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NEW SPECIES OF *CHELETONELLA* (ACARI:PROSTIGMATA: CHEYLETIDAE) AND A NEW KEY TO THE SPECIES

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RESUMEN

Se describe una nueva especie de ácaro del género *Cheletonella* Womersley, 1941, de guano procedente del murciélago *Eptesicus fuscus* (Beauvois) recolectado en el condado de Owen, Indiana, y se da una clave para las especies del género.

Palabras clave: Acari, murciélago café, Cheyletidae, guano, Indiana, Prostigmata.

ABSTRACT

A new species of *Cheletonella* Womersley, 1941, is described from guano of the brown bat *Eptesicus fuscus* (Beauvois) collected in Owen County, Indiana. A key to all species of *Cheletonella* is given and a new distribution record is established.

Key words: Acari, brown bat, Cheyletidae, guano, Indiana, Prostigmata.

INTRODUCTION

The new species described herein was found in guano of the brown bat *Eptesicus fuscus* (Beauvois) in Owen County, Indiana. Until now only three species were known in the genus *Cheletonella* Womersley, 1941; *C. vespertilionis* Womersley, 1941: from a bat in Australia; *C. caucasica* Volgin, 1955, from a gray hamster and a sparrow's nest in Russia; and *C. pilosa* Tseng, 1977, from wheat in Taiwan. Chaudhri (1979; 1986 unpublished data) assigned two taxa to the genus, one in an unpublished technical bulletin and another (*C. daddariensis*) in an unpublished report.

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Cheyletid mites are ectoparasites of birds, mammals, or insects. More often they are free-living predators on other mites, first instar armoured scale insects (crawlers) or other small insects. *Cheyletus eruditus* (Schrank) commonly occurs in stored foods, where it feeds on pest mites (especially *Acarus* spp.) and reduces their population (Norris, 1958; Pulpan & Verner, 1965). There is no information on the role of cheyletid mites and their relationship with bats or their guano. However, this is the first new species in the genus to be described from the New World. Summers and Price (1970) reported *C. vespertilionis* from two localities in California. Nothing is known on the biology and distribution of *C. caucasica* and *C. pilosa*. This paper provides an identification key to the known taxa and will enhance further studies on the phylogeny and classification of species in the Cheyletidae. Setal signatures follow Kethley (1990). All measurements are given in micrometers (μm). Measurement represents ranges of twelve specimens.

Cheletonella Womersley

Cheletonella Womersley, 1941: 60.

Type species. *Cheletonella vespertilionis* Womersley, 1941, by original designation. Baker (1949) recognized the genus as being distinctive in possessing a single dorsal anterior plate. Summers & Price (1970) characterized the genus as redefined below.

Diagnosis. Relatively large, soft-bodied cheyletids having a pointed beak. Palp claw with few basal teeth. Palp tarsus-sicklelike with 2 sicklelike and 2 comblike setae, stylophore approximately triangular, its protegmental portion conical and almost entirely covering free end of rostrum. No eyes. Body plating restricted to a single shield on propodosoma; dorsal setae not inserted on this shield are borne on trivial platelets, one for each seta. Dorsal body setae conservatively fanshaped, longer than wide, none aberrant or peculiarly fashioned. Legs shorter than length of idiosoma. Tarsus I bears a moderately long solenidion wI set a short distance in front of a longer guard seta.

KEY TO FEMALES OF *CHELETONELLA**

1. Dorsal idiosomal setae fanshaped (Figs. 1 and 4) 2
   Dorsal idiosomal setae lanceolate (Fig. 5) ..... ***pilosa*** Tseng
2. Setae ps_1 bifurcate distally 3
   Setae ps_1 not bifurcate distally ..... ***caucasica*** Volgin

* Chaudhri (1979) in a Technical Bulletin (unavailable) described *C. emersus* having 16 pairs of dorsal setae. All the above species have a lesser number (14 pairs). Chaudhri (1986) in an unpublished report described and illustrated *C. dalldariensis* from *Pinus longifolia* Roxburgh. This species is reportedly to have 15 pairs of dorsal setae.

3. Palpal claw with 3 pairs of basal teeth.....***vespertilionis*** Womersley
Palpal claw with 4 pairs of basal teeth.....***hoffmannae*** sp. nov.

Cheletonella hoffmannae sp. nov.
(Figs. 1-3)

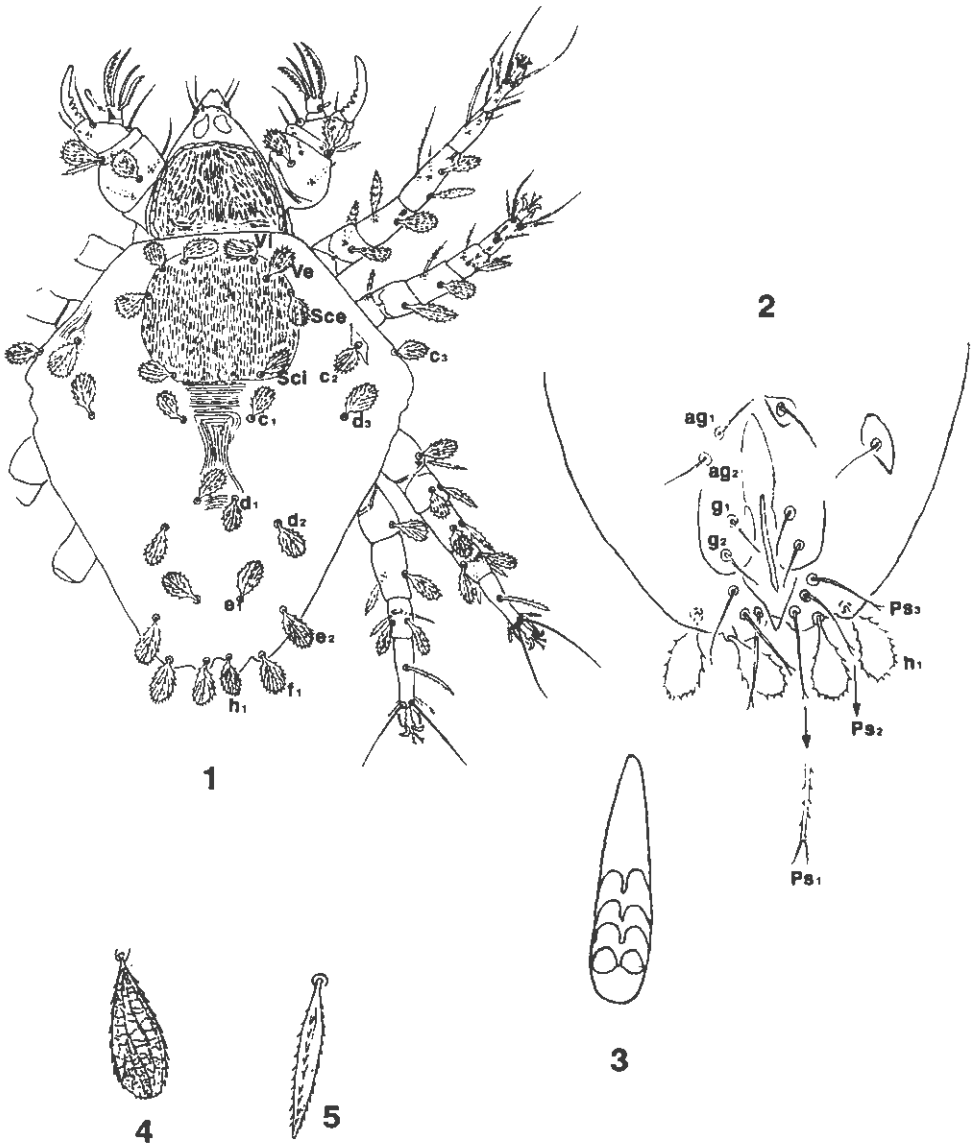
Diagnosis. This species is distinctive from other members of the genus in having 4 pairs of dentiform teeth on each palpal claw. It is most closely related to *C. vespertilionis* by having setae Ps_1 and Ps_2 bifurcate distally. These setae are short, strong and spiculate in this new species whereas they are long, slender and smooth in *vespertilionis.*

Female. Idiosoma in holotype length 599 µm, width 293 µm. Gnathosoma broad, almost as wide as long; length 173 µm and width 133 µm. Tegmen ornamented with variable sized bacilliform rod-shaped striae, longer than protegmen and rostrum.

Protegmen conical apically, almost completely covering rostrum. Rostrum wider than long, terminating with a strong simple seta on each side. Palpal femur wider than long bearing 1 dorsal fanshaped seta and 2 ventral setae as figured. Genu outer margin with 1 dorsal fanshaped seta and 1 lanceolate seta, fan-shaped seta same size as femoral seta. Tibia with 3 smooth simple setae and claw bearing 4 pairs of large basal teeth (Fig. 3). Palpal tarsus with sensillus, with 2 sicklelike setae and 2 comblike setae; outer comb with 14-18 teeth; inner comb with 21 smaller teeth. Idiosoma widest where humeral setae ($c3$) are located. Dorsum (Fig. 1) without eyes, with a single propodosomal plate marked with smaller tuberculate striae and with 4 pairs of fanshaped setae; setae $c2$ located on trivial platelets. Hysterosoma separated from propodosoma by fine striae as figured, with 8 pairs of fanshaped setae about equal in size. All ventral and anogenital setae (Fig. 2) as figured comprising 2 pairs each of *ag, g* and three pairs of p_s setae. Legs. Coxae I and II contiguous separated from contiguous coxae III and IV by a length approximately the width of either coxae II and III. Leg I 153µ (144-153) long, II 70µ (67-70), III 127µ (122-127) and IV 127µ (122-127). Setal counts on all podomeres (sensilli added in parenthesis): coxae 2-1-2-2; trochanters 1-1-2-1; femora 2-2-2-1; genua 2(+1)-2-2-2; tibia 4(+1)-4-4-4; tarsi 8(+1)-7(+1)-7-7. Sensillus (ω_1) on tarsus I about 3/4 length of segment, on tarsus II about 1/2 length of segment. Sensilli on tibia I and genu I globose. Guard seta on tarsus I minute. No other sensilli seen. All tarsi with claws and empodial raylets.

Male. Unknown.

Specimens examined. Holotype female, ex guano of *Eptesicus fuscus* (Beauvois), 10 November 1995, Quincy, Quanset Gym, Owen County, Indiana, J. O. Whitaker, Jr., Collector. Twelve female paratypes with the above data. Female holotype and twelve female paratypes are deposited in the United States National Museum of Natural History Collection, housed by the Systematic Entomology Laboratory, USDA, Beltsville, MD 20705.



Figs. 1-5. 1-4. *Cheletonella hoffmannae* sp. nov., female:1, dorsal view; 2, anogenital region. 3, palpal claw, ventral view; 4, dorsal seta enlarged. 5, *Cheletonella pilosa* Tseng, female dorsal seta enlarged, after Tseng.

The information on *Cheletonella emersus* Chaudhri, 1979, was obtained from his 1986 unpublished P.L. 480 report. The P.L. 480 program is a foreign scientific exchange program administered by the Agricultural Research Service, U. S. Department of Agriculture. Dr. E. W. Baker (Project Supervisor for Dr. Chaudhri) supplied me with a copy of this report. I have made several personal communications to Dr. Chaudhri on these taxa and other related matters, but have not received a reply.

Comments. The teeth on the palpal claw are hi-molar as illustrated in figure 3. In some slide mounts, the teeth may overlap from each side of the claw. Observations are to be carefully made when viewing the claw from a lateral position.

Etymology. The species is named in honor of Dr. Anita Hoffmann, Laboratory of Acarology, Facultad de Ciencias, Universidad Nacional Autónoma de México for her outstanding contributions to Acarology.

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