

METROPIS NEBRODENSIS NOV. SPEC. FROM SICILY AND DIAGNOSIS OF FEMALES OF WEST-PALAEARCTIC *METROPIS*-SPECIES (HOMOPTERA, CICADINA, FULGOROIDEA, DELPHACIDAE). (*)

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During fauna research on the Nebrodi mountains (north-east Sicily) males and females of a new species of *Metropis* were found. This new species, *Metropis nebrodensis*, is very similar to two other taxa of the same genus, namely *M. latifrons* (Kbm) (an essentially Central European species) and *M. latinus* Linnav., confined to the Italian peninsula and seemingly giving way to the new species in Sicily.

Metropis nebrodensis nov. spec.

SICILY: Nebrodi mountains: Mt. Castellazzo (Montalbano Elicona), 1.335 m, pasture-land with *Cynosuro-Leontodontetum siculi*, 25.5.81: 3 ♂♂* (holotype and paratypes), 31.5.82: 2 ♂♂, 5 ♀♀, 1 ♂* (paratypes); Mt. Castellazzo (Montalbano Elicona), 1.295 m, pasture-land with *Thymus spinulosus* Ten. and *Teucrium chamaedrys* L., 25.5.81: 2 ♂♂, 2 ♀♀ (paratypes); Contrada dell'orgimusco (Montalbano Elicona), 1.250 m, heath-land with *Calycotome infesta* Guss., 25.5.81: 2 ♂♂, 3 ♀♀, 2 ♀♀*, 19.6.81: 1 ♂, 2 ♀♀*, 31.5.81: 5 ♀♀, 5 ♂♂, 25.6.82: 2 ♂♂*; Portella Femminamorta (Cesarò), 1.580 m, *Genisto-Potentilletum calabrae*, 25.5.81: 1 ♂, 1 ♀, 28.5.82: 4 ♂♂.

The specimens marked with an asterisk were collected in pitfall traps baited with formalin and vinegar, left on the site for about thirty days.

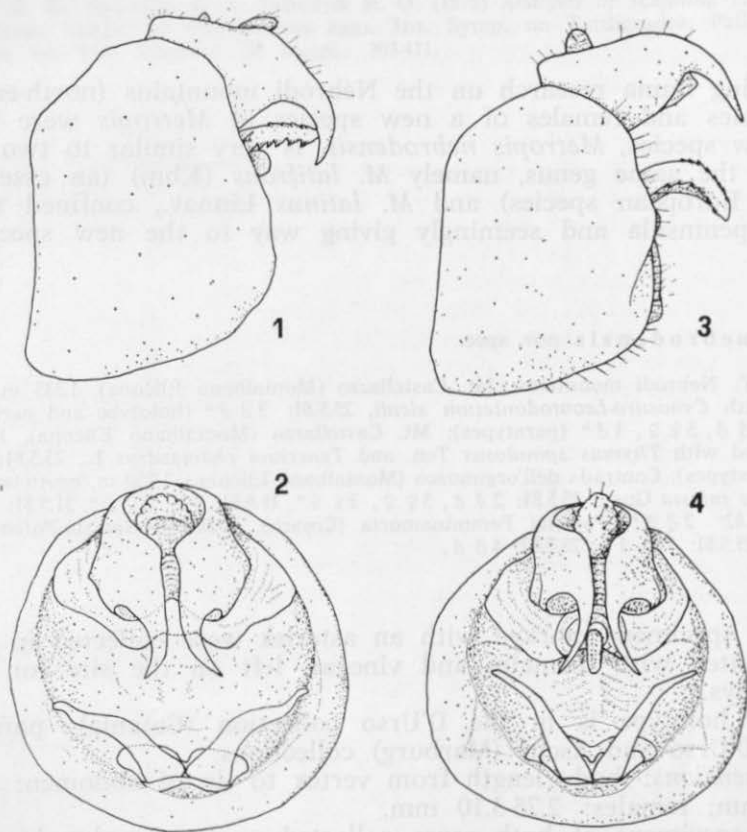
The holotype is in the D'Urso collection (Catania); paratypes are in D'Urso and Asche (Marburg) collections.

Dimensions: body length from vertex to tip of abdomen: males 2-2.30 mm; females: 2.75-3.10 mm.

All specimens of both sexes collected so far are brachypterous and have the sexual dimorphism typical for the genus: the male have blackish bodies; the area between the vertex and frons, and also the antennae, are brown; thorax segments are partly yellowish on the

(*) Ricerche svolte con fondi M.P.I. 40%, programma «Fauna dell'area mediterranea occidentale»

lateroventral side; the legs too are yellowish gradually darkening towards the base and apex. The females are of a uniform light yellowish colour, with a pair of dark latero-dorsal markings on the last two or three abdominal tergites, and have legs darkening at the apices. The new species is very similar in appearance to *M. latinus*, but differs from the latter and from all others of the genus mainly in the shape of the male genital segment, in details of anal tube, parameres and aedeagus as well as in the shape of female valvifer VIII.



Figs 1-4 - *Metropis nebrodensis* n. sp. Paratype - Genital and anal bloc of the male, lateral (fig. 1) and ventrocaudal (fig. 2) view.

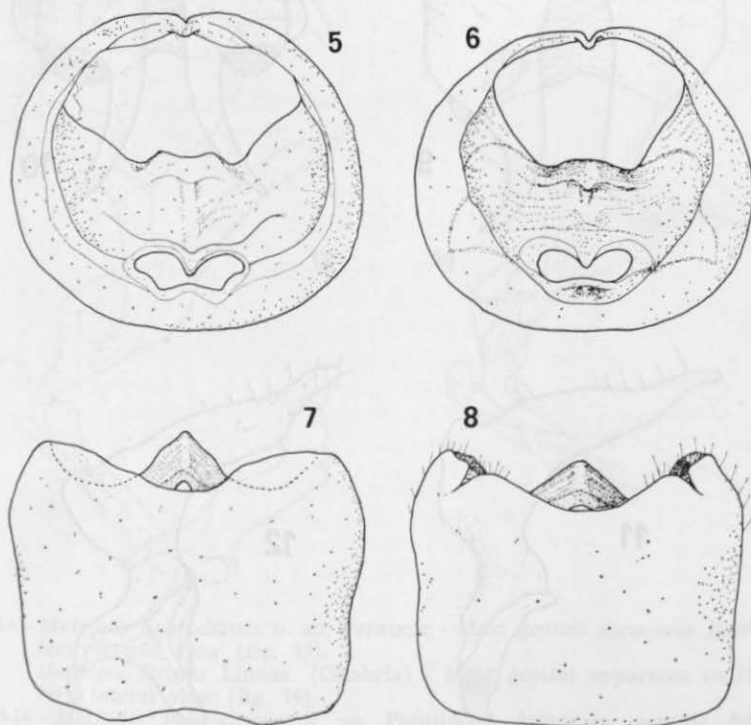
Metropis latinus Linnav. (Calabria) - Genital and anal bloc of the male, lateral (fig. 3) and ventrocaudal (fig. 4) view.

Figg. 1-4 - *Metropis nebrodensis* n. sp. Paratipo - Segmenti genitale e anale del maschio visti lateralmente (fig. 1) e ventrocaudalmente (fig. 2).

Metropis latinus Linnav. (Calabria) - Segmenti genitale e anale del maschio visti lateralmente (fig. 3) e ventrocaudalmente (fig. 4).

MALES - The pygofer (figs 1,2,5,7) which looks roughly quadrangular in lateral view, is, as is typical for the genus, principally characterized by the morphology of the phragma. This, observed caudally (fig. 5), is wider than in *M. latinus* (fig. 6) and the dorsal aperture of the pygofer which it encloses is more than twice as wide as high (while in *M. latinus* it is always less than twice as wide as high). The dorsal margin of the phragma forms a widely opened-out W, while the median part forms a bulge more pronounced and angular than in *M. latinus*: this is best seen when the pygofer is observed ventrally (figs 7,8).

The anal tube (figs 1,2,9) is similar to those of *M. latinus* and *M. latifrons* (see: Asche, Drosopoulos, Hoch, 1983), but tends to be



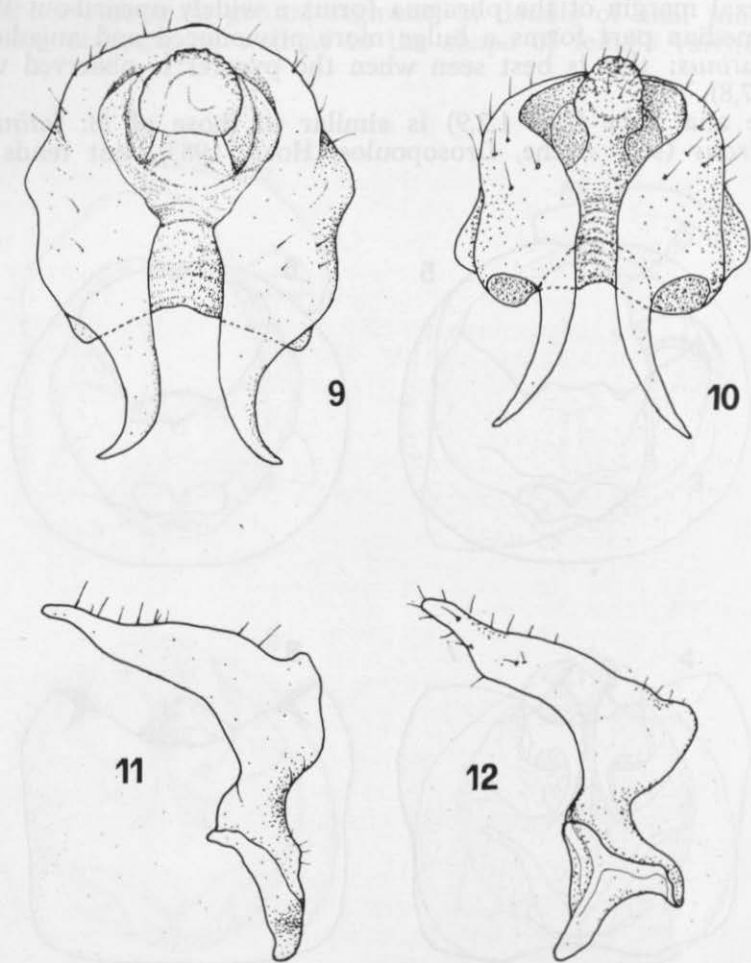
Figs 5-8 - *Metropis nebrodensis* n. sp. Paratype - Male genital segment, caudal (fig. 5) and ventral (fig. 7) view.

Metropis latinus Linnav. (Calabria) - Male genital segment, caudal (fig. 6) and ventral (fig. 8) view.

Figg. 5-8 - *Metropis nebrodensis* n. sp. Paratipo - Segmento genitale del maschio visto caudalmente (fig. 5) e ventralmente (fig. 7).

Metropis latinus Linnav. (Calabria) - Segmento genitale del maschio visto caudalmente (fig. 6) e ventralmente (fig. 8).

stumpier and thicker. Peculiar characteristics are the almost dome-shaped ventral protuberance (most evident when the anal segment is observed laterally) (fig. 1) and the morphology of the appendages of the anal tube (figs 1,9), which are very sturdy and stump-like and



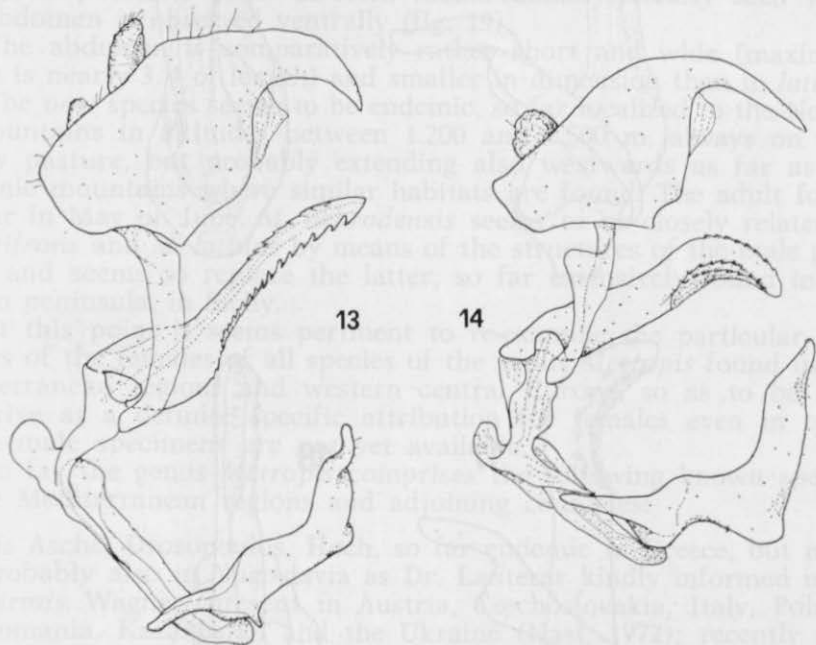
Figs 9-12 - *Metropis nebrodensis* n. sp. Paratype - Appendage of anal tube, caudal view (fig. 9). Left paramere, lateral view (fig. 11).

Metropis latinus Linnav. (Calabria) - Appendage of anal tube, caudal view (fig. 10). Left paramere, lateral view (fig. 12).

Figg. 9-12 - *Metropis nebrodensis* n. sp. Paratipo - Appendici del tubo anale viste caudalmente (fig. 9). Paramero sinistro in visione laterale (fig. 11). *Metropis latinus* Linnav. (Calabria) - Appendici del tubo anale viste caudalmente (fig. 10). Paramero sinistro in visione laterale (fig. 12).

have apex portions sharply bending outwards (these appendages are thin and slender in *latinus* and are curved outwards more gradually) (figs 3,4,10).

The general form of the parameres (figs 2,11) is that typical of the genus, but in *M. nebrodensis* there is a particular median basal protuberance which is more angular than the corresponding one in *latinus*. Also, the apical part is more sharply angled to the base so that when the pygofer is observed caudally (fig. 2), the apices of the parameres do not come more than half-way up the phragma (in *latinus* they reach beyond it) (figs 4,12) since they turn very sharply outwards.



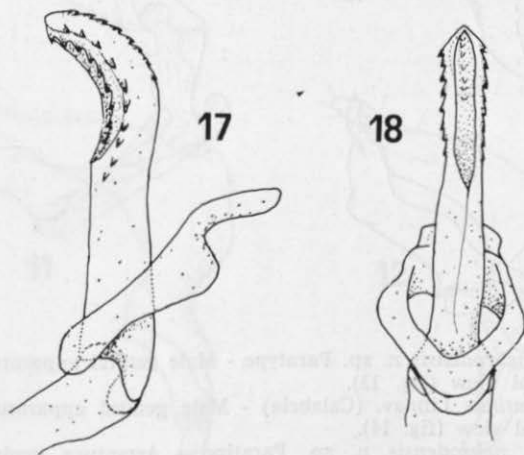
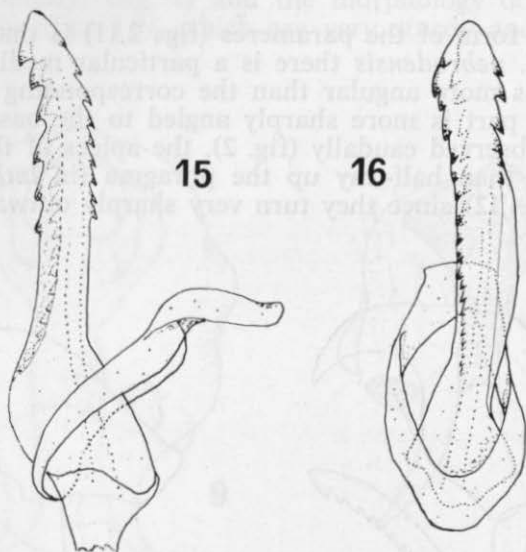
Figs 13-14 - *Metropis nebrodensis* n. sp. Paratype - Male genital apparatus (without pygofer), lateral view (fig. 13).

Metropis latinus Linnav. (Calabria) - Male genital apparatus (without pygofer), lateral view (fig. 14).

Figg. 13-14 - *Metropis nebrodensis* n. sp. Paratipo - Armatura genitale del maschio (senza pigoforo) vista lateralmente (fig. 13).

Metropis latinus Linnav. (Calabria) - Armatura genitale del maschio (senza pigoforo) vista lateralmente (fig. 14).

The aedeagus (figs 13,15,16) has a large swelling at the base from which a slender shaft originates gradually incurving ventrally. The shaft bears three rows of teeth which gradually become stronger towards the apex. The dorsal row consists of 9 teeth, while of the two latero-



Figs 15-18 - *Metropis nebrodensis* n. sp. Paratype - Aedeagus, lateral (fig. 15) and ventral (fig. 16).

Metropis latinus Linnav. (Calabria) - Aedeagus, lateral (fig. 17) and ventral (fig. 18) view.

Figg. 15-18 - *Metropis nebrodensis* n. sp. Paratipo - Edeago visto lateralmente (fig. 15) e ventralmente (fig. 16).

Metropis latinus Linnav. (Calabria) - Edeago visto lateralmente (fig. 17) e ventralmente (fig. 18).

ventral rows the left-hand one has about 20 teeth which go right up to the base, and the right-hand one 6 teeth which, like those in the dorsal row, are restricted to the part of the aedeagus next to the apex. In *M. latinus* (figs 14,17,18) the base and shaft of the aedeagus have almost the same calibre; only the apex section of the shaft curves sharply in a ventral direction, and the three rows of teeth are less strong than those in *M. nebrodensis* which are confined uniquely to this particular portion.

FEMALES - The most evident character for the identification of females of the new species is the shape of valvifer VIII (fig. 25); the anteromedial margin widens medially to form a lobe which lengthens into a triangular posterior point directed medio-caudally, clearly seen when the abdomen is observed ventrally (fig. 19).

The abdomen is comparatively rather short and wide (maximum width is nearly 3/4 of length) and smaller in dimension than in *latinus*.

The new species seems to be endemic, so far localized to the Nebrodi mountains in altitudes between 1.200 and 1.500 m, always on rich grassy pasture, but probably extending also westwards as far as the Madonie mountains where similar habitats are found. The adult forms appear in May or June. *M. nebrodensis* seems to be closely related to *M. latifrons* and *M. latinus* by means of the structures of the male genitalia, and seems to replace the latter, so far exclusively found in the Italian peninsula, in Sicily.

At this point it seems pertinent to re-examine the particular characters of the females of all species of the genus *Metropis* found in the Mediterranean regions and western central Europe, so as to be able to arrive at a definite specific attribution for females even in cases where male specimens are not yet available.

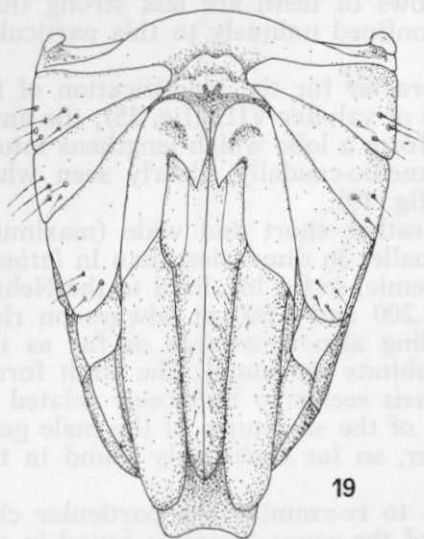
So far the genus *Metropis* comprises the following known species in the Mediterranean regions and adjoining countries:

- M. aris* Asche, Drosopoulos, Hoch, so far endemic in Greece, but most probably also in Yugoslavia as Dr. Lauterer kindly informed us.
- M. inermis* Wagner, present in Austria, Czechoslovakia, Italy, Poland, Romania, Kazakhstan and the Ukraine (Nast, 1972); recently also collected in Greece (Drosopoulos, Asche, Hoch, in press.);
- M. latifrons* (Kbm), present in Austria, Czechoslovakia, France, West Germany, Italy, Poland, Romania and Hungary (Nast, 1972);
- M. latinus* Linnavuori, found only in Italy (Nast, 1972);
- M. mayri* Fieber, present in Austria, Moravia, Hungary, Italy, Switzerland, the Altai, Kazakhstan, the Ukraine and Moldavia (Nast, 1972); recently also collected in Greece (Drosopoulos, Asche, Hoch, l.c., in press.). There is some query as to the findings reported by Nast in France and Belgium.

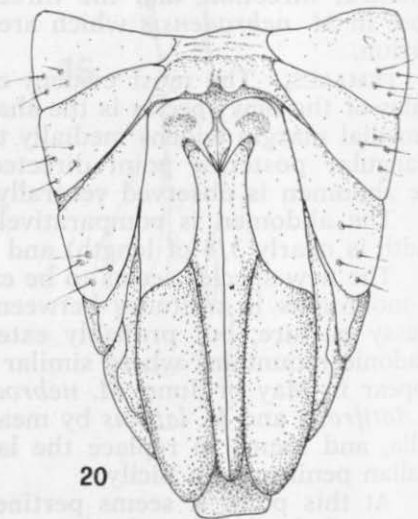
Concerning the status of *M. maurus* Fieber, the work by Asche, Drosopoulos, Hoch (1983), should be consulted.

While sure identification of the males of the above-listed species can be effected by observation of genital characters, the same had not

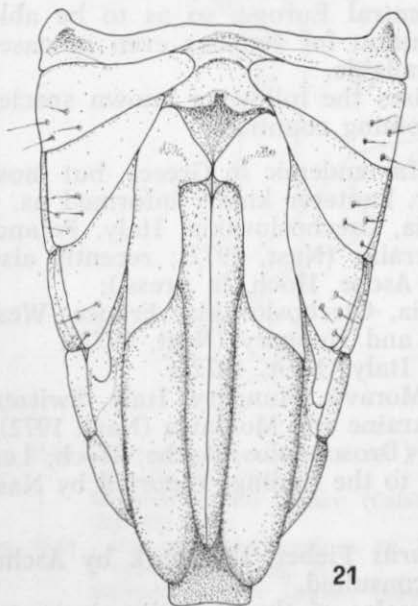
hitherto proved true for the females found by themselves. A careful examination of the female genital organs, however, has now allowed us to identify the females with some certainty. The particular form of



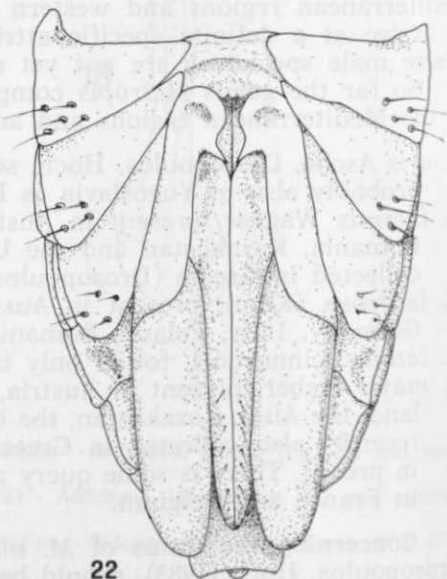
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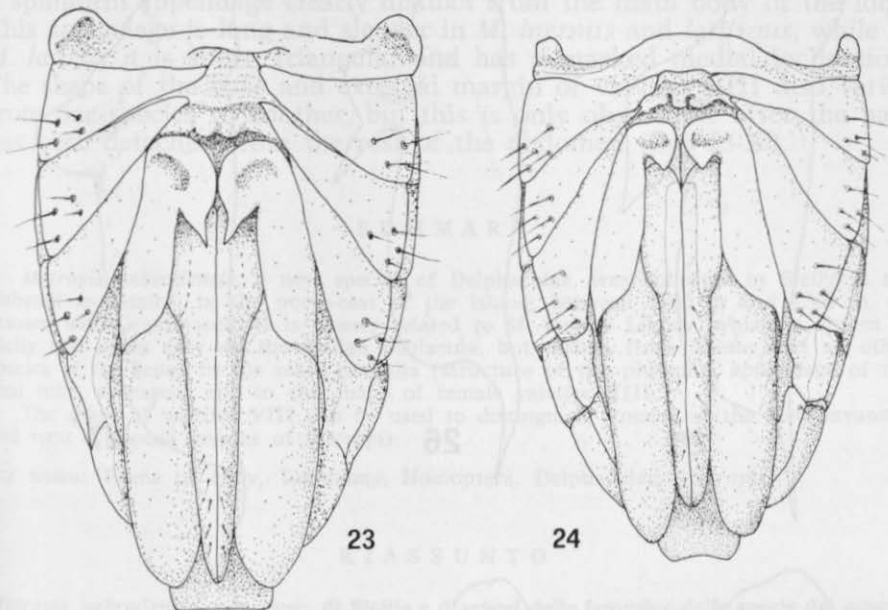
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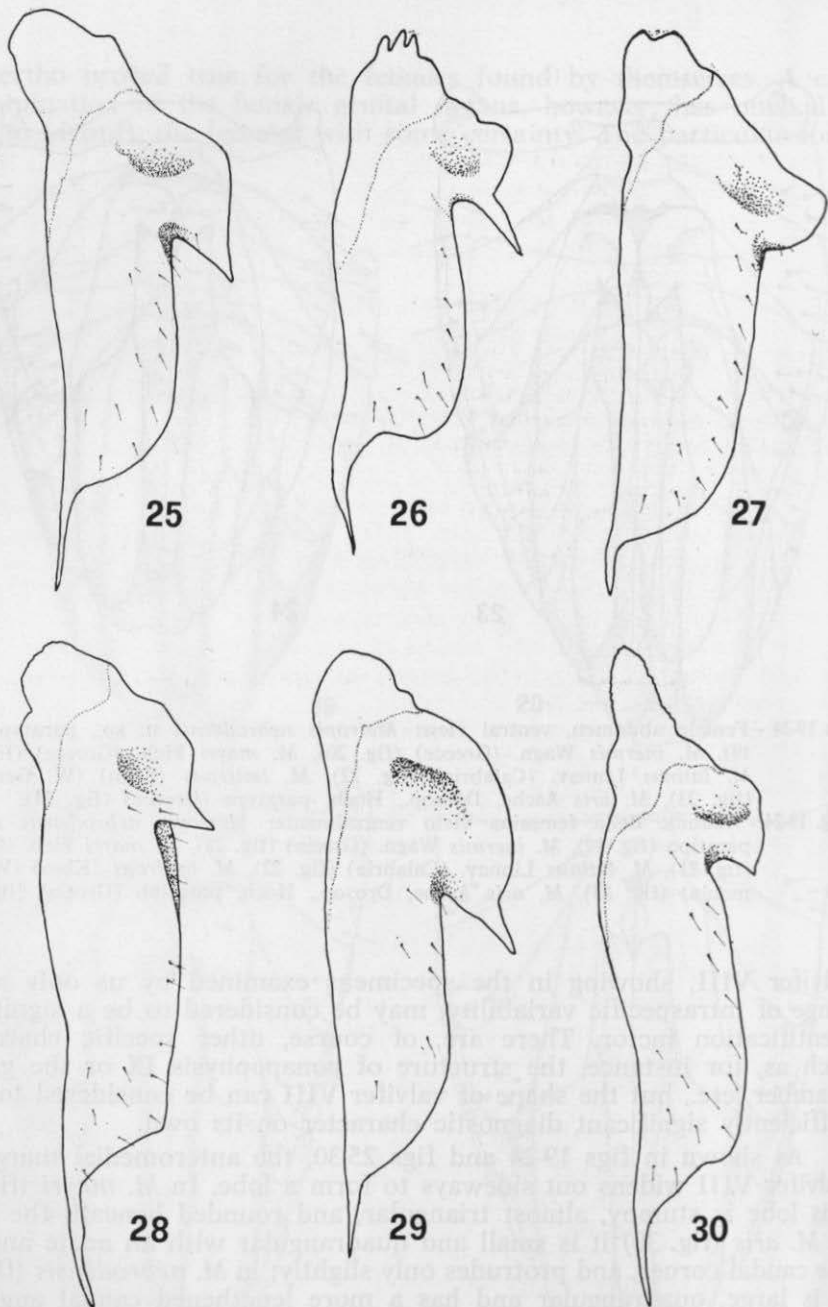


Figs 19-24 - Female abdomen, ventral view: *Metropis nebrodensis* n. sp., paratype (fig. 19), *M. inermis* Wagn. (Greece) (fig. 20), *M. mayri* Fieb. (Greece) (fig. 21), *M. latinus* Linnav. (Calabria) (fig. 22), *M. latifrons* (Kbm) (W. Germany) (fig. 23), *M. aris* Ashe, Drosop., Hoch, paratype (Greece) (fig. 24).

Figg. 19-24 - Addome della femmina visto ventralmente: *Metropis nebrodensis* n. sp., paratipo (fig. 19), *M. inermis* Wagn. (Grecia) (fig. 20), *M. mayri* Fieb. (Grecia) (fig. 21), *M. latinus* Linnav. (Calabria) (fig. 22), *M. latifrons* (Kbm) (W. Germania) (fig. 23), *M. aris* Ashe, Drosop., Hoch, paratipo (Grecia) (fig. 24).

valvifer VIII, showing in the specimens examined by us only a low range of intraspecific variability, may be considered to be a significant identification factor. There are, of course, other specific characters such as, for instance, the structure of gonapophysis IX or the genital chamber, etc., but the shape of valvifer VIII can be considered to be a sufficiently significant diagnostic character on its own.

As shown in figs 19-24 and figs 25-30, the anteromedial margin of valvifer VIII widens out sideways to form a lobe. In *M. mayri* (fig. 27) this lobe is stumpy, almost triangular, and rounded beneath the apex; in *M. aris* (fig. 30) it is small and quadrangular with an acute angle at the caudal corner, and protrudes only slightly; in *M. nebrodensis* (fig. 25) it is large, quadrangular and has a more lengthened caudal angle; in *M. inermis* (fig. 26), *M. latinus* (fig. 28) and *M. latifrons* (fig. 29), the lobe is more or less rounded, and of differing dimensions (long and wide in *latifrons*, small and strongly protuberant in *inermis*, small and only slightly protuberant in *latinus*); the caudal point is elongated into



Figs 25-30 - Female right valvifer VIII: *Metropis nebrodensis* n. sp., paratype (fig. 25), *M. inermis* Wagn. (Greece) (fig. 26), *M. mayri* Fieb. (Greece) (fig. 27), *M. latinus* Linnav. (Calabria) (fig. 28), *M. latifrons* (Kbm) (W. Germany) (fig. 29), *M. aris* Asche, Drosop., Hoch, paratype (Greece) (fig. 30).

Figg. 25-30 - Valvifero VIII della femmina: *Metropis nebrodensis* n. sp., paratipo (fig. 25), *M. inermis* Wagn. (Grecia) (fig. 26), *M. mayri* Fieb. (Grecia) (fig. 27), *M. latinus* Linnav. (Calabria) (fig. 28), *M. latifrons* (Kbm) (W. Germania) (fig. 29), *M. aris* Asche, Drosop., Hoch, paratipo (Grecia) (fig. 30).

a spiniform appendage clearly distinct from the main body of the lobe. This appendage is long and slender in *M. inermis* and *latifrons*, while in *M. latinus* it is short, triangular and has a marked medial inclination. The shape of the base and external margin of valvifer VIII also varies from one species to another, but this is only observable after the part has been detached from the rest of the abdomen (figs 25-30).

S U M M A R Y

Metropis nebrodensis, a new species of Delphacidae, was collected in Sicily in the Nebrodi mountains, in the north-east of the island, between 1.200 m and 1.500 m, on grasses with Graminacea. It is closely related to *M. latinus* Linnav. which is absent in Sicily and living only on the Italian peninsula, but differs from *latinus* and all other species of the genus in the male genitalia (structure of the phragma, appendage of the anal tube, aedeagus) and in the shape of female valvifer VIII.

The shape of valvifer VIII can be used to distinguish females of the Mediterranean and west European species of *Metropis*.

KEY WORDS: Fauna of Italy, Taxonomy, Homoptera, Delphacidae, *Metropis*.

R I A S S U N T O

Metropis nebrodensis nov. spec. di Sicilia e diagnosi delle femmine delle specie del genere *Metropis* dell'area paleartica occidentale.

Viene descritta una nuova specie di Delphacidae di Sicilia, *Metropis nebrodensis*, che vive sui monti Nebrodi, fra i 1200 e i 1500 metri, in pascoli ricchi di Graminacee. La nuova specie è molto simile a *M. latinus* Linnav., assente in Sicilia e presente solo nella penisola Italiana, ma differisce da questa per la struttura dell'apparato genitale dei maschi (fragma, eaeago, appendici del tubo anale) e per la forma del valvifero VIII delle femmine.

La forma del valvifero VIII può essere usata per distinguere le femmine delle specie di *Metropis* viventi nelle regioni mediterranee e dell'Europa centro-occidentale.

PAROLE CHIAVE: Fauna d'Italia, Tassonomia, Homoptera, Delphacidae, *Metropis*.

B I B L I O G R A P H Y

- ASCHE M., DROSPOULOS S., HOCH H. (1983) *Metropis aris* nov. spec., eine neue Delphacidae aus Nordwest-Griechenland (Homoptera, Auchenorrhyncha, Fulgoromorpha, Delphacidae). Marburger Entomol. Publik., Band 1, Heft 8, pp. 95-106.
- DROSPOULOS S., ASCHE M., HOCH H. (in press.) Contribution to the Planthopper Fauna of Greece (Homoptera, Auchenorrhyncha, Fulgoromorpha, Delphacidae). Annls. Inst. Phytopath. Benaki.
- LINNAVUORI R. (1958) Homoptera Auchenorrhyncha from Mt. Sibillini. Mem. Mus. Civico Storia Naturale, Verona, 6, pp. 299-304.
- NAST J. (1972) Palaearctic Auchenorrhyncha (Homoptera) an annotated check list. Pol. Acad. Sci., Varsavia, pp. 1-550.

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