

REDESCRIPTION OF *CHEYLOSTIGMAEUS LONGISETOSUS* WILLMANN
(ACARI, STIGMAEIDAE)

BY

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ABSTRACT

Cheylostigmaeus longisetosus is redescribed and a key is given to males of the genus *Cheylostigmaeus*.

RÉSUMÉ

Cheylostigmaeus longisetosus est redécrit et une clé des mâles est donnée pour le genre *Cheylostigmaeus*.

INTRODUCTION

Recognition of species of *Cheylostigmaeus* depends largely on various features of males which is unusual in Stigmaeidae where females are usually used for purposes of identification. The description of a male of *C. longisetosus* in this paper means that descriptions are now available for males of all known species. However, as the taxonomic importance of the male aedeagus was not recognised until recently (SUMMERS and EHARA (1965)) the aedeagus has not been described in seven of the species known to date. These descriptions are widely scattered in the literature and the only available keys are those of SUMMERS and EHARA (1965) to males and females of four species and WILLMANN (1952) to males of five species. In the following key to males of the 15 known species emphasis has been given to features of the gnathosoma and brief details of other diagnostic features added where this information is available.

Genus *Cheylostigmaeus* Willmann 1951 a

Cheylostigmaeus Willmann, 1951 a. Bonn. zool. Beitr., 2 : 141-176.

Type species : *Cheylostigmaeus grandiceps* Willmann, 1951 a.

Cheylostigmaeus : Summers and Ehara, 1965. Acarologia, 7 : 49.

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Key to Species — Males

1. Rostrum with lateral lamellae or protuberances..... 2
- Rostrum without lateral lamellae or protuberances..... 13
2. Lamellae rounded, without distinct cusps, teeth irregular protuberances or ridges; rostrum short, extending as far as middle of palp-femur.
C. longisetosus Willmann, 1951 b. (Europe).
- Lamellae with distinct cusps, teeth irregular protuberances or ridges..... 3
3. Lamellae with only a row of four small, rounded teeth on antero-lateral margin; no large cusps, teeth or irregular protuberances.
C. multidentatus Summers and Ehara, 1965. (S. America).
- Lamellae with distinct cusps, teeth or irregular protuberances; without a row of small rounded teeth 4
4. Lateral margins of lamellae smooth, produced anteriorly into one or more anteriorly directed cusps or teeth 5
- Lateral margins of lamellae either toothed or irregularly rounded..... 10
5. Lamellae with a single anterior cusp..... 6
- Lamellae with two or more anterior cusps or teeth..... 7
6. Anterior cusp long, pointed, $\frac{1}{2}-\frac{1}{3}$ as long as setae *m* and bearing *m* at its base; no protuberance on palp-femur.
C. howellsii Evans, 1954. (Europe).
- Anterior cusp short, rounded, ca. $\frac{1}{8}$ as long as setae *m* which arises posterior to its base; palp-femur with single rounded protuberance on inner margin.
C. californicus Summer and Ehara, 1965. (N. America).
7. Palp-femur with one or more thickened protuberances on inner margin..... 8
- Palp-femur without protuberances..... 9
8. Two distinct, rounded protuberances on inner margin of palp-femur; lamellae anteriorly with 2 short rounded cusps, less than $\frac{1}{6}$ as long as setae *m*, and sometimes with minor associated cusps; single knob-like 'cornicle' or protuberance dorsal to lamellae; 2 pairs of paragenital setae.
C. torulus Summers, 1957. (N. America).
- A single or two rounded protuberances on inner margin of palp-femur; lamellae anteriorly with 2 long cusps, $\frac{1}{2}-\frac{1}{3}$ as long as setae *m*; row of 6-7 small, pointed teeth at base of cusps; inner claw on tarsus I distinctly thicker than outer claw.
C. marinus Willmann, 1957. (Europe).
9. Lamellae anteriorly with 2 long cusps, external cusp slightly shorter than internal; aedeagus without bulb.
C. luxtoni Wood, 1968. (New Zealand).
- Lamellae anteriorly with 2 long cusps, external cusp distinctly shorter than internal; aedeagus with bulb.
C. pannonicus Willmann, 1951 b; Summers and Ehara, 1965. (N. America, Europe).
10. Palp-femur, -genu and -tibia each with single rounded protuberance on inner margin and palp-femur with spine on outer margin.
C. grandiceps Willmann 1951 a, 1953. (Europe).
- No protuberances or spines on palps..... 11
11. Lateral margins of lamellae irregularly rounded..... 12
- Lateral margins of lamellae with 4 antero-laterally directed teeth or cusps, posterior pair widely separated, anterior pair close together.
C. austriacus Willmann, 1951 b. (Europe).
12. Lamellae expanded laterally into single major, irregular protuberance anterior to base of setae *m* and smaller protuberance anterior to this and posterior to rostral setae.
C. angustimaxillatus Willmann 1951 a, 1953. (Europe).

- Lamellae expanded laterally into 2 small rounded protuberances, 1 anterior to and 1 posterior to setae *m*; setae *re* distally barbed.

C. oudemansi (Meyer and Ryke), 1959; Meyer, 1969. (South Africa).

- 13. Setae *m* borne on small knobby protuberances (tubercles)..... 14
- Setae *m* borne on smooth cuticle; no protuberances of any sort on rostrum; aedeagus short, without noticable shaft.

C. mirabilis Wood, 1971. (Solomon Islands).

- 14. External rostral setae (*re*) located on small tubercles. Length of idiosoma 360.

C. scutatus (Halbert), 1920; Willmann, 1952. (Europe).

- External rostral setae not located on small tubercles. Length of idiosoma 250.

C. salinus Evans, 1954. (Europe).

Cheylostigmaeus longisetosus Willmann

Cheylostigmaeus longisetosus Willmann 1951 b. Sber. Akad. Wiss. Wein. Abt. I 160 : 139.

In the following descriptions nomenclature follows SUMMERS and EHARA (1965); all measurements are given in microns (μ).

MALE ($n = 1$). Length 270.

Dorsum : Plates smooth with ornamentation only apparent as faint dimpling on downcurved margins of the plates; three pairs of anomalous dimples located medially on propodosomal plate (see Fig. 1 A). Dorsal setae acicular, faintly barbed, hyaline sheath not as obvious as in females (see below and Fig. 1 B); length of setae and inter-setal distances : *li* 67; *be* 51; *de*, *la*, *lm* 43; *he* 40; *ae* 38; *a*, *b*, *c*, *le* 33; *ce* 28; *e* 24; *ae* — *be* 36; *ae* — *ae* 31; *a* — *a*, *c* — *c* 67; *b* — *b* 77; *li* — *li* 48; *a* — *b* 40; *b* — *c* 43; *c* — *li* 24.

Venter : Maxillicoxae smooth, setae *m* (23) longer than *n* (17), neither setae located on tubercles, *n-n* = *m-m*; *re* acicular (17) longer than *ri* (11), both located on slightly elevated ridge; rostrum with postero-lateral margins expanded into rounded lamellae (Fig. 1 D). Intercoxal plates smooth, their setae subequal. Paragenital plate smooth, *pg*₁ and *pg*₂ subequal (18), *pg*₃ (14). Three pairs of ano-genital setae *g*₁ (11), *g*₂ (6), *g*₃ thorn-like (3). The aedeagus (Fig. 1 C) lacks the *bulb* of certain other species (SUMMERS and EHARA, 1965) and consists of *calyx* and a rather broad *shaft* terminating in a pair of pointed unciform appendages (*unc*) and a pair of blunt rounded forcipiform appendages (*forc*).

Appendages : Cheliceral bases partly fused; stylets 44. Numbers of setae on legs and palps as in female except that tarsi I-IV carry additional solenidion (ω ♂) which on tarsus I reaches as far as base of setae *tc*. Palps without any swelling or apophyses.

FEMALE ($n = 6$). Length 315-360.

Dorsum : Plates as in male. Setae acicular, faintly barbed, with distinct hyaline sheath which extends distally beyond apex of shaft on some setae (Fig. 1 B) while on others apex of shaft extends to tip of sheath; lengths of setae and inter-setal distances : *li* 89-96; *be* 94-101; *lm* 77-91; *la* 77-87; *c* 72-87; *de*, *b* 72-82; *ae*, *a*, *he* 67-77; *ce* 60-67; *e* 53-62; *le* 43-48; *ae* — *ae* 31-38; *ae* — *be* 55-67; *a* — *a* 84-101; *b* — *b* 106-130; *c* — *c* 96-116; *li* — *li* 72-82; *a* — *b*, *b* — *c* 62-77; *c* — *li* 51-62.

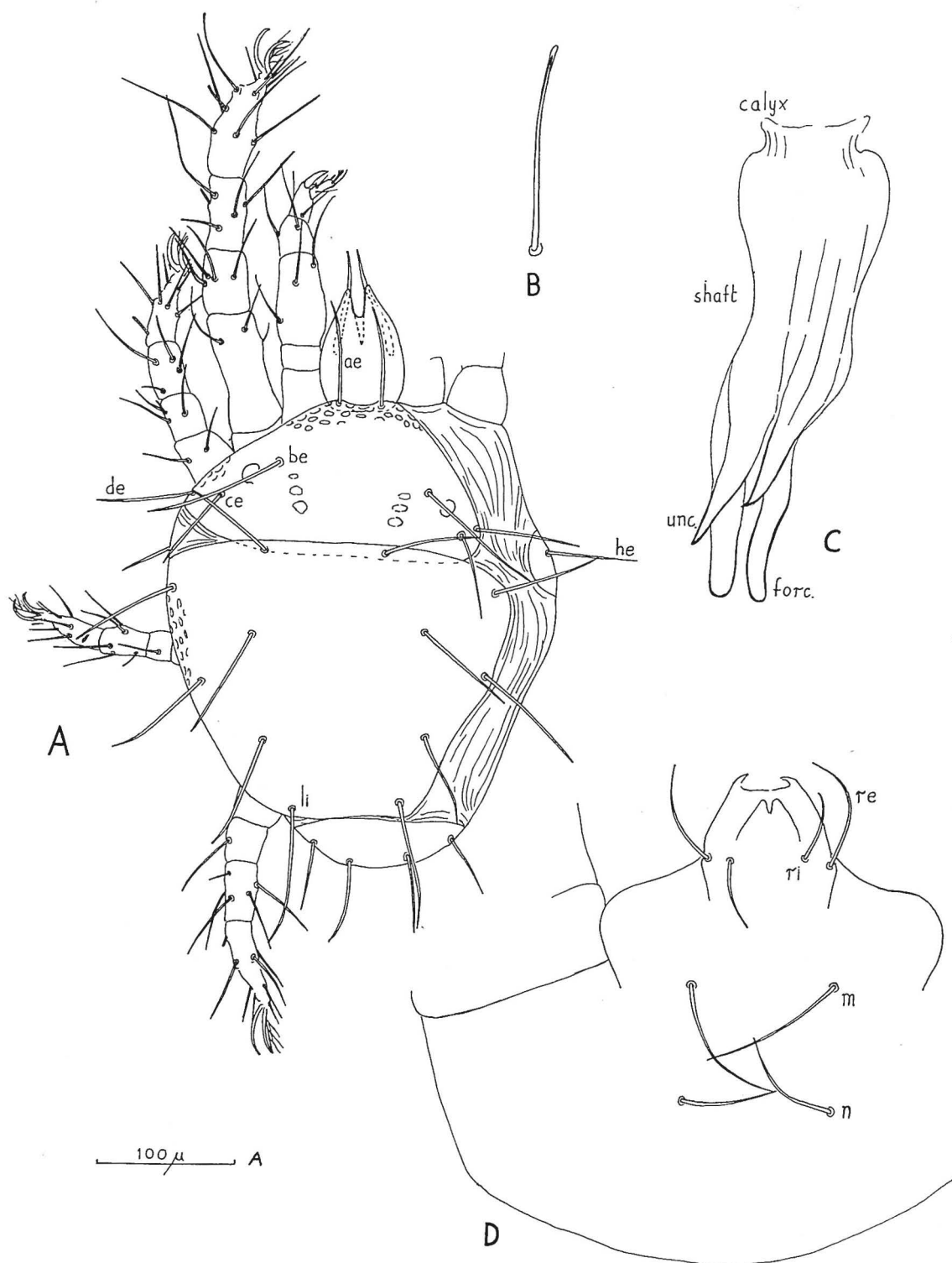


FIG. 1. — *Cheylostigmaeus longisetosus* :
A Female, dorsal ; B dorsal seta, female ; C aedeagus ; D male rostrum, ventral.

Venter : Maxillicoxae smooth, setae m (37), n (24), $m-m = n-n$; re longer than ri ; rostrum without any lamellae, incisions or adornments. Intercoxal plates smooth, their setae subequal; no inter-coxal bridges. Paragenital plate bears 3 pairs of subequal (19) setae. Three pairs of setae on ano-genital covers g_1 (16), g_2 (24), g_3 (28).

Appendages : Cheliceral bases partly fused : stylets 70-80. Numbers of setae on leg podomeres (special sensillae in parentheses) as follows : tarsi 14 (ω) — 10 (ω) — 8 (ω) — 8 (ω); tibiae 6 (φ , $\varphi\varphi$) — 6 ($\varphi\varphi$) — 6 ($\varphi\varphi$) — 6 ($\varphi\varphi$); genua 4 (k) — 4 (k) — 1 — 1; femora 6 — 5 — 3 — 2; trochanters 1 — 1 — 2 — 1; coxae 2 — 2 — 2 — 2; kI longer than associated dorsal seta, kII 1/6 — 1/8 as long as associated dorsal seta; macroseta only on tibiae I and II; certain dorsal setae possess hyaline sheath — femora I-IV (1 each), genua II-IV (1 each), genu I (2). Numbers of setae on palps : femur 3, genu 2, tibia 4, tarsus 7; accessory seta stout, 'bootshaped' (Fig. 1 E); no sheathed setae on femur.

DISTINGUISHING FEATURES.

Identification of species of *Cheylostigmaeus* rests largely on various features of the males; in contrast the females are very similar in appearance and can usually be recognised only after careful consideration of quantitative characters. Willmann's (1951) description of *C. longisetosus* was based on females only and there is, therefore, some uncertainty over the recognition of this species. Willmann's diagnosis was based on the long dorsal setae and a comparison of his illustration and measurements with measurement data of specimens studied here shows a very close similarity. Only one other described species has relatively long dorsal setae (idiosoma only 3.5 times as long as be and li whereas the figure for other species no less than 4.4 and may exceed 5.0) — *C. multidentatus* Summers and Ehara from South America (Chile). The measurement data for females of *C. multidentatus* and *C. longisetosus* is more or less identical and the species are also similar in having overlong sheaths on the dorsal setae; they could possibly be separated by the absence of sheathed setae on tibiae IV and V and on the palp-femur, but the reliability of these tenuous characters for specific diagnosis has yet to be established. Males of these two species can be readily separated by the features of the rostrum and aedeagus.

SPECIMENS EXAMINED.

1 ♂, 6 ♀♀ ex. *Sphagnum* bog, Esher Common, Surrey, England, 22.i.56 (D. J. CLARK). 1 ♂ and 3 ♀♀ have been deposited in the British Museum (Natural History), London.

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