

Fungus Gnats (Diptera: Bolitophilidae, Keroplatidae and Mycetophilidae) from the Maltese islands

[Pilzmücken (Diptera: Bolitophilidae, Keroplatidae und Mycetophilidae) von den Maltesischen Inseln]

by

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Abstract

An account is given of the fungus gnat fauna of the Maltese islands, which was previously little known. The number of species recorded is increased from 3 to 30. Two species, *Macrocera buskettina spec. nov.* and *Docosia melita spec. nov.* are described as new; two other new species were also recognised in Spanish material and are being described elsewhere. Two species, *Ectrepesthoneura gracilis* EDWARDS and *Trichonta icenica* EDWARDS have more strongly marked wings than previously examined material and may represent local forms. Some Maltese specimens of *T. icenica* also have a short posterior fork and would fall in the current concept of *Phronia* WINNERTZ. The known distribution of Maltese species is discussed in the context of present knowledge of the Mediterranean fauna.

Key words

Diptera, fungus gnats, Maltese Islands, new records, new species

Zusammenfassung

Es wird eine Übersicht der bislang nur ungenügend bekannten Pilzmückenfauna der Maltesischen Inseln gegeben. Die Anzahl der von diesen Inseln bekannten Arten erhöht sich von 3 auf 30. Zwei Arten, *Macrocera buskettina spec. nov.* und *Docosia melita spec. nov.* werden als neu für die Wissenschaft beschrieben. Die Beschreibung von zwei weiteren, ebenfalls als neu erkannten Arten, die auch in einem Material aus Spanien vorgefunden wurden, soll an anderer Stelle erfolgen. *Ectrepesthoneura gracilis* EDWARDS und *Trichonta icenica* EDWARDS weisen im Vergleich zu Exemplaren von anderen Herkünften stärker verdunkelte Flügelpartien auf und könnten somit lokale Formen darstellen. Einige Exemplare von *T. icenica* besitzen zudem eine verkürzte hintere Gabelader und würden deshalb in das derzeitige Konzept der Gattung *Phronia* WINNERTZ fallen. Die nunmehr bekannte Verbreitung der maltesischen Pilzmücken wird in Zusammenhang mit der mediterranen Pilzmückenfauna diskutiert.

Key words

Diptera, Pilzmücken, Maltesische Inseln, neue Nachweise, neue Arten

Introduction

The fungus gnats of the central Mediterranean islands of Malta and Gozo are little known. The only published records appear to be those by SCHEMBRI et al. (1991: 258) who recorded *Leia arsona* HUTSON (as *fasciata* STORA), *L. ? bimaculata* (MEIGEN) and *Neoplatyura biumbrata* (EDWARDS) among Diptera collected by them between 1975 and 1978. More extensive collecting by one of us (PG) and Dr Martin EBEJER between 1992 and 1995 has resulted in a modest collection of fungus gnats, consisting almost entirely of adult flies collected by sweeping from suitable sites and dry pinned. This material forms the basis of the present account.

Most species have been taken between late autumn and early spring by sweeping in recent woodland at Buskett and in the dense undergrowth in valleys fed by small bodies of freshwater. Fungus gnats typically frequent moist shady biotopes and few can be found in the hot and dry summer months.

Like most fungicolous insects, this group principally inhabits forest and woodland and the paucity of the Maltese fauna no doubt reflects the absence of old woodland on the islands.

Nevertheless, the islands are surprisingly rich in fungi and some 400 species are known to occur (Mr Edwin LANFRANCO, pers. comm.). Rearing of immature stages from fungi is therefore expected to yield more species as are Malaise or water trapping in suitable habitats.

A little rearing has also been done. *Leia himaculata* (MEIGEN) has been reared from an unidentified fungus in Buskett and *Exechia fulva* SANTOS ABREU from a species of *Stiellus* (probably *collinitus*) (Boletaceae) in Mizieb. Other fungi which have been examined on several occasions, *Volvariella speciosa* (Pluteaceae) and species of *Agaricus* (Agaricaceae), have not been found to contain larvae of fungus gnats. Experience in rearing programmes in Britain and northern Europe have also shown that *Agaricus* species are avoided by fungus gnats, although attacked by Diptera of several other families.

The European fungus gnats comprise five families of Sciaroidea, of which three are represented in Malta (Bolitophilidae, Keroplatidae, Mycetophilidae). The other two families, Ditomyiidae and Diadocidiidae, include rather few species. Overall, 30 species in 20 genera are recorded here, 27 for the first time. A summary of the known distribution is given here under each species.

Four of the species found in Malta are previously undescribed. Two of these (in *Pyratula* EDWARDS and *Sciophila* MEIGEN) belong to groups with several closely related species in the Mediterranean region; both species have also been found in the Monegros region of Zaragoza in Spain and are currently being described in an account of the fauna of that region, where they are compared with other species of those groups (CHANDLER & BLASCO-ZUMFETA [in press]). The *Sciophila* species has also been found in North Africa and a similar distribution may be expected for the *Pyratula* species. The other two species (in *Macrocera* MEIGEN and *Docosia* WINNERTZ) belong to species groups well represented in the Mediterranean region.

The remaining 26 species have all previously been found in other parts of the Mediterranean region. Eight of these species are known only from this region [or in two cases, *Antlemon halidayi* (LOEW) and *Exechia fulva* SANTOS ABREU, also in the Atlantic Islands] while the remaining 18 are more widespread. One of the latter, *Leia arsona* HUTSON has a Mediterranean and subtropical distribution, suggesting that it may be associated with cultivation and it could therefore be an introduction over much of its present range. Sixteen of the Maltese species have been recorded from North Africa, including six of the eight principally Mediterranean species mentioned above; more species will probably be shown to be in common when the North African fauna becomes better known. The state of knowledge of the North African fauna was discussed by CHANDLER & RIBEIRO (1995), who indicated that only a little over 60 species had been recorded compared to a total Mediterranean fauna of the group exceeding 350 species.

Two species, *Ectrepestoneura gracilis* EDWARDS (hitherto recorded only from Corsica and Mediterranean France) and *Trichonta icenica* EDWARDS (more widespread in the Palaearctic region) have distinctive Maltese forms with wing markings more strongly marked than is found in the typical forms of these species. The Maltese material of *T. icenica* is also remarkable in showing variation in the length of the posterior fork on the wing, the males particularly having the base of this fork distinctly beyond that of the median fork, so would fall in *Phronia* if only the venation is considered.

Abbreviations

The following abbreviations are used in the text when referring to collectors or depository of specimens studied:

MJE = M. J. EBEJER
PG = P. GATT

BMNH = Natural History Museum, London.
MNHN = Muséum National d'Histoire Naturelle, Paris

Species List

BOLITOPHILIDAE

Bolitophila pseudohybrida LANDROCK, 1912

Material examined: Malta. Buskett: 27.iii.1994, 1 ♂ (PG), 1 ♀ (MJE); Wied Ghajn Rihana: 5.ii.1994, 1 ♂, 1 ♀ (PG); 2.iv.1994, 2 ♀ ♀ (PG); Wied Incita: 6.iii.1994, 2 ♂ ♂ (PG).

Distribution: widely distributed in Europe.

KEROPLATIDAE

Keroplatinae

Antlemon (Antlemon) halidayi (LOEW, 1871)

Material examined: Malta. Buskett: 22.iv.1992, 1 ♂ (MJE); 1.v.1992, 2 ♂ ♂ (MJE); 11.iv.1994, 1 ♂ (PG); Ghajn Hadid: 9.iv.1999, 1 ♀, (PG); Qammieh: 19.iii.1994, 5 ♂ ♂, feeding at flowers of *Ferula communis* (Apiaceae) (PG).

Distribution: a Mediterranean species, widespread in southern Europe and North Africa, also recorded from the Canary Islands (CHANDLER & RIBEIRO 1995).

Pyratula ebroensis CHANDLER & BLASCO-ZUMETA

Material examined: Malta. Buskett: 1.v.1992, 4 ♂ ♂ (MJE); 11.iv.1994, 5 ♂ ♂ (PG); Ghajn Hadid: 9.iv.1999, 1 ♂ (PG); Mgiebah: 24.iv.1994, 8 ♂ ♂, 2 ♀ ♀ (MJE, PG); 26.iii.1995, 1 ♂ (MJE); Wied Ghajn Rihana: 2.iv.1994, 1 ♂ (PG); Wied il-Qlejgha: 8.xi.1992, 1 ♂ (MJE); Wied Qannotta: 1.v.1994, 2 ♂ ♂ (PG); 10.iv.1994, 1 ♂ (MJE). Gozo. Ramla dunes: 23.iv.1992, 1 ♂ (PG).

Distribution: this species is currently being described from Spanish material collected in the arid Monegros region of Zaragoza Province (CHANDLER & BLASCO-ZUMETA [in press]). Occurrence in Malta suggests that it may also be present in North Africa.

Remarks: It belongs to a group of species closely allied to the widespread European species *P. perpusilla* (EDWARDS), of which there are several in the Mediterranean region; *P. oracula* CHANDLER from Greece and Israel (CHANDLER 1994) and *P. canariae* CHANDLER & RIBEIRO from the Canary Islands (CHANDLER & RIBEIRO 1995) belong to this group as well as species from Greece and Switzerland described in CHANDLER & BLASCO-ZUMETA [in press].

Neoplatyura biumbrata (EDWARDS, 1913)

Material examined: Malta. Balzan: 28.iii.1977, 1 ♂ (MJE); Buskett: 1.v.1992, 2 ♂ ♂ (MJE) 2 ♂ ♂ (PG); 27.iii.1994, 5 ♂ ♂ (MJE), 5 ♂ ♂, 1 ♀ (PG); 11.iv.1994, 3 ♂ ♂ (PG); 25.iv.1994, 1 ♂ (MJE); Fiddien: 11.v.1992, 1 ♂ (MJE); Wied Babu: 1.iv.1993, 1 ♀ (MJE), 1 ♀ (PG); Wied Ghajn Rihana: 2.iv.1994, 3 ♂ ♂, 1 ♀ (PG); Wied il-Mistra: 19.iii.1994, 1 ♂ (PG); Wied il-Qlejgha: 8.xi.1992, 1 ♀ (MJE); Qammieh: 19.iii.1994, 1 ♀ (PG). Gozo. Dahlen Qorrot: 2.iv.1994, 2 ♂ ♂, 1 ♀ (MJE); Ta' Cenc: 1.iv.1994, 1 ♂ (MJE); Mgarr ix-Xini: 23.iv.1992, 1 ♂, 1 ♀ (MJE).

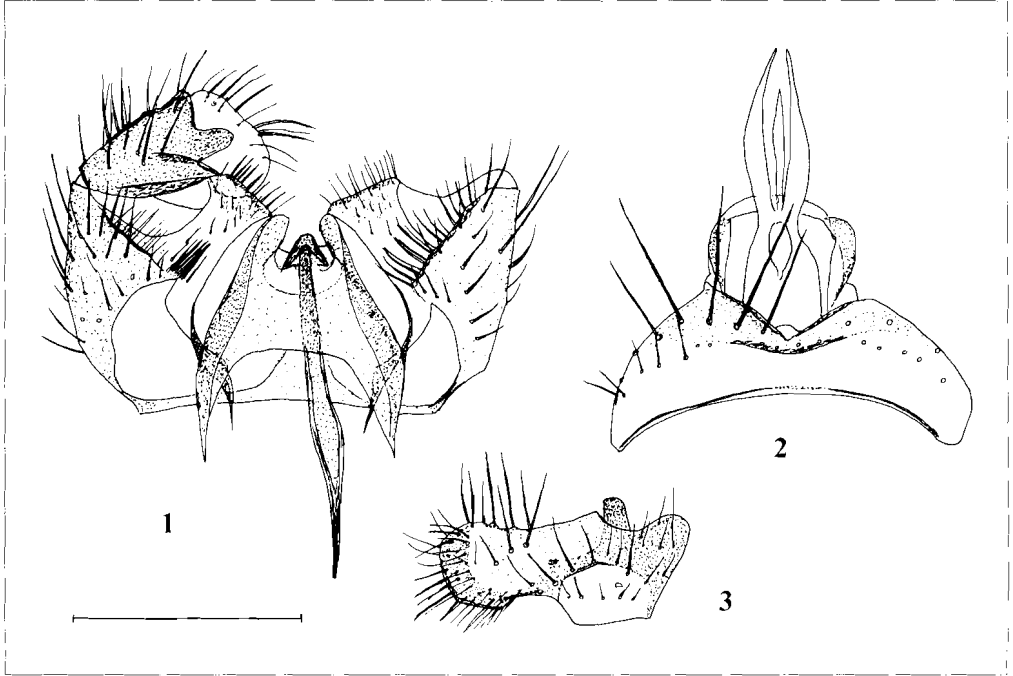
Distribution: western Europe: Britain and France, an unpublished record from Sicily (Dr Norbert CASPERS, pers. comm.).

Macrocerinae

Macrocera buskettina spec. nov.

(Figs 1-3)

Description: A small, mainly brown, slender bodied species with unmarked wings bearing extensive macrotrichia on the membrane. Wing length 3.3-3.6 mm (male) and 2.7-2.9 mm (female).



Figs 1-3: *Macrocera buskettina* spec. nov., male genitalia. – 1: dorsal view with tergite 9 and cerci removed; – 2: tergite 9 and cerci; – 3: lateral view of gonostylus. Scale = 0.2 mm.

Male

Head dark brown. Antenna light brown, paler on scape and pedicel. Flagellum slender, but most missing in holotype (complete in paratype); antenna a little shorter than body length (as in related species). Palpus brown.

Thorax mainly brownish yellow, with three shining dark brown stripes on mesoscutum, the anterior stripe broadened to the fore margin, the laterals postsutural only, leaving a broader humeral area and narrow side margins of mesoscutum yellow. Pleural sclerites and mediotergite shining dark brown on disc. Thoracic setae dark, including short scutellar marginal setae. **Legs** long, slender, yellow apart from brownish shade on outer face of coxae 2-3, with dark setulae and hairs, all those on tibiae shorter than tibial width. Tibial spurs short, 1:2:2, about as long as apical tibial width. **Wing** clear, narrow on basal half. Costa and radial veins brownish. Wing membrane bears macrotrichia scattered over most of surface, but absent in cells c, sc, r₁ and r₄ and sparser on basal part of wing. Vein Sc ends just beyond level of base of R_s. Vein R₄ begins level with tip of R₁ and is short, curved and setose. Vein R₅ convergent with costa apically. Costa extends 0.4 distance from R₅ to M₁. Haltere brownish yellow.

Abdomen mainly brown. Tergites 2-6 with apical third yellow. Genitalia (Figs 1-3) brownish yellow. Tergite 9 broad, narrowed medially in holotype (Fig. 2) but more elongate and as long medially as cercus in paratype. Cercus narrow and tapered on apical half. Gonostylus elongate and irregular in shape, with some dense setae but not toothed (Fig. 3).

Female

Similar to male in most respects except that vein R₄ is weakly developed (absent on one wing in one specimen and incomplete in the other). Abdomen dark brown with tergites only

vaguely yellowish apically. Tergite 7 and short tergite 8 all brown. Ovipositor yellowish; cercus small, ovoid.

Etymology: This species is named for the locality, which has proved most productive of fungus gnats in Malta.

Material examined: Holotype ♂: **Malta:** Buskett, 1.v.1992, M. J. EBEJER leg., deposited in BMNH. Paratypes: 1♂: **Malta:** Gwardamangia: 18.iii.1992, M.J. EBEJER leg.; 1♀: data as holotype (staged with it), deposited in BMNH; 1♀: **Malta:** Buskett: 22.iv.1992, M. J. EBEJER leg..

Remarks: This species agrees in external characters with several species from the eastern part of the Mediterranean region, four of which were described by CHANDLER (1994) from Israel and a fifth from Bulgaria by BECHEV (1991). In the form of tergite 9 and cerci and the absence of teeth on the gonostylus, it most resembles *M. levantina* CHANDLER from Israel but differs in the form of the gonostylus and aedeagus; the cerci are also narrower.

Macrocera fasciata MEIGEN, 1804

Material examined: **Malta.** Buskett: 14.iv.1977, 1♂, 1♀ (MJE); 22.iv.1992, 5♂♂ (MJE); 1.v.1992, 1♂ (MJE), 2♂♂ (PG); 27.iii.1994, 1♂ (PG); 12.iv.1994, 2♂♂ (PG); Gġrgenti: 18.iv.1993, 1♂, 1♀ (MJE); Wied Qannotta: 1.iv.1994, 1♂ (PG).

Distribution: widespread in Europe; Canary Islands and North Africa (CHANDLER & RIBEIRO 1995), Crete, Cyprus and Israel (CHANDLER 1994) and Oman (CHANDLER in press).

Macrocera parcehirsuta BECKER, 1908

Material examined: **Malta.** Wied Incita: 6.iii.1994, 1♂ (PG). Gozo. Wied il-Mielah: 30.xi.1991, 2♂♂ (MJE).

Distribution: described from Algeria and only otherwise confirmed from Israel by CHANDLER (1994), who figured the male genitalia and gave the distinctions from *M. phalerata* MEIGEN, with which it had been confused by some authors.

Macrocera phalerata MEIGEN, 1818

Material examined: **Malta.** Buskett: 1.v.1992, 1♂, 1♀ (MJE), 1♂ (PG); 18.xi.1993, 1♀ (MJE); 27.iii.1994, 1♂ (MJE), 1♀ (PG); Fawwara: 18.iii.1992, 2♂♂ (MJE); Fiddien: 5.i.1992, 1♂ (MJE); Marfa Ridge: 19.iii.1994, 1♀ (PG); Mgiebah: 26.iii.1995, 2♂♂ (MJE), 1♀ (PG); Migra l-Ferha: 2.iv.1999, 1♂ (PG); Mizieb: 8.xii.1993, 1♂, 4♀♀ (PG), 1♀ (MJE); Qammich: 19.iii.1994, 1♀ (PG); Wied il-Mistra: 19.iii.1994, 1♀ (MJE); Wied il-Qlejgha: 9.ii.1994, 1♀ (MJE); Wied Incita: 6.iii.1994, 1♀ (MJE); Wied Qannotta: 20.ii.1994, 2♂♂, 1♀ (PG), 1♀ (MJE). **Gozo.** Mgarr ix-Xini: 23.iv.1992, 1♀ (PG); 28.xi.1993, 1♀ (PG); Wied ir-Ramla: 10.iv.1993, 2♀♀ (PG).

Distribution: widespread in Europe and around the Mediterranean, including Tunisia and Israel (CHANDLER 1994).

Macrocera pusilla MEIGEN, 1830

Material examined: **Malta.** Bahrija: 4.viii.1992, 1♂, 2♀♀, at light (PG); Rabat: 20.vi.1995, 1♀, at light, (PG); Salina: 7.vii.1993, 1♂ (PG); Wied Qannotta: xii.1995, 1♂ (PG).

Distribution: widespread but local in Europe; Israel, Iraq, Egypt, Tunisia (CHANDLER 1994).

MYCETOPHILIDAE

Mycomyinae

Mycomya prominens (LUNDSTRÖM, 1913)

Material examined: **Malta.** Bahrija: 2.ii.1994, 1♀ (MJE); Buskett: 1.v.1992, 1♀ (MJE); 18.xi.1993, 2♂♂, 1♀ (PG), 1♀ (MJE); 29.xii.1993, 2♀♀ (PG); Fawwara: 18.iii.1992, 1♂, 2♀♀ (MJE); Gġrgenti: 20.xi.1991, 1♂ (MJE); Wied Babu: 1.v.1993, 1♀ (PG); Wied Ghajn Rihana: 2.iv.1994, 1♂, 2♀♀ (PG); Wied il-Mistra: 19.iii.1994, 1♀ (MJE), 1♀ (PG); Wied Incita: 27.ii.1994, 1♀ (PG); 6.iii.1994, 2♀♀ (MJE), 1♀ (PG); Wied Qannotta: 20.ii.1994, 2♀♀ (PG); 1.iv.1994, 1♀ (PG). **Gozo.** Mgarr ix-Xini: 28.xi.1993, 1♀ (PG).

Distribution: a common and widespread European species; recorded from Israel, Cyprus, Crete, Corfu and Cephalonia by CHANDLER (1994).

Sciophilinae

Acnemia amoena WINNERTZ, 1963

Material examined: Malta. Buskett: 22.iv.1992, 2♀ (MJE); 15.viii.1992, 1♂ (PG); 27.iii.1994, 3♂♂, 1♀ (MJE), 1♂, 1♀ (PG); 25.iv.1994, 1♂ (MJE); Rabat: iii.1998, 1♀, at window (PG).

Distribution: widespread but scarce in northern and central Europe, also recorded from Japan and CHANDLER (1994) added records for Israel and the Mediterranean part of Spain.

Sciophila iberolutea CHANDLER & BLASCO-ZUMETA

Material examined: Malta. Balzan: 3.v.1992, 1♀ (MJE); 25.xi.1993, 1♀ (MJE); Birkirkara: 16.v.1979, 1♂ (S. SCHEMBRI leg.); Buskett: 22.iv.1992, 2♀ (MJE); 1.v.1992, 2♂♂, 2♀ (MJE, PG); 27.iii.1994, 1♂ (PG); 11.iv.1994, 1♂ (PG); 25.iv.1994, 1♂ (MJE), 1♂ (PG); 5.vi.1994, 1♀ (PG); Fiddien: 11.v.1992, 4♂♂ (MJE); 3.iii.1994, 1♀ (PG); 20.iv.1994, 1♀ (PG); 14.iv.1996, 2♂♂ (MJE); Wied Ghajn Rihana: 2.iv.1994, 1♀ (PG); 22.iv.1994, 1♂, 1♀ (PG); Wied Incita: 27.ii.1994, 1♀ (PG); Wied Qannotta: 20.ii.1994, 1♀ (MJE). Gozo. Mgarr ix-Xini: 23.iv.1992, 1♂ (MJE).

Distribution: this species is currently being described by CHANDLER & BLASCO-ZUMETA [in press] from Spain (Zaragoza and Jaén provinces). It has also been examined from North Africa (1♂, Morocco, Oued y Kern, Env. de Rabat, v.1973, H. CHOUMARA, MNHN).

Gnoristinae

Ectrepesthoneura gracilis EDWARDS, 1928

(Figs 4, 6)

Material examined: Malta. Buskett: 28.xii.1993, 1♂, 1♀ (PG); Fiddien: 11.v.1992, 1♂ (MJE); Mizieb: 8.xii.1993, 2♂♂ (MJE); Wied il-Mistra: 19.iii.1994, 1♂ (MJE), 2♂♂ (PG); Wied Incita: 27.ii.1994, 1♂, 1♀ (PG).

Distribution: only previously known from the holotype male from Corsica, of which the genitalia were refigured by CHANDLER (1980) and both sexes from Île de Port Cros, Var, France.

Remarks: The Maltese specimens agree in most respects with the genital structure of the Corsican type and are considered conspecific. However, they have some more or less distinct wing markings (Fig. 4) while the French material examined has these markings very faintly indicated, although similarly distributed. The pair from Buskett are of wing length 3.3 mm (male) and 4.0 mm (female). The ovipositor (Fig. 6) has not previously been figured.

Phoenikiella phoenix (VÄISÄNEN, 1984)

Material examined: Malta. Buskett: 18.xi.1993, 1♂ (MJE); Bidnija il-Qolla, garigue, 7.iii.1999, 1♂ (MJE).

Distribution: Tunisia and Israel, from which it was originally described in the genus *Grzegorzekia* EDWARDS (VÄISÄNEN 1984).

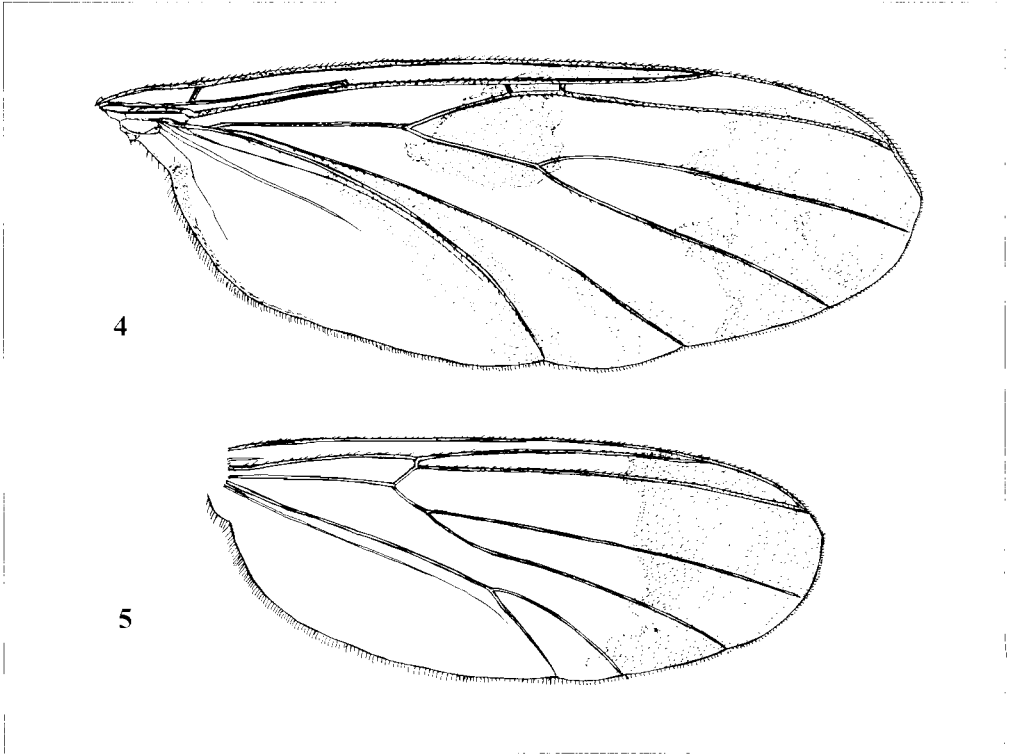
Remarks: CHANDLER (1999) proposed the new genus *Phoenikiella* for this species, which is considered generically distinct from *Grzegorzekia* and allied genera.

Leiinae

Docosia melita spec. nov.

(Figs 7-11)

Description: Body shining black, with all setae whitish to yellow, the laterotergite bare, mainly yellow legs and clear wings. Wing length 2.4-2.8 mm (male), 2.9-3.3 mm (female).



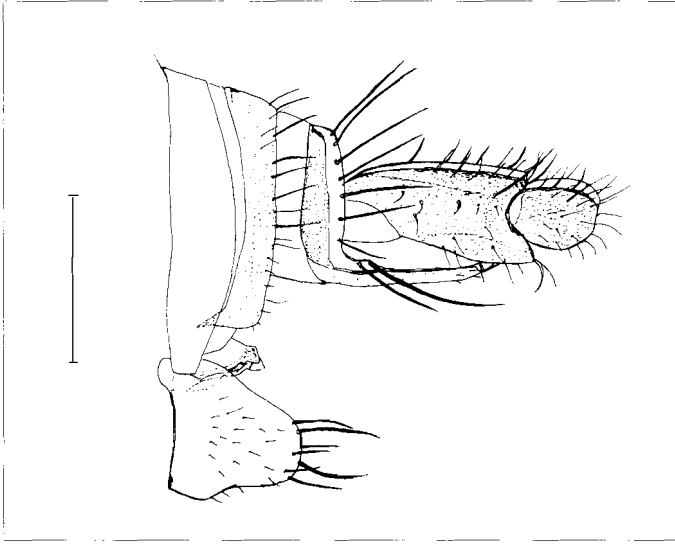
Figs 4-5: Wings. – 4: *Ectrepesthoneura gracilis* EDWARDS, 1928, female; – 5: *Trichonta icentica* EDWARDS, 1925, male from Mizieb, Malta.

Male

Head black, grey dusted, bearing yellow setae. Antenna all black, as long as thorax, with flagellomeres at least twice as long as broad. Palpus brown.

Thorax shining black, with all setae pale whitish yellow including long setae on prothorax, long prescutellars on mesoscutum and scutellar marginals (at least one pair more than twice length of scutellum). Pleura, including laterotergite, otherwise bare. **Legs** yellow, except coxae 2-3 dark on basal third, trochanters dark and femur 3 slightly brownish apically. Tibia 2 with 5-6 anterior and 3 (on basal half) + 1 longer posterodorsal setae. Tibia 3 with 10 anterodorsal and 10-12 posterodorsal setae. Setae on coxae and hairs on femora pale, tibial setae and setulae on tibiae and tarsi dark. **Wing** clear, with costa, radial veins and crossvein r-m dark brown. Vein Sc pale, ending in R_1 less than half distance from base to that of R_s . Vein R_s very short, vertical. Crossvein r-m long, diagonal, a little shorter than stem of median fork. Costa reaches 0.4 distance from R_5 to M_1 . Posterior fork begins just before base of median fork. Haltere yellow.

Abdomen black, thinly grey dusted with decumbent yellow setae. Genitalia (Figs 7-11) black; tergite 9 (Fig. 9) rounded with dense coarse black marginal setae; gonocoxites (Figs 7-8) ventrally with lateral bulge to distal margin and a few stout marginal setae; pair of submedial internal combs of short stout setae less than their length apart; gonostylus with narrow ventral lobe close to rounded dorsal lobe; cercus (Fig. 11) with eight combs of spinose setae.



Female: Very similar, but pedicel of antenna yellowish brown in contrast to rest of antenna, which is black. Coxae 2-3 more narrowly dark basally and trochanters dusky yellow. Ovipositor short, brownish.

Etymology: the Latin name of the island of Malta, a noun in apposition.

Fig. 6: *Ectrepesthoneura gracilis* EDWARDS, 1928. Ovipositor, lateral view. Scale = 0.2 mm.

Material examined: Holotype ♂: **Malta:** Manikata, 9.iv.1993, P. GATT leg., deposited in BMNH. Paratypes: **Malta:** 2♂♂, 3♀♀, Wied il-Mistra, 19.iii.1994, P. GATT leg. (1♂, 1♀ deposited in BMNH); 1♂, Fawwara, 18.iii.1992, M.J. EBELER leg.; 1♂, Wied Incita, 27.ii.1994, M. J. EBELER leg.; 1♂, Wied Qannotta, 1.iv.1994, P. GATT leg.; 1♂, Buskett, 11.iv.1994, P. GATT leg.

Remarks: *D. melita* is one of the species recognised as new by Petr LAŠTOVKA in his unpublished revision of the genus. It resembles *D. lastovkai* CHANDLER in the form of the gonostylus, but differs most obviously in the distal ventral margin of the gonocoxites, which has a shallower bulge laterally in *D. lastovkai* and in the pair of dorsally directed internal combs, which are separated by more than their width in *lastovkai*.

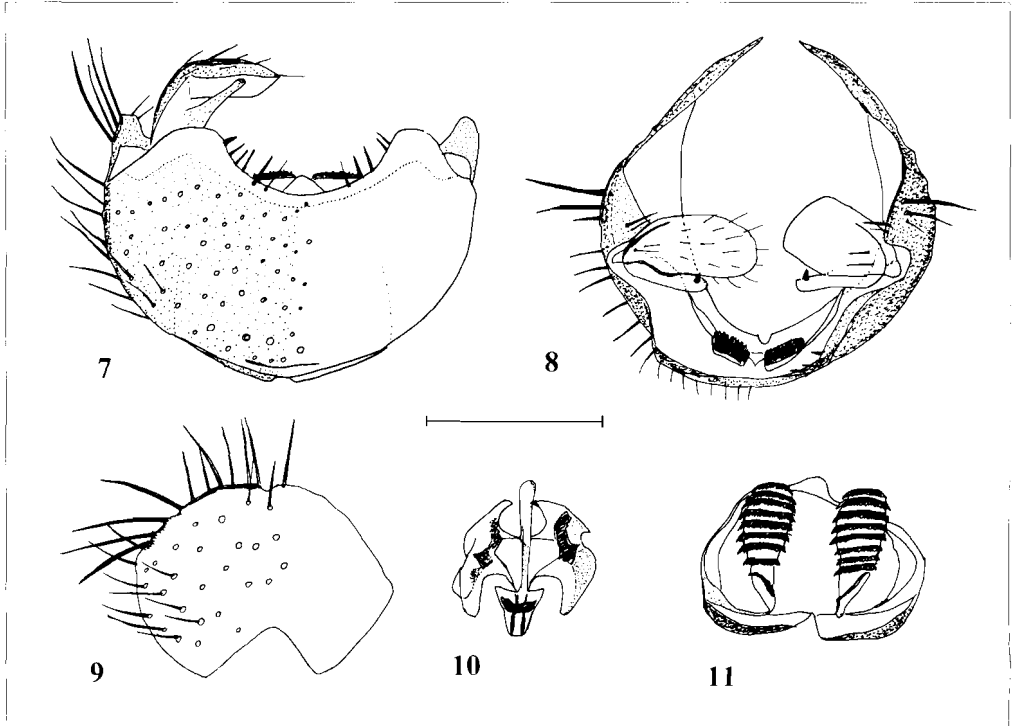
Leia arsona HUTSON, 1978

Material examined: **Malta:** Balzan: 7.iii.1976, 1♂ (MJE); 17.iii.1977, 1♀ (MJE); 7.v.1977, 1♀ (MJE); 7.iv.1985, 1♀ (MJE); Birkirkara: 3-9.iv.1977, 1♂, 2♀♀; 29.xi.1978, 1♂; 22.xii.1978, 1♂ (S. SCHEMBRI & J. SCHEMBRI leg.); Fiddien: 8.iv.1992, 1♂ (PG); Hamrun: iii.1975, 1♀ (J. CILIA leg.); Rabat: 26.vi.1993, 1♀, indoors. (PG); 9.i.1994, 1♀ (PG); Tal-Qroqq: iii.1979, 1♂ (J. SCHEMBRI leg.); Wied Babu: 1.v.1993, 1♀ (MJE). **Gozo:** Dwejra: 10.iv.1993, 1♀ (PG); Mgarr ix-Xini: 23.iv.1992, 1♂ (PG); Wied ir-Ramla: 17.iv.1993, 1♀ (PG); Xaghra: 15.xii.1991, 1♀ (M. GAUCI leg.).

Distribution: a species occurring widely in areas of Mediterranean and subtropical cultivation. Certainly introduced to Britain, the only record being from imported ginger (HUTSON 1978, who had also seen material from South Africa, Kenya and St. Helena) and likely to have been introduced in other parts of its range so the precise origin is uncertain, although most likely to be Afrotropical. It has been recorded from Israel (CHANDLER 1994), where larvae were found in the funnel of a bromeliad, from Tunisia (VÄISÄNEN 1984) and the Canary Islands, Madeira, the Azores, the Cape Verde Islands and the Channel Islands (CHANDLER & RIBEIRO 1995). It is possibly also associated with cultivation in Malta, where some of the specimens have been found in houses.

Leia bimaculata (MEIGEN, 1804)

Material examined: **Malta:** Bahrija: 12.iv.1994, 1♀ (PG); Balzan: 7.iii.1977, 1♀ (MJE); 17.iii.1977, 1♀ (MJE); Buskett: 3.iv.1992, 1♀ (PG); 22.iv.1992, 4♂♂ (MJE); 1.v.1992, 4♂♂, 3♀♀ (MJE); 3♂♂, 2♀♀ (PG); 5.vii.1992,



Figs 7-11: *Docosia melita* spec. nov., male genitalia. – 7: ventral view of gonocoxites and left gonostylus; – 8: posterior view of gonocoxites and gonostyli; – 9: tergite 9; – 10: aedeagus; – 11: cerci. Scale = 0.2 mm.

1 ♂ (MJE); 18.xi.1993, 2 ♂♂ (PG); 18.xi.1993, one ♂ reared from an unidentified fungus in a rot-hole in a tree, the larva spun a silk web inside which it pupated on 9.xii.1993 and the adult emerged on 13.xii.1993 (PG); 25.iv.1994, 2 ♂♂ (MJE); 5.vi.1994, 1 ♂, 1 ♀ (PG); Fiddien: 15.iv.1992, 1 ♂ (PG); 10-11.v.1992, 1 ♂ (MJE), 1 ♂ (PG); Girgenti: 3.iii.1991, 1 ♂; 20.xi.1991, 2 ♂♂ (MJE); Migra l-Ferha: 2.iv.1999, 1 ♂ (PG); Wied Babu: 26.ii.1978, 1 ♀ (J. SCHEMBRI leg.); Wied il-Mistra: 19.iii.1994, 5 ♂♂, 2 ♀♀ (MJE); Wied il-Qlejgha: 22.vi.1980, 1 ♀ (J. SCHEMBRI leg.); 8.xi.1992, 2 ♂♂ (MJE); Wied Incita: 27.ii.1994, 1 ♂ (PG); Wied Qannotta: 20.ii.1994, 1 ♂ (PG). **Gozo.** Dahlet Qorrot: 2.iv.1994, 1 ♂ (MJE); Mgarr ix-Xini: 23.iv.1992, 1 ♂ (PG).

Distribution: common throughout Europe, reported by CHANDLER (1994) to occur in Turkey, Israel, Cyprus, several Greek islands, Algeria and Morocco.

Mycetophilinae Exechiini

Exechia bicincta (STAEGER, 1840)

Material examined: Malta. Buskett: 1.v.1992, 1 ♂, 1 ♀ (MJE); 9.vii.1993, 1 ♀ (PG); Mgiebah. *Quercus/Ceratonia*. 9.xi.1997, 2 ♂♂ (MJE); Ghar Lapsi. garigue. 7.xii.1997, 1 ♀ (MJE).

Distribution: widespread in Europe; CHANDLER (1994) recorded it from Israel and Corsica.

Exechia fulva SANTOS ABREU, 1920

Material examined: Malta. Buskett: 28.xii.1993, 1 ♂ (PG); Mizieb: 8.xii.1993, 7 ♂♂, 12 ♀♀ (PG); 8 ♂♂ and 6 ♀♀ reared from *Suillus? collinitus*: larvae spun a silk cocoon and pupated on 11.xii.1993, adults emerged on 16.xii.1993 (PG); Wied Ghajn Rihana: 5.ii.1994, 2 ♂♂, 3 ♀♀ (PG); Wied il-Mistra: 19.iii.1994, 1 ♂, (PG), 1 ♀ (MJE); Wied Incita: 27.ii.1994, 1 ♂ (PG).

Distribution: a widespread and common Mediterranean species, occurring in southern Europe as well as Turkey, Israel, Cyprus, the Greek islands, North Africa and the Atlantic Islands.

Exechia fusca (MEIGEN, 1804)

Material examined: Malta. Bajda Ridge: 26.xii.1975, 1 ♀ (MJE); Buskett: 1.v.1992, 3 ♂♂, 3 ♀♀ (MJE); 3 ♂♂, 1 ♀ (PG); Wied Incita: 5.i.1987, 1 ♂ (MJE).

Distribution: a very common Holarctic species, including the Mediterranean region, North Africa and the Atlantic Islands.

Pseudexechia trivittata (STAEGER, 1840)

Material examined: Malta. Buskett: 5.vii.1992, 1 ♀ (MJE); Wied Ghajn Rihana: 2.iv.1994, 1 ♂ (PG). Gozo. Wied il-Lunzjata: 21.iv.1994, 1 ♂ (MJE).

Distribution: widely distributed in Europe; not previously reported from the Mediterranean region, but there is an unpublished record for Sicily and CHANDLER & RIBEIRO (1995) recorded it from the Canary Islands.

Allodia (Allodia) ornaticollis (MEIGEN, 1818)

Material examined: Malta. Wied Ghajn Rihana, Tal Hzejjen, 3.iii.1997, 1 ♂ (MJE). Gozo. Wied ir-Ramla: 4.vii.1992, 1 ♂ (MJE).

Distribution: a widespread Holarctic species, also occurring in the Atlantic Islands.

Brevicornu intermedium (SANTOS ABREU, 1920)

Material examined: Malta. Buskett: 22.iv.1992, 1 ♂ (MJE); 1.v.1992, 2 ♂♂, 1 ♀ (MJE); 11.iv.1994, 1 ♂ (PG).

Distribution: widespread in Europe; this species was described from the Atlantic Islands and CHANDLER (1994) recorded it from Israel, Corsica and Mallorca; CHANDLER & RIBEIRO (1995) indicated its occurrence in North Africa.

Rymosia beaucournui MATILE, 1963

Material examined: Malta. Bahrija: 2.ii.1994, 1 ♂ (MJE); Buskett: 1.v.1992, 1 ♀ (MJE); 9.vii.1993, 2 ♂♂, 2 ♀♀ (PG); 22.viii.1993, 2 ♀♀ (PG); 28.xii.1993, 1 ♂, 1 ♀ (PG); Rabat: iii.1998, 1 ♂, at window (PG).

Distribution: a Mediterranean species, occurring in North Africa as well as Israel, Greece, Crete and the Iberian peninsula (CHANDLER 1994).

Rymosia pseudocretensis BURGHELE-BALACESCO, 1967

Material examined: Malta. Fawwara: 18.iii.1992, 1 ♂ (MJE).

Distribution: another Mediterranean species, occurring in southern Europe, Turkey, Israel and Morocco (CHANDLER 1994).

Phronia tenuis WINNERTZ, 1863

Material examined: Malta. Buskett: 19-27.iii.1994, 2 ♂♂ (PG); 2-11.iv.1994, 9 ♂♂ (PG); Wied il-Mistra: 19.iii.1994, 1 ♂ (PG); Wied Ghajn Rihana: 2.iv.1994, 1 ♂ (PG).

Distribution: a Holarctic species, which is common in Europe and widespread around the Mediterranean region, in southern Europe, Turkey, Israel and North Africa (CHANDLER 1994).

Trichonta icenica EDWARDS, 1925

(Fig. 5, 12-15)

Remarks: Some of the Maltese material of this species was initially referred to the genus *Phronia* on the basis of a short posterior fork, an apomorphic character which distinguishes

Phronia from the closely allied genus *Trichonta*. A few *Trichonta* species have the posterior fork shorter than the median fork but no species hitherto referred to *Trichonta* has the fork as short as in some of the present material. Also intraspecific variation of the type found here has not previously been recognised.

The identification as *T. icenica* is based on the structure of the male genitalia, which agree with British and Spanish material examined in all significant respects, most obviously the close-set group of long fine setae medially on the ventral caudal margin of the gonocoxites and the triangular dorsal portion of the gonostylus. British specimens have a practically clear wing and the base of the posterior fork only just beyond that of the median fork. Spanish specimens (from the Monegros, Zaragoza) have the apical part of the wing brown tinged, especially over the tips of the radial veins (as is usual in *T. vitta* (MEIGEN)) and the posterior fork beginning as far as the length of the stem of the median fork beyond the base of the fork. These characters thus show a trend towards the Maltese specimens, which have the apical third of the wing more distinctly darkened and the posterior fork variable in length relative to the median fork. The males have the posterior fork beginning at least 1.5 times the length of the stem of the median fork beyond the base of that fork and in a male from Mizieb 2.5 times this length. In the females the fork is more similar to the Spanish material or even closer to the level of the base of the median fork. The condition of the posterior fork in some Maltese specimens of *T. icenica* has evidently developed by convergence with *Phronia*.

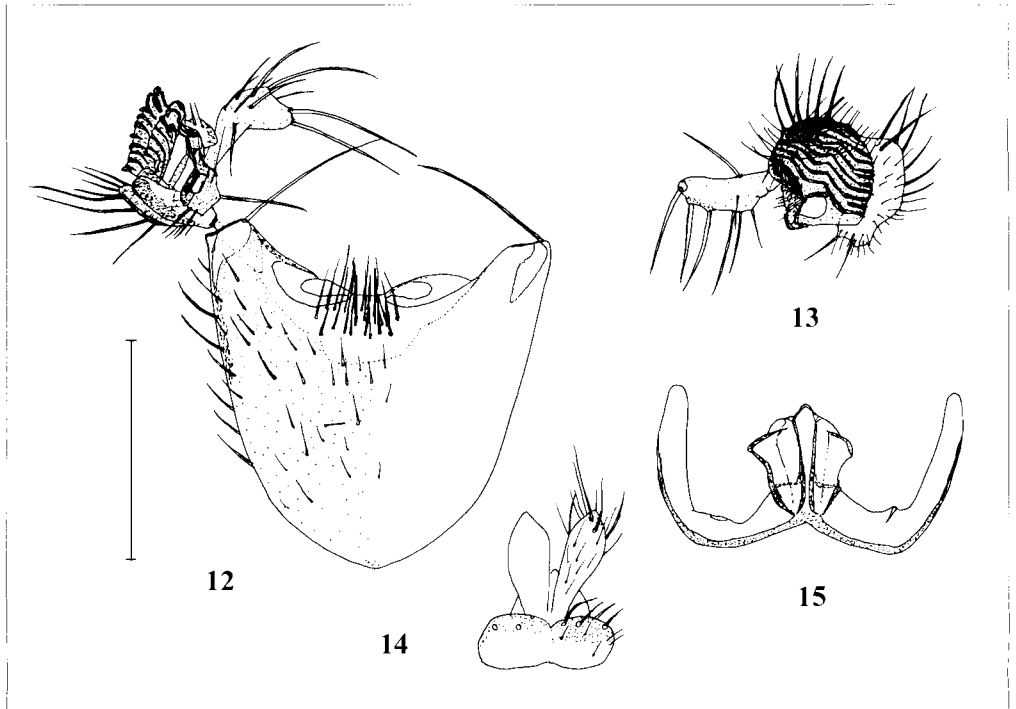
To avoid confusion with *Phronia* species, the Maltese specimens (wing length of male 2.3-2.5mm, female 2.5-2.7mm) are described and the male genitalia and wing of the Mizieb specimen are figured. In the wing marking, they resemble the Holarctic *Phronia willistoni* DZIEDZICKI and two Nearctic species, *P. tenebrosa* COQUILLET, 1904 and *P. nebulosa* (JOHANSEN, 1912). The genitalia of these species were figured by GAGNÉ (1975); *P. willistoni* has the outer lobe of the gonostylus (lateral portion of the telomere of GAGNÉ) trilobed, although as shown by GAGNÉ the proportion of the lobes varies, while the other two species have this bilobed and *T. icenica* has it simple. *P. willistoni* is widespread in Europe; it was recorded from Corsica by EDWARDS (1928) and there is an unpublished record from the Greek island of Euboa.

Male

Head dark brown, with decumbent yellow setae. Antenna long and slender, more than twice length of thorax; yellow to base of first flagellomere, rest of flagellum brown, grey dusted; flagellomeres 3 × long as broad. Palpus yellow.

Thorax mainly shining dark brown on disc of mesoscutum, with three indistinct almost fused stripes, leaving humeral area and more narrowly sides yellow. Prothorax yellow, rest of pleura, scutellum and mediotergite shining dark brown. Decumbent setae on mesoscutum yellow, longer marginal setae and 3 pairs long scutellars more brownish, as are setae on upper margin of mesanepisternum and those on laterotergite. **Legs** yellow, except coxae with slight brown shade apically, femur 3 brownish at base and on apical fifth, tibia 3 brownish at tip. All leg setae and setulae dark. Tibia 3 with 9 anterior and 9 dorsal setae. **Wing** with most of membrane clear but apical third is brownish tinged (Fig. 5). Costa and radial veins brown. Vein Rs and crossvein r-m subequal. Posterior fork short and narrow basally, in most males 1.5-2.0 times length of stem of median fork beyond base of that fork (2.5 times in Mizieb specimen, Fig. 5). Haltere yellow.

Abdomen mainly dark brown. Tergites 2-3 with large yellow lateral triangle set on hind margin, where these tergites are only narrowly dark dorsally; tergite 4 with a small yellow patch on



Figs 12-15: *Trichonta icenica* EDWARDS, male genitalia. – 12: ventral view of gonocoxites and left gonostylus; – 13: internal view of right gonostylus; – 14: tergite 9 and cerci; – 15: aedeagus. Scale = 0.25 mm.

hind corner laterally. Genitalia (Figs 12-15) mainly yellow; tergite 9 and cercus (Fig. 14) very small; gonocoxites (Fig. 12) brownish laterally; gonostylus (Fig. 13) small, brownish with simple outer lobe; aedeagus broad and squat.

Female

Similar, with wing markings as in male; base of posterior fork less than 1.5 times length of stem of median fork beyond base of that fork.

Material examined: Malta. Mizieb: 8.xii.1992, 1 ♂ (PG), deposited in BMNH collection; Fawwara: 18.iii.1992, 1 ♂, 1 ♀ (MJE); Wied Ghajn Rihana: 5.ii.1994, 1 ♂, 1 ♀ (PG); Wied Incita: 27.ii.1994, 1 ♀ (PG).

Distribution: A widespread but uncommon Palaearctic species.

***Mycetophila pictula* MEIGEN, 1830**

Material examined: Malta. Buskett: 1.iv.1992, 1 ♂, 1 ♀ (MJE, PG); 22.iv.1992, 1 ♀ (MJE); 1.v.1992, 1 ♂ (PG), 1 ♀ (MJE); 27.iii.1994, 1 ♀ (PG); Wied Babu: 1.v.1993, 1 ♀ (MJE).

Distribution: a Holarctic species, widespread in Europe and known to occur in North Africa, Turkey, Israel and the Mediterranean islands of Corsica, Mallorca, Corfu, Cephalonia, Crete, Chios and Cyprus (CHANDLER 1994).

***Mycetophila mitis* (JOHANNSEN, 1912)**

Material examined: Malta. Buskett: 22.iv.1992, 1 ♀ (MJE); 15.vii.1992, 1 ♂ (PG); 9.vii.1993, 14 ♂ ♂, 6 ♀ ♀ (PG); 11.iv.1994, 1 ♀ (PG); 25.iv.1994, 1 ♂, 2 ♀ ♀ (MJE); Wied Ghajn Rihana: 2.iv.1994, 2 ♂ ♂, 1 ♀ (PG).

Distribution: a Holarctic species, widespread but local in Europe; CHANDLER (1994) recorded it from Israel and Mediterranean part of France.

***Mycetophila hyrcania* LAŠTOVKA & MATILE, 1969**

Material examined: Malta. Buskett: 11.iv.1994, 1♂ (PG); 25.iv.1994, 1♂ (MJE); 5.vi.1994, 1♂ (PG); Wied Ghajn Rihana: 5.ii.1994, 1♂, 1♀ (PG).

Distribution: this species was described from Iran and is now known to occur in southern France and Spain.

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