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NEW GALL-MITES OF THE SUPERFAMILY ERIOPHYOIDEA FROM EAST AFRICA (ARACHNIDA : ACARI)

by B. A. ABOU-AWAD * and E. M. EL-BANHAWY *

GALL MITES NEW SPECIES TANZANIA KENYA

ABSTRACT : Three new species belonging to the superfamily Eriophyoidea are described and illustrated. Two species are in the family Eriophyidae (Aceria tanzanicus sp. n., A. amaranthi sp. n.), and one species is in the family Diptilomiopidae (Diptilomiopus holopteleae sp. n.). Nature of damage caused by mites are described.

INTRODUCTION

The superfamily Eriophyoidea contains at least 325 gall species; most of them are in the family Eriophyidae and considered of economic importance as agricultural pests. In this work, we describe three new gall mites; two of them are in the genus Aceria Keifer (Eriophyidae), and the other is in the genus Diptilomiopus Nalepa (Diptilomiopidae). Details of gall formation, type of galls, and economic assessment of these mites are given in KEIFER et al. (1982). Type material is in the author's collection.

ERIOPHYIDAE

Aceria tanzanicus sp. n.
(Fig. 1)

FEMALE : 193-220 μm long, 57.5-70 μm wide; elongate wormlike, narrowed posteriorly; white in color. Rostrum about 25 μm long, projecting down, antapical seta 4 μm; chelicera 19 μm long. Dorsal shield 27 μm long, 41 μm wide, without projection over rostrum, truncate across at rear of rostrum. Shield design tending to be blank, except faint incomplete submedian curved lines, centrally on rear 1/3 and in inverted semi U-shaped, dashes on lateral shield, oriented in broken lines curving down to rear. Dorsal tubercles 19 μm apart, on rear

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margin, the seta 27 µm long, directed posteriorly. Forelegs 28 µm, femur 9 µm long; genu 5 µm, seta 22 µm long; tibia 6 µm, seta 5 µm long; tarsus 6 µm long, outside seta about 18 µm long; claw 8 µm long, slightly knobbed; axis of featherclaw undivided, 4-rayed on each side, shorter than claw. Hindlegs 25 µm long; femur 8 µm long; genu 4 µm, setae 10 µm long; tibia 5 µm long, without seta; tarsus 6 µm long, outside seta about 18 µm long. Claw 8 µm long, with slight knob at tip. Featherclaw as in fore legs. Anterior coxae contiguous centrally; sternal line present, 1st setiferous coxal tubercles slightly further apart than the 2nd, which are located at the end of the sternal ridge. Posterior coxae contiguous with anterior ones, with single seta, seta measuring 35 µm long and arising from obvious tubercle. Coxae I and II smooth. Abdominal rings from immediately behind to anal lobes counted about 60 dorsally and about 56 ventrally. Rings completely microtuberculate. Microtubercules similar in all areas, rounded and located on posterior margin of annular rings. Lateral thanosomal seta 20 µm long, above and behind genital seta, on about ring 7. Ventral setae: 1st on about ring 18, 29 µm long; 2nd on about ring 35, 13 µm long; 3rd or telosomal seta on 6th ring from rear, 20 µm

Fig. 1: *Aceria tanzanicus* sp. n.
SA) Side view of anterior section of mite; GFI) Female genitalia and coxae; ES) Side skin structure; S) Side view of adult mite; F) Featherclaw; DA) Dorsal view of anterior section of shield.
long. The thanosome with about 54 rings counted dorsally and 50 ventrally. Telosome with microstriations ventrally. Caudal and accessory setae arise from a moderate lobe behind the last tergite. Caudal setae 70 μm long, accessory seta 5 μm long. Female genitalia 15 μm long, 17 μm wide, with about 13 longitudinal ribs; seta 8 μm long, arising from clear tubercle.

**Male:** Unknown.

**Type locality:** Aroucha, Tanzania, February 13, 1986, (Holotype slide and 5 paratype slides).

**Host:** Crotalaria sp. (Leguminosae).

**Relation to host:** The mites form hollow galls in the leaves and most of them projecting toward the lower surface of the leaf. The entrance of the gall is represented by a tiny pit and usually on the upper surface of the leaf. Number of galls ranged from 5 to 20 per leaf and each gall contains numerous mites (17-55). Mites seem to cause no great damage.

**Remarks:** Aceria tanzanicus is similar to A. caulicecis (Keifer) (Keifer, 1972) and A. protii (Keifer) (Keifer, 1976). The dashes on lateral shield, shape of microtubercles, lack of coxal ornamentation and the number of longitudinal ribs (12-14) on female coverflap, separate the new species.

**Aceria amaranthi** n. sp.

(Fig. 2)

**Female.** 200-240 μm long, 55-75 μm wide; elongate wormlike, narrowed anteriorly and posteriorly, white in color. Rostrum about 20 μm long, projecting diagonally ahead and down; antapical seta 3 μm; chelicerae 11 μm long. Dorsal shield 25 μm long, 40 μm wide, rather declivitous above, without projection over rostrum, triangular in shape, complete median, admedian and submedian curved lines, submedian lines diverging posteriorly and two curved dashes between it, all shield without any dots or granules. Dorsal tubercles 20 μm apart, moderate in size, on rear margin, the setae 25 μm long and projecting backward. Forelegs 23 μm long; femur 8 μm long; genu 4 μm long, seta 17 μm long; tibia 4 μm long, seta 5 μm long; tarsus 5 μm long, outside seta about 17 μm long. Claw 7 μm long, curved, with slight knob at tip. Axis of featherclaw undivided, 5-rayed and shorter than claw. Hindlegs 20 μm long; femur 6 μm long; genu 4 μm long, seta 6 μm long; tibia 3 μm long, without seta; tarsus 5 μm long, outside seta about 17 μm. Claw 6 μm long, knob curved, with slight at tip. Featherclaw 5-rayed. Coxae ornamented. Anterior coxae contiguous, two setae on each; coxal setae I a little farther apart than setae II, which situated at near base of sternal line. Posterior coxae contiguous with anterior coxae, and each with single seta; seta of second coxa 32 μm long. Abdominal ring, from immediately behind shield to anal lobes counted about 65 dorsally and 70 ventrally. Rings completely microtuberculate. Microtubercles evenly spaced along the rings, rounded, and located in posterior margin of annular rings. Lateral thanosomal seta 11 μm long, above and behind genital seta, on about ring 12; 1st ventral seta 37 μm, on about ring 24; 2nd ventral seta 9 μm long, on about ring 41; 3rd ventral or telosomal seta 16 μm long, on 6th ring from rear. The thanosome with about 59 dorsal rings and 64 ventral ones. Telosomal rings strongly with microstriations ventrally. Caudal seta about 47 μm long; accessory seta absent. Female genitalia 19 μm long, 21 μm wide, bowl-shaped, with 12 longitudinal markings; seta 12 μm long, arising from moderate tubercle.

**Male:** Unknown.

**Type locality:** Dar El-Salam, Tanzania. Collected February 13, 1986. (Holotype slide and 11 paratype slides).

**Host:** Amaranthus sp. (Amaranthaceae).

**Relation to host:** The mite was found in great numbers (75-200/gall) infesting both leaf surfaces of young and mature leaves causing numerous galls (50-200/leaf). All developmental stages of mite live within the same gall. Severe damage and malformation of the leaves were observed.

**Remarks:** This new species is close to Aceria caborcensis Keifer (1965) and A. triumfettae Wilson (1970), although it can be differentiated by the design of the submedian lines, shape of microtubercles, number of longitudinal ribs and absence of the accessory setae.
**DIPTILOMIOPIDAE**

*Diptilomiopus holopteleae* sp. n.

(Fig. 3)

Female. 275-287.5 μm long, 80-95 μm wide; spindle-form, wide anteriorly, light yellow. Rostrum about 62 μm long, large, downcurved, antapical seta 3 μm long; chelicerae about 53 μm long, sickle-shaped. Shield 47 μm long, 86 μm wide, declivitous not overhanging rostrum, design of lines forming an irregular network; lateral and anterior parts of shield with very fine broken lines; dorsal tubercles and setae missing. Legs with five joints, genu missing. Forelegs 33 μm long, femur 14 μm long, seta absent; tibia 9 μm long, seta absent; tarsus 7 μm long, with two long dorsal setae, outside seta 40 μm long arising from a pronounced tubercle. Claw 8 μm long, gently bent down and with clear knob at tip, between forks of featherclaw. Axis of featherclaw divided, deeply bifurcate, 5-rayed on each side. Hindlegs 30 μm long; femur 12 μm long, seta absent, tibia 6 μm long; tarsus 9 μm long with one long dorsal seta, measuring about 36 μm long.
Claw 7 μm long, with clear knob at tip. Axis of featherclaw divided, deeply bifurcate, 5-rayed on each side. Anterior coxae continuous at middle part, one seta on each; sternal ridge present; posterior coxae contiguous with anterior coxae, and with single seta, of about 52 μm long. All coxae without ornamentation; coxae I larger than coxae II. Tergites about 75 in number, without microtubercles; sternites about 90, heavily tuberculated with microrounded tubercles. Lateral thanosomal seta absent; 1st ventral seta 23 μm long, on about sternite 28; 2nd ventral seta 13 μm long, on about sternite 50, 3rd or telosomal seta 36 μm long on 11th ring from rear. The thanosome with about 64 tergites and 79 sternites. Telosomal rings strongly with microstriations ventrally. Caudal seta arise from a slight lobe behind the last tergite, about 57 μm long; accessory seta absent. Female genitalia 15 μm long, 20 μm wide, coverflap smooth and not clear longitudinal scorelines, seta 5 μm long, arising from a moderate tubercle.

MALE: 279-287 μm long, 87-95 μm wide. Male genitalia 20 μm long, 27 μm wide; seta 5 μm long.


HOST: *Holoptelea* sp. (Ulmaceae).

RELATION TO HOST: Mites form galls of different

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**FIG. 3:** *Diptilomiopus holopteleae* sp. n.

DA) Dorsal view of anterior section of shield; L) Legs; F) Featherclaw; S) Side view of adult mite; ES) Side skin structure; GM) Male genitalia; GF1) Female genitalia and coxae.
sizes that project from the upper leaf surface in few numbers (3-11/leaf). The individuals were observed within and around the galls. Damage to plants was not observed.

Remarks: This species resembles Diptilomiopus camerae Mohanasundaram (1981) and D. jevremonovici Keifer (1960). It can be differentiated by an irregular network pattern; absence of dorsal tubercles; absence of ornamentation of coxae; 5-rayed featherclaw and in the measurement of various structures.

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