

Feather Mites (Sarcoptiformes, Analgoidea) of Domestic Fowl in Cuba

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Abstract. Nine species of feather mites are recorded from Cuban domestic fowl. Both sexes of *Pterolichus latus* sp. n. and the male of *P. pavonis* Oudemans, 1905 are described.

In the period between August 1967 and March 1968 investigations on the ectoparasites of domestic fowl in two western provinces of Cuba (Pinar del Río and Havana) were focused mainly in domestic chickens. The scientific workers of the Institute of Parasitology of the Czechoslovak Academy of Sciences and of the Institute of Biology of the Cuban Academy of Sciences participated in these investigations. This contribution deals with the material of feather mites collected. A total of 569 birds were examined (in parentheses the number of positive hosts is given): 500 chickens (245), 10 guinea-fowls (3), 5 turkeys (3), 4 peacocks (2), 20 ducks (0), 10 geese (8) and 20 pigeons (18). The birds were examined in the state farms, at the individual poultrybreeders or in the zoological garden (peacocks, geese and some pigeons) alive except 11 pigeons which were examined dead. All findings may be considered as new records for the territory of Cuba.

I am deeply indebted to Dr. J. Gaud, Rennes, for sending the slides with *Megninia ginglymura* and *M. cubitalis* as well as for his comments on the first species; to Dr. E. Kutzer, Wien, for sending the slides with *M. ginglymura*, and to Dr. P. C. Peterson, Youngstown, for his suggestions concerning *Brephosceles discidium*.

SURVEY OF SPECIES

1. *Pterolichus obtusus* Robin, 1877

Hosts: *Gallus gallus domesticus* L., *Numida meleagris* (L.), *Meleagris gallopavo* [L. Location: Wings.

This species is the most frequent feather mite among chickens in Cuba. It was found on 214 birds. The other two species of birds (two and one specimen positive, respectively) were bred in close contact with chickens so that the transfer of this parasite was possible.

2. *Pterolichus diploderma* Gaud et Mouchet, 1959

Host: *Numida meleagris*. Location: Wings.

Found on one bird. This species was described from Central Africa and belongs to the most frequent parasites of the guinea-fowl (GAUD 1965). Our finding represents the first record from America.

3. *Pterolichus pavonis* Oudemans, 1905

Fig. 1

Host: *Pavo cristatus* L. Location: Wings.

This species was found on 2 birds. Only females are known until now. The morphology of the male is as follows (prep. No. PÚ ČSAV 1673 deposited in the collections of the Institute of Parasitology in Prague).

Male: Total length 365 μm , length of idiosoma 321 μm , length of propodosoma 99 μm , maximal width 215 μm .

Propodosomal shield with fine granulation, with incisions and long and narrow lateral wings posteriorly. Setae vi 41 μm long, their distance 20 μm . Setae sce and sci located in the incisions. Hysterosomal shield covers almost the whole dorsal part of the hysterosoma, with lacunae of different size in its central part. Setae l₁ situated at the anteromesal corner of the humeral shield. Setae sh setiform, 21 μm long. Opisthosomal lobes as small protuberances separated by a shallow depression. Setae l₅ and d₅ long, pai and l₄ lanceolate. Setae l₃ very fine and close to l₄ and pae. Setae d₄ lacking. Supranal concavity subtriangular.

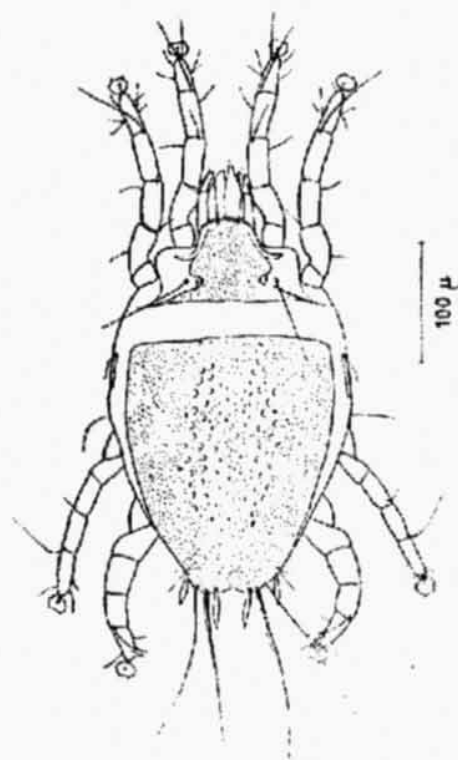


Fig. 1. *Pterolichus pavonis*
Oudemans, male, dorsal view.

Epimerites I free, slightly curved, epimerites II slightly curved. Epimerites III directed anteriorly, epimerites IIIa and IV coalescent, epimerites IVa very short. Genital organ situated at the level of coxae IV. Small separated genital discs lateral to its anterior part. Only 2 pairs of setae c, a pair just near the anterior part of genital organ and another pair posterolateral to it. Distance between the tips of genital arch and the adanal setae 57 μm . Adanal discs small. Conspicuous dorsal oil glands developed.

Gnathosoma 61 \times 55 μm , chelicerae longer than palpi, with 2 subterminal and 2 terminal denticles. Legs I and II slender, legs IV stronger than legs III, their tarsi with distinct subapical spur.

The females were redescribed by DUBININ (1956). Our material agrees with this description except some features.

The setae vi and sci are a little longer, the seta l₃ (= d₃ in DUBININ) is situated in the striated area between hysterosomal shield and pygidial sclerotization and not on

the hysterosomal shield. DUBININ does not mention the presence of lacunae on the hysterosomal shield nor the well developed oil glands. The length of our females is also greater. Bearing in mind that this author did not know this species from autopsy, we may consider our specimens as conspecific with *Pterolichus pavonis* Oudemans.

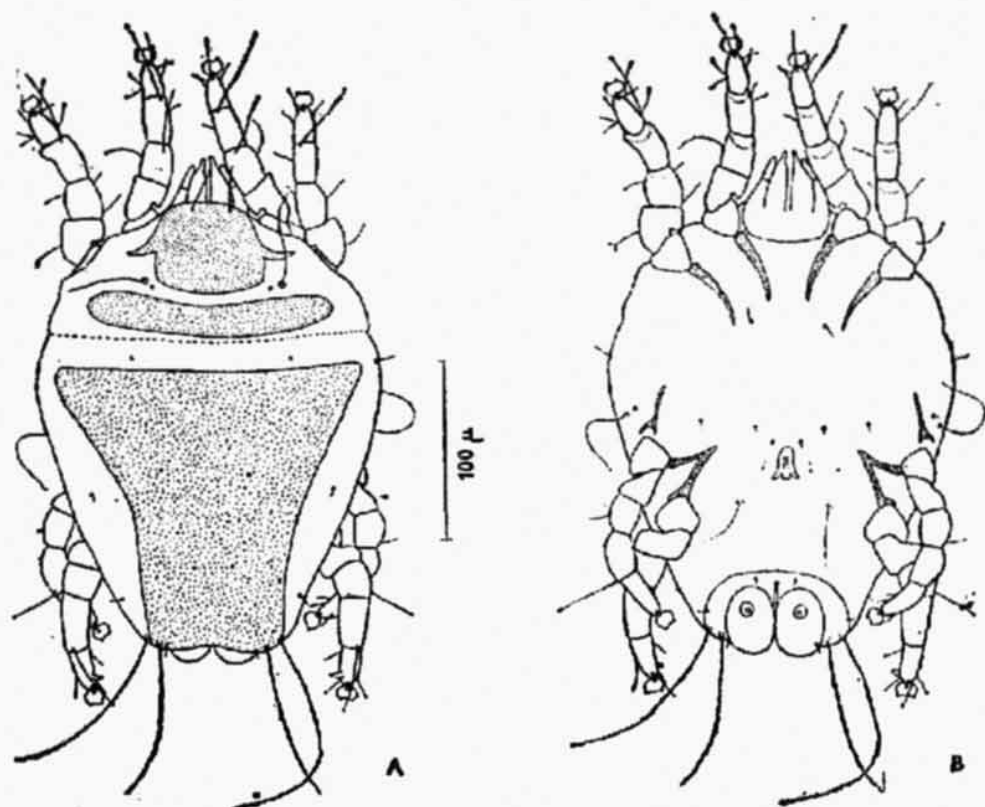


Fig. 2. *Pterolichus latus* sp. n., male. A — dorsal view, B — ventral view.

The members of the genus *Pterolichus* Robin, 1868 are not homogeneous in their morphology and one may expect its splitting in some subgenera (GAUD 1965). If we accept the consequent division into *Pterolichus* and *Pseudalloptes*, this species belongs to the latter subgenus, to the group of few species in which the latero-genital apodemes in male are lacking. The combination of characters such as the form and ornamentation of the hysterosomal shield, rudimentary opisthosomal lobes with lanceolate setae *pai* and *l₄* in male differentiate this species from other members of this group.

4. *Pterolichus latus* sp.n.

Figs. 2, 3

Material examined: Holotype: male from *Meleagris gallopavo* L., Finca Santa Rosa, Vertientes, Prov. of Camagüey, 29. 8. 1967, leg. V. Černý and J. de la Cruz. Paratypes: 18 ♀♀, 8 ♂♂, 2 teleonymphs, 1 protonymph, 1 larva, the same data as the holotype. Location: Wings.

Male: Total length 281 μ m, length of idiosoma 254 μ m, length of propodosoma 81 μ m, maximal width 199 μ m.

Propodosomal shield divided into two parts. Anterior part bell-shaped, separated by a narrow unsclerotized strip from the posterior transversal part. Setae *vi* very fine, their distance 25 μ m. Setae *sci* developed as microsetae. Hysterosomal shield tapers posteriorly, weakly sclerotized. Surface of dorsal shields with fine granulation.

Scapular and humeral shields lacking. Body posteriorly truncated, with very shallow median depression. Only setae l_5 and d_5 long, pai and pae very fine and short, other setae developed as microsetae.

Epimerites I free, slightly curved, epimerites II parallel with them. Epimerites I and II distinctly stronger than epimerites III and IV. Epimerites III directed anteriorly, epimerites IIIa and IV coalescent, epimerites IVa rudimentary. Setae sh

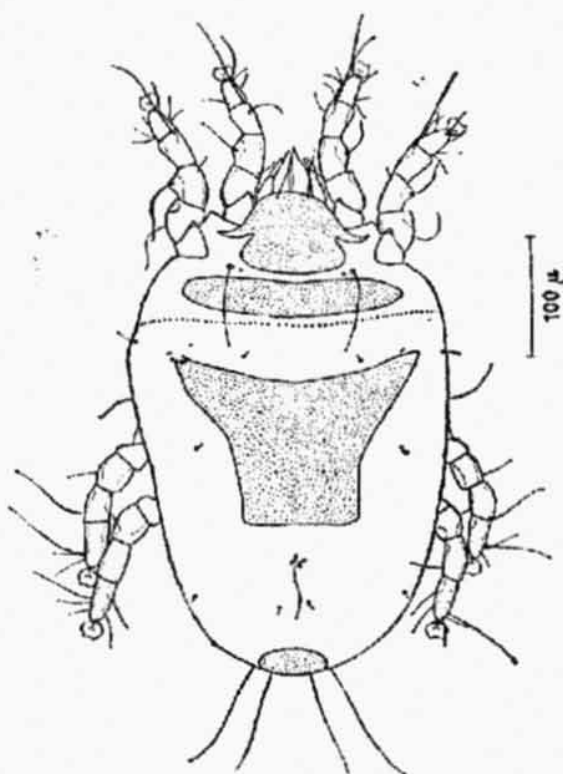


Fig. 3. *Pterolichus latus* sp. n., female, dorsal view.

developed as microsetae. Genital organ situated at the level of anterior half of coxae IV. Small separated genital discs lateral to it. Setae c_1 and c_2 in a trapezoidal arrangement before genital organ. Setae c_3 relatively very long ($40\text{ }\mu\text{m}$), at the level of posterior half of coxae IV, their distance $55\text{ }\mu\text{m}$. Distance between the tips of genital arch and the adanal setae $57\text{ }\mu\text{m}$. Adanal discs small, surrounded by hyaline membranes.

Gnathosoma $49 \times 61\text{ }\mu\text{m}$, chelicerae slightly longer than palpi. Legs IV stronger than legs III, their tarsi with distinct subapical spur. Female: Total length $445\text{ }\mu\text{m}$, length of idiosoma $406\text{ }\mu\text{m}$, length of propodosoma $114\text{ }\mu\text{m}$, maximal width $276\text{ }\mu\text{m}$.

Propodosomal shield divided as in male but the posterior transversal part is broader. Distance of setae vi $32\text{ }\mu\text{m}$. Setae sci developed as microsetae. Hysterosomal shield in the form of a trapezoid, covering only a part of the

hysterosoma. Scapular and humeral shields lacking. Body rounded terminally, with very shallow median depression. Heavy pygidial sclerotization developed. Only microsetae d_2 situated on the hysterosomal shield. Setae l_1 very fine, setiform. With 2 pairs of long terminal setae (l_5 and d_5), other setae very delicate.

Ventrally, the epimerites I and II longer than in male and much stronger than epimerites III and IV. Their arrangement is almost the same as in male. Pregenital apodeme in the form of a crescent, overpassing a little the level of setae c_1 . Two pairs of genital discs between the tips of the pregenital apodeme and the genital folds. Setae c_2 near the ends of genital folds, setae c_3 at the level of posterior half of coxae IV, in trapezoidal arrangement. Setae sh developed as microsetae. Spermatheque as figured. In some specimens a pair of dark oil glands present.

Gnathosoma $69 \times 75\text{ }\mu\text{m}$, chelicerae longer than palpi, with 2 subterminal and 1 terminal denticle. Anterior legs stronger than posterior legs, with thick lateral sclerotization of genu I and II in the region of setae mG . Legs III and IV subequal, not reaching the distal end of the body.

According to its morphology, the new species belongs to the subgenus *Pseudal-*

loptes, to the group of species without laterogenital apodemes in male. The absence of well developed opisthosomal lobes in male is rather an exception in the subgenus *Pseudalloptes*. The combination of characters such as the form of the body, chaetotaxy, division of propodosomal shield, presence of terminal peridiscal hyaline membranes in male differentiate well this species from other members of this group.

The holotype No. PÚ ČSAV 1637 and some paratypes are deposited in the collections of the Institute of Parasitology of the Czechoslovak Academy of Sciences in Prague, other paratypes in the collections of the Institute of Biology of the Cuban Academy of Sciences in Havana.

5. *Pterygocrusolichus chanayi* (Trouessart, 1885)

Host: *Meleagris gallopavo*. Location: Wings.

Found on one bird. This specific parasite of turkeys is known from Western Europe and South America (DUBININ 1956).

6. *Pterophagus strictus* Robin, 1877

Host: *Columba livia domestica* L. Location: Neck.

This common parasite of pigeons was found on all 18 adult birds. Two young birds were negative.

7. *Diplaegidia columbae* (Buchholz, 1869)

Host: *Columba livia domestica*. Location: Rump.

This mite belongs also to frequent parasites of pigeons. It was found on 15 birds.

8. *Megninia ginglymura* (Mégnin, 1877)

Hosts: *Gallus gallus domesticus*, *Meleagris gallopavo*, *Pavo cristatus*. Location: Body and neck.

The species was described originally as *Analges ginglymurus*. In this description crow, pheasants, peacock, partridge, some exotic Galliformes and domestic Anseriformes are recorded as hosts. Later, CANESTRINI and KRAMER (1899) mention in their monograph Phasianidae, Anatidae and Corvidae, BONNET (1924) in the revision of the genus *Megninia* various European (pheasants, peacock, partridge) and exotic Galliformes as well as domestic Anseriformes, VITZTHUM (1929) and RADFORD (1953) Phasianidae, Anatidae and Corvidae. These authors repeat only the original data, but it is very unprobable that a species might have such a wide host range. In the last decades, *M. ginglymura* was never recorded from other than gallinaceous birds which can be considered as its proper hosts.

M. ginglymura differs from *M. cubitalis* (Mégnin, 1877), which parasitizes also gallinaceous birds, in the presence of separate epimerites I instead of a sternum and belongs to the group of species with a pseudoarticulation of opisthosomal lobes in the males as *M. articulata* Gaud et Mouchet, 1959 and *M. semiarticulata* Gaud, 1965. The figure 7B on page 163 in GAUD and MOUCHET (1959) designated as *M. cubitalis* represents in fact *M. ginglymura* and the same applies to the key of *Megninia* in Gaud (1965, p. 67). The presence of a pair of dilated adanal setae in the form of a hatchet is a distinctive character which allows easily to separate this species from the related forms. KUTZER, GRÄFNER and BETKE (1965) give the

description and illustrations of *M. ginglymura* from their experiments with artificial infestations of domestic fowl in Austria. The Fig. 2 on page 446 corresponds with the above mentioned Fig. 7B, except the presence of setiform adanal setae and setae cx_3 . I compared the material of both authors originating from Africa and Austria and I have found the specimens to be identical. The mites from Austria have their adanal setae characteristically dilated, but this structure is fine and can be overlooked. On the contrary, the specimens from Senegal and Transvaal bear the setae cx_3 . In conclusion we can designate the species of domestic fowl with lobar pseudoarticulation and dilated adanal setae in males as *Megninia ginglymura*. Nevertheless, some minute differences may be observed in males. The specimens from Cuba and Europe have their long body and leg setae a little stronger than the specimens from Africa. The difference is 1—2 μm . Maybe, there exist geographical subspecies in various continents. Further investigations are needed to solve this problem.

This mite was common only in some farms. Forty-six birds were found to be positive.

9. *Brephosceles discidium* Peterson, 1970

Host: *Anser anser domesticus* (L.). Location: Body.

This recently described species has been known only from *Cygnus bewickii* Yarr. from Europe. Our finding represents the first record from America.

The feather mites are sometimes regarded as harmless mites. This is not always true. Some species have been found associated with a disease condition in fowl. The heavily infested birds are restless, lose their plumage and their reproductive activity is diminished as well. Such cases are known especially for *Megninia ginglymura* and *M. cubitalis* (KUTZER, GRÄBNER and BETKE 1965). Control measures with the use of insecticides are recommended in this situation.

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