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ADAMYSTIS COINEAUI SP. N.¹
(ACARI, ADAMYSTIDAE) FROM HINDU-KUSH

BY Jan RAFALSKI²

SYSTEMATICS ABSTRACT: The male and female of Adamystis coineaui sp. n. from Hindu-Kush are described and figured.

SYSTÉMATIQUE RÉSUMÉ: Le mâle et la femelle d'Adamystis coineaui sp. n. de Hindu-Kush sont décrits et illustrés.

Through the courtesy of Doc. dr. Wiktor Micherdzinski and Dr. Hieronim Dastych I received two specimens of mites; a male and a female, which I assume belong to the same new species. Both specimens were collected by Dr. Janusz Wojtusik in High Hindu-Kush during the Expedition of Polish High-Mountain Club to Pakistan.

σ — Valley of Mandaras. In lichens on a scree with Southern exposure at the altitude of 5100 m, August 4, 1975;
♀ — Province of Chitral, region of Tirich, Valley of Darum. In soil under stones at the altitude 3600 m, August 13-18, 1975.

Both specimens were mounted in Favre’s-liquid. Preparation of the male was made from dry specimen, partly deprived of legs or their parts and many setae. The posterior was slightly damaged; genital opening was polluted by detritus. In the female the fourth left leg and some setae were missing.

Mites of medium size with oval body, flattened on dorso-ventral direction. The male (holotype) is 478 μm long and 290 μm wide. The female is 500 μm long and 296 μm wide. The body of both sexes, dark-violet coloured is moderately sclerotised with rather leathery but sturdy shields and soft striated pleurae. Dorsum of the body entirely covered with shield separated from ventral shield and gnathosoma by a band of pleura. The dorsal shield without sejugal furrow or any trace of segmentation (Fig. 1 a. 2).

The longitudinal band of pleura running from the base of gnathosoma to the genital opening and dividing the ventral shield is remarkable. Another band of pleura separates the gnathosoma from these ventral shields. These shields surround the small genital shields of the male and the adgenital shields of female, lacking in male (Fig. 3 a. 4).

The anal opening lies close behind genital one, almost terminally; it is surrounded by minute anal and adanal shields. Laterally from adanal shields the female has small triangular platelets, separated from dorsal shield. In the male in place of these two platelets the cuticle is more strongly striated in a slightly different direction than on remaining parts of pleura. All shields

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are covered with sculpture in the form of more or less regular pentagonal or hexagonal meshes formed by convex lists. On the coxae of legs these polygons change into elongated fields running across or slightly obliquely to the segments of all legs (Fig. 5).

Two pairs of eyes are situated on the dorsal shield on the level of the coxae I. The front eyes are smaller but more convex. The eyes seem to have the structure similar to the median eyes of scorpions, because in the male pentagonal retinulae are visible. Apart of trichobothria $bn (hj)$, arising on movable epivertex (see below) on the dorsal shield are 9 pairs of hairs. Long (in the male 80 $\mu m$) and thin trichobothria of second pair $bp (bb)$ arise from deep and wide bothridia. The other hairs ($a-d$) on dorsal side are flexible and sharply pointed. Only the hairs $e$ are thicker and more stiff. The hairs and lyrifissures: $ia$, $im$, $ip$, $ih$ on the dorsal side are arranged as shown on Figs. 1a, 2. Lyrifissures $ih$ of the female are slightly displaced to the ventral side. The hairs on ventral side of the male and female are arranged rather irregularly. The numbers of hairs on the weakly separated contiguous coxae are: I-I; II-2/3; III-3/3; IV-2/3. There are three stiff and sharp setae on each of anal and adanal shields.

There are particularly remarkable numerous dark, nearly black spots on the ventral side of the male and on the dorsal and ventral sides of the female. These spots are callosities of cuticle turned to the inside of the body. They have a central opening and fine, inward directed tubes originate from at least some of them. It seems they are the acce-
sory stigmas and tracheae. This supposition is confirmed by the presence of distinct tracheal trunks, going from the identical structures situated on the left and right side on the front borders of ventral shields opposite of the gnathosoma, independently of the peritremes at the base of chelicerae (Fig. 5). Below of the coxae II these trunks divide into several tracheoles. Perhaps some of the mentioned structures serve also as insertion of muscles.

The gnathosoma. The chelicerae at front are covered by cordate plate resembling "epivertex" of *Endeostigmata*, e.g. *Terpnacarus bouvieri* Grandj., and "naso" of the other Adamystidae and is homologous to them, it is however movable. When chelicerae are at rest this plate hangs down and is perpendicular to the main axis of the body (Figs. 4 a. 5). When chelicerae turn downward and to the front, this plate rises and assumes horizontal position. It is — as well as chelicerae — visible from dorsal side (Fig. 3). This plate reminds therefore a "cuculus" of *Ricinulei*. It has strong reticular sculpture on both sides, so unpaired median eye is lacking. The chelicerae are bottle-shaped with longitudinally striated, distally strong narrowed hand and very small chelae. Characteristic is double dorsal finger of chelicerae. In female the medial (paraxial) of these dorsal fingers is long elliptic, lateral (anitaxial) narrow and sharp. It seems that both of these fingers are movable! The ventral finger is in reality also double, because a similar in shape spike arises laterally to it (Fig. 3 a). The male has on the left chelicera 1 hair, on the right one 2 hairs, the female on the left chelicera 2, on the right one 1 hair. The mouth opening is bordered
Fig. 5: *Adamystis coineau* sp. n., Front part of the body of male in ventral view.
on the sides by two semisphaerical lateral lips and from behind by an under lip. COINEAU (1974) writes about four lips, when describing the family Saxidromidae = Adamystidae, to which belongs genus Adamystis Cunliffe. When chelicerae of the new species are at rest and directed to the rear, dorsal parts of the lips are partially curled under their basal parts. It may seem that there are not two but four lips. When, however the chelicerae are directed forwards, distal parts of the lips come out from their basal parts and it is clearly visible that they form a whole (Fig. 3). The lips from lateral side are striated, from medial side smooth. On each lip there are four hairs.

Palps of male and female are secondarily 4-segmented because trochanter and femur are grown into one and only a break of transverse striation on cuticula manifests their separate origin. Number of setae on palp-segments are in male : 0, 2, 3, 10, in female : 0, 2, 3, 9 (8 + 1). In the male
specimen some setae are broken, therefore one solenidium, present in female was not visible. Preserved setae are mostly thick and stiff, some of them with a few small spikes. Only setae on femur and one of them on tarsus are rather long and thin, resembling trichobothria (Fig. 5).

Genital area of the male (Fig. 4 a. 6) has genital shields only (94 µm long), separated by pleura from others. There are two longitudinal rows of hairs on these shields; lateral row with 6 long hairs and medial one with 10-11 small hairs on edges of shields. There are outlets of two pairs of genital tracheae on lateral edges of genital shields. The hind pair has clear stigmata and is well visible. The front pair is not clearly visible, but its presence is confirmed by the existence of two pairs of genital tracheae in the female. An extremely complicated internal genital apparatus composed of various sclerites in form of partly muscled lists and plates is visible through the integument. Large and strong sclerotised plates with a single row of tri- or more furcate setae on their
medial borders are most conspicuous. One should also mention an unpaired organ visible on Fig. 6 at top left side.

Genital area of female (Fig. 3). The female has broad adgenital shields and narrower genital ones. The setae occur in fours on adgenital shields. There are two rows with 8 greater genital hairs and medial row with 8-9 small ones. Two pairs of genital tracheae open on lateral edges of genital shields. There are two pairs of genital papillae of the same size.

The legs of male and female are seven-segmented with clearly separated basi- and telofemur. The lateral claws on tarsi are bilaterally feathered. On legs I and II they are slightly larger than on legs III and IV. The medial claw (empodium) is small, smooth and hooked to ventral side (Fig. 7 a. 8). In male long and strong thorn-like setae occur on basifemur, genu and tibia of I and II pair of legs (Fig. 5). Some of these setae have on their ends several little spikes. In female there are no such thorn-like setae. Length of the legs on female: I-III — 338 μm, IV — 421 μm.

Detailed description of chaetotaxy of legs, especially of the male was not possible because in my specimen numerous setae were lacking or broken at different lengths.

In male I was able to distinguish the following kinds of setae:

a) above mentioned long thorn-like setae,

b) long, thin and flexible hairs resembling trichobothria but not arising from bothridia — "pseudotrichobothria",

c) other setae.

In the following table the numbers of setae on particular leg segments are indicated as follows: the total number of setae on the segment, in parenthesis the number of sharp and obtuse on end setae, of "pseudotrichobothria" and of solenidia.

<table>
<thead>
<tr>
<th>Leg Tr.</th>
<th>Basi-f.</th>
<th>Telof.</th>
<th>Genu</th>
<th>Tibia</th>
<th>Tarsus</th>
</tr>
</thead>
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<tr>
<td>I</td>
<td>1</td>
<td>5</td>
<td>9</td>
<td>12</td>
<td>28 ?</td>
</tr>
<tr>
<td></td>
<td>5 (2 + 1 + 2)</td>
<td>9 (2 + 0 + 7)</td>
<td>12 (2 + 0 + 10)</td>
<td>?</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>2</td>
<td>4</td>
<td>5</td>
<td>12</td>
<td>28 ?</td>
</tr>
<tr>
<td></td>
<td>2 (2 + 1 + 2)</td>
<td>5 (2 + 0 + 5)</td>
<td>12 (2 + 0 + 10)</td>
<td>?</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>2</td>
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<td>7</td>
<td>15</td>
<td>28 ?</td>
</tr>
<tr>
<td></td>
<td>2 (0 + 1 + 2)</td>
<td>7 (6 + 0 + 1)</td>
<td>15 (13 + 0 + 1)</td>
<td>?</td>
<td></td>
</tr>
<tr>
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<td>1</td>
<td></td>
<td></td>
<td>13</td>
<td>25 ?</td>
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<tr>
<td></td>
<td>1 (3 + 0 + 0)</td>
<td>7 (7 + 0 + 0)</td>
<td>13 (13 + 0 + 0)</td>
<td>25 (24 + 0 + 1)</td>
<td></td>
</tr>
</tbody>
</table>

In female I distinguish:

a) "pseudotrichobothria",
b) distinct transversely striated solenidia,
c) other setae; among them setae narrowing towards the end and smooth or with some spines, also setae of equal thickness from base to end or only a little narrowed and obtuse on end. Perhaps some of them are also solenidia but transverse striation was not visible.

Systematic position. The Adamystis coineaui n. sp. differs from A. donnæ Cunliffe (1957) in the arrangement of ventral body side, in the occurrence of long thorn-like setae on legs pair I and II of the male. Adamystis fonsi Coineau (1974) contrary to new species has a short dorsal shield, which does not cover all of the dorsal side of the body. It is difficult to say anything on A. doumengei Coineau (1974) since it has been described with only a few words. This author at any rate did not refer to thorn-like setae on legs of the male. In any case, dorsal shield of this species reaches not to setae e1 and e2. Adamystis sarae Hunter a. Crossley (1968) is so different, that without doubt belongs to another genus. Either Cunliffe or Coineau did not mention the extremely complicated genital apparatus of male, which undoubtedly has different structure in each species. This apparatus aside from some primitive features manifests a high specialisation of these mites.
PLATE I. — Adamystis coineaui sp. n., Ventral view of female.
Photo Z. PNIEWSKI.
LITERATURE CITED


*Paru en juillet 1982.*