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## A new species of chigger mite *Aboriginesia chirovi* sp. n. (Acariformes, Trombiculidae) from Kyrgyzstan

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**Abstract**

Here is provided a description of new for science species of chigger mite *Aboriginesia chirovi* sp. n. (3LL) from the genus *Aboriginesia* Kudryashova, which was found in parasitological collections from vole from genus *Alticola* Blanford, trapped in gorge Ala-Archa, Kyrgyz ridge of Northern Tien Shan. It is given diagnosis of the species. Brought morphological description, standard measurements, taxonomic notes, as well as the ranger of five species of this genus, inhabiting in Kyrgyzstan.

**Keywords:** new species, chigger mite, *Aboriginesia*, *A. chirovi* sp. n.

**1. Introduction**

Earlier in Kyrgyzstan it was known four species of the genus *Aboriginesia* [1]; *A. armata* [2]; *A. tshatkalica* [3], *A. raissae* and *A. tokobajevi* [4]. It is interesting to note that all these species were first described from this region [3,4,5].

Diagnosis of the genus *Aboriginesia* Kudryashova, [6]: SIF (see synthetic identification formula) = 7BS (see setae tarsus palpal) – N(B) (character omission galea seta) - 3-3(2).1.1.1 (quantity of teeth on a claw palpal) - 1.0.0.0 (quantity solenidion on knees of leg); fsp = 7.7.7 (leg segmentation formula). Form of dorsal scutum of close genus *Hoffmannina* Brennan et Jones, 1959 is cup-shaped: AL (length of anterolateral seta) and PL (length of posterolateral seta) are closely brought together, as a result, SD (distance from anterolateral setal base to posterolateral setal base on one side) ≥ 3AP (see scutum standard data). In fauna of Eastern Palearctic, the genus *Aboriginesia* includes 14 species [7]. A characteristic feature of the genus *Aboriginesia* is a presence of two or four setae PPL (see scutum standard data) on dorsal scutum or next to PL. Some authors tend to believe it as a subgenus *Heaslipia* Ewing, 1944 [8] or genus *Neotrombicula* Hirst, 1925 [9]. This is probably not quite true, because these taxa are well differentiated in a rank of genera and they may be considered as individual genera.

*Aboriginesia chirovi* Kharadov, Mamutbekova, Akyshova sp. n. (Fig. 1, 2).

**2. Material**

Holotype – preparation № 44 (1), March 19, 2011. Paratypes: № 123 (23), October 21, 2011; № 123 (56), October 21, 2011. Two voles *Alticola* (*A.*) *argentatus* Severtzev, 1879 have been procured in rocky debris, overgrown with vegetation, located on heights of 1830 and 2340 m above sea level.

The species name – *chirovi* – was given in honor of Pavel Abramovich Chirov, known parasitologist. All measurements are given in micrometers (microns). Holotype and paratypes are stored in the collection of Laboratory of Ecology and Systematic of Invertebrates, Biology and Soil Institute, National Academy of Sciences of the Kyrgyz Republic (Bishkek).

Diagnosis of the species: SIF=7BS-N-3-3.1.1.1-1.0.0.0; Scutum + Peniscutum; fPp=B-B-B.B.B (see palpal setal formula); fsp=7.7.7; fCx=1.1.2(coxal setation formula); fCt = 2.4 (number of sternal setae); (ST, pST, PT', PT'') = N(see pretarsalae); fSc = PPL psc (Penisautum) > PPL sc (Scutum) > PL > AM > AL; fD = 2H.16 (14-19). 17 (16-19). 15 (14-17). 12 (10-14). 7 (6-8). 4 (4-5) = 73 (69-78) (dorsal idiosomal seta); fV = 63 (61-65) (ventral setation formula); NDV=136 (130-143) total number of idiosomal setae, excluding coxal setae).

Standard measurements of *Aboriginesia chirovi* sp. n. (n = 3)

Morpho-structure / Material	AW	PW	SB	ASB	PSB	SD	AP	PPL	AM	AL	PL
Holotype	78	104	34	34	39	73	39	24	37	58	58
Paratype											
Min.	78	93	32	34	34	70	34	24	46	37	58
Max.	85	104	34	39	39	78	41	34	53	48	65
Mean	81	98	33	36	36	74	37	29	49	42	61

Morpho-structure / Material	PPL sc	PPL psc	S	H	D	P	V	pa	pm	pp	Ip
Holotype	58	61	80	66	50(37-63)	56	40(34-46)	346	306	316	968
Paratype											
Min.	58	59	80	66	37	48	34	325	306	316	947
Max.	68	70	90	73	63	56	48	346	319	360	1025
Mean	63	64	85	69	50	52	41	335	312	338	985

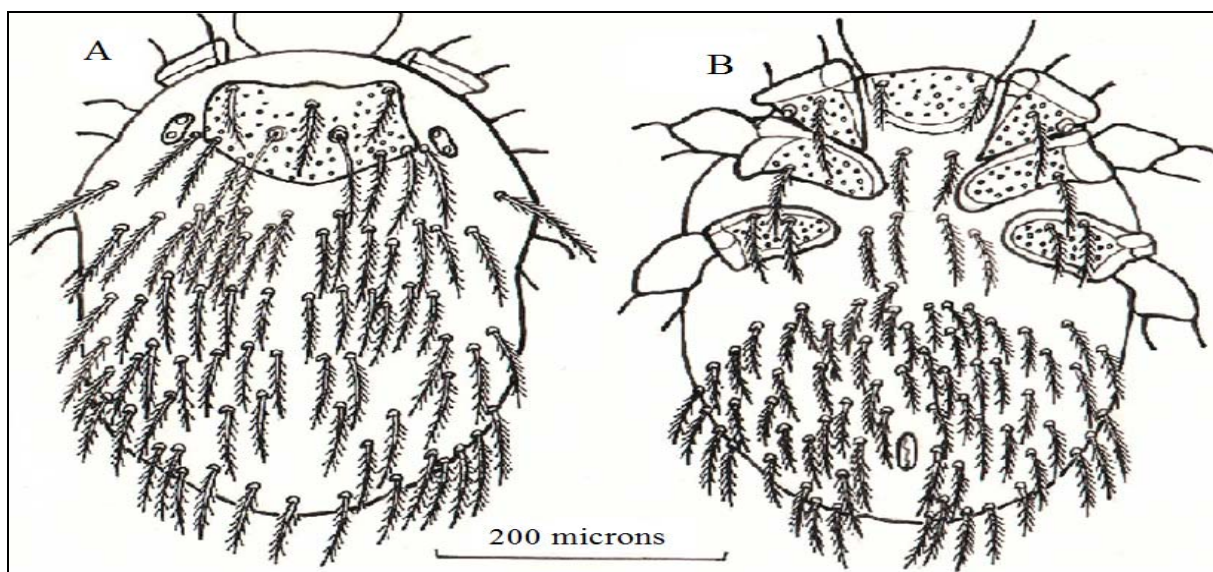


Fig 1: *Aboriginesia chirovi* sp. n. Idiosoma: A – dorsal; B – ventral.

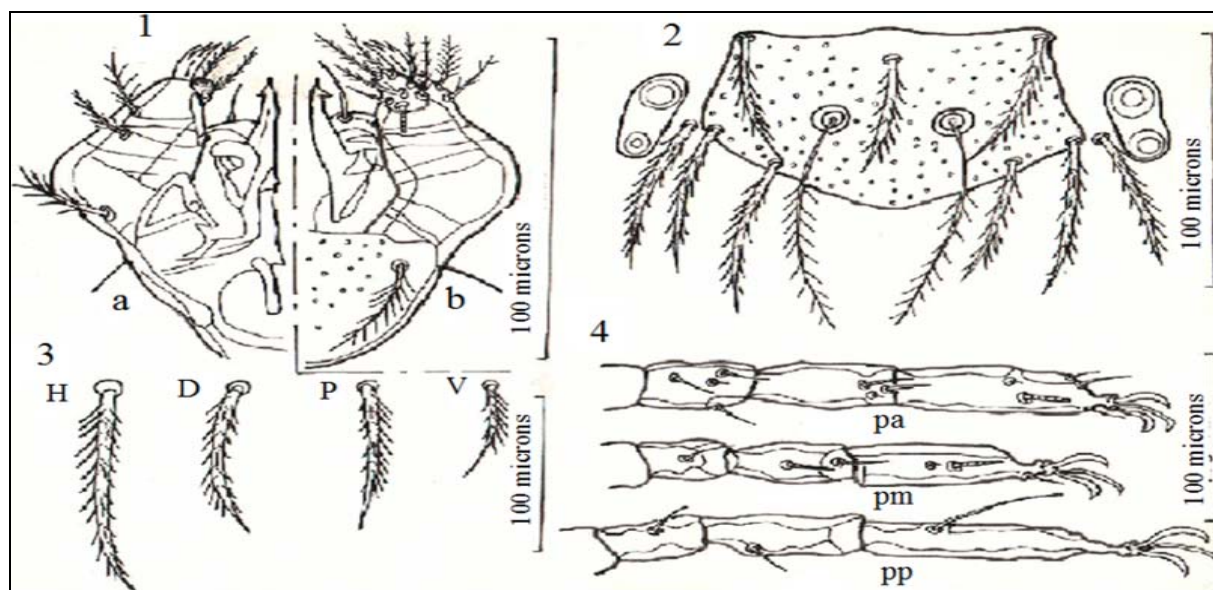


Fig 2: *Aboriginesia chirovi* sp. n. 1 – gnathosoma: a) dorsal, b) ventral  
2 – dorsal scutum; 3 – setae; 4 – legs.

### 3. Idiosoma

A body of semi-fed larvae has oval-oblong form. On dorsal side, setae in rows are almost not mixed and it is quite easy to count them in each row. On ventral side, it is very difficult to count setae in rows, as rows are mixed between each other. Length of idiosoma is 363 (306-420), width is 242 (216-268) microns, their ratio is 1.4: 1.0. Incisura of idiosoma on the level of III coxa is well expressed. Length of the first pair of sternal setae is (52-54); the distance between them is 36 (35-37) microns. Length of second pair of inner sternal setae is (51-53), external ones is 49 (48-50) microns. Distance between internal setae is 29 (28-30), between external ones is 73 (72-74) microns. Distance between internal and external setae is 24 (23-25) microns. The size of anus is 25 x 14 microns.

Dorsal scutum. By form it is close to pentagonal, with oval bottom edge. The top edge has two deflections between setae AM and AL. The distance between two PPL sc = 75 (71-80) microns. Setae AL do not extend beyond bottom edge of dorsal scutum, and AM even does not reach it. SB is significantly higher than PL. Sensilla are pubescent by 15-17 thin cilia. Botridia has round-elongated form, 7 x 8 microns. Diameter of the upper eye is 13 (12-14), of bottom one is 9 (8-10) microns. Length of ocular plate is 28 (25-31) microns.

### 4. Gnathosoma

Length of gnathosoma is 107, width is 70 microns. Dimensions of gnathosoma is 70 x 50 microns. Setae of gnathosoma has a length of 34 microns. Length of cheliceral claw is 29, width is 8 microns. Smooth galeal setae has length of 26 (25-27) microns.

Legs. Setae of I coxa has length of 55 (54-56), II – 43 (42-44), III (internal) – 48 (47-49), III (external) – 42 (43-44) microns. The distance between setae of III coxa is 18-19 microns. Length of specialized setae: S<sub>1</sub> = 23, S<sub>2</sub> = 17, ga = 20, gm = 17, gp = 12, tp = 14, MT = 49 (48-51) microns. Length of III tarsus is 99 (93-105), width is 18 (17-20) microns. The ratio of leg length = pa > pp > pm.

Dorsal scutum, gnathosoma and coxae (I, II, III) have shallow spot puncture. On dorsal scutum, there is no puncture around setae AM.

Differential diagnosis of the species. The presence of setae both psc, PPL on dorsal scutum of *A. chirovi* sp. n. well distinguish it from all known species of the genus *Aboriginesia*.

Thus, key to species of the genus *Aboriginesia* of fauna of Kyrgyzstan may be presented as following:

### 5. Key to Species of the Genus *Aboriginesia* of Fauna of Kyrgyzstan

- 1 (2). On dorsal scutum there are setae PPL psc and PPL sc ..... *A. chirovi* sp. n.
- 2 (1). On dorsal scutum there are only setae PPL psc.
- 3 (4). 2 humeral setae, Ip=1093  
..... *A. armata*
- 4 (3). 4 humeral setae, Ip=1103  
..... *A. tokobajevi*
- 5 (6). On dorsal scutum there are only setae PPL sc.
- 6 (5). 2 humeral setae.
- 7 (8). Galeal setae is smooth, Ip=900, NDV=62  
..... *A. raissae*
- 8 (7). Galeal setae is pubescent, Ip-1074, NDV=102  
..... *A. tshatkatica*

### Ecology

Larva *A. chirovi* № 44, March 19, 2011, in mountain area of Boirok in March was fed inside conch of royle's mountain vole jointly with 74 LL *A. armata*. Two mites of described species № 123, October 21, 2011, mountain area of Adigine, in October were fed at the same place, however, the number of species on the rodent was eight: *Leptotrombidium schlugerae* (2 LL), *L. wolandi* (2 LL), *Neotrombicula (N.) nagayoi* (101 LL), *N. (N.) kharadovi* (46 LL), *N. (N.) monticola* (9 LL), *N. (N.) sympatrica* (9 LL), *N.(N) irata* (1 L) and *Aboriginesia armata* (40 LL). All together on this vole there were found 286 mites (12 species). On a skin 65 copies, 212 copies inside the ear and genital 9 copies. Both rodent (N. 44 and 123) were sexually mature females (5-7 months, adultus).

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