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MELZERIA HORNI GREEN (HEMIPTERA: COCCOIDEA: ERIOCOCCIDAE): REDESCRIPTION OF A POORLY KNOWN FELT SCALE

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Abstract.—The genus *Melzeria* and the only included species, *M. horni* Green, were described in 1930, but the appropriate family assignment was questionable. Since that time, no one has studied the species and it has not been included in any of the recent catalogs. The objective of this paper is to redescribe the species and provide evidence that supports its placement in the family Eriococcidae.

Key Words: Scale insect, Coccoidea, Eriococcidae, felt scale, first instar, Brazil

The genus *Melzeria* Green has been ignored by most coccidologists since it was described in 1930, probably because its family placement was uncertain. In the original description, Green (1930) suggested affinities with the Eriococcidae (= Eriococcinae), Pseudococcidae (= Dactylopiinae), and even Asterolecaniidae (= Asterolecaniinae). *Melzeria* was not included in the catalog of the Eriococcidae (Hoy 1963) even though Hoy treated many taxa that were questionable members of the family, nor was it treated in the Pseudococcidae catalog (Ben-Dov 1994). D'Araújo e Silva et al. (1968) omitted it from their exhaustive catalog of Brazilian insects.

This research was undertaken to appropriately recognize the status of *Melzeria horni* Green and to properly catalog the species in the current initiative called "ScaleNet," a database of scale insects of the world (for more information see Miller and Gimpel 1996, Ben-Dov et al. 1997, or the web site http://www.sel.barc.usda.gov/scalenet/scalenet.htm). The following characters place this species in the Eriococcidae: The presence of enlarged setae in the first instar; the reduced number of setae on the tibia; the presence of translucent pores on the hind pair of legs in the adult female; and the presence of microtubular ducts.

Terminology in the descriptions follows that of Miller and Miller (1993). Measurements and numbers are from 10 specimens when available, and are given as an average followed by the range in parentheses. Enlargements on illustrations are not proportional. Depository abbreviations are as follows: The Natural History Museum, London (BMNH); National Museum of Natural History, Beltsville, MD (USNM).

Melzeria Green

Melzeria Green 1930:215; Lepage 1938: 382; Borchsenius 1949:44; Morrison and Renk 1957:96; Morrison and Morrison 1966:118. Type species: *Melzeria horni* Green 1930, by original designation and monotypy.

Melzera Lindinger, 1937:189 (unjustified emendation).

Diagnosis.—*Adult female:* Body broadly oval; without protruding anal lobes. Microtubular ducts present, with "8-shaped" dermal orifice. Macrotubular ducts of 3 sizes, all with rim surrounding dermal orifice: largest-sized ducts with associated setae at dermal orifice; medium-sized ducts same shape as large ducts but smaller and without associated dermal setae; smallest size only slightly larger than microducts but with cup-shaped vestibule. Ventral surface with small sclerotized areas that may be ducts, but their structural details are not clear. Multilocular pores with 5-loculi. Anal ring simple, without pores, with enlarged area at posterior end. Labium 2-segmented. Claw with denticle.

First instar: With enlarged setae set in dermal pockets similar to species of *Ovaticoccus* Kloet and *Oregmopyga* Hoy. With microtubular ducts and quinquelocular pores. Labium 2-segmented. Anal ring simple, without pores.

Etymology.—This genus was named in honor of Dr. Julius Melzer who collected a number of scale samples in the Sao Paulo, Brazil area (Green 1930).

Notes.—This genus clearly belongs in the Eriococcidae by possessing microtubular ducts in the adult female and first instar, and by having characteristic enlarged setae that are set in dermal pockets in the first instar. Although the presence of the latter character may provide evidence of relationship between *Melzeria* and a group of North American taxa called ovaticoccins, i.e. *Cornoculus* Ferris, *Oregmopyga, Ovaticoccus,* and *Spiroporococcus* Miller (Miller and McKenzie 1967), *Melzeria* differs from these genera by possessing: large-sized macrotubular ducts with setae associated with the dermal orifice; macrotubular ducts with rim around dermal orifice; microtubular ducts simple, without two sclerotized parts to vestibule; labium 2-segmented.

Melzeria horni Green
(Figs. 1, 2)

Melzeria horni Green 1930:216; Lepage 1938:382; Borchsenius 1949:44; Morrison and Renk 1957:96; Morrison and Morrison 1966:118.

Melzera horni Lindinger, 1937:189.

Type material.—From the syntypes we have selected the adult female closest to the circular "TYPE" label as the lectotype and have placed a label on the back of the slide giving a map of the position of the specimen and the statement "*Melzeria horni*/ Green/ LECTOTYPE &/ PARALECTOTYPES." The label on the front of the slide states "*Melzeria/ horni*/ Green/ on foliage of ?/ Brasil, (Sao Paulo)/ coll. Julius Melzer/ per Dr. Horn . B-3." The slide also contains 2 paralectotype adult females and 2 embryos and is deposited in BMNH. In addition there are 3 paralectotype slides containing 3 adult females, 1 paralectotype slide containing 7 adult females, and 1 paralectotype slide containing 3 first instars in BMNH. In the USNM there are 3 paralectotype slides containing 2 adult females, 1 first instar. All material is from the same collection. A specific locality is given on a label with the dry material as "Santo Amaro."

Etymology.—This species was named in honor of Dr. W. Horn who started a manuscript on several species collected by Melzer. Unfortunately, a serious illness interrupted the work and E. E. Green was called upon to finish it (Green 1930).

Adult female (Fig. 1).—Field characteristics: According to Green (1930) "Mature insect concealed within the anterior extremity of an elongate, white, woolly ovisac, which is 2.5 mm long, and 1 mm wide. Adult female brown; ovate . . . ." An examination of the original dry material shows that the insect feeds on the under surface of the leaf around the edges. This habit differs widely from the feeding behavior of the related ovaticoccine genera.

Slide mounted specimens 1.4(1.2–1.7) mm long, 0.8(0.7–0.9) mm wide. Body broadly oval; dorsum with noticeable wrinkle pattern; anal-lobe area without protrusions.

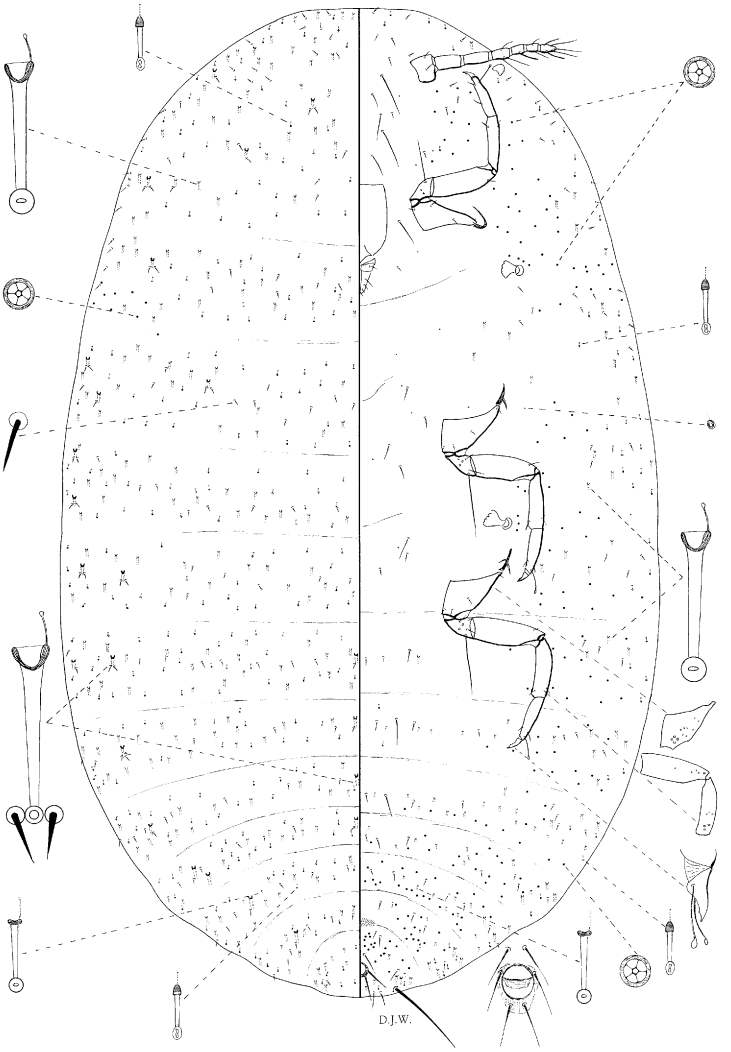

Fig. 1. Adult female, *Melzeria horni*. San Amaro, near São Paulo, Brazil, on foliage of unknown host, collected by Jules Melzer.

Dorsum with multilocular pores usually restricted to marginal areas near intersegmental line between pro- and mesothorax, occasionally with 1 or 2 pores near intersegmental line between meso- and metathorax. Macrotubular ducts of 3 sizes, all with rim surrounding dermal orifice: large-sized ducts most abundant around body margin, few in medial and mediolateral areas, ducts with 1–3 associated setae near dermal orifice; medium-sized ducts abundant over surface, same shape as large ducts but smaller and without associated setae; smaller-sized ducts restricted to posterior abdominal segments, about ¼ size of large ducts, with flattened vestibule. Microtubular ducts about same size as smallest macroducts, but with rounded vestibule and "8-shaped" dermal orifice. Setae inconspicuous, bristle shaped, with 14(12–16) setae on segment V, longest seta on segment VII 13(10–15) μ long.

Anal ring without pores, with 2 setae on each side of ring, longest seta 37(32–44) μ long; ring sclerotization broader at posterior end, forming plate.

Venter with multilocular pores nearly all with 5-loculi, abundant in marginal and submarginal areas, absent from medial areas of head, thorax, and anterior abdominal segments. Macrotubular ducts of 2 sizes: medium-sized ducts interspersed with multilocular pores; small-sized ducts most abundant on posterior abdominal segments. Microtubular ducts scattered along body margin. Small sclerotized spots present in medial areas of thorax may be ducts, but their structural details are not clear. Longest setae on segment VII 16(12–17) μ long; anal-lobe setae 119(109–131) μ.

Labium 2-segmented, 64(57–74) μ long. Antennae 7-segmented, 231(205–267) μ long. Legs conspicuous; hind coxa with 7(0–12) translucent pores on dorsal surface; hind femur with 4(0–12) translucent pores; hind tibia with 2(0–7) pores; hind femur with 2 setae; hind tibia with 3 setae; hind femur 122(106–138) μ long; hind tibia 104(93–114) μ long; tarsus 80(74–89) μ long; femur/tibia 1.2(1.1–1.4); tibia/tarsus 1.3(1.2–1.4); tarsal digitules about equal in size, with conspicuous club; claw digitules slightly different in size, slightly smaller than tarsal digitules, with conspicuous club; claw with noticeable denticle.

First Instar (sex not determined) (Fig. 2).—Slide mounted specimens 0.4(0.3–0.4) mm long, 0.2 mm wide. Body oval; anal-lobe area without protrusions.

Dorsum without multilocular pores and macrotubular ducts. Microtubular ducts in marginal line around body margin from head to segment VIII; with submarginal line from head to segment I. Setae of 2 kinds: Enlarged setae dome shaped, set in dermal pocket, present around body margin from prothorax to segment VIII; bristle-shaped setae present in submedial and submarginal lines, submarginal line present on head, thorax, and anterior abdomen, with 4 setae on segment V, longest seta on segment VII 8(7–9) μ long.

Anal ring without pores, with 3 setae on each side of ring; ring sclerotization forming plate.

Venter with multilocular pores with 5-loculi, with 1 present near spiracle and 1 present near body margin adjacent to posterior spiracle. Macrotubular and microtubular ducts absent. Setae arranged in 3 pairs of longitudinal lines (medial, mediolateral, and marginal); posterior setae in marginal line sometimes slightly enlarged. Longest setae on segment VII 6(5–9) μ long; anal-lobe setae 139(115–178) μ.

Labium 2-segmented, segmental line delimiting anterior segment weakly indicated, 35(32–40) μ long. Antennae 6-segmented, 84(80–86) μ long. Legs conspicuous; hind femur with 1 or 2 setae; hind tibia with 3 setae; hind femur 37(35–40) μ long; hind tibia 28(27–29) μ long; tarsus 22(19–24) μ long; femur/tibia 1.4(1.2–1.5); tibia/tarsus 1.3(1.1–1.5); tarsal digitules about equal in size, with conspicuous club; claw digitules about equal in size, slightly smaller than tarsal digitules, with conspicuous club; claw with noticeable denticle.

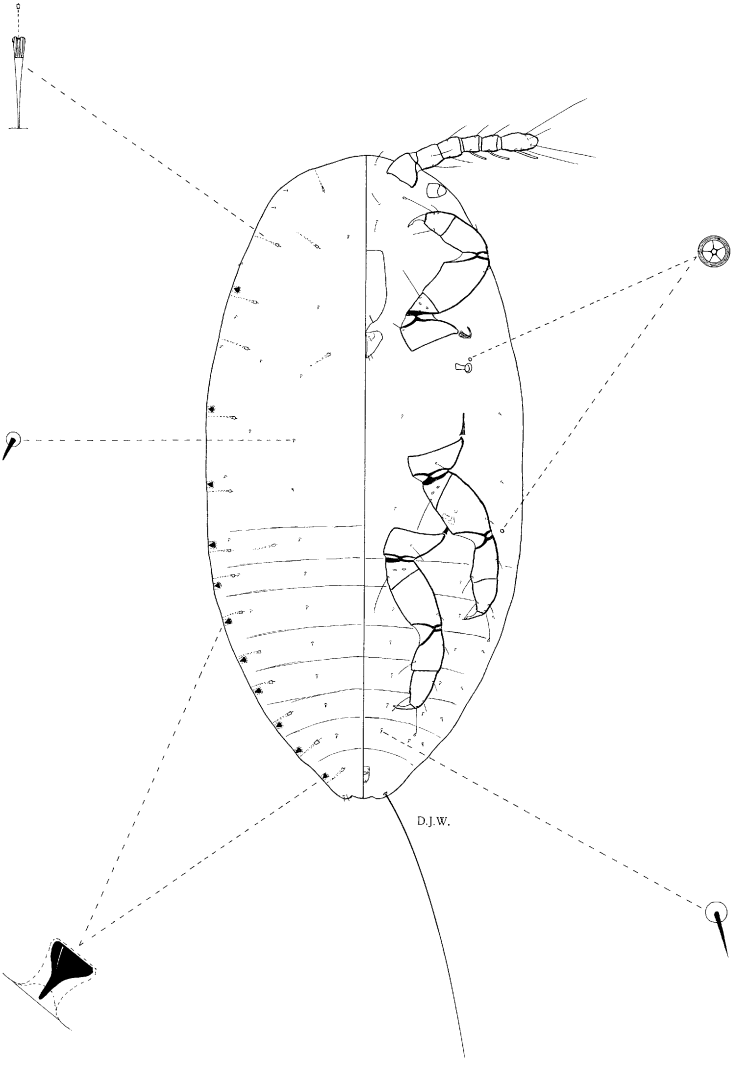

Fig. 2. First-instar nymph (sex undetermined), *Melzeria horni*. Santo Amaro, near São Paulo, Brazil, on foliage of unknown host, collected by Jules Melzer.

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