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Description of Melanipinae n. subf. with description of a new species of *Nebulovena* (Hymenoptera: Cynipodea: Figitidae)

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Rebut: 27.01.2025; Acceptat: 05.03.2025; Publicat: 10.04.2025

Abstract

The troublesome taxonomic position of *Nebulovena* and two morphologically similar figitid genera, *Ferpereira* Pujade-Villar, 2013 and *Melanips* Haliday, 1835 is resolved with the establishment of a new subfamily: Melanipinae n. subf. New species *Nebulovena ra* Mata-Casanova & Pujade-Villar n. sp. from Egypt is described. An updated key for Figitidae subfamilies is given along with comments on Melanipinae, n. subf. Also, a key for distinguishing the genera belonging to Melanipinae n. subf. is also given.

Key words: Figitidae, Melanipinae, new subfamily, *Nebulovena ra,* new species.

Resum

Descripció de Melanipinae n. subf. i d'una nova espècie de *Nebulovena* (Hymenoptera: Figitidae).

La complexa situació taxonòmica de *Nebulovena* i dos gèneres de figitids morfològicament similars, *Ferpereira* Pujade-Villar, 2013 i *Melanips* Haliday, 1835 és resolta mitjançant l'establiment d'una nova subfamília: Melanipinae n. subf. Es descriu també una nova espècie: *Nebulovena ra* Mata-Casanova & Pujade-Villar n. sp. d'Egipte. Finalment, s'inclouen una clau actualitzada per a les subfamílies de Figitidae juntament amb observacions sobre Melanipinae , n. subf., i una clau per distingir els gèneres pertanyents a Melanipinae n. subf.

Paraules clau: Figitidae, Melanipinae, nova subfamília, *Nebulovena ra,* nova espècie.

Introduction

The family Figitidae is a group of parasitoid wasps belonging to the superfamily Cynipoidea, within the order Hymenoptera. Its members are mostly parasitoids of dipteran larvae, playing a crucial role in the natural regulation of various insect populations. Twelve subfamilies are recognized within this family: Anacharitinae, Aspicerinae, Charipinae, Emargininae, Euceroptrinae, Eucoilinae, Figitinae, Mikeiinae, Parnipinae, Plectocynipinae, Pycnostigminae, Thrasorinae (Paretas-Martínez *et al*., 2011).

Nebulovena Pujade-Villar & Paretas-Martínez genus was described from Iran in Paretas-Martínez *et al*. (2012), with only one known species: *N. vena* Pujade-Villar & Paretas-Martínez, 2012. Paretas-Martínez *et al*. (2012) included *Melanips* and *Nebulovena* in Figitinae due to the lack of synapomorphies of other Figitidae subfamilies. This position, however, is also troublesome: Figitinae are a taxonomic wastebasket, with no clear synapomorphies, and may be paraphyletic (Ronquist 1999, Buffington *et al*. 2007). Among the genera included in Figitinae, including *Nebulovena* Pujade-Villar & Paretas-Martínez, 2012, *Melanips* Haliday, 1835 and *Ferpereira* Pujade-Villar, 2013, four main groups can be clearly distinguished based on morphological characters and biology (Pujade-Villar, 2019): (i) Figitinae *sensu stricto* –including *Figites* Latreille, 1802, *Foersterhomorus* (= *Homorus*) Forster, 1869, *Neralsia* Cameron, 1886, *Trischiza* Forster, 1869, *Xyalophora* Kieffer, 1901, *Xyalophoroides* Jiménez & Pujade-Villar, 2008 and *Zygosis* Forster, 1869–; (ii) the *Lonchidia* group, including this single genus – *Lonchidia* Thomson, 1862; (iii) the *Sarothrus* group –including *Amphithectus* Hartig, 1840, *Paraschiza* Weld, 1955, *Sarothroides* Belizin, 1961 and *Sarothrus* Hartig, 1840–; and (iv) the *Melanips* group, formed by *Ferpereira, Melanips* and *Nebulovena.*

However, *Nebulovena*, *Ferpereira* and *Melanips*, form a morphologically distinct group whose phylogenetic position is unclear relative to other Figitidae subfamilies. According to phylogenetic evidence, *Melanips* was found to be sister-group to core Aspicerinae and not included in Figitinae (Buffington *et al.*, 2007) (Fig. 1). This position has been maintained in Buffington *et al.* (2012) and van Noort *et al*. (2015). The close affinities of *Melanips* and their relationship with Aspicerinae are further supported by their similar biology: both groups are known to attack Hemiptera-feeding larvae of Chamaemyiidae and Syr-

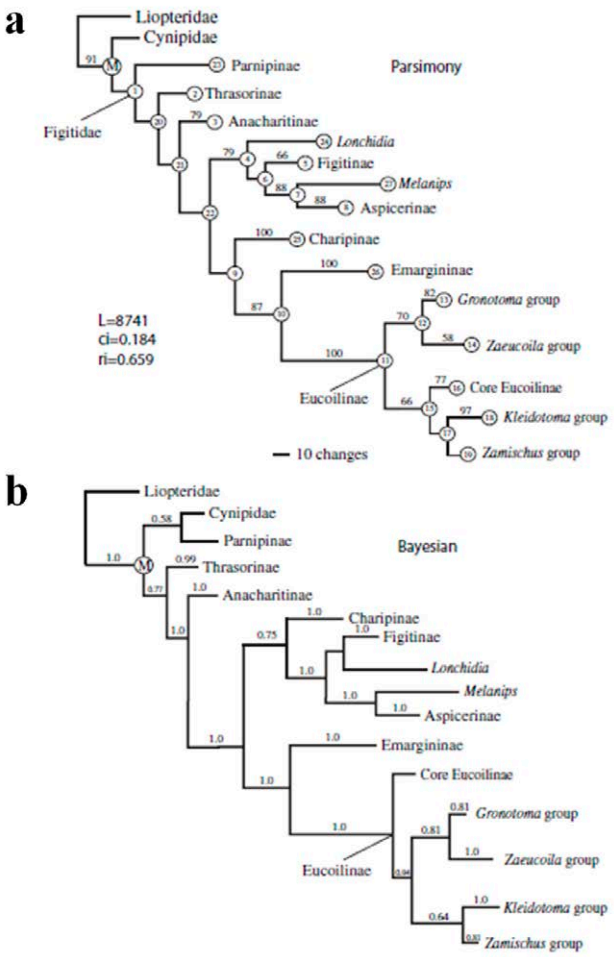

Figure 1. Summary phylograms of higher Figitidae relationships based on combined analysis (28S D2 + D3, 18S, COI and morphology), where the 28S D2 + D3 data partition was structurally ligned. (11) parsimony result. (12) Bayesian inference result. Numbers above and or pointing to branches indicate bootstrap support (parsimony, >50% shown) or posterior probability Bayesian,>0.5 shown). Thin branches in (11) collapse in the strict consensus of trees [From Buffington *et al.*, 2007].

phidae (Diptera) (Buffington *et al.*, 2012). Nevertheless, *Melanips* have not any of the three synapomorphies of Aspicerinae (Ros-Farré et al., 2000): (i) the presence of a facial impression between toruli (Fig. 5c), (ii) an anterior pronotal plate which is derived from the closure of the gap between the ventral and dorsal projections of pronotum, and (iii) third metasomal tergum distinctly ligulate with posterolateral margin concave and central part tongue-like (Fig. 5f). Another important difference with Aspicerinae species is the shape of radial cell: closed in *Melanips* while open in the rest of Aspicerinae genera.

In this paper we focus on the *Melanips* group, formally recognizing it as Melanipinae n. subf. Additionally *Nebulovena ra* n. sp. from Egypt is here described, which represents the first record for the *Ferpereira-Melanips-Nebulovena* group in North Africa. Melanipinae subfamily is described and the reasons for erecting it are presented. Finally, an updated key on Figitidae subfamilies is given, along with a key for identifying the Melanipinae n. subf. genera.

Materials and methods

The specimen used for the description of the new species is deposited in National Museum of Natural History, Smithsonian Institution (USNM, Washington DC, USA). Photographic images were captured at the USNM with a Macropod Pro 3D & Micro Kit (Macroscopic Solutions LLC, Tolland, CT, USA) and image stacks processed with Zerene Stacker. The SEM images were made in 'Serveis Científico-Tècnics' of the University of Barcelona; a field-emission gun environmental scanning electron microscope (Quanta 200 ESEM, FEI, Hillsboro, OR, USA) was used for high-resolution imaging, under a low voltage (12.0 kV) and without gold-coating of the specimens in order to preserve the material.

The terminology for morphological structures follows Richards (1977), Ronquist & Nordlander (1989), Ronquist (1995), Ros-Farré *et al*. (2000) and Ros-Farré & Pujade-Villar (2007), and the sculpture terminology follows Harris (1979).

Measurements and abbreviations in the descriptions include: F1–F12, first and following flagellomeres; T2–T4, second to fourth abdominal terga; antennal formula is given with the length: width ratio of each segment.

Results

Melanipinae Mata-Casanova & Pujade-Villar, **new subfamily**

Zoobank registration: http://zoobank.org/urn:lsid:zoobank.org:pub:DE2FBFA4-09FF-4528-A725-D5DA6AB78505

Type genus: *Scytodes ocapus* Hartig, 1840, currently type species of *Melanips* Haliday in Walker, 1835.

Diagnosis

Melanipinae n. subf. differs from all subfamilies of Figitidae for possessing the metasomal T2 sclerotized and forming a carinate flange that projects dorsally (Figs 2d-e). *Amphithectus, Paraschiza*, *Sarothrus* and *Sarothroides* also have a sclerotized flange but these genera also have a laterally compressed metasoma and a ventrally projected hypopygium (Fig. 3f); neither of these characters are present in Melanipinae n. subf.. Melanipinae n. subf. has a facial impression like Aspicerinae (Fig. 5c) but on the contrary of this subfamily Melanipinae n. subf. does not have a ligulate T2 (Fig. 5f). Melanipinae n. subf. have cyllindrical flagellomeres in both sexes, filiform (Figs 2f-g), never ampuliforme – unlike some Figitinae –, and male F1 usually excavated (Fig. 2f), characters not present in either Aspicerinae or Figitinae. Their host preference for attacking Chamaemyiidae and Syrphidae larvae is also different from Figitinae. The head and mesosoma of Melanipinae n. subf. is covered by microcoriaceus sculpture; along with the aspect of T2, makes the group similar to Parnipinae and Euceropt-

rinae, but Parnipinae T2 is not sclerotized, the mesopleuron lacks smooth areas, and metasomal tergites T3-T7 are similar in size; lastly, Parnipinae has strongly impressed veins RS+M and M, and has an areola (Fig. 5m). Euceroptrinae presents an areola like Parinipinae, and the mesoscutum presents transverse carination (Fig. 5k); in Melanipinae n. subf., the venation is much reduced and the areola is not always present, and their mesoscutum is heavily coriaceous but never carinate.

Description

Body black to dark reddish brown, legs and antennae black to dark yellow. Head oval-shaped in anterior view (Fig. 5h), sometimes subtriangular (Fig. 2a). Mandibles not overlapping. Head dull and coriaceous. Interocular area not impressed. Occipital carinae absent. Female antenna 13-segmented (Fig. 2g); male antenna 14-segmented, F1 modified, usually ventrally excavated (Fig. 2f). Mesosoma dull and coriaceous, covered by dense pubescence. Notauli complete. Mesopleuron smooth, with soft anteroposterior transverse striae. Scutellum rounded (Figs 2h, 2i) or truncate (Fig. 2j) but never projected at apex, smaller than mesoscutum (Figs 2h-j). Scutellar disc dull, margins of scutellum rugose. Scutellar foveae present, distinct from the rest of scutellar surface. Forewing pubescent and hyaline; radial cell elongate and closed,. Petiole shorter than metacoxa. T2 curved upwards forming a sclerotized and carinate flange that dorsally covers the petiole (Figs 2d-e). Ring of setae around T2, sometimes reduced to two dense patches of setae at each side of T3 (Fig. 2e). T3 and T4 cover most of metasoma. Hypopygium not projected.

Included genera

Melanips Haliday, 1835, *Nebulovena* Pujade-Villar & Paretas-Martínez, 2012 and *Ferpereira* Pujade-Villar, 2013.

Biology

Members of Melanipinae are parasites of aphid-feeding larvae of Chamaemyiidae and Syrphidae (Diptera) (Weld 1952, Evenhuis 1968, Fergusson, 1986, summarized in Buffington *et al*. 2012), like Aspicerinae. Their biology sets Melanipinae apart from other morphologically similar subfamilies mentioned before: Figitidae from the *Sarothrus* group are parasitoids of Anthomyiidae larvae attacking reproductive organs of conifers and Asterales; Parnipinae attack gall wasps of Papaveraceae galls; and Euceroptrinae are parasitoids on Cynipini (*Andricus* sp. gall wasps) on *Quercus* spp (Buffington & Liljeblad, 2008).

Distribution

Mainly Holarctic, with some Australasian, Indomalayan, Neotropical, and Afrotropical species.

Key to Melanipinae genera

1. Head rounded in anterior view (Fig. 5h). Areola present, sometimes faded. Circumscutellar carina absent (Fig. 2i). ..... *Melanips* Haliday
– Head subtriangular in anterior view (Fig. 2a). Areola absent. Circumscutellar carina present (Figs 2h, 1j)..... 2

2. Veins of radial cell hyaline. Pilliferous points of mesoscutum scarce (Fig. 2j). Mesopleuron glabrous below median transverse ridge. Scutellum truncate (Fig. 2j)..... ..... *Ferpereira* Pujade-Villar
– Veins of radial cell dark nebulous (Fig. 2b). Abundant pilliferous points in mesoscutum (Fig. 2h). Ventral mesopleuron carinate. Scutellum rounded (Fig. 2h) ....*Nebulovena* Pujade-Villar and Paretas-Martínez

Genus *Nebulovena*

Nebulovena Pujade-Villar & Paretas-Martínez, 2012: 44 (Type-species: *Nebulovena persa* Pujade-Villar & Pareta-Martínez by monotypy).

Nebulovena ra Mata-Casanova & Pujade-Villar, **new species** (Figs 2a-d, 2h)

Zoobank registration: http://zoobank.org/urn:lsid:zoobank.org:pub:DE2FBFA4-09FF-4528-A725-D5DA6AB78505

Type material

Holotype ♂, deposited in NMNH with the following labels: [first label] "Mersa Matrouh, 22.2.29" [interpreted as 22 Feb 1929]; [second label] "Coll. Alfieri Egypte"; [third label] Anastase Alfieri Collection 1965; [fourth label] 796; [fifth label] USNMENT01339823; [sixth label] HOLOTYPE *Nebulovena ra* Mata-Casanova & Pujade-Villar, 2025

Etymology

The specific name *ra* comes from the the Ancient Egyptian sun god Ra, whose tears were said to be the origin of bees.

Diagnosis

Nebulovena ra n. sp. can be distinguished from *N. persa*, the other species in the genus, by having lighter coloration in the legs (legs black in *N. persa* while light brown in *N. ra*), shorter radial cell and median mesoscutal impression, presence of one metatibial spur (*N. persa* metatibia presents two sub-equal spurs) and longer petiole.

Description

Length male. 3.5 mm.; female. Unkown.

Color. Head and mesosoma black, antennae dark brown, metasoma reddish dark brown. Legs light brown, coxae black.

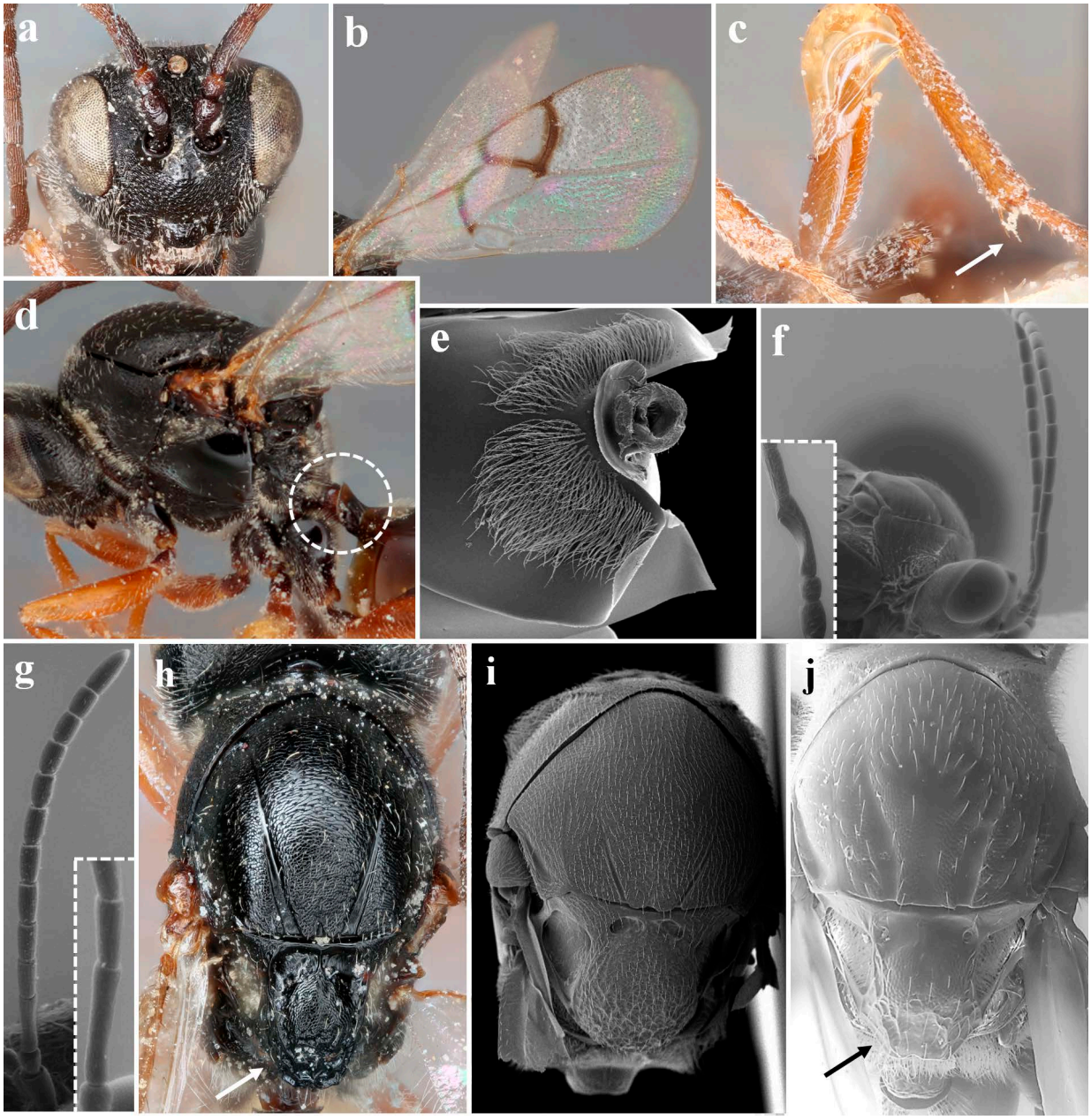

Figure 2. *Nebulovena ra* n. sp. (Melanipinae): (a) head in anterior view; (b) forewing; (c) detail of hind leg (arrow indicates metatibial spur); (d) mesosoma in lateral view (petiole highlighted). *Melanips* sp. (Melanipinae): (e) antero-dorsal view of metasoma. *Ferpereira fiorellae* (Melanipinae): (f) male antennae (F1 detailed); (g) female antenna (F1 detailed). Mesosoma in dorsal view of: (h) *Nebulovena ra* n. sp., (i) *Melanips* sp., (j) *Ferpereira fiorellae.*

Head. Subtriangular in anterior view (Fig. 2a), 1.26 times broader than high in anterior view. Surface coriaceous and pubescent. Area between toruli smooth without any pit, carinae or strigae. Clypeus distinctly projected anteriorly, clypeopleurostomal lines well developed. Malar space densely pubescent and coriaceous. Anterior ocellus close to posterior ocelli, posterior margin of anterior ocelli subaligned with anterior margins of posterior ocelli. Occiput and genae without carinae; genae almost glabrous, occiput pubescent.

Antenna. Antenna 14-segmented; F1 curved, deeply excavated; antennal formula: 12(4): 3(3): 11(3): 9(3): 9(3): 8.5(3): 8.5(3): 8.5(3): 8(3): 8(3): 8(3): 8(3): 8(3): 12(3). Placoid sensilla abundant from F1 to terminal segment.

Mesosoma. Pronotum coriaceous and punctate, covered with sparse setae except for collar of dense hyaline setae along pronotal plate; pronotal plate not projected from dorsal margin (Fig. 2d). Mesoscutum and scutellum coriaceous and punctate, pubescence scarce. Notauli complete, not transversely carinate (Fig. 2h). Parascutal sulcus and parapsidal signum absent. Antero-median lines weak, reaching anterior one-third of mesoscutum; median mesoscutal impression very short, less than 1/10 of mesoscutal length. Scutellum rounded (Fig. 2h) Scutellar foveae large, subquadrangular, not clearly posteriorly defined, presence of anteroposterior weak ridges; central scutellum coriaceous, margins and posterior scutellar disk areolate, circumscutellar carina present

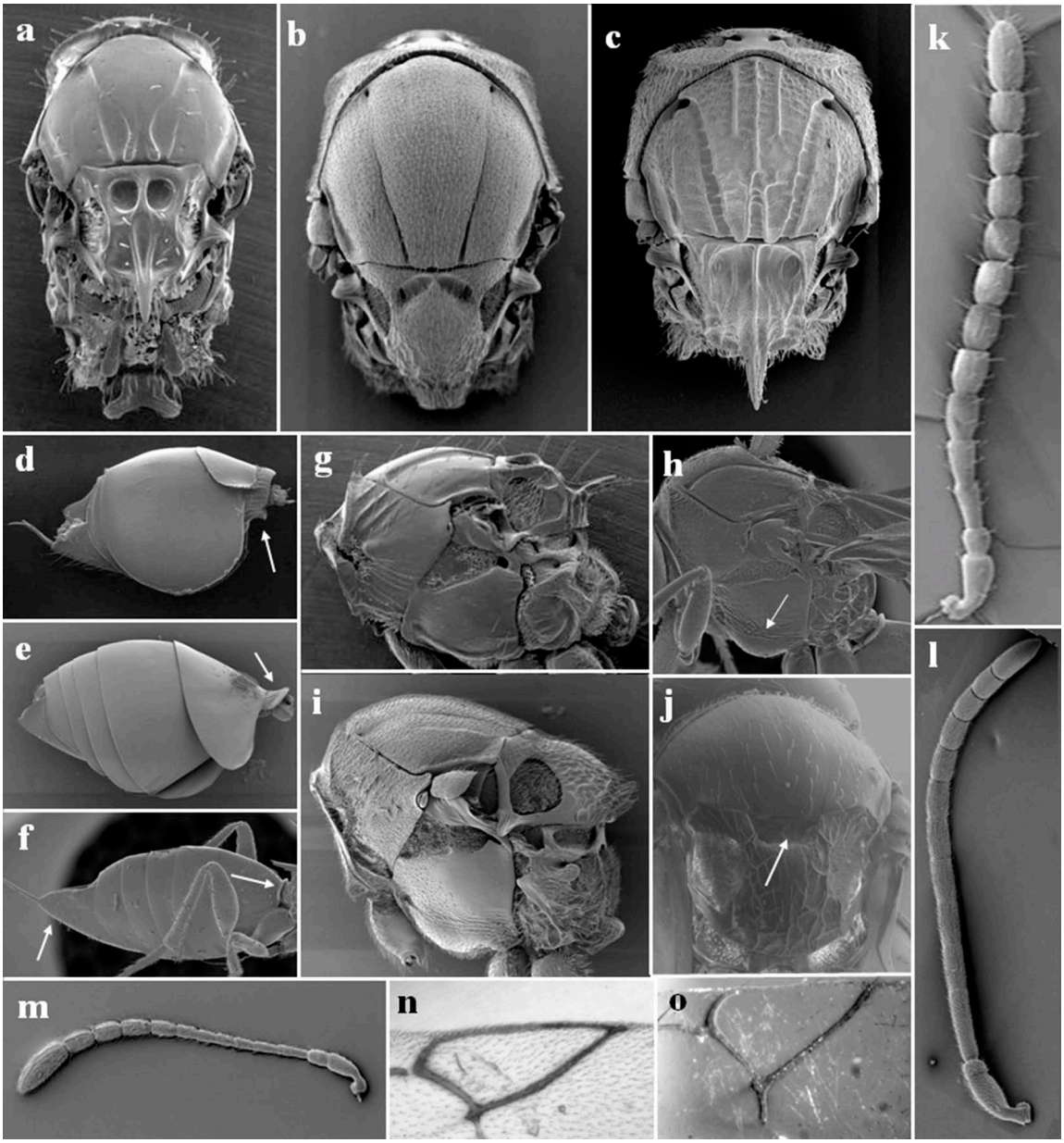

Figure 3. (a, d, g, k, o) Figitinae *sensu stricto*: *Neralsia* sp, (Morphbank, Fontal-Cazalla); (b, e, i, n) *Melanips opacus*, (Morphbank, F. Fontal-Cazalla); (f, h) *Amphitectus*; (j, m), *Lonchidia*; (c) Aspicerinae: *Aspicera scutellata*. (a-c, f) mesosoma in dorsal view, (d-f) metasoma in lateral view with first metasomal tergum (d-f) and hypopygium (f) highlighted, (g-i) mesosoma in lateral view, (j) mesosoma in dorsal view with scutellar depression highlighted, (k-m) female antenna, (n-o) radial cell. [Figure 19: Morphbank, J. Liljeblad].

(Fig. 2h). Mesopleural triangle apparent, smooth, pubescence scarce. Mesopleuron smooth and shiny, presence of carinae at anteroventral margin (Fig. 2d). Propodeal carinae narrow, only reaching anterior half of propodeum.

Forewing. Short setae present on wing surface and along margins. Radial cell closed, 1.4 times longer than wide; pigmentation of all veins of radial cell dark brown, nebulous; R2 almost straight, Rs strongly curved, basal vein strongly curved, M and Rs+M veins very thin but visible; areolet absent (Fig. 2b).

Legs. Metatibia with one short spur, not exceeding one-third length of tarsomere 1 (Fig. 2c).

Metasoma. Petiole longer than wide. T2 short, mostly smooth but with small longitudinal carinae on posterior half; T2 projecting anteriorly covering posterior area of nucha (Fig. 2d); T3 and T4 almost covering entire metasomal surface; remaining tergites short, telescoped within T4; T3 without punctation, with two lateral dense patches of setae just behind T2; T4 to T7 with a dense punctation.

Biology

Unknown.

Distribution

Palearctic; collected from Egypt. Collected from the northcentral coastline of Egypt.

Discussion and conclusions

Melanips has traditionally been included within Figitinae (Dalla-Torre & Kieffer 1910 (under *Amblynotus*); Weld 1952 and Ronquist 1999 as *Melanips*). However, Buffington et al. (2007) using both parsimony (Fig. 1a) and Bayesian inference (Fig. 1b) found that *Melanips* is closer to the core of Aspicerinae. Consequently, the authors assigned *Melanips* to this subfamily. The close relationship between *Melanips* and Aspicerinae is further supported by their shared biology, as both parasitize the aphid-feeding larvae of Chamaemyiidae and Syrphidae. Recent publications describing *Ferpereira* and *Nebulovena* (morphologically similar to *Melanips*) included them in Figitinae (Paretas-Martínez et al. 2012; Pujade-Villar et al. 2013). After the description of these new taxa, Figitinae included 16 genera: *Amphithectus*, *Ferpereira*, *Figites*, *Foersterhomorus*, *Lonchidia*, *Melanips*, *Nebulovena*, *Neralsia*, *Paraschiza*, *Sarothroides*, *Sarothrus*, *Seitneria*, *Trischiza*, *Xyalophora*, *Xyalophoroides* and *Zygosis*, Thus, it became a taxonomic jumble, with genera that did not fit neatly into other subfamilies being grouped together.

Based on morphological features, the inclusion of *Melanips* within Aspicerinae is troublesome. Aspicerinae were defined by three morphological synapomorphies (Ros-Farré et al. 2000): (i) the presence of a facial impression between toruli (Fig. 5c), (ii) an anterior pronotal plate which is derived from the closure of the gap between the ventral and dorsal projections of pronotum, and (iii) third metasomal tergum distinctly ligulate with posterolateral margin concave and central part tongue-like (Fig. 5f). *Melanips* does not possess any of these features. Moreover, Aspicerinae have striate sculpture on the mesoscutum and the occipital region, along with (in some genera) a scutellar spine issuing from a circumscutellar carina. These characters are not present in the any of the three aforementioned genera now included in Melanipinae .

Morphological characters of *Ferpereira* and *Nebulovena* make them morphologically similar to *Melanips*: (i) metasomal T2 sclerotized and forming a carinate flange that projects dorsally (Figs 2d-e), (ii) cyllindrical flagellomeres in both sexes, filiform (Figs 2f-g), never ampuliforme, and male F1 usually excavated (Fig. 2f), (iii) head and mesosoma covered by microcoriaceus sculpture (Figs 2a, 2h-j) – forming a group distinct from other genera included in Figitinae (Pujade-Villar & Vanegas-Rico 2015) but not belonging to Aspicerinae either, as Buffigton et al. (2007, 2012) suggest. For the aforementioned reasons *Melanips*, *Ferpereira* and *Nebulovena* should be included in a new subfamily: Melanipinae, biologically and phylogenetically close to Aspicerinae, but not morphologically.

Key to subfamilies of Figitidae

1. Radial cell small, closed, secondarily sclerotized forming a pseudostigma (Fig. 4a). [Biology unknown. South Africa, Northern Africa and South-East Asia]..... **Pycnostigminae**
– Radial cell size variable in size, may be open or closed, but never sclerotized, forming the radial cell typical of Cynipoidea (Figs 4b-c, 5m,) 2

2. Scutellum with a tear-shaped or elongate scutellar plate with a central or posterior glandular pit (Fig. 4d). [Parasitoids of schizophoran Diptera. Cosmopolitan]..... **Eucoilinae**
– Scutellum without raised dorsal plate with glandular pit (Figs 4e, 5e, 5i, 5k) 3
3. Metatibial spur at least ½ of first metatarsomere length (Fig. 5g). [Associated to Hymenoptera-induced galls in *Nothofagus*. Neotropical] ..... **Plectocynipinae**
– Metatibial spur as much as ¼ of first metatarsomere length, usually shorter..... 4

4. Apex of forewing bilobate (Fig. 4b); propodeum and anterior part of metasoma with dense setae. Scutellum may present two carinae simulating a scutellar plate, but never present central pit (Fig. 4e). [Biology unknown, possibly related to Diptera associated to ants. Pantropical] ....**Emargininae**
– Apex of forewing rounded. Propodeum and anterior part of metasoma without dense setae, Scutellum 5

5. Apex of metasoma glabrous; forewing with areola (Fig. 5m)..... 6
– Apex of metasoma setose or glabrous; forewing without areola 7

6. Pronotal lateral carina strongly distinct forming an arch (Fig. 5l; dorsal mesopleuron smooth, ventral mesopleuron striate, both areas separated by distinct mesopleural groove (Fig. 4g). [Parasitoids of *Andricus* (Cynipidae) in *Quercus* (Fagaceae. Nearctic]..... **Euceroptrinae**
– Pronotal lateral carina dorsally incomplete (Fig. 5n); mesopleuron completely coriaceous-carinate, mesopleural groove absent (Fig. 4h). [Parasitoids of *Barbotinia* (Cynipidae) on *Papaver* (Papaveraceae). Palaearctic, Mediterranean area]..... **Parnipinae**

7. Triangular head in anterior view (Fig. 5a), sometimes quadrangular due to secondary expansion of malar area; mouth region constricted, broadly over-lapping mandibles [Parasitoids of Hemerobiidae (Neuroptera) larvae. Cosmopolitan] ..... **Anacharitinae**
– Rounded or quadrangular head in anterior view; mouth region expanded, mandibles not overlapped..... 8

8. Facial impression present (Fig. 5c); third metasomal tergum distinctly saddle shaped with posterolateral margin concave and central part almost tongue-like (Fig. 5f). [Parasitoids of Chamaenyiidae and Syrphidae (Diptera) larvae. Cosmopolitan]..... **Aspicerinae**
– Facial impression absent; third metasomal tergum rounded with posterolateral margin usually convex, rarely concave..... 9

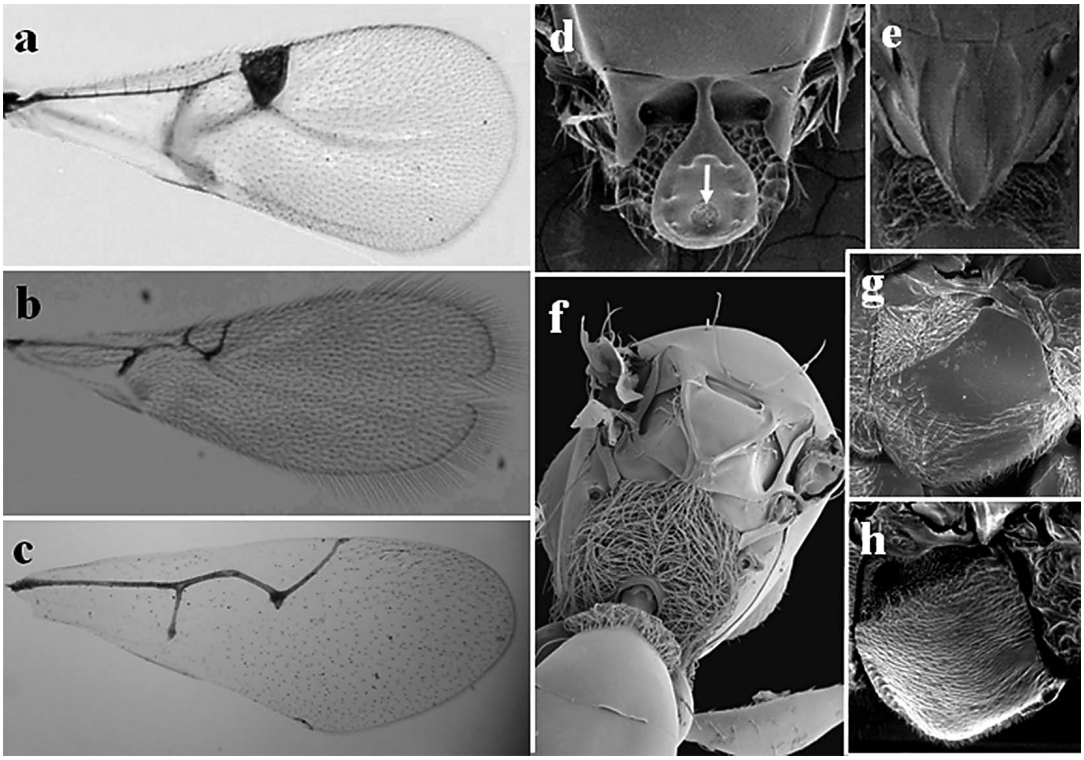

Figure 4. (a-c) forewing, (d) scutellum with glandular pit highlighted, (e) scutellum, (f) mesosoma in posterior view, (g-h) mesopleuron. (a) Pycnostigminae [Morphbank, M. Buffington], (b, e, f) Emargininae [b: Morphbank, M. Buffington], Eucoilinae [d: Morphbank, M. Buffington]; (g) Euceroptrinae: *Euceroptres montanus* [Morphbank, modified from J. Liljeblad], (h) Parnipinae: *Parnips nigripes* [Morphbank, modified from M. Buffington].

9. Body lacking sculpture (Fig. 5e), generally smooth and shiny (except for *Lytoxysta* which presents a fine reticulate sculpture in head and mesosoma and some species of *Phaenoglyphis* that have an imbricate sculpture in regions of mesoscutum and scutellum); notauli may be absent or present, in the latter case can be partial or complete but always weakly impressed; scutellum clearly rounded; small body size, usually less than 1 mm in length. [Hyperparasitoids of Aphididae via Aphidiinae (Hymenoptera: Braconidae) and Aphelininae (Hymenoptera: Aphelinidae) and of Psyllidae via Encyrtidae (Hymenoptera: Chalcidoidea). Cosmopolitan] ..... **Charipinae**
– Mesoscutum with some transverse macro or microcarinate sculpture, sometimes smooth or presenting pilliferous points or coriaceous-imbricate sculpture; notauli partial or complete, but always strongly impressed; scutellum different; body size bigger, usually more than 2 mm.... 10

10. Circumtorular sulcus present (Fig. 5b). [Associated to Myrtaceae and Fabaceae galls. America and Australia] .... **Thrasorinae**
– Circumtorular sulcus absent 11

11. First metasomal tergum forming a sclerotized carinate collar around petiole (Fig. 5d). Pronotal plate big and developed (Fig. 5o); female antennae ampuliformes (Fig. 3k) with long pubescence like a brush; pronotum with anteroposterior carinae (Fig. 5d). [Parasitoids of cyclorrhaphan Diptera. Cosmopolitan]... **Figitinae** *sensu stricto*
- First metasomal tergum different, small and not heavily sclerotized, usually flange-shaped and lacking carinae or weakly carinate. Pronotal plate not strongly distinct and smaller; female antennae cyllindrical; pronotum smooth to coriaceous, but never with anteroposterior carinae... 12

12. Mesoscutum shiny, smooth to microcoriaceous, mesoscutal covered by scarce pubescence 13
– Mesoescutum presenting whether strong linear element (Fig. 5k) or strong coriaceous sculpture, covered by dense pubescence (Figs 2h-j; 5i)..... 14

13. Body size small (less than 2 mm). Scutellar foveae fused forming one scutellar depression (Fig. 3j). Female antennae distally expanded (Fig. 3m); in males, flagellomeres very elongate (at least 3 times longer than wide); metasoma small, hypopygium not projected. [Biology unknown. Holarctic, one South African species]..... ..... **Figitinae** *Lonchidia* group
– Body size big (at least 3 mm). Two distinct scutellar foveae, never fused. Female antennae not distally expanded; in males, flagellomeres despite being longer than wide they are never as long (less than 3 times). Metasoma big, hypopygium usually projected (Fig. 3f). [Parasitoids of Anthomyiidae (Diptera) larvae. Holarctic]. .... **Figitinae** *Sarothrus* group

14. Gena smooth (Fig. 5j); pronotal plate small, being 1/3 of pronotum; mesoscutum transversely striate (Fig. 5k); third

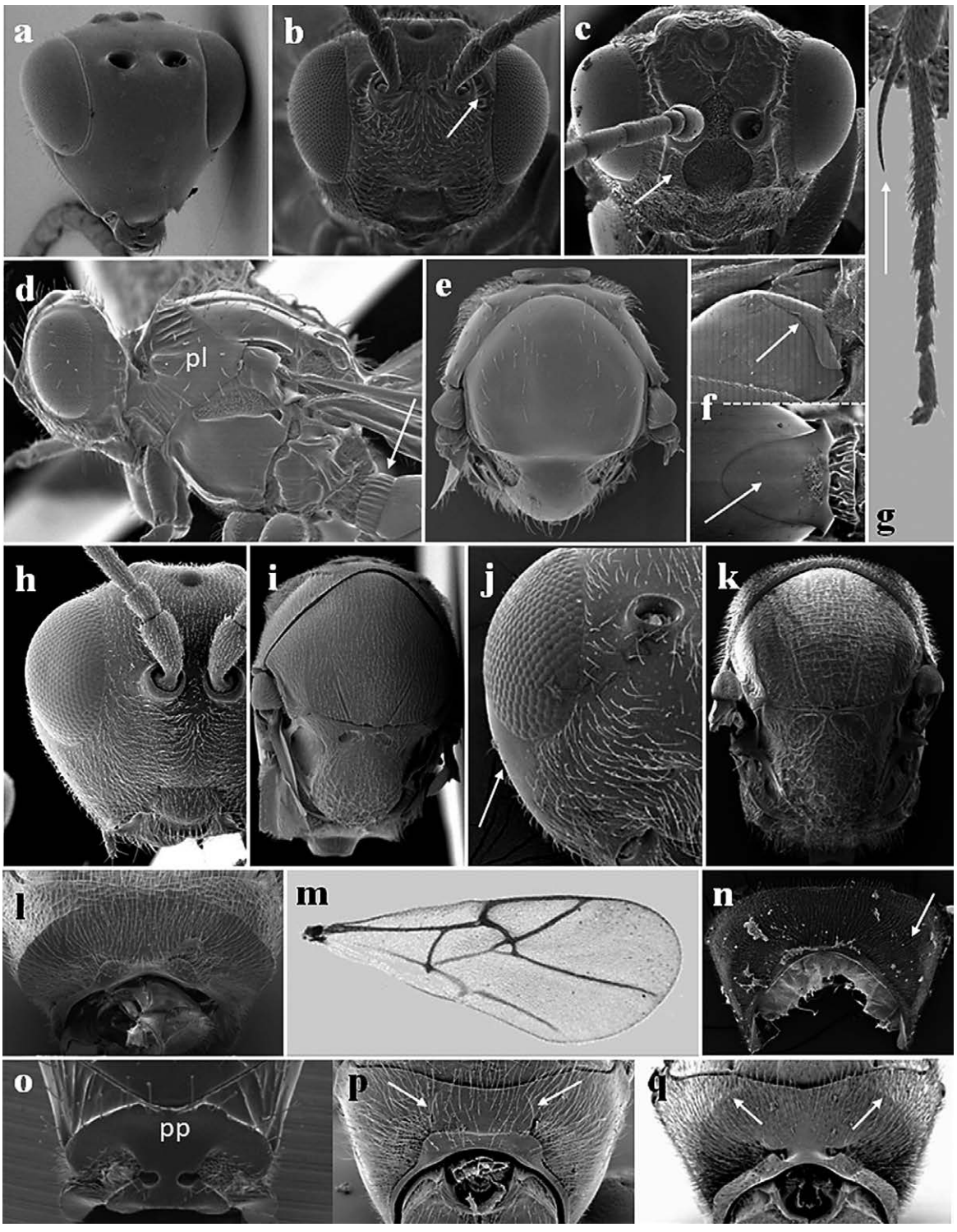

Figure 5. (a-c, h, j) Head in frontal view, (d) head and mesosoma in lateral view, (e, i, k) mesoscutum, (f) second metasomal tergite), (g) metatibial sput of the third pair legs, (l, n-q) pronotum in frontal view, (m) fore wings. (a) Anacharitinae: *Acanthaegilips ashmeadi*; (b) Thrasorinae: *Myrtopsen platensis*; (c) Aspicerinae: *Aspicera caminali*; (d) Figitinae: *Neralsia scutellata*; (e) Charipinae: *Alloxysta vitrix*; (f) Aspicerinae; (g) Plectocynipinae: *Plectocynips pilosus*; (h-i) *Melanips opacus*; (j) Mikeiinae: *Mikeius hartigi*; (k-i) Euceroptrini: *Euceroptres montanus*; (m-n) Parnipinae: *Parnips nigripes* (o) Figitinae: *Neralsia*, (p) Mikeiinae: *Mikeius clavatus*, (q) *Melanips opacus*. [a, k-i, q: Morphbank, J. Liljeblad; h-i, o: Morphbank, F. Fontal-Cazalla; j, p: Morphbank, M. Buffington; m: Morphbank, modified from M. Buffington; n: Morphbank, L. Vilhelmsen].

metasomal tergum about two times of fourth metasomal tergum. Male F1 not modified. [Parasitoids of gall-inducting Hymenoptera on Fabaceae and Myrtaceae. Australia]. ..... **Mikeiinae**

– Gena sculptured (Figs 2f; 5h); pronotal plate big (Fig. 5q); mesoscutum dull, microcoriaceous, not transversely striate (Figs 2h-j; 5i). Third and fourth metasomal tergum similar in length; F1 in males usually modified (ventrally

excavated and apically expanded). [Parasitoids of Chamaenyiidae and Syrphidae (Diptera) larvae. Cosmopolitan]..... **Melanipinae n. subf.**

NOTE: It is quite possible that in the future the subfamily Figitinae will split into new subfamilies separating the *Lonchidia* group and the *Sarothrus* group from Figitinae *sensu stricto*.

Acknowledgements

This research was funded by the project "PID2021-128146NBI00/MCIN/AEI/10.13039/501100011033/" and "FEDER una manera de hacer Europa" from the Ministry of Science and Innovation of Spain and the European Region al Development Fund (ERDF). We are very grateful to Matthew L. Buffington from Systematic Entomology Lab, USDA (Washington DC, USA) for his help during the visit at the USDA in which the material was studied and his comments and insights on the subject. We also thanks to Denis J. Brothers (School of Life Sciences, University of KwaZuluNatal, Pietermaritzburg, South Africa) for his help about taxonomical nomenclature. And finally, we thanks to the two Figitidae specialist reviewers, Mar Ferrer-Suay (Universitat de València, Spain) and Fabiana Gallardo (Museo de La Plata, Universidad National de La Plata) for their valuable comments that have improved the initial version of the manuscript.

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