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A NEW SPECIES OF *HOLOCERCOMEgistus*,
INCLUDING SOME OBSERVATIONS ON THE CHAETOTAXY OF THE PEDIPALPAL
AND AMBULATORY APPENDAGES OF THE CERCOMEgistidae (ACARINA)

BY

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Abstract.

*Holocercomegistus costai*, a new species of cercomegistid mite is described. The adults are illustrated and the ontogenetic development of the chaetotaxy on the pedipalps and ambulatory appendages of several species of cercomegistid mites is presented.

In May of 1969, Dr. Michael COSTA sent me a species of cercomegistid mite from Lebanon for identification. The females of this species, although differing markedly from members of the genera *Celaenogamas* Berlese, 1901, *Cercomegistus* Berlese, 1914 and *Cercoleipus* Kinn, 1970, share a number of features in common with the genus *Holocercomegistus* Evans, 1958. Females of both *H. agelenophilus* Evans and the new species have a composite ventral shield formed by the fusion of the ventral, anal, podal and peritrematal shields. However, the two species are readily distinguished from one another by the form of the genital shields, dorsal chaetotaxy, and tritosternal laciniae. In regard to the latter, the new species differs from all described cercomegistid mites in having free tritosternal laciniae.

Family Cercomegistidae Trägårdh, 1938.

*Diagnosis*: Genital aperture covered by two elongate latigynial and a reduced mesogynial shield; sternal shield entire or divided; with one or two dorsal shields, usually exhibiting hypertrichy. Tritosternal laciniae usually fused for at least 1/2 their length. Epistome without keel; chelicerae with membranous excrescences. Tarsi I usually without apoteles. Male genital aperture within sternal shield.

Genus *Holocercomegistus* Evans, 1958.

*Diagnosis*: Sternal shield of female fragmented; sternal setae I on separate shield; setae II on shield posterior to fused jugularia; setae III in membrane posterior to or on remnant of sternal shield. Latigynial shields large; restricted to region posterior to coxae III and IV. Venter almost entirely covered by a large shield representing the fusion of the podal, peritrematal, ven-
tral and anal shields. The male has a holoventral shield with the genital orifice situated between coxae III or between coxae III and IV.

Type species: *H. agelenophilus* Evans, 1958.

**Holocereomegistus costai** sp. n.

**Female.**

*Idiosomal dorsum.* Mean length of dorsum 748 μ (725-752 μ); mean width 573 μ (556-593 μ) (9 specimens). Idiosoma oval, broadest behind coxae IV (Fig. 1 B), markedly convex, covered by two shields both with imbricated ornamentation over entire surface. Podosomal shield fused anteriorly with marginal shield, truncate posteriorly. Opisthonotal shield truncate anteriorly and broadly rounded posteriorly. Both shields beset with pilose setae. Four pilose setae present on anterior margin of podosomal shield, the center pair longer and projecting anteriorly over the gnathosoma. Setae of lateral membrane pilose, each on individual platelet.

*Idiosomal venter.* Tritosternal laciniae pilose, free for most of their length. Sternal area divided, consisting of: jugularia fused with one another and with endopodal plates, a crescent-shaped sternal remnant, and a third remnant resembling a sternogynial shield as defined by Camin and Gorrirossi (1955) (Figs. 1 A and 1 C). Sternal setae II on antero-lateral margins of crescent-shaped plate, directly posterior of sternal setae I, and sternal setae III posterior to this plate in membranous area. Sternal pores II in posterolateral angles of crescent-shaped sternal remnant and sternal pores III on anterior portion of third sternal remnant. Sternal setae IV on endopodal projections between coxae II and III. Latigynial shields elongate overlapping mesogynial shield posteriorly; each with three submarginal setae on outer edge. Genital area situated between coxae III and IV. Ventral shield fused with anal, metapodal, exopodal, endopodal and peritremal plates. Lateral margin of composite ventral shield and area posterior to coxae IV with imbricated ornamentation and beset with pilose setae which increase slightly in length toward posterior margin of body. Stigmata lateral to coxae IV; peritremes sinuate, extending to anterior margin of gnathosoma. Peritremal plate extending between coxae III and IV, but not curving behind coxae IV. A marginal plate with lighter and finer reticulations lies lateral and dorsal to composite ventral shield.

*Legs.* Armed with mostly pilose setae; chaetotaxy given in Table 1, using the system of Evans (1963 a). Legs I without claws, terminating in four long pointed setae and a cluster of shorter setae. Legs II stouter than others. No leg setae specialized as spines or macrosetae.

*Gnathosoma.* Tectum lacks a keel; anterior margin with several small, irregularly shaped serrations (Fig. 2 A). Digitus fixus with 23 heavily sclerotized teeth and with two pilose excrescences (Fig. 2 B). Corniculi stout (Fig. 2 D). Subcapitular and hypostomal setae pilose; distal hypostomal setae stoutest. Chaetotaxy of palpal trochanter, femur, genu, tibia and tarsus: 2, 3, 6, 15, 16. Palpal claw three-tined.

**Male.**

*Idiosomal dorsum.* Mean length of dorsum 706 μ (691-721 μ); mean width 574 μ (573-576 μ) (3 specimens). Shape, setation and ornamentation similar to that of female.

*Idiosomal venter.* Sternal setae I on anterior margin of holoventral shield. Sternal setae II directly posterior to setae I, and setae III posteromesad of setae II. Sternal setae IV on endo-
podal projections between coxae II and III. Sternal pores I obscure. Sternal pore II and III directly posterior to setae II and III, respectively, and level with hind margin of coxae II. Genital opening elliptical, wider than long, situated between coxae III (Fig. 1 D). One pair of setae, not present on female, lies mesad of sternal setae IV. Opisthosomal setae pilose, increasing in length toward posterior margin of body, similar in number and distribution to female. Ornamentation of lateral margin of holoventral shield and area posterior to coxae IV like that of female. Reticulations of genital region longer than wide.

*Legs.* Like those of female.

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**Fig. 1**: *Holocercomegistus costai.*
Gnathosoma. Similar to that of female, but tectum longer, more pointed, and with smoother anterolateral margins (Fig. 2 C).

**Type material.**

Holotype: female, Litamth Namouth, Lebanon, Aug. 23, 1953, K. A. Christiansen. Allotype: same collection. Paratypes: 2 males, 8 females, same collection. Nothing is known of

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*Fig. 2: Holocercomegistus costai.*


the habitat or habits of this species. Dr. Costa (personal communication) suspects that these mites were removed from soil samples.

The holotype and allotype are deposited in the British Museum (Natural History), London, England. Paratypes are in the collections of Dr. Michael Costa and of the author.

Observations on the chaetotaxy of the pedipalpal and ambulatory appendages in the Cercomegistidae.

The palpal chaetotaxy of adult *H. costai* conforms with that given by Evans (1958, 1963) for adult *H. agelenophilus*. A re-examination of the palpal chaetotaxy of *Cercomegistus evonicus* and *Cercoloipus coelofonts* shows a chaetotaxic pattern 0-4-5-12-11 for the larva and 1-4-5-12-15 for the protonymph. That of the deutonymphs and adults is 2-5-6-15-16.

**Table I. Leg chaetotaxy of cercomegistid mites.**

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<thead>
<tr>
<th>Leg</th>
<th>Coxa</th>
<th>II</th>
<th>III</th>
<th>IV</th>
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<table>
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<tr>
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<th>1-1/1,2/1-1</th>
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The chaetotaxic formulae for the leg segments of adult *H. costai* and all instars of *Cercoloipus coelofonts* and *Cercomegistus evonicus* are presented in Table I (using the system of Evans, 1963a). The formulae reported for femur I in the original descriptions of *C. coelofonts* and *C. evonicus* and for femur IV of *C. coelofonts* were in error and are herein corrected. The ontogenetic development of the setae on femora, genua and tibiae I-IV and tarsi II-IV is presented diagramatically in Fig. 3.
Fig. 3: Diagramatic representation of typical setal patterns of certain leg segments of cercomagistid species. Black dots represent ventral, open circles dorsal, and half black circles lateral setae. Chaetotaxy of omitted segments is similar to that of the same segment in the preceding instar.
Coxae I-IV.

Coxae I-III of the larvae each bear two setae. Coxa IV of the protonymph bears a single seta in the median position. As in the gamasines (Evans, 1963 a), this pattern is retained in the deutonymph and adult instars.

Trochanters I-IV.

Trochanters I and II of the larva and protonymph have four setae, consisting of two lateral (al and pl) and two ventrals. Two dorsal setae are added to trochanter I and a single ventral seta added to trochanter II in the deutonymph. Leg III of the larva and legs III and IV of the protonymph possess one lateral (al), a single dorsal and two ventral setae. A single ventral seta is added to trochanters III and IV in the deutonymph. The deutonymph pattern is retained in the adult.

Femora I-IV.

The chaetotaxy of each femur is unique. Femur I of the larva and protonymph has two pairs of laterals (al, al, pl, pl), two pairs of dorsal setae (ad, ad, pd, pd) and a single pair of ventral setae (av, pv). In the deutonymph two ventrals are added (av, pv). Femur II of the larva bears seven setae (ad, ad, pd, pd, al, pl, and v). To this a second ventral seta (v) is added in the protonymph and a third ventral seta (v) and lateral (al) in the deutonymph. Femur III of the larva and protonymph bears five setae (al, ad, ad, pd, and v) to which is added another ventral (v) and dorsal (pd) seta in the deutonymph. Femur IV of the protonymph carries four setae (al, ad, ad, pd) and femur IV of the deutonymph eight setae (al, al, ad, ad, pd, pd, pd, and v). The deutonymphal chaetotaxy on femora I-IV, as well as that of genua I-IV, tibia I-IV and tarsi II-IV is retained by the adult.

Genua I-IV.

Genu I of the larva and protonymph has eight setae (al, pl, ad, ad, pd, pd, v, and v) and that of the deutonymph twelve setae (al, al, pl, pl, ad, ad, ad, pd, pd, pd, pd, av, and pv). Genua II and III of the larva and protonymph each bear six setae (al, pl, ad, ad, pd, and pd). In the deutonymph six setae are added (al, pl, ad, pd, av, and pv). Genu IV carries five setae (al, ad, ad, pd, and pd) in the protonymph to which are added six additional setae in the deutonymph (al, pl, ad, pd, av, and pv).

Tibiae I-IV.

Eight setae are present on tibia I of the larva and protonymph (al, pl, ad, ad, pd, pd, v, and v). Five setae are added in the deutonymph (al, pl, ad, ad, av, and pv). Tibiae II and III each bear seven setae (al, pl, ad, pd, pd, v, and v). A dorsal seta (ad) and two lateral setae (al, pl) are added in the deutonymph. Tibia IV is similar to that of tibia III in the protonymph. However, in the deutonymph a single ventral seta (av) is added along with a single dorsal (ad) and two lateral setae (al, pl).

Tarsi II-IV.

The ontogenetic development of the chaetotaxy of tarsi II-IV is identical with that reported for Megisthanus floridanus Banks and Euzercon latus (Banks) (Evans, 1965). The chaeto-
taxy of tarsi II and III in the larva and protonymph is similar to that reported for these instars in the Gamasina (Evans, 1969). However, tarsus IV of the protonymph bears two additional ventral setae (av_4, pv_4) on an intercalary sclerite. In the deutonymph a single lateral (al_4) and a single ventral (av_4) are added.

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Literature Cited