Ya'akov as belonging to a different race of *Stevenia triangulata* (Loew), and named it *S. t. kugleri*. Herting also stated correctly that *Stevenia angustifrons* Loew is the most common rhinophorid in Israel.

In the present paper 22 species of Rhinophoridae are recorded, including 12 new species, 3 of which belong to new genera. The new taxa are described and figured. The distribution of all species and a key for their separation are given.

The types of the new species are deposited in the entomological collection of the Department of Zoology of Tel Aviv University.

The geographical terms used are according to those of "Fauna Palaestina" (Theodor, 1975).

#### CHARACTERISTICS OF THE FAMILY (Figs. 1-6)

The Rhinophoridae are typical Calyptratae flies: the second antennal segment has a cleft on the dorso-exterior surface, the transversal suture on the scutum is developed, the posterior calli are well marked, and the lower calyptrae are developed though not large. Like most species of related families (Tachinidae, Calliphoridae, Sarcophagidae), they have a row of setae on the hypopleura and well developed mouth parts. They differ from most Tachinidae by the absence of a well developed convex, cushion-like, postscutellum. Although there is not a single feature by which the Rhinophoridae can be distinguished, they are recognized by a combination of characters which are correct for most of the species: The lower calyptrae relatively small, subcircular or a little elongated, their inner margins diverging broadly from the lateral margin of the scutellum. The metathoracic spiracles subcircular without an operculum and with short fringes around the spiracle openings. Propleura, poststernum and eyes bare.

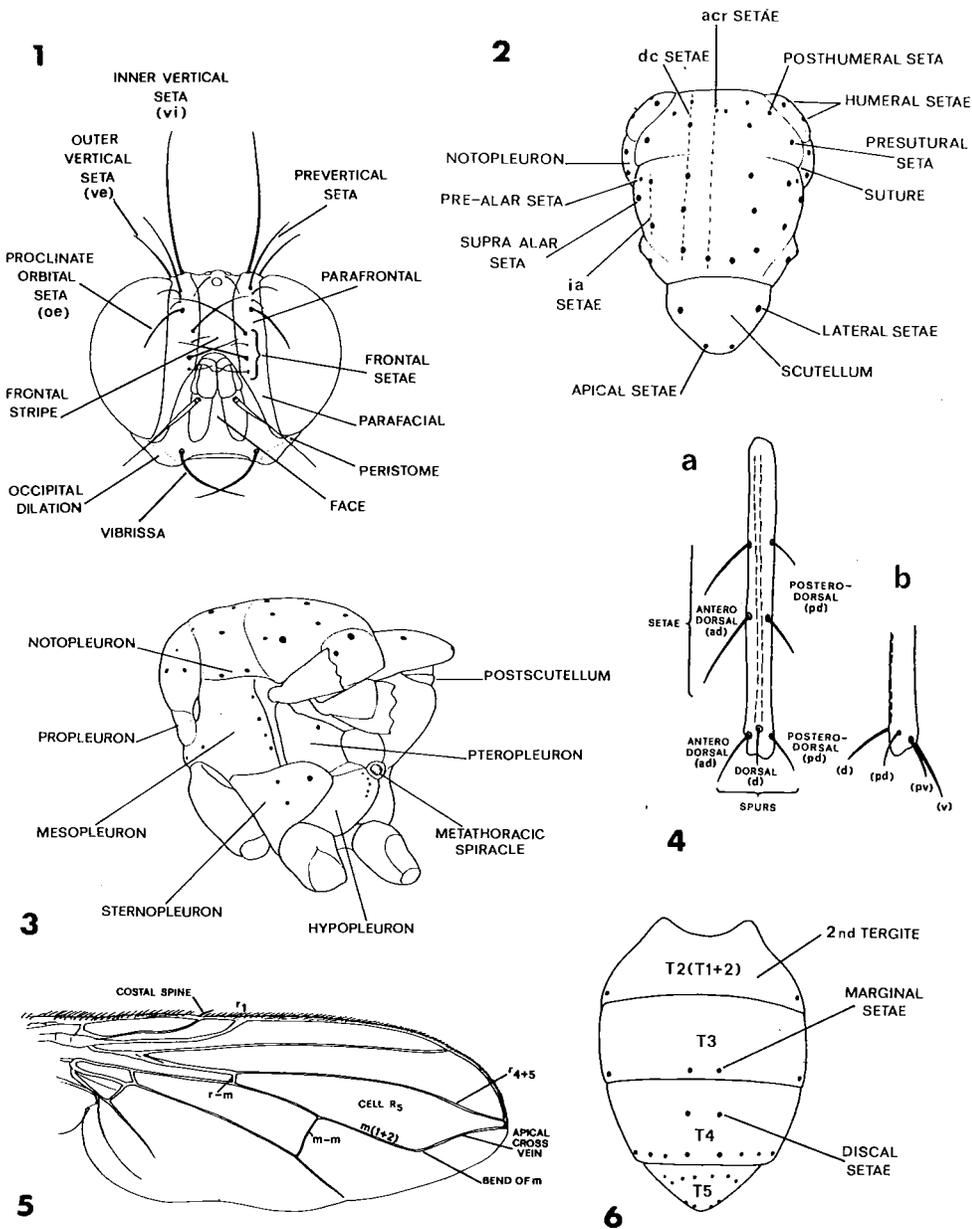
Facial ridges without strong setae. Usually with only 1 post-humeral seta inward the presutural seta. Bend of *m* in the wing without an appendix or fold. Second abdominal segment only slightly excavated anteriorly.

According to Crosskey (1977) the metathoracic spiracles of the Rhinophoridae never have an operculum. On the rim of the metathoracic spiracles there are always only short fringes. Crosskey (l.c.) provided stereoscan photographs showing the metathoracic spiracles and their fringes of 4 rhinophorid species. For comparison, he also gave 2 photographs of spiracles with an operculum, of *Peribaea orbata* (Wiedemann), Tachinidae, and *Phumosia lutescens* (Villeneuve), Calliphoridae; such spiracles are common to Calliphoridae, Sarcophagidae and Tachinidae.

All rhinophorid species recorded in this paper have fringes around the metathoracic spiracles, except for *Baniassa fascipennis* n.g. n.sp. *Baniassa* has a metathoracic operculum similar to those of *Peribaea orbata*. In spite of this *B. fascipennis* is kept in the Rhinophoridae because in all other characters it is a typical rhinophorid.

#### HOSTS AND EARLY STAGES

As far as is known, the larvae of the Rhinophoridae are all endoparasites of terrestrial Isopoda, except for *Angioneura obscura* (Townsend) which is recorded as a parasite of snails (Reinhard, 1929). This may be one of the reasons that Sabrosky and Arnaud (1965) did not include *Angioneura* in the rhinophorids. The immature stages of Rhinophoridae and their development were described by Thompson (1934). Bedding (1973) described eggs and first-instar larvae of 7 species. Rhinophorids do not deposit their eggs directly on the host, but nearby. The eggs are fusiform, thin-shelled and hatch several days after deposition. After hatching the larvae have to find their host. The first-instar larvae have a warty surface with spines or scales. They may have pseudopod-like processes or alternatively the posterior end of the body is modified into a pad-like structure. These adaptations may help them to secure a hold upon the host. Second and third-instar larvae have a bare or microspinose cuticle. The life history of the larvae inside the host is similar to that of tachinid larvae. Pupation always occurs inside the empty skin of the host. The posterior spiracles of the puparium are borne on a cylindrical or conical prominence.



Figs. 1-6. Rhinophoridae, morphological terms of taxonomic significance; 1-head, facial view; 2 - thorax, dorsal view; 3- thorax, lateral view (wing and lower calyptra partly removed); 4 - left mid-tibia: a - dorsal view, b - posterior view; 5 - wing; 6 - abdomen, dorsal view. In Figs. 2, 3 and 6 the position of setae is indicated by black dots.

## KEY TO THE RHINOPHORIDAE OF ISRAEL

(Most of the terms used in this key are presented in Figs.1-6).

1. Lower half of parafacialia with setae or hairs ..... 2
  - Parafacialia bare, or at the most, with hairs or setae on the upper part near the frontal setae ..... 7
2. Lower part of parafacialia with 1 or several strong setae.  $R_5$  petiolate. Prealar seta small or absent ... *Stevenia* Robineau-Desvoidy ..... 13
  - Parafacialia hairy or with a row of setae the whole length ..... 3
3.  $m-m$  nearer to bend of  $m$  than to  $r-m$ . Parafacialia more or less hairy. Third antennal segment at most twice as long as 2nd ... *Phyto* Robineau-Desvoidy ..... 18
  - $m-m$  equidistant to  $r-m$  and to the bend of  $m$  or nearer to  $r-m$  ..... 4
4.  $R_5$  open; 2nd humeral seta anterior to the 2 others, almost forming with them a right angle; frons of ♂ seen from above 3/4 as wide as an eye. Parafacialia with a row of hairs, narrow, in the middle 1/2 as wide as 3rd antennal segment ..... *Oplisa grandiloba* n. sp.
  - $R_5$  petiolate; 3 humeral setae nearly in a straight line or only 2 setae. Frons of ♂ seen from above less than 1/2 as wide as 1 eye ..... 5
5. Parafacialia covered with fine hairs; parafrontalia of the ♂ in the middle linear, touching one another; ♂ black, thorax of ♀ yellow. Wings with a wide transversal brown band in the distal half. Prealar seta very short and fine ..... *Baniassa fascipennis* n. sp.
  - Parafacialia with a row of setae the whole length; frontal stripe of ♂, in the middle as wide or wider than one parafrontal; ♂ and ♀ black ..... 6
6. Prealar seta at least 1/2 as long as 1st post-sutural  $dc$ ;  $m-m$  nearer to  $r-m$  than to bend of  $m$ ; frons of ♂ at its narrowest place as wide as 3rd

- antennal segment; frons of ♀  $\frac{3}{5}$  as wide as an eye ... *Cirillia angustifrons* Rondani
- Prealar seta less than  $\frac{1}{2}$  as long as 1st post-sutural *dc*; *m-m* in the middle between *r-m* and bend of *m*. Frons of ♂ at its narrowest place 2 times as wide as 3rd antennal segment; frons of ♀  $\frac{3}{4}$  as wide as an eye .....  
..... *Rhinophora lepida* (Meigen)
7. *R*<sub>5</sub> long petiolate, petiole longer than apical cross-vein ..... 8
- *R*<sub>5</sub> short petiolate (petiole shorter than *r-m*) or apical cross vein absent ..... 9
8. Frons seen from above narrower than an eye, in ♂  $\frac{2}{5}$  as wide as an eye without *oe*, in ♀  $\frac{2}{3}$  as wide as an eye, with *oe*. Parafacialia in the middle narrower than 3rd antennal segment; antennae, coxae and femora yellow; wings partly brown, calyptrae yellowish ... *Paykullia kugleri* (Herting)
- Frons in ♂ and ♀  $1\frac{1}{2}$  times as wide as an eye; parafacialia of ♂ and ♀ with 3-5 strong *oe*. Parafacialia in the middle wider than 3rd antennal segment. Antennae and legs black, wings in ♂ entirely brown black, in ♀ with a white spot at tip; calyptrae blackish .....  
..... *Malanohpora roralis* (Linnaeus)
9. Apical cross-vein absent; scutellum with only 1 pair of marginal setae; wings entirely infuscated. .... *Melanophora asetosa* n.sp. (♀)
- Apical cross-vein present; scutellum with 2 pairs of strong marginal setae ..... 10
10. Parafacialia in the middle narrower than 3rd antennal segment ..... 11
- Parafacialia in the middle wider than 3rd antennal segment ..... 12
11. 2nd to 5th abdominal segments mainly pollinose; a narrow black stripe along the middle of the abdomen and a narrow shiny black stripe at the posterior border of segments 2 to 4; 2nd humeral seta forming with the 2 others almost a right angle. Bend of *m* considerably nearer to wing

- margin than to *m-m*. Calyptrae yellowish-white, haltera yellow..... *Oplisa pollinosa* n. sp.
- Abdomen shiny black; 2nd humeral seta only slightly forward from the 2 others. Bend of *m* nearly as far from wing margin as from *m-m*. Calyptrae and haltera brown-black.....  
.....*Metoplisa carbonaria* n. sp.
12. Only 1 postsutural *ia*; apical cross-vein concave; bend of *m* nearly a right angle; wings patterned with brown stripes along the veins. 5th abdominal tergite shiny..... *Callidesia pictipennis* n.sp.
- 2 postsutural *ia*; apical crossvein nearly straight; bend of *m* forming a wide angle; wings without brown pattern. 5th abdominal tergite entirely pollinose or at most with a small black spot .....  
.....*Tromodesia angustifrons* n.sp.
13. 2nd abdominal tergite without marginal setae..... 14
- 2nd abdominal tergite with marginal setae..... 16
14. Arista plumose; *ve* present, stronger than post-ocular setae; 3 sternopleural setae. Frons of ♂ less than 1/2 as wide as an eye, without *oe*. Color black, abdomen often more or less yellowish-red, especially in females .....  
..... *Stevenia angustifrons* Villeneuve
- Arista bare or with microscopical hairs only; *ve* absent..... 15
15. Lateral setae of scutellum nearer to apicals than to base of scutellum; abdomen without discal setae; frons of ♂ as wide as eye, with *oe* ..... *Stevenia hertingi* n.sp.
- Lateral setae of scutellum nearer to base of scutellum than to apicals; at least 4th and 5th abdominal tergites with discals; frons of ♂ less than 1/2 as wide as an eye, with *oe*. Abdomen shiny black, at the anterior border of 3rd and 4th tergites, a narrow band of dense white pollinosity, interrupted in the middle; foretibia without a *pd* spur .....  
..... *Stevenia hirtigena* Herting

16. Arista pilose; *ve* present in ♂ and ♀; abdomen with strong discal setae on 3rd to 5th tergites; foretibia without a *pd* spur. Frons of ♂ about 1/2 as wide as an eye without *oe* .....  
 ..... *Stevenia atramentaria* (Meigen)
- Arista bare or very short pilose; abdomen without discals. Frons of ♂ wider than an eye; *ve* absent in ♂ ..... 17
17. Abdomen mainly yellow, with a more or less visible black line along the middle. 3rd antennal segment 2 times as long as 2nd .....  
 ..... *Stevenia flaviventris* n.sp.
- Abdomen mainly black, 3rd antennal segment 1<sup>1</sup>/<sub>2</sub> times as long as 2nd .....  
 ..... *Stevenia triangulata kugleri* Herting
18. Prealar seta weak, less than 1/2 as long as 1st postsutural *dc*; foretibia without a *pd* spur; no prominent pteropleural seta; *R*<sub>5</sub> not petiolate; mid-tibia with 1 *ad* seta. Frons of ♂ very narrow in upper part, parafrontalia touching or nearly touching one another, without *pv* and *oe* .....  
 ..... *Phyto pauciseta* Herting
- Prealar seta strong, foretibia with *pd* spur ..... 19
19. *R*<sub>5</sub> petiolate, petiole at least as long as *r-m* ..... 20
- *R*<sub>5</sub> not petiolate, or petiole considerably shorter than *r-m* ..... 21
20. Basicosta brown-black; calyptrae brownish. Frons of ♂, 3/5-2/3 as wide as an eye, without *oe* ..... *Phyto armadillonis* n.sp.
- Basicosta yellow; calyptrae yellowish-white. Frons of ♂ nearly as wide as an eye, with *oe* .....  
 ..... *Phyto abbreviata* Villeneuve
21. Calyptrae yellowish, haltera yellow. Frons of ♂ as wide as an eye, without *oe*; arista bare. ....  
 ..... *Phyto luteisquama* n.sp.
- Calyptrae and haltera brown. Frons of ♂ nearly as wide as an eye, with *oe*... *Phyto latifrons* n.sp.

*Baniassa* n. gen.*Male.*

*Head* (Fig. 7). Very large, nearly holoptic eyes parafrontalia in the upper part very narrow, touching one another; *vi* short, *ve* and prevertical setae absent; frontal setae fine, parafacialia covered with fine hairs; peristome  $1/3$  as wide as large diameter of eye; vibrissae short, facial ridges at level of vibrissae strongly converging; antennae short, 3rd segment only slightly larger than 2nd; arista with microscopical hairs.

*Thorax.* The metathoracic spiracle provided with a movable operculum, connected to the posterior margin of the spiracle; post-scutellum not developed, propleura and prosternum bare; 0+1 *acr*, 2+3 *dc*, 0+2 (2nd and 3rd) *ia*; prealar seta fine, shorter than notopleural setae; 2 humeral setae, 1 posthumeral seta medianly than presutural seta; 1+1 sternopleural setae; no prominent pteropleural seta; 2-4 hypopleural setae; scutellum with 2 pairs of marginal setae, laterals and cruciate apicals, the apical as strong as the laterals.

*Legs.* Claws of fore-legs shorter than 5th tarsal segment; hind-tibia with 3 dorsal spurs (*ad*, *d*, *pd*) and a well developed *pv* spur.

*Wings.* (Fig. 8). Costal spine not prominent;  $R_5$  short petiolate, petiole approximately as long as *r-m*; base of  $r_{4+5}$  with 2-3 setulae, bend of *m* forming a wide angle, nearer to wing margin than to *m-m*; apical cross-vein straight; lower calyptrae subcircular, their inner margin diverging broadly from the lateral margin of scutellum.

*Abdomen.* Second tergite without marginal setae, 3rd with a pair, 4th and 5th with a row of marginals; discals absent.

*Male genitalia* (Fig. 9). Paralobes much larger than mesolobes.

*Female.* Frons seen from above wider than an eye; frontal stripe narrow, in the middle less than half as wide as 1 parafacial; parafacialia with 2 proclinate *oe* and 1 reclinate prevertical seta.

*Affinities.* The genus *Baniassa* differs from all the rhinophorids by having instead of fringes, a well developed operculum at the metathoracic spiracle. "Opercular" metathoracic spiracles are common in the related families, Tachinidae, Calliphoridae and Sarcophagidae. Despite the presence of an operculum the genus *Baniassa* with a non-developed postscutellum, with small diverging lower calyptrae, with bare propleura and bare prosternum,

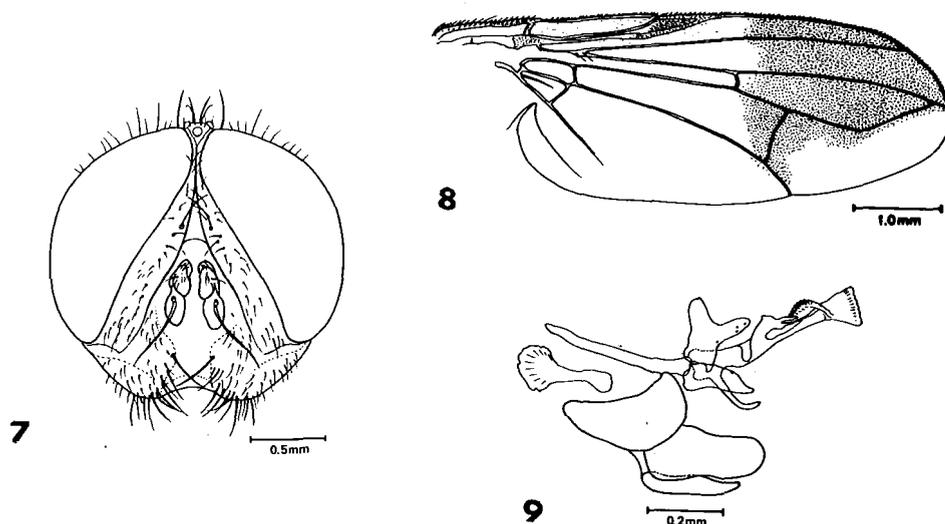
and all other characters given in the description fits best in the Rhinophoridae.

Type species: *Baniassa fascipennis* n. sp.

*Baniassa fascipennis* n. sp. (Figs. 7,8,9)

Male.

Length. 6-7 mm.



Figs. 7-9. *Baniassa fascipennis* n. sp. (♂). 7 - head, 8 - wing. 9 - genitalia.

**Color.** Shiny black with a brown-yellow stripe along the lateral margins of scutum and scutellum; parafrofrontalia and parafacialia black, partly shiny, partly grey pollinose; antennae yellow, palpi brown, coxa, trochanter and femur yellow, tibia and tarsus brown-black; wing with a wide brown transversal band in its distal half and a brown spot between costa and the end of  $r_1$  (Fig. 8). Lower calyptrae transparent, slightly infuscated.

**Female.** Thorax entirely yellow.

**Distribution.** N. Israel, Golan.

MATERIAL EXAMINED. ♂ holotype, ♀ allotype, Mt. Carmel 1.10.77; paratypes: 1 ♀, Haifa 3.11.68; 1 ♂, Mt. Carmel 19.10.74; 1 ♀, Baniass (Golan) 10.7.75; 1 ♂, Har-Dov (Golan) 15.8.76; 1 ♀, Mt. Meron (Upper Galilee) 17.9.78; 1 ♂, Haifa 22.10.77.

*Callidesia* n. gen.

*Male.*

*Head.* (Fig. 10). Frons seen from above  $1/3$  as wide as an eye; frontal stripe very narrow mostly linear; *ve* absent, frontal setae fine and crossing; parafrontalia outside the frontal setae and parafacialia bare; parafacialia twice as wide as 3rd antennal segment; peristome nearly  $1/2$  as wide as large diameter of eye; face considerably shorter than frons, 3rd antennal segment nearly twice as long as 2nd; arista incrassate only at base, long plumose in its basal half.

*Thorax.* Metathoracic spiracles with erect fringes around the openings, separated dorsally; 2-3 humeral setae in a line; 0+1 *acr*, 2+3 *dc*, 0+1 *ia*, prealar seta absent; 1+1 sternopleural setae, pteropleural seta absent. Scutellum with 2 pairs of strong marginal setae, laterals and cruciate apicals.

*Legs.* Fore-tibia with an *ad*, *d* and *pv* spur, otherwise without setae; claws of fore-legs longer than 5th tarsal segment.

*Wings.* (Fig. 11). Costal spine absent;  $R_5$  very short petiolate, closed, or narrowly open. Base of  $r_{4+5}$  with 2-4 setulae, bend of *m* forming a nearly right angle, with or without a short appendage; apical cross-vein concave; *m-m* nearer to bend on *m* than to *r-m*.

*Abdomen.* 2nd and 3rd abdominal tergites without median marginal setae, 4th and 5th with a row of marginals, discals absent.

*Female.* With a more flattened abdomen; frons seen from above  $6/7$  as wide as an eye; frontal stripe at the level of anterior *oe* as wide as  $1/4-1/2$  as 1 parafrontal; outside the frontal setae parafrontalia with some fine short hairs and 2 proclinate *oe*. Claws of fore-legs shorter than 5th tarsal segment.

*Affinities.* *Callidesia* is close to *Tromodesia* Rondani 1856 by the narrow frons of the ♂, bare parafacialia, wide peristome, plumose arista, absence of strong prealar setae and the strong cruciate apical setae of scutellum. It differs from *Tromodesia* by having only 1 postsutural intraalar seta instead of 2, absence of a prominent pteropleural seta, absence of a postero-dorsal seta on fore-tibia, concave apical cross-vein instead

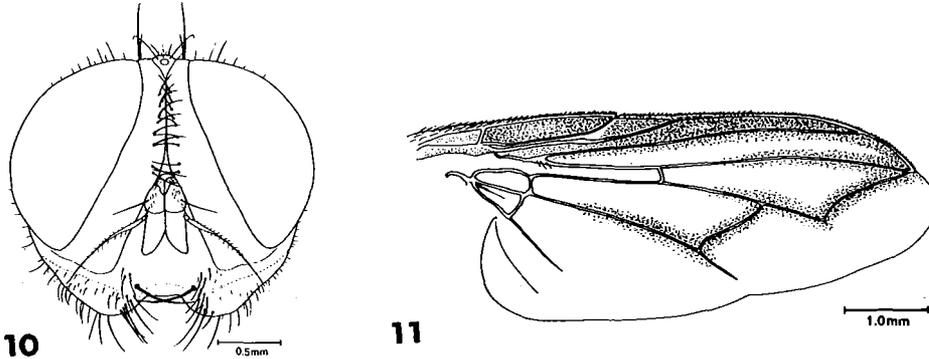
of nearly straight and the bend of *m* is nearly rectangular instead of forming a wide angle.

Type species: *Callidesia pictipennis* n. sp.

*Callidesia pictipennis* n. sp. (Figs. 10,11)

Male.

Length. 6.5-7 mm.



Figs. 10-11. *Callidesia pictipennis* n. sp. (♂). 10 - head. 11 - wing.

**Color.** Thorax black with a wide median band of grey-white pollinosity from the anterior border of the thorax until tip of scutellum; along the middle of the band a black line extending to anterior margin of scutellum; on each side of the grey band, a wide shiny black band covered with fine golden pollinosity; pleurae grey pollinose. Abdomen shiny, mainly orange-brown with a wide brown-black band along the middle, widening in the posterior part of the segments; 5th tergite mainly brown-black, 6th tergite entirely black; posterior margin of tergites 2 to 5 yellow; anterior lateral parts of tergites 2-4 covered with white pollinosity; parafrontalia, parafacialia and peristome entirely covered with dense silvery-grey pollinosity; frontal stripe black; antennae yellow to light brown; palpi yellow; coxa, trochanter and femur mainly yellow, tibia and tarsus brown-black. Anterior part of wing brown; brown bands along apical cross-vein, *m-m*, and parts of other veins; haltera yellow at base, brown at tip. Calyptrae white with yellowish margin.

**Female.** Similar in color to male.

**Distribution** Mt. Hermon, Syria.

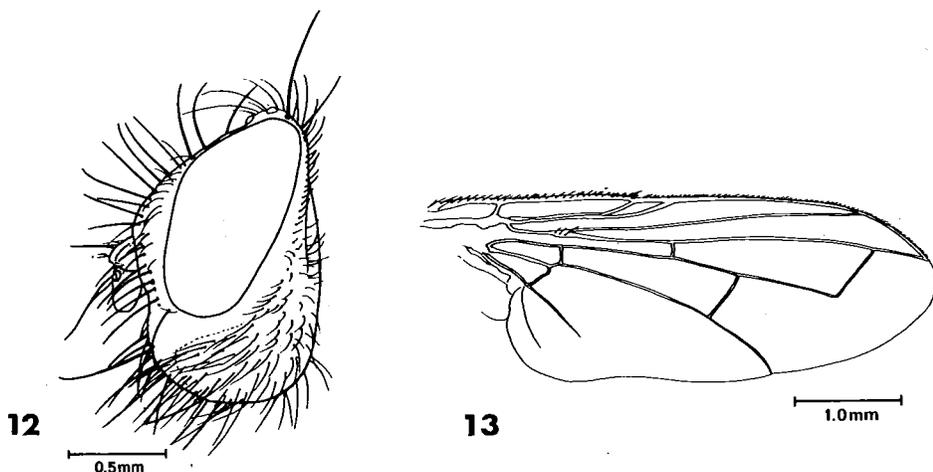
MATERIAL EXAMINED. ♂ holotype, ♀ allotype Mt. Hermon 8.7.75; 1 ♂, Mt. Hermon 8.9.71; 10 ♂♂, Mt. Hermon 9.6.75; same locality 2 ♂♂ and 2 ♀♀, 16.8.76; 1 ♂, Beit Djan (Syria) 25.10.73.

*Cirillia angustifrons* Rondani, 1856 (Figs. 12,13)

*Cirillia angustifrons* Rondani, 1856: 80; Séguy, 1941:381; Herting, 1961:19.

*C. angustiformis* is the only species in the genus *Cirillia* Rondani (1856).

*Length.* 5 mm. The important characters for recognition of the species are given in the key and in the figures (Figs. 12,13).



Figs. 12-13: *Cirillia angustifrons* Rondani (♂). 12 - head. 13 - wing.

*Distribution.* C. and S. France, Italy, S. Switzerland, Israel.

MATERIAL EXAMINED. 1 ♀, Qusbiye (Golan) 20.4.76; 1 ♀, Meiron 17.5.76; 3 ♀♀, Kefar Shamai (Upper Galilee) 6.10.74; Kefar Shamai 1 ♀, 30.9.75; 1 ♂, Shetula (Upper Galilee) 15.11.69; 1 ♂, Nahal Tavor (Lower Galilee) 10.10.71; 1 ♂, Genosar (Jordan Valley) 28.2.77; 1 ♂, Tiberias 9.5.72; 1 ♂, Bet Shean (Jordan Valley) 18.5.69; 1 ♂, Haifa 24.2.68; 1 ♀, Carmel 26.9.79; 2 ♀♀, N. Yoqneam (Carmel) 1.8.70; 1 ♂, Zichron Ya'akov (Northern Coastal Plain) 13.5.56; Zichron Ya'akov, 1 ♂, 13.6.68, 1 ♂, 20.6.69; 2 ♂♂, Ma'agan Michael (N.C. plain) 13.8.75; Same locality 1 ♀, 21.5.73; 1 ♀, Hadera (Central Coastal Plain) 9.10.76; 1 ♂, Herzliya (Central Coastal Plain) 28.8.77; 1 ♂, Tel Aviv 13.3.68; 1 ♀, W. Faria (Samaria) 1.3.73; 1 ♂, Jerusalem 10.6.34; 1 ♂, 1 ♀, Damiya (Dead Sea area) 28.6.69; 1 ♂, Jericho

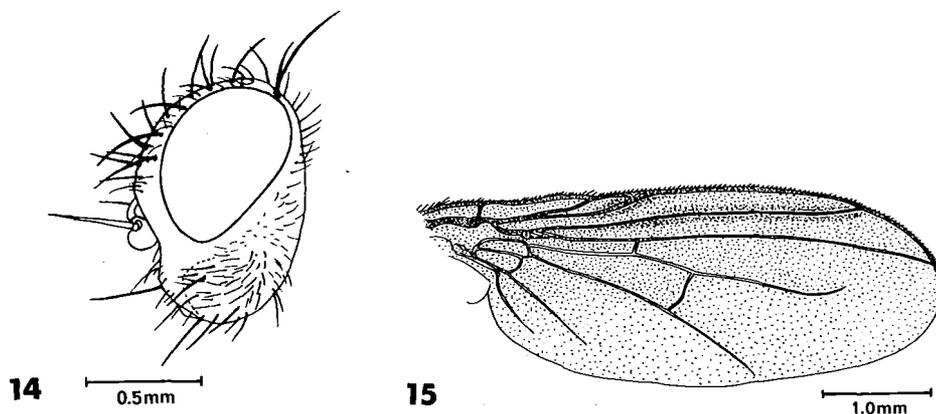
12.2.70, same locality, 2 ♂♂, 12.4.72, 1 ♂, 20.2.71, 2 ♂♂, 6.4.71, 1 ♂, 8.3.76, 1 ♂, 27.2.68, 1 ♀, 11.10.72, 5 ♂♂ + 1 ♀; W. Kelt (Dead Sea area) 25.3.75; 1 ♀, Re'im (Northern Negev) 5.7.71; 1 ♀, Machtesh Ramon 19.8.77.

*Hosts.* *Metaponorthrus pruinus* Brandt (Thompson 1920).

*Melanophora asetosa* n. sp. (Figs. 14, 15)

*Female.*

*Length.* 5 mm.



Figs. 14-15. *Melanophora asetosa* n. sp. (♀). 14 - head. 15 - wing.

*Color.* Shiny black without pollinosity; frontal stripe red; 2nd antennal segment brown-yellow, 3rd brown-black; palpi and legs brown-black; wings entirely black-brown infuscated; calyptrae infuscated.

*Head.* (Fig. 14). Frons seen from above as wide as 1 eye; *vi* and *ve* present; ocellar setae short and proclinate; parafrontalia with 1 or 2 prevertical setae, and a row of strong proclinate *oe*; parafacialia bare below the frontal setae, in the middle 1.5 as wide as 3rd antennal segment; peristome 1/2 as wide as large diameter of eye; mouth margin not protruding; antenna short, 3rd antennal segment as long as 2nd.

*Thorax.* Humeral setae in a row, *acr* absent, 2 + 3 *dc*, 0 + 2 *ia*, plealar seta absent 1 + 1 sternopleural setae, pteropleura with 1 short seta, without hairs; scutellum with only 1 pair of marginal setae in subapical position, the distance between the base of setae smaller than the distance between the setae and base of scutellum.

*Legs.* Forelegs without *pd* setae, mid-tibia with 1 *ad* seta.

*Wings.* (Fig. 15). No prominent costal spine, no apical cross-vein,  $m_{1+2}$  ending wide from wing margin, *m-m* twice as far from end of  $m_{1+2}$  as from *r-m*.

*Abdomen.* 2nd, 3rd, 4th and 5th tergites with marginal setae, discal setae absent.

*Male.* Unknown.

*Affinities.* Until recently only one species, *M. roralis* (L.) was known of the genus *Melanophora* Meigen (1803 p. 273). The differences between females of *Melanophora asetosa* n. sp. and *M. roralis* can be summarized as follows:

Apical cross-vein present, wing tip white (Fig. 16), scutellum with 2 pairs of marginal setae, cruciate apicals and widely separated lateral setae. . . . . *M. roralis*

Apical cross-vein absent, wing entirely infuscated (Fig. 15), scutellum with only 1 pair of marginal setae in subapical position. . . . . *M. asetosa*

**MATERIAL EXAMINED.** ♀ holotype, Yeruham (Negev) 12.4.1976; ♀ paratype, En Avedat (Negev) 29.7.1952.

*Melanophora roralis* (Linnaeus, 1758) (Fig. 16)

*Musca roralis* Linnaeus, 1758: 597.

*Melanophora atra* Robineau-Desvoidy, 1830: 272.

*Melanophora roralis* (L.); Séguy, 1941: 384; Herting, 1961:32; Crosskey, 1977: 51.

*Length.* 5-6 mm. In addition to the characters given in the key, the color is entirely black without any pollinosity; the male's wings are entirely infuscated, those of the female's with a light spot at the tip (Fig. 16); scutellum with strong lateral setae and weak cruciate apical setae.

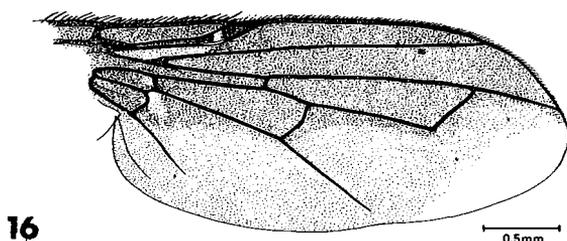


Fig. 16. *Melanophora roralis* (Linnaeus) (♀). wing.

*Distribution.* Europe, N. Africa, Israel, N. America, Jamaica, Brazil.

*MATERIAL EXAMINED.* 1 ♂, Qala'at Nemrod (Golan) 9.6.75; 1 ♂, Gamla (Golan) 6.5.75; 3 ♂♂, Hazor (Upper Galilee) 13.9.77; 1 ♀, Zefat 11.10.69, 1 ♂, Jermak (Upper Galilee) 31.5.61; 1 ♀, En Teo (Upper Galilee) 18.4.73, 1 ♂, Rosh Hanikra (Northern Coastal Plain) 1.5.64; 5 ♂♂ + 1 ♀, Kefar Nahum (Jordan Valley) 20.4.76; 1 ♂, Bet Shean (Jordan Valley) 2.6.69; 1 ♂, Afula 19.4.76; 1 ♂, Tel Aviv 4.4.78; 1 ♀, Latrun (Foothills of Judea) 7.10.71; 5 ♂♂, Nachshon (Judean Mts.) 30.8.73.

*Hosts.* *Porcellio scaber* (Latreille) (Brues 1903, Thompson 1934).

*Metoplisa* n. gen.

*Male.*

*Head* (Fig. 17). Frons seen from above nearly as wide as an eye; frontal sripe in the middle twice as wide as 1 parafrontal, with rows of bristle like long hairs; parafrontalia hairy with 2-3 proclinate *oe* and 1 reclinate *pv* seta; *ve* present; ocellar setae fine and bent forward; parafacialia bare below the frontal setae, in the lower part very narrow, much narrower than 3rd antennal segment; antennae short, 3rd segment 1.3 as long as 2nd; arista with microscopic hairs. Peristome 1/3 as wide as large diameter of eye. Epistome not protruding. Great vibrissae well developed.

*Thorax.* Prosternum bare, 3 humeral setae in one line, 1+1 *acr*, 2+3 *dc*, 0+2 *ia*, prealar seta absent, 1+1 sternopleurals, pteropleura with a group of hairs and 1 weak pteropleural seta. Scutellum with strong cruciate apical setae and strong lateral setae.

*Legs.* Fore-tibia without a *pd* spur; mid-tibia with 2 *ad* setae, the upper one very weak; hind-tibia with a strong *pv* spur. Claws of fore-legs a little shorter than 5th tarsal segment.

*Wings.* (Fig. 18). Costa with a row of short fine thorns without a prominent spine; bend of *m* forming a wide angle; *R*<sub>5</sub> open; base of *r*<sub>4+5</sub> without hairs or setae; *m-m* in the middle between *r-m* and bend of *m*.

*Abdomen.* Second and 3rd tergites without median marginal and discal setae; 4th and 5th tergites with a row of marginals, 5th with discals; 5th sternite cleft in the middle; the tip of the mesolobes not reaching the tip of the long paralobes.

*Female.* Frons seen from above a little wider than an eye; hairs on frontal stripe finer and sparser than in male.

*Affinities.* The genus *Metoplisa* is close to *Oplisa* Rondani 1862 by the very narrow parafacialia, which lack strong setae, the narrow peristome, the absence of prealar setae, and by having strong cruciate apical setae on the scutellum. It differs from *Oplisa* mainly by having shorter antennae, 3rd segment at most 1/3 as long as 2nd; the humeral seta is only slightly advanced from the 2 others instead of forming with them a nearly right angle; the bend of *m* is nearly as far from wing margin as from *m-m* while in *Oplisa* the bend of *m* is very close to the wing margin, if the apical cross-vein is missing, the end of *m* is also very close to the wing margin.

Type species: *Metoplisa carbonaria* n. sp.

*Metoplisa carbonaria* n. sp. (Figs. 17, 18)

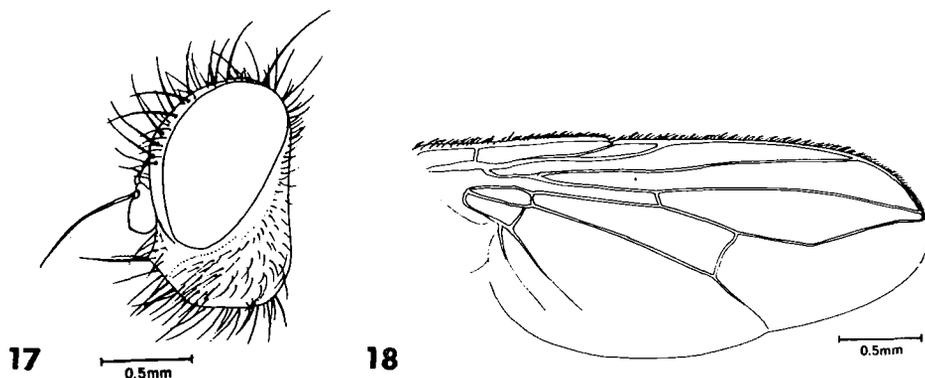
*Male.*

*Length.* 4.5 mm.

*Color.* Shiny black, thorax in oblique view with sparsely yellow pollinosity; frontal stripe, antennae, and palpi black; epaulette black, basicosta brown, wings transparent, veins brown; calyptrae brown-black infuscated.

*Female.* Similar to male.

*Distribution.* Israel.



Figs. 17-18. *Metoplisha carbonaria* n. sp. (♂). 17 - head. 18 - wing.

**MATERIAL EXAMINED.** ♂ holotype, Ein Tureiba (Dead Sea area) 13.2.75; ♀ allotype, same locality 24.12.74; paratypes: 1 ♂, Shefeh Zohar (Dead Sea area) 12.2.72; 2 ♀ ♀, Ras Feshkha (Dead Sea area) 22.11.76.

*Oplisa grandiloba* n. sp. (Figs. 19, 20, 21)

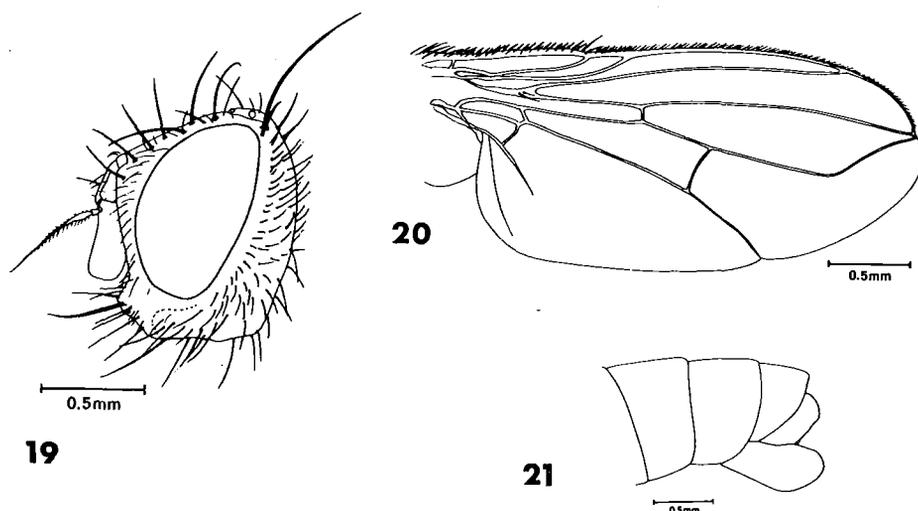
*Male.*

*Length.* 5 mm.

*Color.* Black, 3rd, 4th and 5th abdominal tergites with white-grey pollinosity in the anterior 2/3, along the middle a wide black median band; thorax grey pollinose with 3 black bands; frontal stripe red-brown; parafacialia and parafrontalia grey-white pollinose; antennae, palpi and legs brown-black; calyptrae whitish; haltera yellow.

*Head.* (Fig. 19). Frons seen from above as wide as 1 eye; strong *vi*, *ve* 1/2 as long as *vi*, frontal stripe in the middle as wide as 1 parafrontal; parafrontalia with 1 strong prevertical seta bent back and outward and 2 proclinate *oe*, the upper one weak; ocellar seta bent forward and outwards, parafacialia in the middle much narrower than 3rd antennal segment with hairs along the whole length; peristome narrow, 1/5 as wide as large diameter of eye; 3rd antennal segment 1.7 as long as 2nd, arista short plumose along whole length; great vibrissae strong and cruciate; proboscis short.

*Thorax.* 3 humeral setae in a nearly right angle, 2 + 1 *acr*, 2 + 3 *dc*, 0 + 2 *ia*; prealar missing; 2 + 1 sternopleural, 1 fine pteropleural seta in a group of hairs; scutellum with strong lateral setae and strong cruciate apicals.



Figs.19-21. *Oplisa grandiloba* n. sp. (♂). 19 - head. 20 - wing. 21 - posterior part of abdomen.

*Legs.* Forelegs without a *pd* spur; mid-tibia with 2 *ad* setae.

*Wing.* (Fig. 20). Costa with a row of strong thorns passing the end of  $r_1$ , costal spine strong, much longer than *r-m*;  $R_5$  narrowly open; at base of  $r_{4+5}$  1 strong bristle and 1 small hair; bend of *m* nearer to wing margin than to *m-m*; *m-m* nearer to *r-m* than to bend of *m*.

*Abdomen.* 3rd tergite with a pair of marginal setae, 4th and 5th tergites with a row of marginals; discals absent; 5th sternite cleft in two very large lobes which extend distally considerably behind 5th tergite (Fig. 21).

*Female.* Unknown.

*Affinities.* *Oplisa grandiloba* is close to *O. tergestina* Schiner, by having a row of thorns on the costa and a strong costal spine, by the strong bristle on the base of  $r_{4+5}$ , and by the presence of an apical cross-vein. The ♂ differs from *O. tergestina* by the extremely large lobes of the 5th sternite; by the parafacialia with hairs along the whole length, by *m-m* closer to *r-m* than to the bend of *m*. In *O. tergestina* the lower parts of the parafacialia are bare and *m-m* ends nearly in the middle between *r-m* and bend of *m*.

MATERIAL EXAMINED. ♂ holotype, Ramot Naftali (Galilee) 17.5.1973.

*Oplisa pollinosa* n. sp. (Fig. 22)

## Male

*Length.* 3.5 - 5 mm.

*Color.* Black, densely grey pollinose, a black line along the middle of the abdomen, a very narrow black line along the posterior margin of the abdominal tergites; parafrontalia, parafacialia grey pollinose, frontal stripe black with grey pollinosity; antennae, palpi, epaulettes brown; basicosta, haltera yellow, calyptrae white; wings hyaline.

*Head.* (Fig. 22). Frons seen from above as wide as 1 eye; *vi* and *ve* present; ocellar setae fine, proclinate; frontal setae strong, cruciate; parafrontalia with outward bend prevertical seta and 1 proclinate *oe*; parafacialia narrow, at the lower end not wider than base of arista; in the upper part with fine hairs; peristome as wide as 1/6 of large eye diameter; 3rd antennal segment nearly twice as long as 2nd; arista plumose.

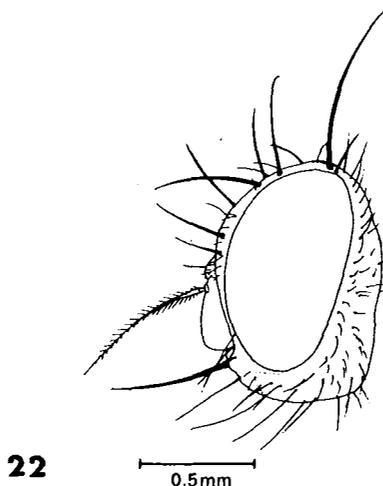


Fig. 22. *Oplisa pollinosa* n. sp. (♂) head.

*Thorax.* 3 humeral setae in a nearly right angle; 1 + 1 fine *acr*, 2 + 3 *dc*, 0 + 2 *ia*; a fine prealar seta; 2 + 1 sternopleurals, 1 prominent pteropleural seta; scutellum with strong cruciate apicals, strong laterals nearer to base of scutellum than to apicals, and hair-like basals.

*Legs.* Fore-tibia without *pd* spur and *pd* setae; mid-tibia with 1 *ad* seta in the lower half; claws of fore-legs shorter than 5th tarsal segment.

*Wings.* (Fig. 5). With or without a weak costal spine.  $R_5$  open; base of  $r_{4+5}$  with a very strong seta, in some specimens an additional fine setula; bend of  $m$  rounded, nearer to wing margin than to  $m-m$ ;  $m-m$  nearly as far from  $r-m$  as from bend of  $m$ .

*Abdomen.* 2nd tergite without developed median marginal setae, 3rd tergite with a row of fine adjacent and 5th tergite with a row of erect marginals; no discals.

*Female.* Similar to male, length 4-5.5 mm; pollinosity of abdomen less dense; 4th and 5th tergites with discal setae.

*Affinities.* *Oplisa pollinosa* is close to *O.* (= *Hoplisa*) *oldenbergi* Herting, by the proclinate ocellar setae, undeveloped costal spine, and by the absence of a row of strong thorns on the costa; it differs from it mainly by the densely pollinose abdomen, while in *O. oldenbergi* the 2nd tergite and nearly 1/2 of 3rd-5th tergites are shiny black; by the very strong seta on the base of  $r_{4+5}$  while in *O. oldenbergi* there are some weak setulae at base or  $r_{4+5}$ .

*MATERIAL EXAMINED.* 1 ♂ holotype, 1 ♀ allotype, 1 ♂ paratype, Carmel 13.6.74; other paratypes: 1 ♀, Haifa 11.5.69; 2 ♀♀, Haifa 15.5.71; 1 ♂, same locality 5.6.76; 1 ♀, Latrun (Foot-hills of Judea) 24.12.74; 1 ♀, Hula 6.7.77; 1 ♀, Bar'am (Galilee) 16.9.78; 2 ♀♀, Gamla (Golan) 6.5.75.

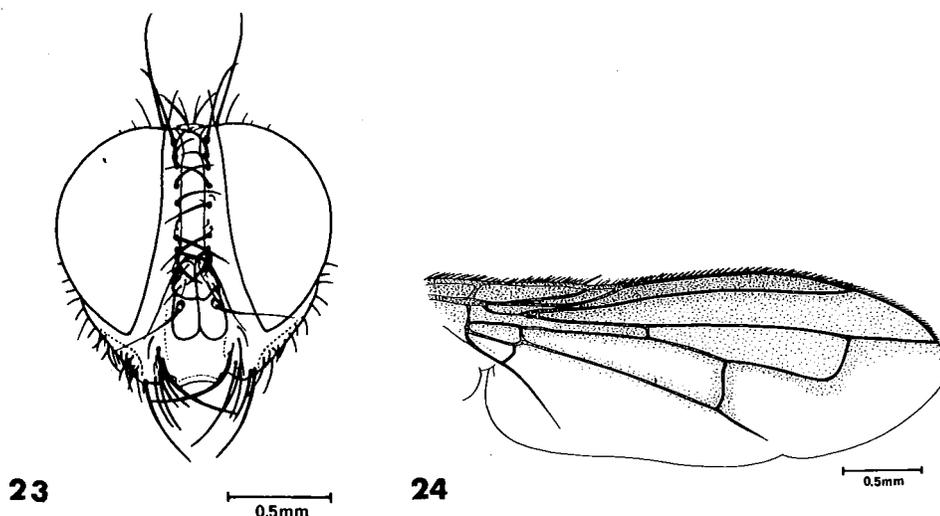
*Paykullia kugleri* (Herting, 1961) (Figs. 23,24)

*Chaetostevenia kugleri* Herting, 1961: 31.

The genus *Paykullia* was established by Robineau-Desvoidy in 1830. The genus *Chaetostevenia* by Brauer in 1895. Herting (1974, p. 31) stated that because *Chaetostevenia maculata* (Fallén) (= *Ocyptera maculata* Fallén, 1820) is synonymous with *Paykullia rubricornis* Robineau Desvoidy, 1830 and *Paykullia riparia* Robineau-Desvoidy, 1830, the valid name of the genus is *Paykullia* Robinaeu-Desvoidy.

*Length.* 4-5.5 mm.

*Color.* Shiny black, abdomen without any pollinosity; coxae and femora yellow, tibiae yellow-brown; wings brown infuscated in anterior part.



Figs.23-24. *Paykullia kugleri* (Herting) (♂) 23 - head. 24 - wing.

In addition to the characters mentioned in the key it is noteworthy that the female of *P. kugleri* has 2 *oe* and a prevertical seta on the parafrofrontalia; in the male the *oe* are absent (Fig. 23); thorax without prealar setae. According to Herting (1961) *P. kugleri* differs from all other species of the genus by the long petiole of  $R_5$  (Fig. 24) and by the short and fine apical setae of the scutellum.

*Distribution.* Israel.

**MATERIAL EXAMINED.** ♂ holotype, Yagur (Carmel) 22.2.1956; 1 ♂, Baniass (Golan) 10.7.75; 1 ♂, Meona (Upper Galilee) 19.4.61; 2 ♀ ♀, Dalton (Upper Galilee) 25.4.74; 1 ♂, Mt. Meron 18.9.76, same locality, 1 ♀, 17.5.76, 1 ♀, 18.5.66, 1 ♂, 9.4.77; 2 ♂ ♂, Ein Teo (Upper Galilee) 20.4.74; 1 ♂, Daverat (Lower Galilee) 14.5.74; 1 ♀, same locality 10.4.77; 1 ♂ + 1 ♀, Corazim (Lower Galilee) 1.5.63; 1 ♂, same locality 12.5.65; 1 ♀, Ben Ami (Lower Galilee) 15.2.69; 1 ♀, same locality 1.3.69; 1 ♂, Tivon (Lower Galilee) 22.3.56; 1 ♂, N. Oranim (Lower Galilee) 20.4.59; 1 ♀, Ha'on (Jordan Valley) 3.4.66; 1 ♀, El Hamma (Jordan Valley) 19.4.76; 4 ♂ ♂, Ma'ale Gilboa (Samaria) 17.3.78; 1 ♂, Nurit (Samaria) 19.3.74; 1 ♂ + 1 ♀, Mishmar Ha'Emeq (Samaria) 16.4.56; 1 ♂ En Hashofet (Samaria) 21.4.74; 1 ♂ + 1 ♀, Yagur (Carmel) 22.3.56; 1 ♀, Carmel 6.3.71; 1 ♀ N. Yoqneam (Carmel) 6.4.68; 1 ♂ + 1 ♀, Haifa 14.3.69; same locality, 1 ♂, 28.2.70, 1 ♀, 1.4.68, 2 ♂ ♂ + ♀, 5.6.76, 3 ♂ ♂, 28.2.70, 1 ♀, 19.3.70, 1 ♀, 14.3.69, 2 ♂ ♂ + 2 ♀ ♀,

4.4.68, 6 ♂♂ + 1 ♀, 14.3.70; 1 ♂, Zichron Ya'akov (Northern Coastal Plain) 20.3.64; 2 ♀♀, same locality 10.5.73, 2 ♂♂; Tel Aviv 15.3.76; 1 ♂, Shores (Judean Mts.) 10.4.78; 2 ♂♂, Harel (Judean Mts.) 20.3.56; 1 ♂, Kalia (Dead Sea Area) 8.3.76; 2 ♂♂, W. Kelt (Dead Sea area) 25.3.75; 1 ♀, Jericho 11.3.73; 1 ♂, Qiryat Gat (Northern Negev) 19.4.77.

*Phyto abbreviata* Villeneuve, 1920

*Phyto abbreviata* Villeneuve, 1920: 202; Séguy, 1941: 363; Herting, 1961: 14.

Male.

Length. 6-7 mm.

Color. Black. Dorsal side of abdomen grey-white pollinose with a median band and the hind margins of the segments without pollinosity.

In addition to the characters given in the key, the antennae of *Ph. abbreviata* are very short, not passing the upper half of the face; 3rd antennal segment as long as, or a little longer than 2nd.

Distribution. N. Africa, Israel.

MATERIAL EXAMINED. 1 ♀, Herodion (Judean desert) 26.3.74; 1 ♂, Mishmar Hanegev (Northern Negev) 19.4.61; 1 ♀, Yeroham (Central Negev) 18.3.71, 1 ♂, same locality 21.2.77.

*Phyto armadillonis* n. sp. (Figs. 25,26)

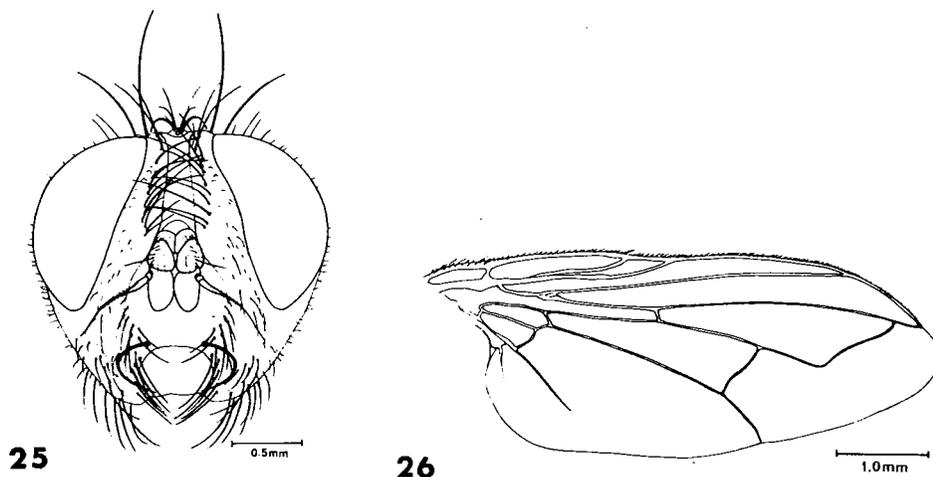
Male .

Length. 7-9 mm.

Color. Black, grey pollinose; a narrow black stripe along the posterior margin of abdominal tergites and a black stripe along the middle of the abdomen; thorax with 3 wide black stripes. Frontal stripe black; antennae brown-black; palpi brown; wings slightly infuscated; epaulette black-brown; basicosta brown; calyptrae infuscated yellowish-brown, haltera yellow-brown.

Head. (Fig. 25). Frons seen from above  $\frac{3}{5}$  -  $\frac{2}{3}$  as wide as 1 eye; *vi* and *ve* present, 1 backwards bent prevertical seta; *oe* absent; frontal stripe in the middle wider than 1 parafrontal; parafacialia in the middle twice as wide as 3rd antennal

segment, on the whole length covered with long hairs; peristome  $1/2$  as wide as large diameter of eye; 3rd antennal segment  $1\frac{1}{2}$  as long as 2nd; arista short pilose.



Figs. 25-26. *Phyto armadillonis* n. sp. (♂). 25 - head. 26 - wing.

**Thorax.** 1 (2) + 1 (2) *acr*, 2 (3) + 3 *dc*; 0 + 2 *ia*; prealar seta strong; 1 + 1 sternopleural setae, pteropleural seta present, barettte haired anteriorly; scutellum with 3-4 pairs of marginal setae; strong cruciate apicals, strong laterals, weaker baso-laterals and usually weak basals; preapicals present.

**Legs.** Fore-tibia with *ad*, *d* and *pd* spurs; mid-tibia with 2 *ad* setae. Claws of forelegs nearly as long as 5th tarsal segment.

**Wings** (Fig. 26). Costal spine as long or shorter than *r-m*;  $R_5$  petiolate; petiole as long or little longer than *r-m*; bend of *m* angular with or without a short appendage; *m-m* nearer to bend of *m* than to *r-m*.

**Abdomen.** 2nd tergite usually with a pair of median marginal setae; 3rd to 5th tergites with discals and a row of marginals.

**Female.** Abdomen less pollinose than in male. Frons as wide as 1 eye; parafrontalia with 2 proclinate *oe*; 2nd abdominal tergite usually without median marginal setae.

**Affinities.** *Phyto armadillonis* n.sp. is similar to *Ph. abbreviata* Villeneuve, by having a well developed pteropleural seta, a posterodorsal seta on the fore-tibia, by the petiole of  $R_5$ , by the short pilose arista. *Phyto armadillonis* differs from *Ph. abbreviata* by having longer antennae which descend to lower  $1/3$  of face while in *Ph. abbreviata* they descend only

to 1/2 the face; the basicosta is brown instead of yellow, the calyptrae are brownish instead of whitish. The ♂ of *Ph. abbreviata* has a wider frons with 2 proclinate oe on each parafrontalia.

*Distribution.* Israel.

**MATERIAL EXAMINED.** ♂ holotype, Mt. Carmel, emerged (15.3.1961) from *Armadillo officinalis* (Isopoda), coll. Warburg; ♀ allotype, Haifa 25.4.68; paratypes: 1 ♂, Carmel 15.3.67; 1 ♂, N. Amud 20.3.71; 2 ♀♀, N. Yoqneam 6.4.68; 1 ♂, Baniass 9.6.76; 1 ♀, Kadoori 26.4.69; 1 ♀, Dalton 25.4.74; 1 ♀, Yaara 2.5.68; 1 ♀, up. W. Faria 28.4.76; 3 ♂♂ + 1 ♀, Negba 23.3.77; 1 ♀, Haifa 20.5.72; 2 ♀♀, Haifa 4.4.68; 1 ♀, same locality 12.4.69; 1 ♂, Bet Shaarim 30.4.77; 2 ♀♀, Gilboa 17.3.78.

*Phyto latifrons* n. sp. (Figs. 27,28)

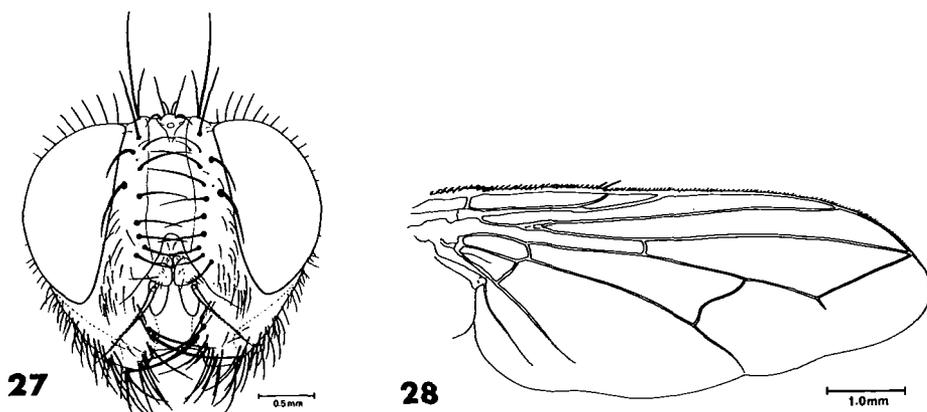
*Male.*

*Length.* 8-8.5 mm.

*Color.* Black, frontal stripe red or reddish-black; peristome, except occipital dilation, red; 2nd antennal segment brown-black; palpi yellow-brown; parafacialia and parafrontalia silvery-golden pollinose; thorax seen from behind white pollinose, with 5 black stripes, the middle stripe nearly reaching anterior margin of scutellum; abdomen with white-golden pollinosity, with a black stripe along the middle; pollinosity denser on anterior parts of 2nd and 3rd tergites; wings brown infuscated; basicosta yellow; calyptrae dark brown infuscated.

*Head* (Fig. 27). Frons seen from above nearly as wide as 1 eye. Frontal stripe wider than 1 parafrontal; ocellar setae strong and proclinate; parafrontalia with 2 forward bent oe and 1 strong backward bent prevertical seta; parafacialia in the middle twice as wide as 3rd antennal segment, narrowing in its lower part, densely covered with fine bristles; peristome as wide as 2/3 of large diameter of eye; antennae short, 3rd segment 1.3 as long as 2nd, arista short pilose.

*Thorax.* 2-3 humeral setae in a row; 1 + 1 *acr*, 2 + 3 *dc*, 0 + 2 *ia*; prealar seta nearly as strong as 1st postsutural *dc*; 2 + 1 sternopleural setae; pteropleura with a bunch of hairs without a prominent seta; scutellum with short basal, strong lateral and strong cruciate apical setae.



Figs. 27-28. *Phyto latifrons* n. sp. (♂). 27 - head. 28 - wing.

*Legs.* Fore-tibia with 3 dorsal apical spurs (*ad*, *d*, *pd*); hind-tibia with 2 *ad* setae; claws of forelegs much shorter than 5th tarsal segment.

*Wings.* (Fig. 28). Costal spine as long or longer than *r-m*; *R*<sub>5</sub> closed at wing margin or with a very small petiole; bend of *m* forming a wide angle, with or without a short appendage; *m-m* sigmoid nearer to bend of *m* than to *r-m*.

*Abdomen.* 3rd tergite with a pair of marginal setae, or with a row of setae; 4th and 5th tergites with a row of marginals; no discals.

*Female.* Similar to male.

*Affinities.* *Phyto latifrons* is similar to *Ph. sordidisquama* Villeneuve, the frons in both is nearly as wide as 1 eye, and with 2 *oe*, in male and female; both species have a *pd* spur on the fore-tibia and short claws; infuscated wings, a long costal spine and brown infuscated lower squamae. *Ph. latifrons* differs from *Ph. sordidisquama* mainly by the absence of a prominent pteropleural seta. *R*<sub>5</sub> in *Ph. sordidisquama* is long petiolate while in *Ph. latifrons* *R*<sub>5</sub> closes at the wing margin with or without a very small petiole.

*Distribution.* Israel.

**MATERIAL EXAMINED.** ♂ holotype, Zefat 14.9.71; ♀ allotype, Birket-Nakar (Hermon) 22.6.71; 1 ♂ paratype, Jerusalem 1.9.49.

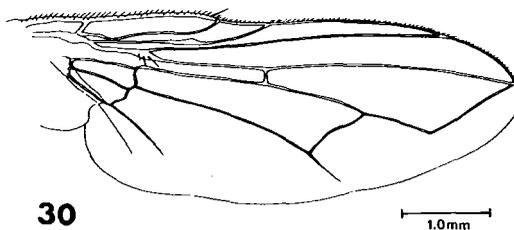
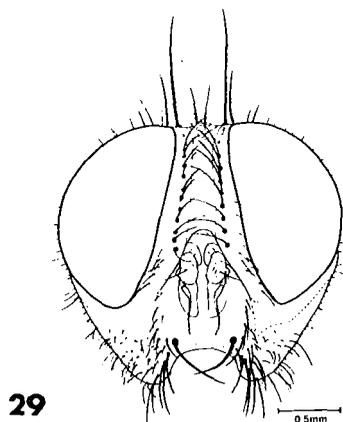
*Phyto luteisquama* n. sp. (Figs. 29,30)

Male.

Length. 7 mm.

*Color.* Black, abdomen uniformly covered with fine grey pollinosity, only with a shiny black stripe along the middle; thorax grey-pollinose with black stripes; parafacialia and parafrontalia with dense grey-white pollinosity; frontal stripe red-black; antennae brown-black, palpi yellow-brown; legs brown-black; basicosta yellow, lower calyptrae yellowish.

*Head.* (Fig. 29). Frons seen from above  $1/2$  as wide as 1 eye; frontal stripe in the middle wider than 1 parafrontal; outside the frontal setae only a few hairs; parafacialia in the middle only slightly wider than 3rd antennal segment and with fine short hairs; peristome 0.6 as wide as large diameter of eye; antennae short, 3rd antennal segment 1.5 as long as 2nd; arista nearly bare.



Figs. 29-30. *Phyto luteisquama* n. sp. ( $\delta$ ). 29 - head. 30 - wing.

*Thorax.* 3 humeral setae nearly in a row; 1 + 2 *acr*, 2 + 3 *dc*, 0 + 2 *ia*; prealar seta as strong as first postsutural *dc*; 1 + 1 sternopleurals; 1 prominent pteropleural seta among a group of hairs; scutellum with strong apical, lateral and weak basal setae.

*Legs.* Fore-tibia with 3 dorsal spurs (*ad*, *d*, *pd*); claws of forelegs nearly as long as 5th tarsal segment; mid-tibia with 1 *ad* seta below the middle.

*Wings* (Fig. 30). Costal spine, slightly longer than *r-m*.  $R_5$  closed at wing margin; 2-3 setulae at base of  $r_{4+5}$ ; *m-m* nearer to bend of *m* than to *r-m*.

*Abdomen*. 3rd tergite with a pair of median marginal setae, 4th and 5th tergites with a row of marginals and with discals.

*Female*. Pollinosity more concentrated in the anterior part of abdominal tergites; frons seen from above as wide as 1 eye; parafrontalia with 1 *oe*, and 1 prevertical seta; pteropleural seta absent (may be an individual abnormality).

*Affinities*. *Phyto luteisquama* is close to *Ph. adolescens* Rondani. They are similar in color; except for the calyptrae, which are yellowish in *Ph. luteisquama* and white in *Ph. adolescens*. Both species have a nearly bare arista, yellow basicosta, 2 strong postsutural *ia* (1st and 3rd), mid-tibia with only 1 *ad* seta; parafrontalia of ♂ without *oe* setae. *Phyto luteisquama* differs from *Ph. adolescens* mainly by the narrower parafacialia (in *Ph. adolescens* they are twice as wide as 3rd antennal segment), by the absence of median marginal setae on the 1st abdominal tergite, and by the absence of discal setae on 3rd tergite, even in the ♂.

*Distribution*. Israel.

**MATERIAL EXAMINED.** ♂ holotype and ♀ allotype, Ma'aloth (Galilee), emerged (3.4.67) from *Porcellio laevis* (Isopoda), coll. Warburg (10.3.67).

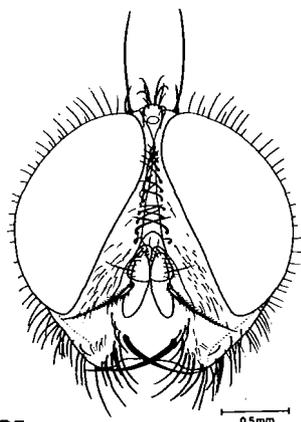
*Phyto pauciseta* Herting, 1961. (Fig. 31)

*Phyto pauciseta* Herting, 1961:17.

*Length*. 5.5-7 mm.

*Color*. Black. Abdomen dense grey pollinose with a narrow median band; the posterior 1/4 of the segments in ♂ and the posterior 1/2 of the segments in ♀ are without pollinosity.

In addition to the characters given in the key it is noteworthy that the arista is distinctly hairy (Fig. 31);  $R_5$  in the wing is open or closed without a petiole. Unlike the narrow frons of the male, the frons of the female is as wide as an eye and their parafrontalia have a prevertical seta and 2 *oe*.



31

Fig. 31. *Phyto pauciseta* Herting (♂) head.

*Distribution.* Israel.

**MATERIAL EXAMINED.** ♂ holotype, Zichron-Ya'akov (Northern Coastal Plain) 17.5.56; same locality 2 ♂♂, 17.5.56, 1 ♂, 14.5.57, 1 ♂, 4.5.68, 1 ♂, 4.6.68, 1 ♂, 3.6.70; 1 ♂, Mt. Meron (Upper Galilee) 9.4.77; 1 ♀, Kefar Shamai (Upper Galilee) 30.9.75; 1 ♂, Zefat 14.9.71; 1 ♂, Bet Shean (Jordan Valley) 18.5.69; 1 ♂, Carmel 9.9.78; 1 ♂, Haifa 20.4.68; 1 ♀, Giv'at Haviva 6.5.56; 3 ♂♂, Tel Aviv 31.5.71; same locality 1 ♂, 27.6.68, 1 ♀, 16.5.72; 1 ♀, Migdal Zedek (Central Coastal Plain) 30.7.76; 1 ♀, W. Faria (Samaria) 3.6.77; 1 ♂, same locality 27.5.76; 1 ♀, Hulda (Foothills of Judea) 25.5.66; 3 ♂♂ + 1 ♀, Lahav (Foothills of Judea) 23.4.70; 1 ♂ + 1 ♀, Mishmar David (Judean Mts.) 18.5.57; 1 ♂, Timorim (Northern Negev) 11.5.58; 2 ♂♂ + 1 ♀, Qiryat Gat (Northern Negev) 23.4.70; 1 ♀, Jericho (Dead Sea area) 11.10.72; 1 ♂, Wadi Kelt (Dead Sea area) 25.3.75; 1 ♀, Damiya (Dead Sea area) 28.6.69; 1 ♀, W. Uja (Dead Sea area) 31.5.73; 1 ♂, same locality 18.10.78.

*Rhinophora lepida* (Meigen, 1824) (Figs. 32,33).

*Tachina lepida* Meigen, 1824: 289.

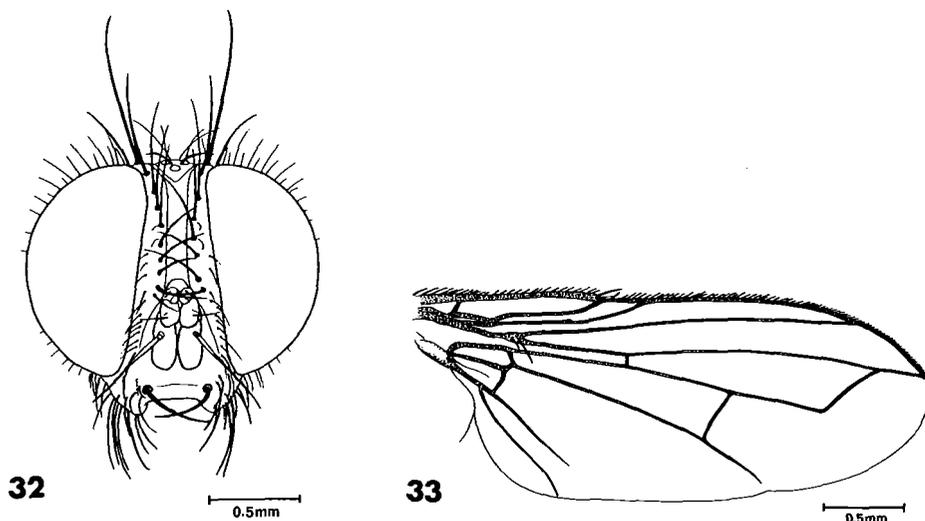
*Rhinophora gagatea* Robineau-Desvoidy, 1830: 259.

*Rhinophora lepida* (Meigen); Séguéy, 1941: 380; Herting, 1961:28.

*Rhinophora lepida* is the only species in the genus *Rhinophora* Robineau-Desvoidy (1830).

*Length.* 4-5 mm.

*Color.* Shiny black. Abdomen of ♂ with an interrupted band of pollinosity at the anterior border of 3rd and 4th abdominal tergites; in ♀ pollinose band absent or nearly absent; basicoستا black, calyptrae whitish.



Figs. 32-33. *Rhinophora lepida* (Meigen) (♂). 32 - head. 33 - wing.

In addition to the characters given in the key, the following characters are noteworthy: Parafrontalia of male with prevertical seta and without *oe* (Fig. 32) parafrontalia of female with prevertical seta and with *oe*; peristome narrow; wing with strong costal spine; petiole of  $R_5^{1/2}$  as long or longer, as apical crossvein (Fig. 33); abdomen with marginal setae on all tergites, discals only on 5th tergite.

*Distribution.* Europe, Israel.

**MATERIAL EXAMINED.** 1 ♀, Hanita (Upper Galilee) 30.10.71; 1 ♂, Ma'alot (Upper Galilee) 10.10.71; 1 ♂, Meona (Upper Galilee) 19.4.69; 1 ♂ + 1 ♀, Meron (Upper Galilee) 20.5.72; 1 ♀, Kabri (Upper Galilee) 19.4.69; 1 ♂, Daverat (Lower Galilee) 27.4.69; 1 ♀, Tivon (Lower Galilee) 13.4.62; 1 ♀, Ginnosar (Jordan Valley) 3.5.69; 1 ♂ + 1 ♀, Akko (Northern Coastal Plain) 30.4.63; same locality 1 ♀, 20.4.74, 1 ♀, 15.11.69, 1 ♂, 17.10.72, 2 ♀ ♀, 30.10.71, 2 ♀ ♀, 10.11.76; 1 ♀, Carmel 9.4.59; same locality 1 ♀, 2.5.70, 1 ♀, 6.12.69, 1 ♂ + 8 ♀ ♀, 5.5.76; 4 ♂ ♂ + 1 ♀, N. Yoqneam (Carmel) 6.4.68; 1 ♀, same locality 20.4.68; 1 ♂, Haifa 5.5.76; same locality 1 ♂, 22.4.73, 1 ♀, 15.5.71, 1 ♀, 25.4.68, 1 ♂, 4.4.68, 3 ♂ ♂ + 4 ♀ ♀, 4.4.70, 2 ♂ ♂ + 5 ♀ ♀, 20.4.68; 6 ♂ ♂ + 2 ♀ ♀, Zichron Ya'akov (Northern Coastal Plain) 3.6.70; 1 ♂, same locality 4.6.68.

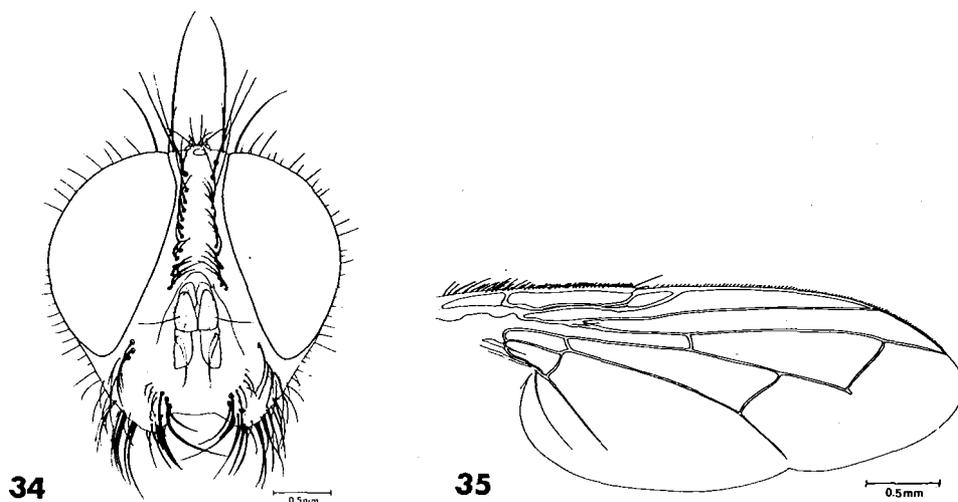
*Hosts.* *Porcellio scaber* Latreille (Thompson 1934).

*Stevenia angustifrons* Villeneuve, 1911 (Figs. 34,35).

*Stevenia angustifrons* Villeneuve, 1911:50; Séguy, 1941: 372; Herting, 1961:22.

*Stevenia inops* Villeneuve, 1934:54.

Length. 5-9 mm.



Figs. 34-35. *Stevenia angustifrons* Villeneuve (♂). 34 - head. 35 - wing.

*Color.* Male black sometimes with a yellow-red spot at the sides of the abdomen. Abdominal tergites grey pollinose, a band along the middle and hind margin of segments, without pollinosity. Abdomen of female poorly pollinose; 2nd and 3rd tergites often extensive yellow-red.

In addition to the characters given in the key, it is noteworthy that the frons of the female is  $\frac{3}{4}$  as wide as an eye with 2 *oe*; the arista is distinctly hairy (Fig. 34);  $R_5$  long petiolate; bend of *m* sometimes with short appendage (Fig. 35).

*Distribution.* Turkey, Syria, Israel, Iran.

*MATERIAL EXAMINED.* Hundreds of specimens collected from Mt. Hermon in the north to Central Negev in the south. March-September. *S. angustifrons* is the most common rhinophorid in Israel.

*Stevenia atramentaria* (Meigen, 1824)

*Tachina atramentaria* Meigen, 1824:291.

*Stevenia tomentosa* Robineau-Desvoidy, 1863:378.

*Stevenia atramentaria* (Meigen); Séguy, 1941: 373; Herting, 1961:23.

*Length.* 5-10 mm.

*Color.* Shiny black; abdomen sparsely pollinose.

In addition to the characters given in the key it is noteworthy that the frons of the female is  $\frac{2}{3}$  as wide as an eye; parafrontalia with 1 oe; hairs of arista longer than the width of basal part of arista; 3 sternopleural setae.

*Distribution.* Europe, Israel.

**MATERIAL EXAMINED.** 1 ♂ Baniass (Golan) 4.5.77.

*Hosts.* According to Herting (1961), Verhoeff reared *S. atramentaria* from *Tracheoniscus arcuatus* Budde-Lund and *Philoscia affinis* Verhoeff. In literature, *Oniscus asellus* L. is also recorded as host. According to Herting (personal communication) this record is erroneous based on a mis-identification of *Tracheoniscus (Trachelipus) rathkei* Brandt.

*Stevenia flaviventris* n. sp. (Figs. 36,37).

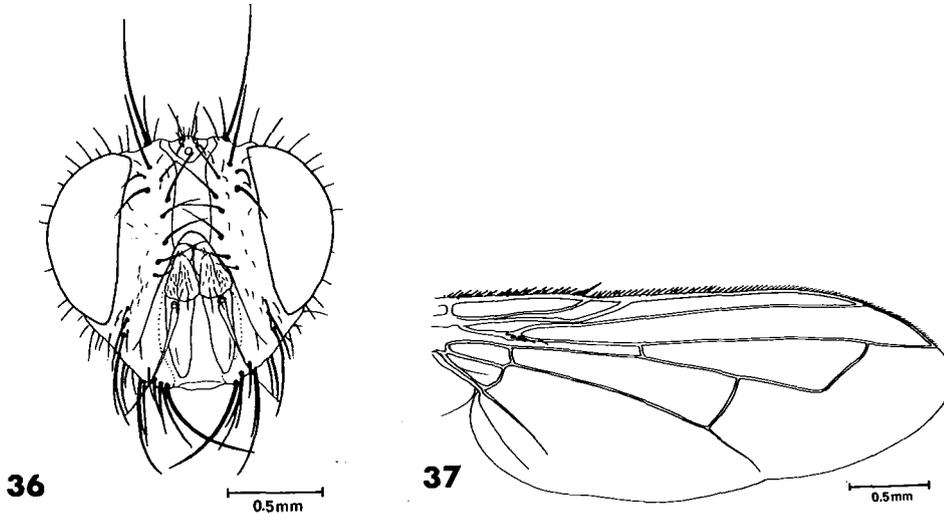
*Male.*

*Length.* 6 mm.

*Color.* Abdomen mainly yellow. Along the middle of segments 2 to 4 a more or less visible black-brown band; 5th segment black-brown. Anterior margin of 3rd and 4th tergites, with a white band of pollinosity. Thorax black, grey pollinose, with 3 black bands, the middle band composed of 3 black lines; parafrontalia and parafacialia silvery-grey pollinose; frontal stripe red; 1st, 2nd and base of 3rd antennal segments, yellow, 3rd segment mainly black-brown; palpi, epaulette, basicoxa and haltera yellow; anterior  $\frac{1}{2}$  of wings, brown infuscated; legs mainly yellow, tarsi brown.

*Head.* (Fig. 36). Frons seen from above 1.3 as wide as 1 eye; *vi* present *ve* absent; parafrontalia narrower than frontal stripe, with a reclinate prevertical seta and 2 proclinate *oe*, the upper one weak; parafacialia in the middle nearly as wide

as 3rd antennal segment, a row of very short fine hairs in its upper part, 3-4 strong setae in addition to hairs in the lower part, peristome 0.4 as wide as large diameter of eye; 3rd antennal segment twice as long as 2nd; arista fine pilose.



Figs. 36-37. *Stevenia flaviventris* n. sp. (♂). 36 - head.  
37 - wing.

*Thorax.* Prealar seta, hair like; 0 + 1 *acr*, 2 + 3 *dc*, 0 + 2 *ia*, 2 + 1 sternopleurals, pteropleural seta present, but short; scutellum only with lateral and apical marginal setae; base of laterals nearer to apicals than to base of scutellum.

*Legs.* Fore-tibia without *pd* spur, with 2 *pd* setae, mid-tibia with 2 *ad* setae; claws of forelegs shorter than 5th tarsal segment; mid-femur without thorns at tip.

*Wings.* (Fig. 37). Costal spine longer than *r-m*; *R*<sub>5</sub> long petiolate, base of *r*<sub>4+5</sub> with 2-3 setulae, *m-m* nearer to bend of *m* than to *r-m*.

*Abdomen.* 2nd tergite with a pair of very close median marginal setae, 3rd tergite with a pair of marginal setae, 4th and 5th tergites with a row of marginals, discals absent.

*Female.* Similar to male. Length 6-7 mm, 3rd antennal segment 1.6 as long as 2nd.

*Affinities.* *Stevenia flaviventris* is close to *S. triangulata* (Loew), by the wide frons and presence of *oe* setae in both sexes; 3 sternopleural setae; 2nd abdominal tergite with marginals; the absence of discals, fore-tibia without *pd* spur

but with *pd* setae; mid-femur without *pv* thorns at tip; claws of fore-legs shorter than 5th tarsal segment; only 2-3 setulae at base of  $r_{4+5}$ . *S. flaviventris* differs from *S. triangulata* by the more extensive yellow color of the abdomen, by the yellow epaulettes; by the frons wider than one eye instead of narrower than 1 eye; 3rd antennal segment twice as long as 2nd instead of 1.5.

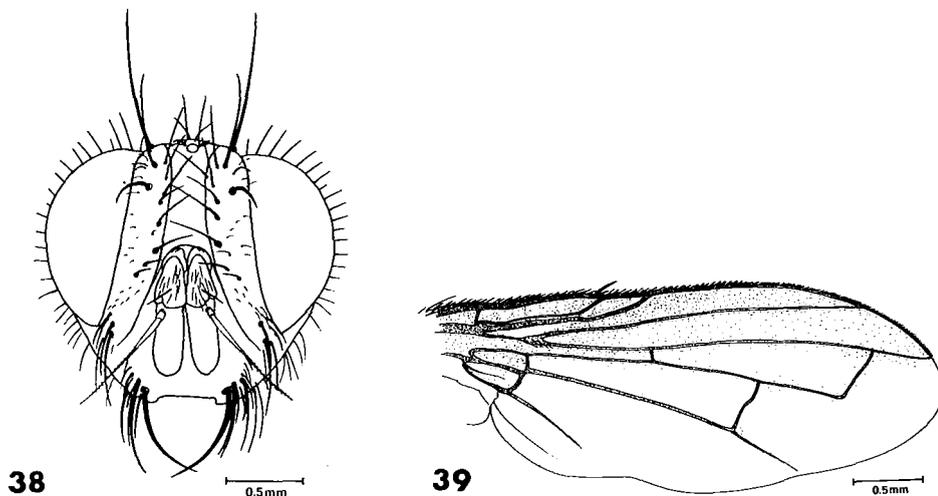
MATERIAL EXAMINED. ♂ holotype, ♀ allotype, and 1 ♀ paratype, Bet Shean (Jordan Valley) 24.5.69; 2 ♀ ♀, paratypes same locality, 18.5.69.

*Stevenia hertingi* n. sp. (Figs. 38,39)

Male.

Length. 7-8 mm.

Color. Shiny black. At the anterior margin of 2nd and 3rd abdominal tergites a narrow stripe of grey-white pollinosity interrupted in the middle. Thorax with 2 longitudinal wide grey pollinose stripes; frontal stripe red-brown; 2nd antennal segment and palpi yellow; legs brown-black; basicosta yellow; anterior part of wings brown infuscated; calyptrae yellowish, haltera yellow at base, brown at tip.



Figs. 38-39. *Stevenia hertingi* n. sp. (♂). 38 - head. 39 - wing.

*Head.* (Fig. 38). Frons seen from above, as wide as 1 eye; *vi* long, *ve* absent; ocellar setae fine and proclinate; frontal stripe in the middle as wide as 1 parafrontal; parafrontalia with a strong reclinate prevertical seta and 1 strong proclinate *oe*; in the holotype an additional weak *oe*, posterior the strong one; parafacialia in the middle a little narrower than 3rd antennal segment, in the upper part sparsely hairy, in the lower part with short hairs, fine setae and a row of 3-5 strong setae; peristome nearly  $\frac{1}{2}$  as wide as large diameter of eye; 3rd antennal segment 1.3 as long as 2nd; arista fine pilose.

*Thorax.* 2-3 humeral setae; *acr* absent or very weak, 2+3dc, 0+2 *ia* (1st and 3rd) prealar seta very short, hairlike; 1 + 1 strong sternopleural setae, in some specimens, 1-2 additional fine setae; scutellum with strong apicals and laterals, with or without weak basals; the laterals are nearer to base of apicals than to base of scutellum.

*Legs.* Fore-tibia without a *pd* spur, with 1 *pd* seta near the middle; mid-tibia with 3 *ad* setae; claws of forelegs shorter than 5th tarsal segment.

*Wings.* (Fig. 39). Costal spine strong, longer than *r-m*; *R*<sub>5</sub> long petiolate; bend of *m* angular, forming a right or nearly right angle; apical crossvein straight; base of *r*<sub>4+5</sub> with 3-4 fine setulae; *m-m* in the middle between *r-m* and bend of *m*.

*Abdomen.* 2nd abdominal tergite without median marginal setae, 3rd tergite with a pair, 4th and 5th with a row of marginals, discs absent.

*Affinities.* *Stevenia hertingi* is similar to *S. lateralis* Macquart, by the wide frons, the well developed *oe* and prevertical seta in the ♂, by having only 2 strong sternopleural setae. Unlike *S. hertingi*, *S. lateralis* has red spots on the sides of the abdomen, a pair of median marginal setae on the 2nd tergite, and long ventral hairs on the mid and hind-tibia.

**MATERIAL EXAMINED.** ♂ holotype, Yizrael 7.8.73, ♀ allotype, Afula (Yizreel Valley) 19.4.76; paratypes: 1 ♂, Ramot Naftali (Galilee) 15.6.65, same locality, 1 ♂, 16.5.68, 1 ♂, 8.5.69, 1 ♂, Jenin (Samaria) 28.6.69.

*Stevenia hirtigena* Herting, 1961.

*Stevenia hirtigena* Herting, 1961: 25.

*Length.* 5-8 mm.

In addition to the characters given in the key, the parafacialia are densely hairy.

*Distribution.* Iran, Israel, Mt. Hermon, Golan.

**MATERIAL EXAMINED.** 1 ♀, Mt. Hermon 9.6.76; 1 ♂, Mas'ada (Golan) 3.10.70; 1 ♂, Lahav (Foothills of Judea) 23.4.70; 1 ♀, same locality 20.3.73; 1 ♂ + 2 ♀♀ Adullam (Foothills of Judea) 25.8.70; 1 ♀, Arad (Northern Negev) 11.4.76; 1 ♂,

Mishor Rotem (Northern Negev) 1.3.66; 2 ♂♂ + 2 ♀♀, En Gedi (Dead Sea area) 29.3.76; 1 ♂, Kefar Yeruham (Central Negev) 6.4.63; 2 ♂♂, Sede Boqer (Central Negev) 6.4.65.

*Stevenia triangulata* (Loew) *kugleri* Herting, 1961  
(Figs. 40, 41)

*Stevenia triangulata* (Loew) *kugleri* Herting, 1961:27.

Herting while redescribing *S. triangulata*, a species with a mainly red-yellow abdomen, mentioned that 1 male from Israel was entirely black. Herting proposed to call the black form *Stevenia triangulata kugleri*, if additional records will show that the black form is constant in the Israeli population. Since Herting's publication 20 specimens of males and females, always of the black form, were collected.

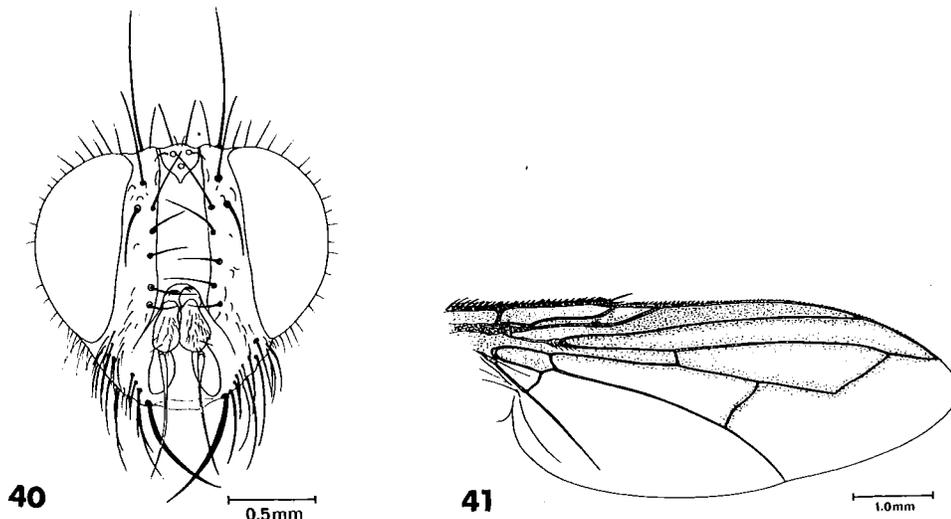
In addition to color *S.t. kugleri* differs from the typical form by having 4-5 *pv* thornlike setae near the tip of the mid-femur, and *m-m* is equidistant from *r-m* as from bend of *m*. In the typical *S. triangulata* *m-m* is nearer to bend of *m* than to *r-m*. The different color and the additional differences suggest that the 2 forms may even belong to different species.

*Male.*

*Length.* 6-9 mm.

*Color.* Shiny black; the anterior part of 3rd and 4th abdominal tergites, white-grey pollinose; thorax grey-pollinose with black longitudinal bands; 1st, 2nd and base of 3rd antennal segments yellow; palpi yellow; legs black-brown; anterior part of wings brown infuscated; calyptrae whitish.

*Head.* (Fig. 40). Frons seen from above a little wider than an eye; *ve* absent; frontal stripe in the middle usually wider than 1 parafrontal; parafrontalia with 1 strong proclinate *oe* and a strong reclinate prevertical seta; upper part of parafacialia sparsely hairy, lower part densely hairy with a row of strong setae; 3rd antennal segment 1.5 as long as 2nd; arista nearly bare.



Figs. 40-41. *Stevenia triangulata kugleri* Herting. (♂).  
40 - head. 41 - wing.

*Thorax.* Humerus with 3 setae forming a nearly right angle; 1 + 1 weak *acr*, 2 + 3 *dc*, 0 + 2 *ia*, prealar seta hairlike, 1 + 1 strong sternopleural setae below the anterior seta, usually 1 (sometimes 2) additional weaker seta.

*Legs.* Fore-tibia with 2 *pd* setae, without *pd* spur; claws of forelegs shorter than 5th tarsal segment; near the tip of mid-femura 3-5 short not very thick thornlike *pv* setae; mid-tibia with 2-3 *ad* setae of different length.

*Wings.* (Fig. 41). Costal spine strong; 3-5 setulae at base of  $r_{4+5}$ ; *m-m* reaching *m* at equal distance from *r-m* and bend of *m*.

*Abdomen.* Tergites 2 to 5 with strong marginal setae, discals absent.

*Female.* Similar to male, with a little wider abdomen. In some specimens the sides of the abdomen are black-brown.

*Distribution.* Israel.

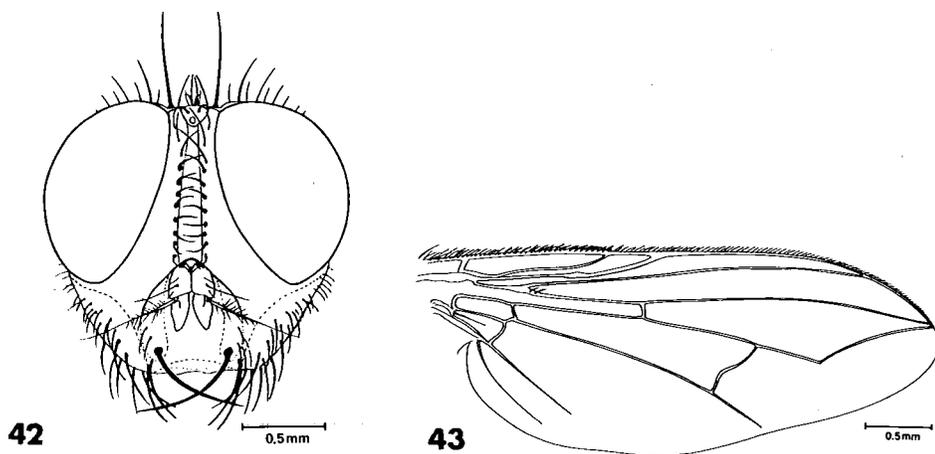
MATERIAL EXAMINED. ♂ holotype, Zichron Ya'akov (Northern Coastal Plain) 13.5.56; 2 ♂♂, same locality 4.5.68; 1 ♂, Hatzbani (Golan) 24.5.78; 1 ♂, Nahal Amud (Upper Galilee) 30.9.75; 1 ♀, Jermaq (Upper Galilee) 20.5.64; 1 ♂, Rosh Hanikra (Northern Coastal plain) 1.5.64; 1 ♂, Ginnosar (Jordan Valley) 3.5.69; 1 ♂, El Hamma (Jordan Valley) 21.3.45; 2 ♂♂, Yoqneam (Carmel) 5.10.69; 1 ♂, Bet Guvrin (Foothills of Judea) 6.10.75; 1 ♀, Latrun (Foothills of Judea) 15.10.77; 1 ♀, Qiryat Anavim (Judean Mts.) 8.10.30; 1 ♂ Jerusalem 4.48, same locality 1 ♂, 26.6.56, 1 ♂, 26.7.49, 1 ♂, 1.7.46, 1 ♀, 10.10.51, 1 ♀, 1.5.47.

*Tromodesia angustifrons* n. sp. (Figs. 42,43)

Male.

Length. 5 mm.

Color. Black, grey pollinose; 2nd and 3rd abdominal segments laterally and ventrally yellow; a black band along the middle of 3rd and 4th tergites, widening posteriorly to a transversal band; 5th tergite entirely pollinose or with a small black spot in the middle; frontal stripe black, antennae black or brown; peristome, parafacialia and parafrontalia with dense grey-silvery pollinosity; palpi yellow with brown tip. Thorax with 3 wide black stripes; legs mainly yellow, tarsi brown; wings slightly brown infuscated; calyptrae whitish.



Figs. 42-43. *Tromodesia angustifrons* n. sp. (♂). 42 - head.  
43 - wing.

*Head.* (Fig. 42). Frons seen from above  $1/2$  as wide as 1 eye; *vi* and *ve* present ocellar setae proclinate; frontal stripe narrow widening towards lunula; parafrontalia outside frontal setae nearly bare without *oe*, parafacialia bare, in the middle twice as wide as 3rd antennal segment; peristome  $1/2$  as wide as large diameter of eye; antennae short; 3rd antennal segment a little longer than 2nd; basal half of arista plumose.

*Thorax.* 2-3 humeral setae nearly in a line; 1 + 1 *acr*; 2 + 3 *dc*; 0 + 2 (1st + 3rd) *ia*; prealar absent; 2 sternopleural setae, 1 fine pteropleural seta in a group of hairs; scutellum with strong cruciate apicals, strong laterals near base, basal setae very short and weak.

*Legs.* Fore-tibia with only 2 strong dorsal spurs (*d. ad*), mid-tibia with 2 *ad* setae; hind-tibia with 3 strong dorsal spurs (*ad*, *d* and *pd*) and a strong *pv* spur; claws of fore-legs long, a little longer than 5th tarsal segment.

*Wings.* (Fig. 43). Costa only with short thorns without prominent costal spine; *R*<sub>5</sub> open; base of *r*<sub>4+5</sub> with 1-4 fine setulae; bend of *m* nearly as far from wing margin as from *m-m* forming a wide angle; *m-m* slightly sigmoid a little nearer to bend of *m* than to *r-m*.

*Abdomen.* 2nd and 3rd tergites without strong median marginal setae; 4th and 5th tergites with a row of strong marginals; discals absent.

*Female.* Similar to male; 4th and 5th abdominal tergites nearly or entirely dense pollinose; frons seen from above as wide as 1 eye; parafacialia with a strong proclinate *oe*, and 1 reclinate prevertical seta, in addition to fine short bristles.

*Affinities.* *Tromodesia angustifrons* is close to *T. vibripennis* Rondani. It differs from it mainly in color and the frons of the o. In *T. vibripennis* the posterior  $1/2$  of tergites 3 to 5 of the abdomen are shiny black. The frons of the o is  $3/4$  as wide as 1 eye instead of  $1/2$  or less, and the parafrontalia bear 1-3 *oe* and 1 reclinate prevertical seta.

**MATERIAL EXAMINED.** ♂ holotype, Yoqneam (Carmel) 5.10.69; ♀ allotype, Haifa 3.11.69; paratypes: 1 ♂, Kalia (Dead Sea area) 29.3.72; 1 ♂, Jerusalem 23.7.56; 1 ♀, Jerusalem 1.10.44; 1 ♂, Jeruham (Negev) 17.4.72; 1 ♂ and 1 ♀, Bet Dagan (Coastal Plain) 1.11.76; 1 ♀, Kefar Yarok (Coastal Plain) 3.8.76; 1 ♀, En Akev (Negev) 8.7.77; 1 ♀, Rehovot 25.10.76.

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