

A. RUSSO, G. MAZZEO

**A new species of *Dysmicoccus* Ferris (Homoptera  
Coccoidea Pseudococcidae) from Sicily**

**Abstract** - A description is given of the adult female of *Dysmicoccus psoraleae*, sp. n., living on *Psoralea bituminosa* L. in Sicily (Italy).

**Riassunto** - Una nuova specie di *Dysmicoccus* Ferris (Homoptera Coccoidea Pseudococcidae) dall'Italia.

Viene descritta la femmina adulta di *Dysmicoccus psoraleae*, sp. n., raccolta su *Psoralea bituminosa* L. in Sicilia.

**Key words:** *Dysmicoccus psoraleae*, sp. n., mealybug, *Psoralea bituminosa* L., Italy

Up to now the Sicilian scale insect fauna is rich in more than 150 species (Russo & Mazzeo, 1997), reaching about 45% of the total Italian fauna, but other new records are still being detected. During faunistic investigations devoted to improve the knowledge of Coccoidea particularly living on Gramineae and Leguminosae typical of the Mediterranean flora, a new species of mealybug belonging to the genus *Dysmicoccus* Ferris has been discovered and it is described below.

The morphological terminology and body segmentation numbering used in the description follows Williams (1985). Measurements and numbers are taken from 11 specimens where available and are given as follows: holotype, range as small number - large number (mean). Measurements have been performed using an analysing image programme (KS 300).

***Dysmicoccus psoraleae* sp. n.**

ADULT FEMALE (fig. 1): external features white, elongate, covered by a powdery wax. Slide-mounted specimens broadly oval; 3,6 (paratypes 2,8-4,0 (3,4)) mm long and 2,0 (paratypes 1,46-2,3 (1,9)) mm wide, anal lobes moderately developed, each with a small sclerotization and with an apical seta about 180  $\mu$ m long. Antennae 8-segmented (8-9 segmented in paratypes), each 388 (paratypes 331-415 (374))  $\mu$ m long. The length



of segments is: I - 55 (paratypes 44-60 (51))  $\mu\text{m}$ , II - 59 (paratypes 55-61 (58))  $\mu\text{m}$ , III - 52 (paratypes 41-56 (49))  $\mu\text{m}$ , IV - 43 (paratypes 27-46 (37))  $\mu\text{m}$ , V - 57 (paratypes 30-63 (53))  $\mu\text{m}$ , VI - 45 (paratypes 28-45 (36))  $\mu\text{m}$ , VII - 41 (paratypes 31-45 (39))  $\mu\text{m}$ , VIII - 91 (paratypes 37-97 (79))  $\mu\text{m}$ , IX - 0 (paratypes 85-89 (87))  $\mu\text{m}$ . Legs well developed: hind trochanter + femur 309 (paratypes 279-328 (300))  $\mu\text{m}$  long, hind tibia 273 (paratypes 249-281 (268))  $\mu\text{m}$  long; hind tarsus 89 (paratypes 77-92 (87))  $\mu\text{m}$  long; hind tibia + tarsus 364 (paratypes 270-373 (351))  $\mu\text{m}$  long, claw about 30 (paratypes 25-30 (27))  $\mu\text{m}$  long. Ratio of lengths of hind tibia + tarsus to hind trochanter + femur 1.18 (paratypes 0.96-1.27 (1.17)). Hind femur with translucent pores. Labium 116 (paratypes 73-117 (103))  $\mu\text{m}$  long. Circulus varying in shape (normally notched at each side, as in holotype (fig. 1 a), but sometimes small and oval (fig. 1 b, c)) about 108 (paratypes 58-165 (108))  $\mu\text{m}$  wide. Ostioles well developed with a few trilocular pores on each lip. Anal ring about 94 (paratypes 79-98 (89))  $\mu\text{m}$  wide, with two pore rows and bearing 6 setae about 138 (paratypes 111-138 (125))  $\mu\text{m}$  long. Eyes well developed. Cerarii numbering 5-7 pairs, 6 in holotype. Anal lobe cerarii each bearing 2 conical setae, several trilocular pores and 5-8 auxiliary setae on a slightly sclerotised area. Penultimate cerarii with 2 conical setae, a few trilocular pores and 3-5 auxiliary setae. Other cerarii with 2 (sometimes the anterior one only with 1) conical setae, a few trilocular pores and 0-2 auxiliary setae.

Dorsal surface with slender setae of various sizes, evenly distributed. Trilocular pores each about 3  $\mu\text{m}$  in diameter, evenly distributed. A few multilocular disc pores, about 7  $\mu\text{m}$  in diameter, present on abdominal segments VI-VIII. Small discoidal pores, each about 2  $\mu\text{m}$  in diameter, sparse. Oral collar tubular ducts of two main sizes, scattered on body surface, more numerous on abdominal segments.

Ventral surface with normal flagellate setae of different sizes, evenly distributed. Trilocular pores numerous, sparse or absent in median area of thorax; a little group is present near the atrium of each spiracle, 3-7 near the anterior spiracle and 7-9 near the posterior one (they are respectively 4-5 and 7-8 in the holotype). Multilocular disc pores numerous on segment VIII, in single transverse rows at posterior edge of segments IV-VII, sometimes few and isolated near middle of segments II-III, in the holotype there is only one on the II. Small discoidal pores, sparse. Oral collar tubular ducts similar to those of dorsum, scattered on body surface, more numerous and in single transverse rows anterior to the multilocular disc pores on abdominal segments V-VIII.

#### MATERIAL EXAMINED

HOLOTYPE FEMALE: Italy, Messina, Castemola, inside heads of *Psoralea bituminosa* L., 5.V.1995, collected by Russo & Mazzeo, deposited at Istituto di Entomologia agraria, Facoltà di Agraria, Università di Catania, Italy.

PARATYPES: 10 females, same data as holotype: 8 females deposited at Istituto di Entomologia agraria, Facoltà di Agraria, Università di Catania, Italy; 2 females deposited at Department of Entomology, The Natural History Museum, London, United

Kingdom.

ADDITIONAL MATERIAL (not included in the type-series): 6 females, Italy, Messina, Castemola, inside heads of *Psoralea bituminosa* L., 5.V.1995 (collected by Russo & Mazzeo).

*Further material examined*

*Dysmicoccus boninsis* (Kuw.), 2 females, Porto Rico, Rio Piedras, on sugar cane, slide n° 56/92, 26.XII.1912, coll. T.H. Jones & D.L. Vardine, BMNH; 2 females, Mauritius, Benares, on sugar cane, slide n° 14871, 10.III.1988 H. Dove, BMNH; 1 female, Bahamas, Andras Island, on *Sorghum*, slide n° CIEA 8276, 16.IX.1975, BMNH; 2 females, Western Samoa, Apia, on sugar cane, slide n° 17035, 13.II.1960, BMNH; 3 females, Bahamas, Abaco, on sugar cane, slide n° A 2745, X.1968, BMNH; 2 females, Mauritius, Ferney, on sugar cane, slide n° 14871, 27.II.1983 H. Dove, BMNH.

*DERIVATIO NOMINIS* - The name *psoraleae* is in reference to the host plant.

COMMENTS - Following Miller & McKenzie (1973) and Koteja & Zak-Ogaza (1979), the species has been placed in the genus *Dysmicoccus* Ferris (Ferris, 1950, 1953; McKenzie, 1967). It belongs to a group of species characterized by the presence of cerarii numbering fewer than 8 pairs and with dorsal oral collar tubular ducts. It seems to be close to *Dysmicoccus boninsis* (Kuwana), which is very common wherever sugar cane is grown but also living on a wide range of other grasses (Williams & Watson, 1988). It differs in the number of cerarii, in the presence of dorsal multilocular disc pores on the abdomen, in the presence of ventral multilocular disc pores up to abdominal segments III-IV (sometimes present up to abdominal segment II), in the presence of translucent pores on the hind femora and in the absence of heavily sclerotized lips on the ostioles.

It also differs from *D. multivorus* (Kiritchenko), already recorded in the Palearctic region on the same host plant (Ben-Dov, 1994), in the presence of a circulus and in the distribution of the ventral multilocular disc pores.

In order to allow a easy identification of the species of *Dysmicoccus* reported for the Italian fauna (Longo et al., 1995; Pellizzari & Fontana, 1996) the following key is proposed.

KEY TO THE ITALIAN SPECIES OF *DYSMICOCCLUS* FERRIS:

1. Circulus present ..... 2
- Circulus absent ..... 8
2. Cerarii numbering 5-7 pairs ..... *psoraleae* sp. n.
- Cerarii numbering at least 15 pairs..... 3
3. Presence of a few dorsal multilocular disc pores on abdomen..... *walkeri* (Newstead)
- Absence of dorsal multilocular disc pores ..... 4
4. Oral collar tubular ducts present on dorsum..... *patulae* (Rau)

- Oral collar tubular ducts absent from dorsum..... 5
5. Translucent pores present on hind coxae..... *mackenziei* Beardsley  
 Translucent pores absent from hind coxae ..... 6
6. Dorsal setae on segments VII and VIII conspicuously longer than remaining dorsal setae ...  
 ..... *brevipes* (Cockerell)
- Dorsal setae on segments VII and VIII normally not longer than remaining dorsal setae .. 7
7. Ventral marginal tubular ducts present in considerable numbers on head and thorax .....  
 ..... *grassii* (Leonardi)
- Ventral marginal tubular ducts on head and thorax absent or few ..... *neobrevipes* Beardsley
8. Cerarii numbering 3-10 pairs..... *multivorus* (Kiritchenko)
- Cerarii numbering at least 14 pairs..... 9
9. Cerarii numbering 14 pairs, absence of dorsal multilocular disc pores..... *pietroi* Marotta
- Cerarii numbering 16 pairs, presence of dorsal multilocular disc pores .....  
 ..... *kozari* Pellizzari & Fontana

#### ACKNOWLEDGEMENTS

We would like to thank Dr. D.J. Williams, Department of Entomology, The Natural History Museum, for the loan of *Dysmicoccus boninsis* and for his constructive comments.

#### REFERENCES

- BEN-DOV Y., 1994 - A systematic catalogue of the mealybugs of the world (Insecta: Homoptera: Coccoidea: Pseudococcidae and Putoidae) with data on geographical distribution, host plant, biology and economic importance. Intercept Ltd., Andover: 686 pp.
- FERRIS G.F., 1950 - Atlas of the scale insects of North America. Series V. The Pseudococcidae (Part I). Stanford University Press, California: 278 pp.
- FERRIS G.F., 1953 - Atlas of the scale insects of North America. The Pseudococcidae (Part II). Stanford University Press, California: 279-506.
- KOTEJA J., ZAK-OGAZA B., 1979 - Five species of Pseudococcidae and Eriococcidae (Homoptera) new to the Polish fauna. Polskie Pismo Ent. 49: 671-675.
- LONGO S., MAROTTA S., PELLIZZARI G., RUSSO A., TRANFAGLIA A., 1995 - An annotated list of the scale insects (Homoptera Coccoidea) of Italy. Israel J. Entomology 29 (1995): 113-130.
- MCKENZIE H.L., 1967 - Mealybugs of California with taxonomy, biology and control of North American species (Homoptera: Coccoidea: Pseudococcidae). University of California Press, Berkeley: 534 pp.
- MILLER D.R., MCKENZIE H.L., 1973 - Seventh taxonomic study of North American mealybugs with additional species from South America (Homoptera: Coccoidea: Pseudococcidae). Hilgardia, 40: 565-602.
- PELLIZZARI G., FONTANA P., 1996 - Contribution to the knowledge of Homoptera Coccoidea of Sardinia with description of a new species. Boll. Zool. Agr. Bachic. Ser. II, 28(2): 119-140.
- RUSSO A., MAZZEO G., 1997 - Contributo allo studio zoogeografico della coccidiofauna della Sicilia (Homoptera Coccoidea). Naturalista sicil., Ser. IV, 21 (1-2): 45-55.

- WILLIAMS D.J., 1985 - Australian mealybugs. British Museum (Natural History), London: 431 pp.
- WILLIAMS D.J., WATSON G.W., 1988 - The scale insect of the tropical South Pacific region. Part 2: The mealybugs (Pseudococcidae). CAB International Institute of Entomology, Wallingford: 260 pp.

PROF. AGATINO RUSSO, DOTT. GAETANA MAZZEO - Istituto di Entomologia agraria, Università degli Studi, Via Valdisavoia 5, I-95123 Catania.

Accepted 25 July 1997.