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Previous volumes (2010-2020): 250 € / year (4 issues)
Acarologia, CBGP, CS 30016, 34988 MONTFERRIER-sur-LEZ Cedex, France
ISSN 0044-586X (print), ISSN 2107-7207 (electronic)

The digitalization of Acarologia papers prior to 2000 was supported by Agropolis Fondation under the reference ID 1500-024 through the « Investissements d’avenir » programme (Labex Agro: ANR-10-LABX-0001-01)

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A NEW SUBGENUS AND SPECIES OF THE CHIGGER MITE
GENUS NEOTROMBICULA (ACARI: TROMBICULIDAE)

BY A. A. STEKOL'NIKOV*

(Accepted September 1999)

SUMMARY: A new subgenus, Iranotrombicula n. subgen., is established within the chigger mite genus Neotrombicula. One new species, Neotrombicula (Iranotrombicula) lazistanica n. sp., is described from rodents collected in NE Turkey.

The genus Neotrombicula Hirst, 1925 has a rather complicated taxonomy. In the last revision of the "Neotrombicula complex" (Vercammen-Grandjean & Kolebinova, 1985) it included 11 subgenera and about 200 species. These authors regard as subgenera some taxa previously described as genera, for instance Hirsutiella Schluger & Vysotskaya, 1970 and Hoffmannina Brennan & Jones, 1959. Several subgenera were based on only one character: thus, Arctrombicula Vercammen-Grandjean & Kolebinova, 1985 is characterized by branched galeula and Anamasticula Vercammen-Grandjean & Kolebinova, 1985 is characterized by the absence of mastitarsala III. Such taxonomic decisions increased the artificial nature of the genus (Kudryashova, 1998). Obviously, a classification based on the study of relatively small, but natural species groups would be more suitable in the taxonomy of Neotrombicula. The description of the genus Eutonella Kudryashova, 1988 is an example of this method.

The present paper is another step in this direction. It gives the description of a new subgenus in Neotrombicula, with 5 chigger mites species, parasitizing rodents in Iran and neighbouring countries. The new subgenus is distinguished by having 2 setae on coxae III, 2 genualae I, the characteristic form of the scutum, and the densely barbed dorsal idiosomal setae. I follow the terminology generally accepted in systematics of chiggers (Goff et al., 1982), with some modifications and additions: "ventral setae" (V) — setae on the ventral surface of idiosoma, excluding coxal and sternal setae; VS — number of ventral setae; D — dorsal idiosomal setae; Dm — mean length of D; DS — number of D; TaIII — length of leg III tarsus; TaW — width of leg III tarsus. All measurements are in micrometres (μm).

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Genus *Neotrombicula* Hirst, 1925

Subgenus *Iranotrombicula* n. subgen.

Diagnosis: SIF=7BS-B/N-3-(2-3)111.111.0000; fPp=B/B/NBB, B/B/NBB; fSt=2.2; fCx=1.1.2 (in *N. mofidi* 1.1.1); PL>AL>AM (in *N. lazistanica* n. sp. AL<AM). Larvae of medium size, Ip=778–945. Scutum relatively small, subpentagonal or with rounded posterior margin, sparsely or moderately punctate. SB clearly anterior to level of PL bases. Sensillae flagelliform with branches on distal 1/2-2/3. Scutal and idiosomal setae of medium length (PL=43–64, H=40–67), densely covered with long barbs. One pair of humeral setae. Dorsal idiosomal setae arranged (6-8)-(6-8)-(6-9).... Galeala branched or forked (nude in *N. faghihi*). 2 genualae I (3 in *N. lazistanica* n. sp.). Mastitarsala III present or replaced with barbed seta.

Type species: *Neotrombicula sabzavari* Kudryashova, 1977.
Hosts: Rodents.
Distribution: Turkey, Iran, Tadjikistan.

*N. lazistanica* (Iranotrombicula) lazistanica n. sp.

(Figs 1–9)

Diagnosis: SIF=7BS-B-3-3111.0000; fPp=B/B/NBB; fCx=1.1.2; fSt=2.2; fSc: PL>AM>AL; Ip=879; fD=2H-6-6-4-6-2; DS=33; VS=35; NDV=68.

Description. Larvae. Idiosoma. Eyes 2+2, on ocular plate, anterior larger. One pair of humeral setae; 32–34 dorsal idiosomal setae, densely covering with rather thick and long barbs, arranged 6(7)-6(7)-4(6)-6(7)-2; 2 pairs of sternal setae and 31–41 ventral setae; total idiosomal setae 63–73. Gnathosoma. Cheliceral blade with tricuspid cap, gnathal base moderately punctate, bearing a pair of branched setae; galeala forked; palpal claw 3-pronged; setae on palpal femur and genu branched; palpal tibial setae: ventral seta branched, lateral seta forked, dorsal seta nude. Scutum. Moderately punctate, subpentagonal, with shallowly biconcave anterior margin; AM base posterior to level of AL bases; SB anterior to level of PL bases; PL<AM<AL; sensillae flagelliform with branches on distal 2/3, nude basally. Legs. All 7-segmented, terminating in a pair of claws and a clawlike empodium. Onychotriches absent. Leg I. Coxa with 1 branched seta (1B); trochanter 1B; basifemur 1B; telofemur 5B; genu 4B, 3 genualae, microgenuala; tibia 7B, 2 tibiales, microtibia; tarsus 22B, tarsala, microtarsala, subtarsala, parasubtarsala, pretarsala. Leg II. Coxa 1B; trochanter 1B; basifemur 2B; telofemur 4B; genu 3B, genuala; tibia 6B, 2 tibiales, tarsus 16B, tarsala, microtarsala, pretarsala. Leg III. Coxa 2B; trochanter 1B; basifemur 2B; telofemur 3B; genu 3B, genuala; tibia 6B, tibia; tarsus 15B, mastitarsala absent.

Standard measurements (N=6)

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Differential diagnosis: The new species is similar to *N. mofidi* and differs from it by the presence of 2 setae on coxae III (fCx=1.1.2 against 1.1.1 in *N. mofidi*), longer scutal and idiosomal setae (AM=48–59 against 23–26, PL=50–64 against 43–47, H=55–67 against 40–45 in *N. mofidi*), slightly shorter tarsus III (TIII=72–79 against 85–88 in *N. mofidi*) and slightly broader scutum (AW=68–73, PW=87–95, SB=30–32
against 62–66, 82–85 and 27–28 respectively). The new species differs from all other Iranotrombicula by the presence of 3 genuae on leg I and by AM longer than AL.

Hosts: Microtus majori Thomas, Apodemus fulvipectus Ognev.

Type data and additional material: Holotype (4654, T-Tr.-12) and 3 paratypes, NE Turkey, Artvin Province, East Ponticus Chain (Dogu Karadeniz Daglari), Gül Mt. (East of Kaçkar Mt.), 2400 m, 24 June 1998, from Microtus majori, A. A. Stekol’nikov coll.; 1 specimen, 25 June 1998, from Apodemus fulvipectus, 2750 m, other data same; 2 specimens, NE Turkey, Trabzon Province, Zigana Range (Kalkanli Daglari), 2050 m, 10 June 1998, from M. majori, A. A. Stekol’nikov coll.

The holotype and paratypes of the new species are deposited in the Zoological Institute of the Russian Academy of Science, Saint Petersburg (ZIN).
Figs 5–9: Neotrombicula lazistanica n. sp., larva.
**Neotrombicula (Iranotrombicula) faghihi**
Kudryashova, 1973

KUDRYASHOVA, NERONOV & FAHRANG-AZAD, 1973: 130, fig. 1 (holotype and paratypes in Zoological Museum of Moscow University — ZMMU).

Diagnosis: SIF=7BS-N-3-2111.1000; fPp=B/B/BBB; fCx=1.1.2; fSt=2.2; fSc: PL>AL>AM; Ip=914; fD=2H-8-8-6-4-6(4)-2; DS=34-36; VS=38-41; NDV=72–77.

Hosts: Cricetulus migratorius (Pallas), *Tatera indica* Hardwicke.

Material examined: Holotype and 1 paratype, Iran, Fars Province, 48 km S of Fasa, 28 Nov. 1969, from *Tatera indica*, V. M. NERONOV coll.

**Neotrombicula (Iranotrombicula) mofidi**
Kudryashova, 1973

KUDRYASHOVA, NERONOV & FAHRANG-AZAD, 1973: 132, fig. 2 (holotype and paratypes in ZMMU); 1978: 134; KUDRYASHOVA, 1998: 210, fig. 169.

Diagnosis: SIF=7BS-B-3-2111.0000; fPp=B/B/BB; fCx=1.1.1; fSt=2.2; fSc: PL>AL>AM; Ip=899; fD=2H-6-6-6-4(4)-2-3; DS=32; VS=37; NDV=69. Mastitarsala absent.

Material examined: Holotype and 3 paratypes, Iran, Markazi Province, 16 km N of Delijan, 1600 m, 14 October 1969, from *Meriones persicus* (Blanford), V. M. NERONOV coll.

**Neotrombicula (Iranotrombicula) sabzavari**
Kudryashova, 1977

KUDRYASHOVA, 1977: 50, fig. 3 (holotype and 2 paratypes in ZMMU).

Diagnosis: SIF=7BS-B-3-2111.1000; fPp=B/B/BBB; fCx=1.1.2; fSt=2.2; fSc: PL>AL>AM; Ip=929; fD=2H-(7-8)-8-(7-9)-(6-7)-6(4)-...; DS=42; VS=52; NDV=94.

Material examined: Holotype and 2 paratypes, Iran, Khorasan Province, 137 km SE of Sabzevar, 1200 m, 9–14 Oct. 1970, from *Meriones lybicus* (Lichtenstein), V. M. NERONOV coll.

**Neotrombicula (Iranotrombicula) subtilis**
Schluger & Kudryashova, 1969

SCHLUGER & KUDRYASHOVA, 1969: 117, fig. 8–14, table 1 (holotype and paratypes in ZMMU).

Diagnosis: SIF=7BS-B-3-2111.1000; fPp=B/B/BBB; fCx=1.1.2; fSt=2.2; fSc: PL>AL>AM; Ip=783; fD=2H-8-7-6-4-4-2-2, 2H-8-8-7-5-4-1; DS=35; VS=39; NDV=74. Scutum small, posterior margin rounded. Sensillae flagelliform with branches on distal 2/3 and several small barbs on proximal part.

Material examined: 2 paratypes, Tadjikistan, Gisarskij Range, Romit Reserve, 27 April 1967, from *Apodemus sylvaticus* (L.), N. I. KUDRYASHOVA coll.

**Key to Larvae of Iranotrombicula n. subgen.**

1(4) Mastitarsala absent; fD=2H-6-6-6-...  ...  
2(3) fCx=1.1.1; AL>AM; 2 genualae I  ...  ...  ...  ...  ...  ...  **N. mofidi**
3(2) fCx=1.1.2; AL<AM; 3 genualae I  ...  **N. laziistanica**
4(1) Mastitarsala present; at least in anterior 2 rows of D number of setae is 7–8.
5(6) Galeala nude; fPp=B/B/BBB  ...  ...  ...  **N. faghihi**
6(5) Galeala branched; fPp=B/B/BBB
7(8) Scutum with rounded posterior margin; AW=58–59, PW=77–80, SD=49, NDV=70–78, TailII=70–72...... **N. subtilis**
8(7) Scutum subpentagonal; AW=63–68, PW=81–85, SD=53–56, NDV=84–106, TailII=86–89...... **N. sabzavari**

**Acknowledgements**

I wish to express my appreciation to N. I. KUDRYASHOVA (ZMMU) for help with my work on the ZMMU collection. I thank Prof. Dr Hikmet ÖZBEK, Dr Levent GÜLTEKIN and Dr Göksev TOSŁO (Atatürk University, Erzurum, Turkey) for promotion of my collection trip in Turkey. I also grateful to my expedition companions, B. M. KATAEV and A. Y. SOLODOVNIKOV (ZIN). Identification of hosts was made by G. I. BARANOVA and F. N. GOLENISHCHEV (ZIN).

This research was financed by the Russian Fund of Fundamental Research (Grant “Scientific Schools—The School of E.N. Pavlovsky”), Interna-
tional Soros Science Education Program (Grant a97-954), Administration of Saint-Petersburg, Ministry of Education of Russia and Russian Academy of Sciences (Grant M97-2.4K-15).

REFERENCES


