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Source: Revue suisse de Zoologie, 122(1) : 71-74

Published By: Muséum d'histoire naturelle, Genève

URL: https://doi.org/10.5281/zenodo.14575

Revue suisse de Zoologie (mars 2014) 122(1): 71-74 ISSN 0035-418

A new species of the genus *Matileortheziola* Kozár & Foldi (Hemiptera: Coccoidea: Ortheziidae)

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Abstract: This paper describes a new species of the genus *Matileortheziola* Kozár & Foldi (Hemiptera: Coccoidea: Ortheziidae) from the Ethiopian region (Rwanda, Kenya). The specimens were extracted from forest litter using Berlese funnels, from the collections of the Muséum d'histoire naturelle de Genève, Switzerland. An identification key to the currently known species of *Matileortheziola* is provided.

Keywords: Matileortheziolini - ensign scale - taxonomy - Ethiopian region.

INTRODUCTION

Ensign scale insects (Hemiptera: Coccoidea: Ortheziidae) are believed to be either ancestral to all scale insects, or a primitive, isolated branch of the archaeococcoids (Vea & Grimaldi, 2012). In the family there are two main groups of host-plant specialization; one group is composed of species that occur sporadically on leaf litter, mosses and lichens; the other feeds on vascular plants, including grasses, herbaceous and woody plants (Koteja, 1996; Kozár, 2004; Vea & Grimaldi, 2012).

The species of the subfamily Ortheziolinae are found in the Palaearctic, Oriental and Ethiopian regions, with the highest number of species occurring in the Ethiopian region. The subfamily is divided into four tribes: Orthezioliamametini, Ortheziolini, Matileortheziolini and Ortheziolacoccini (Kozár, 2004). The tribe Matileortheziolini is a monotypic tribe including only one genus, *Matileortheziola* Kozár & Foldi, which is characterised by having a narrow, compact wax plate band around the body margin and wide, plate-like structures on the middorsum (Kozár & Foldi, 2000). The tribe is found only in the Ethiopian region and to date, only one species, *Matileortheziola angolensis* Kozár & Foldi, has been recorded (Kozár, 2004). This paper describes as new a second *Matileortheziola* species from the Ethiopian region, based on specimens extracted by Berlese funnels from forest litter.

MATERIAL AND METHODS

The specimens described and recorded in this study were all collected using soil and litter sampling devices, and were extracted by Berlese funnel from samples collected in the Ethiopian region.

Specimens were prepared for light microscopy using the slide-mounting method discussed by Kosztarab & Kozár (1988). The morphological terminology used follows Kozár (2004).

The type material of the new species here described is deposited in the Muséum d'histoire naturelle de Genève collection (MHNG, with locality code, without registration number) and in the Plant Protection Institute CAR HAS collection (PPI; with registration number). Measurements and count data of each character are given separately for the holotype, the data of paratypes and all the material available are given as a range in brackets.

TAXONOMY

Matileortheziola Kozár & Foldi, 2000

Type species: *Matileortheziola angolaensis* Kozár & Foldi, 2000: 251.

Diagnosis of the unmounted material (after Kozár, 2004; with additions in order to accommodate the new species): Body whitish, segmentation not clearly visible. Only the margin of the dorsum covered with wax protrusions (some of which remain on the slide-mounted specimens); wax protrusions in some case circular in

Manuscript accepted 04.08.2014
DOI: 10.5281/zenodo.14575

Key to species of Matileortheziola, based on adult females

1 Wax protrusions circular in shape; setae on legs and antennae spine-like; multilocular disc pores in a single row on anterior edge of ovisac band ..... *M. angolaensis* Kozár & Foldi
– Wax protrusions not circular in shape; setae on legs and antennae lanceolate; multilocular disc pores absent from anterior edge of ovisac band ..... *M. lanceolata* sp. n.

shape, and including separate rows of spines from the earlier larval stage (Kozár, 2004). This kind of form and setal arrangement is not known to occur in other members of the family Ortheziidae.

Diagnosis of the slide-mounted material: Slide-mounted adult female with antenna 3 segmented; third antennal segment bearing a slender apical seta, flagellate sensory setae and small spine-like subapical setae; second segment with 1 campaniform sensillum. Eye stalk elongate, fused with pseudobasal antennal segment. Legs well developed; leg setae robust, spine-like or lanceolate; trochanter and femur fused, tibia and tarsus fused; tibia with 1 campaniform sensillum and at least 1 fleshy sensory seta; tarsus without digitules; claw digitules spine-like, claw without a denticle. Labium two segmented, with 6-8 spine-like or lanceolate; with 2 long setae near apex of labium very close together, each situated in single setal socket. Anal ring situated in a fold of derm on dorsal surface, bearing 6 setae. Sclerotized plate present on dorsum anterior to anal ring, wider than long. A dorsal, narrow, compact wax plate band present around body margin. Wide plate-like structures present on mid-dorsum on the anal ring. Quadrilocular pores scattered over surface, appearing like microtubular ducts. Thumb-like pores present in a cluster lateral to anal ring. Abdominal spiracles ventral on anterior segments (segments I, II or III), with at least one present on each side; when present, posterior abdominal spiracles located on dorsum near anal ring, each surrounded by a cluster with or without multilocular disc pores.

Matileortheziola lanceolata Kaydan & Konczné Benedicty sp. n.

Fig. 1

Material examined: Holotype MHNG, without registration number; adult female; Rwanda (Kayove, 2100 m a.s.l.); leg. P. Werner, 15.v.1973 (MHNG locality code: Rwa-73/2; PPI code: 9610). – Paratypes*:* MHNG, without registration number; 4 females on 3 slides; Kenya (Kakamega, 1500 m a.s.l.); leg. L. Deharveng; 4.ii.1974 (MHNG locality code: KEN 12; PPI code: 9604). – PPI 9606; 2 females on 2 slides; Kenya (Aberdare Nat. Park, 2300 m a.s.l.); leg. V. Mahnert, 25.xi.1974 (MHNG locality code: KEN 6).

Diagnosis: *Matileortheziola lanceolata* sp. n. a close relative of *Matileortheziola angolaensis* Kozár and Foldi, but differs from this species by having (*M. angolaensis* in parenthesis) (i) wax protrusions not circular in shape (wax protrusions circular in shape); (ii) setae on legs and antennae lanceolate (setae on legs and antennae spine-like); (iii) multilocular disc pores absent from anterior edge of ovisac band (multilocular disc pores in a single row on anterior edge of ovisac band).

Etymology: The name of the species is derived from its unique lanceolate setae.

Description of the slide mounted adult female:
Body: 1.133 (0.927-1.133) mm long, 0.793 (0.700-0.824) mm wide. Antenna 3 segmented; eye stalk elongate, fused with pseudobasal antennal segment. Antennal segment lengths as follows: 1st 60 (48-76) µm; 2nd 41 (34-41) µm; 3rd 146 (130-146) µm. Second antennal segment with one campaniform sensilum; 3rd segment almost cudgel shaped (Fig. 1). Apical seta of antenna 84 (58-90) µm long, the 2 subapical setae 29 (18-29) and 22 (11-22) µm long respectively. Third antennal segment covered with 23-25 lanceolate setae, each about 12 µm long.
Venter: Labium two-segmented, 94 (72-100) µm long. Stylet loop longer than labium. Anterior legs: coxa 60 (60-72) µm long, trochanter and femur 204 (156-206) µm, tibia and tarsus 223 (170-223) µm, claw 34 (29-34) µm, claw digitules lanceolate, each 11 (10-11) µm long; middle legs: coxa 78 (67-84) µm, trochanter and femur 216 (149-216) µm, tibia and tarsus 228 (170-228) µm, claw 34 (29-34) µm, claw digitules lanceolate, each 11 (10-12) µm long; posterior legs: coxa 84 (77-92) µm, trochanter and femur 240 (192-240) µm, tibia and tarsus 270 (228-270) µm, claw 36 (31-36) µm, claw digitules lanceolate, each 12 (10-13) µm long. Claws each without a denticle. Legs with rows of lanceolate setae each 12 µm long, and each leg with one sensory pore on tibia. Thoracic spiracular openings each associated with a small marginal group of protrusions and pores and surrounded by small wax plates. Each spiracle with a pore cluster present at anterior margin. Anterior spiracle diameter 18 (16-21) µm. Thorax with scattered thick setae and quadrilocular pores, each 3-4 µm in diameter. Abdomen with two rows of wax plates within ovisac band. A single row of multilocular disc pores each 4-5 µm in diameter and with 6-12 loculi in the wax plates; also a row of multilocular disc pores present anterior to vulva, each pore 6-12 µm in diameter.
Dorsum: Dorsal wax plate only present in a narrow band along the margin; spines in wax plate each 12-14 µm long. Wax plates with two kinds of setae: a truncate type,

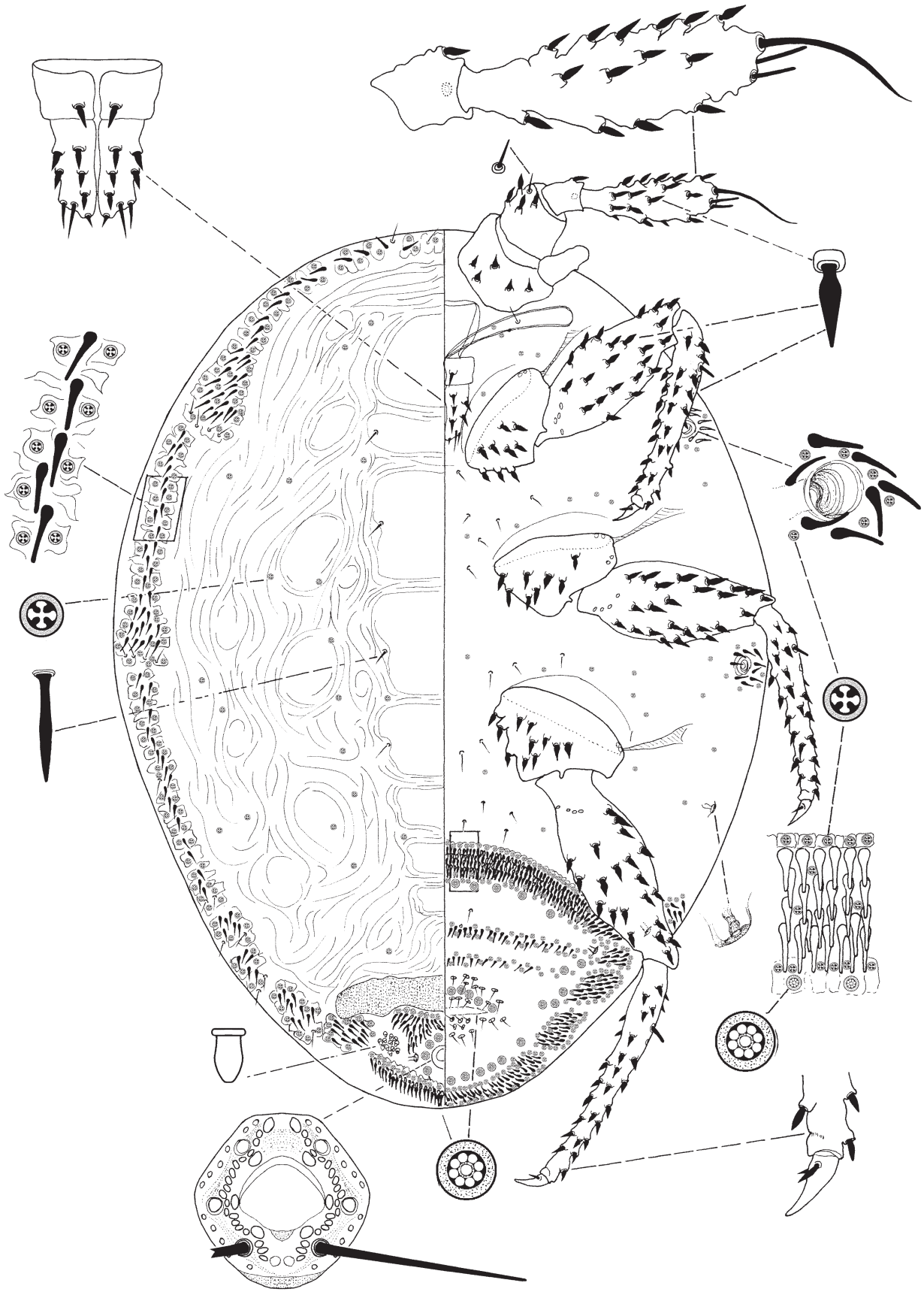

Fig. 1. *Matileortheziola lanceolata* Kaydan & Konczné Benedicty sp. n., holotype, adult female.

each ca 16 µm long; and long, slightly lanceolate, hair-like setae on edge of wax plate, each 12-14 µm long. Submedian area of dorsum with four lanceolate setae, hair-like setae in a longitudinal row on each side. Derm wrinkled, covered with scattered quadrilocular pores each 2 µm. Eight large, plate-like structures on mid-dorsum of head, thorax and first four abdominal segments. Some circular quadrate pores also present near marginal wax plate row. Sclerotized anal plate present anterior to anal ring, 257 (200-257) µm wide and 46 (46-90) µm long, without setae. Anal ring 32 (30-34) µm wide, 36 (31-36) µm long, containing two rows of pores and 6 anal ring setae, each 34 (28-34) µm long. A group of thumb-like pores, each 3-5 µm wide, present on each side of anal ring. Multilocular disc pores each 4-5 µm in diameter and with 6-12 loculi, present around anal ring only. One pair of posterior abdominal spiracles present, situated on each side of anal ring.

Remark: The unmounted adult female was not seen.

Host plant: Unknown.

Distribution: Rwanda, Kenya.

ACKNOWLEDGEMENTS

We would like to thank the OTKA (Hungarian National Science Found) (Grant No. T 048801, T 075889) for funding this project. The first author thanks TUBITAK for their financial support enabling study of the family Ortheziidae in Hungary. The authors wish to thank to Dr. Peter Schwendinger, the curator of Arachnida Collection of Muséum d'histoire naturelle de Genève, for his kind help and for making it possible for us to study the collections. Special thanks go Dr. Takumasa Kondo (Entomology Laboratory, CORPOICA, Palmira, Colombia), Dr. Gillian W. Watson (Plant Pest Diagnostic Laboratory, California Department of Food & Agriculture, Sacramento, California, USA) and Dr. Yair Ben-Dov (Department of Entomology, Agricultural Research Organization, Bet Dagan, Israel for reviewing the manuscript.

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