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REVISION OF THE SUBGENUS *ODONTACARUS*
(ACARIFORMES, TROMBICULIDAE) OF THE PALEARCTIC

РЕВИЗИЯ ПОДРОДА *ODONTACARUS* (ACARIFORMES,
TROMBICULIDAE) ПАЛЕАРКТИКИ

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Ключевые слова: Trombiculidae, *Odontacarus*, ревизия.

ABSTRACT

The revision of 12 species of the subgenus *Odontacarus* (s.str.) from southern regions of Palearctic and literary data for 4 species from China are given. The lectotype *Odontacarus armeniensis* is indicated. A key to all species and data on their distribution and hosts are presented.

РЕЗЮМЕ

Представлена ревизия 12 видов подрода *Odontacarus* (s.str.) южных районов Палеарктики и литературные данные для 4-х видов из Китая. Выделен лектотип вида *Odontacarus armeniensis*. Дается определитель всех видов подрода, а также данные о распространении и хозяевах.

To date, 3 subgenera of *Odontacarus* Ewing, 1929 are recognized: *Odontacarus* (s.str.), *Tarsalacarus* and *Leogonius* [Vercammen-Grandjean, 1968; Vercammen-Grandjean, Langston, Audy, 1973; Goff, Loomis, 1977]. Distribution of the subgenus *Odontacarus* (s.str.) in the Palearctic is limited to the southern regions. The revision of 12 species from the

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Caucasus, Iran, and Middle Asia, and literary data for 4 species from China are given in this study. A key to Palearctic species and map of their distribution are included. All measurements in text and tables are given in micrometers (microns). All the material examined is deposited in the Zoological Museum of Moscow State University.

GENUS *Odontacarus* Ewing, 1929.

Odontacarus: Ewing, 1929, p.188, (establishment of genus, type species: *Trombicula dentata* Ewing, 1925); 1931, p.6 (catalogue of species of New World); 1944, p.346 (a key to species); 1946, p.436 (extended genus diagnosis); Wharton et Fuller, 1952, p.103 (genus diagnosis); Brennan, 1959, p.1 (genus diagnosis, revision of the type species and other species, description of new species); Vercammen-Grandjean, 1968, p.120 (division into subgenera); Goff, Loomis, Brennan, 1972, p.479 (reexamination of the type species); Vercammen-Grandjean, Langston, Audy, 1973, p.64 (systematics and phylogeny); Reed, Brennan, 1975, p.6 (genus diagnosis, description of new species); Goff, Loomis, 1977, p.370 (genus and subgenus diagnosis, descriptions of new species).

Type species: *Trombicula dentata* Ewing, 1925.

SUBGENUS *Odontacarus* (s.str.) Ewing, 1929

Odontacarus: Vercammen-Grandjean, 1968, p.120 (division into subgenera); Reed, Brennan, 1975, p.7 (diagnosis, redescriptions and descriptions of new species from Neotropics).

Type species: *Trombicula dentata* Ewing, 1925.

Diagnosis. **SIF**=7**B**-**B**-2(3)-2(1)-1(0)-1(0)-1-1(0)-1(0)-0-0.

Scutum trapezoidal, often subpentagonal, with 3 pairs of scutal setae (**2AM**, **2AL**, **2PL**) and pair of flagelliform sensillae which are of barbed to different degrees. Nasus present. Eyes 2+2, on ocular plate. Cheliceral blade with dorsal and ventral tooth rows. Speracles and tracheae present. Leg segmentation 6-6-6, tarsus I-III with 2 claws and empodium. Onychotriches present. The number of branched setae on tibia I-III 8-6-6, on genu 4-4-4 (5-5-5 in *O.dentatus*), on femur 6-5-4 (6-5-5 in *O.dentatus* and 6-6-4 in *O.pinnatus*). Tarsala III absent.

The palearctic species are divided into 3 groups: 1) mastitarsala and **Hv** absent, the number of branched setae on tarsus I-III 24-17-15; 2) mastitarsala and **Hv** present, the number of branched setae on tarsus I-III 26(27)-17-14; 3) mastitarsala, mastitibiala and **Hv** present.

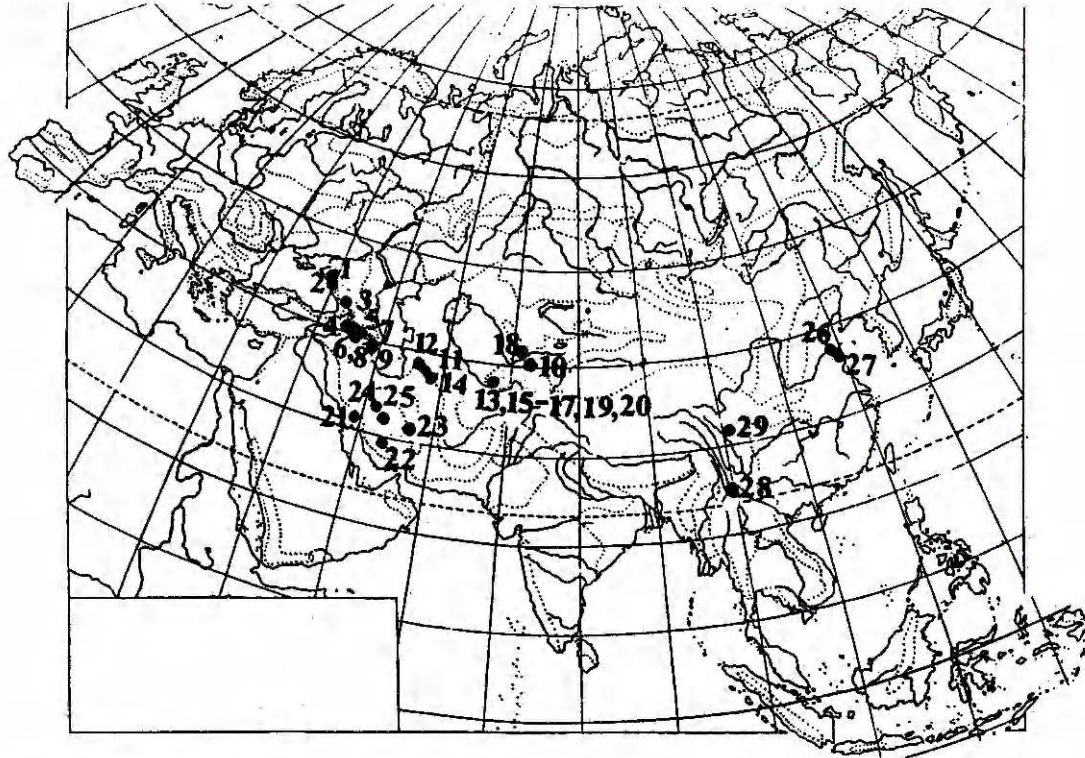


Fig.1. Distribution of species *Odontacarus* in the Palearctic. The number in fig.1 corresponds to the number in table 1; 1-29 - localities.
 Рис.1. Распределение видов рода *Odontacarus* Палеарктики. Порядковые номера на рис.1 соответствуют номерам в табл.1. 1-29 - точки находок.

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Hosts. Mammals (Chiroptera, Rodentia), reptiles.

Distribution. Caucasus (Krasnodar region, Azerbaijan, Armenia, Georgia), Iran, Middle Asia (Turkmenistan, Kyrgyzstan, Uzbekistan), China (Fig.1, Tabl.1).

Composition. 16 species have been established in the south Palearctic: 4 species in China, 6 in Middle Asia, 3 in Iran, 3 in Caucasus. Division of species is given in Tabl.2.

Odontacarus saxicolis Schluger, Hushcha et Kudryashova, 1965.

Fig.2

Odontacarus saxicolis: Schluger, Hushcha, Kudryashova, 1965, S.399 (part., holotype and 3 paratypes ex *Lacerta raddei*¹, neighborhood of Pirasora, Lerik Distr., Azerbaijan); Kudryashova, 1967, tabl.1 (Caucasus fauna); Hushcha, 1981, S.41 (part., a remark on the loss of holotype² from Azerbaijan and isolation of lectotype *O.saxicolis* on specimens from Georgia³).

Material. The holotype, slide number A3-1-1 and 3 paratypes, larvae ex *Lacerta raddei*, Zuvand, neighborhood of Pirasora, Lerik Distr., Azerbaijan, 11.06.1961, coll. N.I.Kudryashova. Additional specimens: 1 larva ex *L. raddei*, Khosrov Reservation, Armenia, 5.05.1975, coll. V.F.Orlova.

Description of larva. **SIF=7B-B-2-2-1-1-1-0-0-0-0**; **fPp=B/B/BBB**; **fCx=2-1-1**; **(PT',PT'',ST)=N**; **pST=B**; **fSc:PL>AM>AL**; **fDS=2H-9-12-11-15-9-6-2-2=78**; **VS=66**; **NDV=144**; **Ip=824**.

Scutum trapezoidal with slightly convex posterior margin, punctation absent, nasus present (18x11). The scutum bears a pair of flagelliform sensillae with short barbs in the distal 1/3 and 3 pairs of scutal setae with minute barbs, **SB** posterior to the line of **PL** bases. Eyes 2+2. Galeal setae with short barbs. Cheliceral blade with rows of dorsal and ventral teeth. Palpal claw probably with 2 prongs. Palpal setae barbed. Dorsal setae with short barbs, arranged into irregular rows. Ventral setae similar to dorsal ones, **Hv** absent. Specialized setae on the legs: I - **S₁**, **f₁** (anterior to **S₁**), **(ST,PT')=N**, **pST=B**; 2 tibialae, microtibiala, 2 genualae, microgenuala; II - **S₂**, **f₂** (slightly posterior to **S₂**), **PT''=N**, 2 tibialae (paired), genuala, microgenuala; III - tibiala, genuala. Number of barbed

¹ The amended determination (instead of *Lacerta chlorogaster*).

² Which was a mistake.

³ It relates to a different species.

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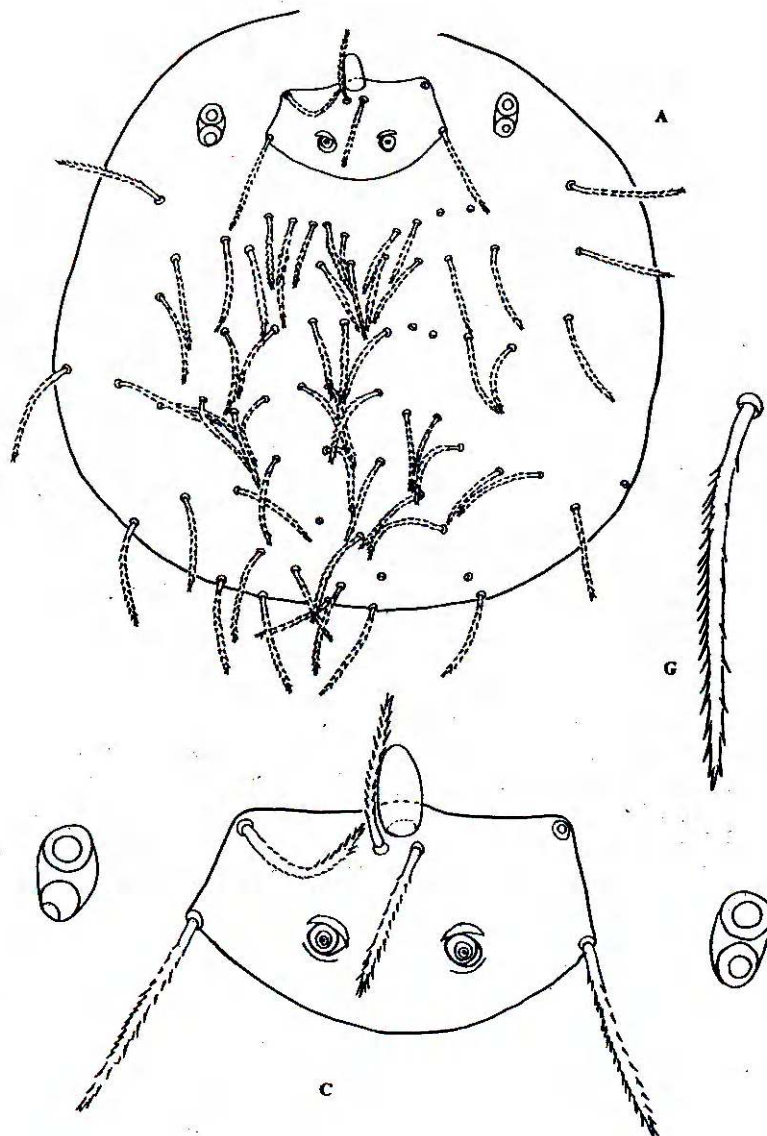


Fig.2. Holotype of *Odontacarus saxicolis*. A - dorsal aspect of idiosome; B - ventral aspect of idiosome; C - scutum; D,E,F - specialized setae on the legs I,II,III; G - dorsal seta; H - ventral seta.

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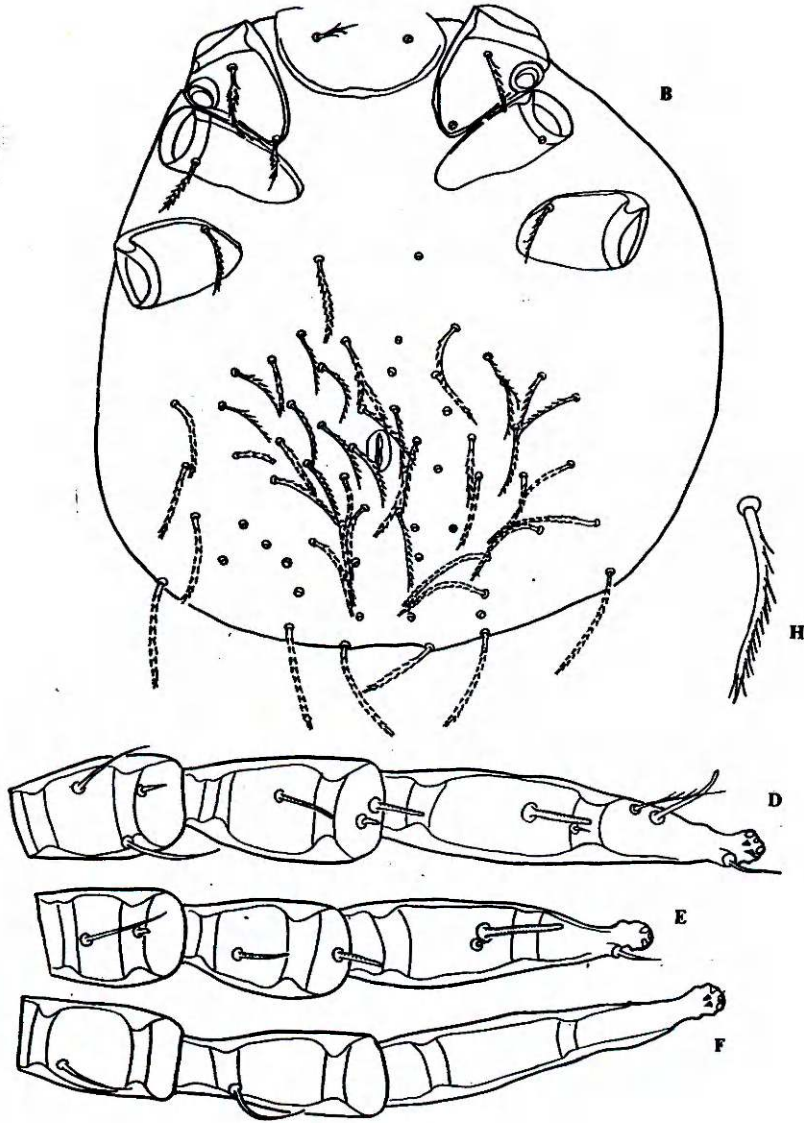


Рис.2. Голотип *Odontacarus saxicolis*. А - идиосома со спинной стороны; В - идиосома с брюшной стороны; С - щит; D,E,F - специализированные щетинки на ногах I,II,III; G - спинная щетинка; H - брюшная щетинка.

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setae on legs I-III: tarsus 24-17-15, tibia 8-6-6, genu 4-4-4, femur 6-5-4. Standard data of the holotype: **AA=7, AW=67, PW=85, SB=31, ASB=31, PSB=18, SD=49, P-PL=22, AP=23, AM=34, AL=31, PL=49, 45, H=58, D=36-54, V=27-50, pa=288, pm=261, pp=275, tarsus III 68x16, S₁=13, S₂=18.**

This species is closest to *Ojinanensis* Teng, 1983 and probably the latter is its synonym. Taxonomic characters and standard data of holotype *O.saxicolis* are identical to those of *Ojinanensis*.

Odontacarus hushchai Kudrashova sp. n.

Fig.3

Odontacarus saxicolis: Schluger, Hushcha, Kudryashova, 1965, S.399 (part., paratype ex *Lacerta saxicola*, Achaldaba, Chashur Distr., Georgia); Hushcha, 1981, S.41, fig.1-2 (lectotype and paralectotype series of larvae slides of *O.saxicolis* from Achaldaba, Chashur Distr., Georgia).

Type material. Holotype, slide number ПКК-10-1, larva ex *Lacerta saxicola*, Mzimtla River, South Caucasus Reservation, about 40km NE Sochi, 20.09.1982, coll. B.Taneev. Paratypes: 12 larvae ex 2 *L.saxicola* with same data as holotype; 15 larvae ex 4 *L.saxicola*, neighborhood of Krasnodar, may 1977, coll. V.F.Orlova; 5 larvae ex *L.saxicola*, neighborhood of Zvirli, Georgia, right bank of Inguri River, 20.06.1979, coll. V.F.Orlova.

Description of larva. **SIF=7B-B-4-2-1-1-1-0-0-0-0; fPp=B/B/BBB; fCx=2-1-1; (PT',PT'',ST)=N; pST=B; fSc:PL>AM>AL; fDS=2H-8+7+9-13-16-12-6-4=77; VS=88; NDV=165; fBt=2b-b-b; Ip=808.**

Scutum trapezoidal, with convex posterior margin, punctuation absent, nasus present (20x9). The scutum bearing a pair of flagelliform sensillae with short barbs in distal 1/3 and 3 pairs of scutal setae with minute barbs. **SB** posterior to the line of **PL** bases. Eyes 2+2. Galeal seta with short barbs. Cheliceral blade like tricuspid cup with rows of dorsal and ventral teeth. Palpal claw 4-pronged. On the palps all setae barbed but lateral seta on the palpal tibia sometimes appearing smooth. Dorsal setae with minute barbs, arranged into irregular rows, their number varying from 65 to 77. Ventral setae 73-94, **NDV**=135-165, **Hv** absent. Specialized setae on the legs: I - **S₁**, **f₁** (anterior to **S₁**), (**PT',ST**)=**N**, **pST=B**, 2 tibialae, microtibiala, 2 genualae, microgenuala; II - **S₂**, **f₂** (slightly posterior to **S₂**), **PT''=N**, 2 tibialae (paired), genuala, microgenuala; III - tibiala, genuala. Number of barbed setae on the legs I-III: tarsus 24-17-15, tibia 8-6-6, genu 4-4-4, femur 6-5-4. Standard data of holotype:

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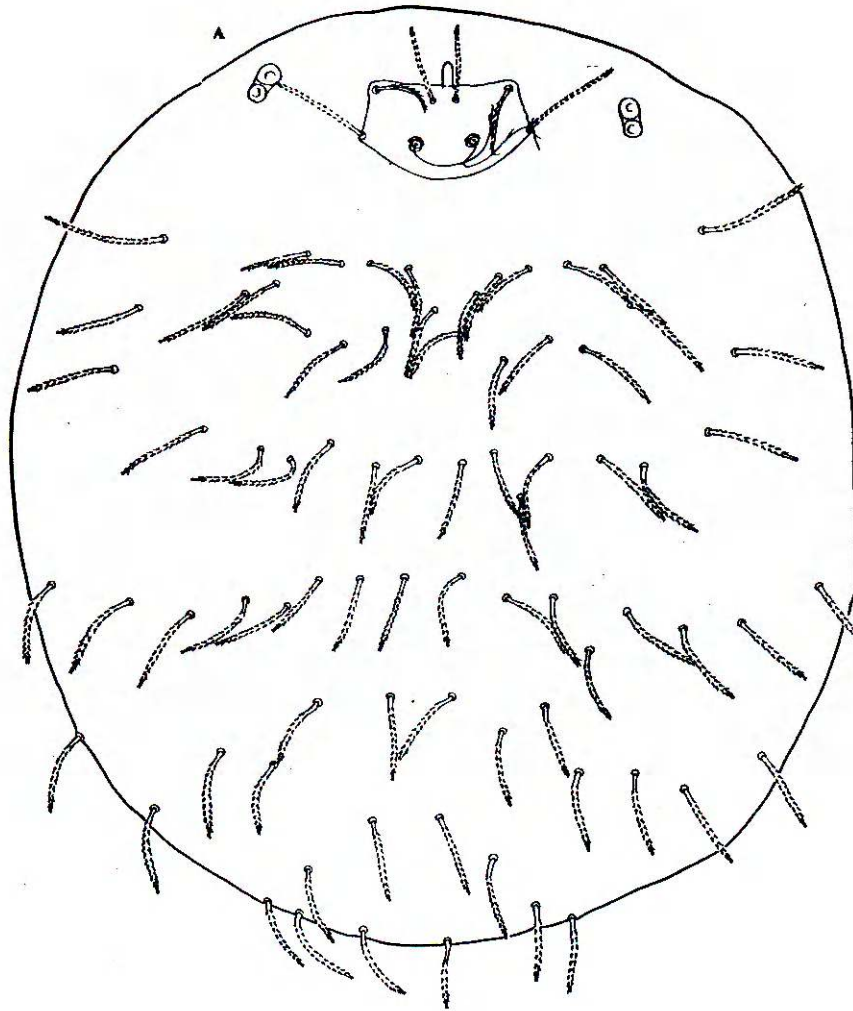
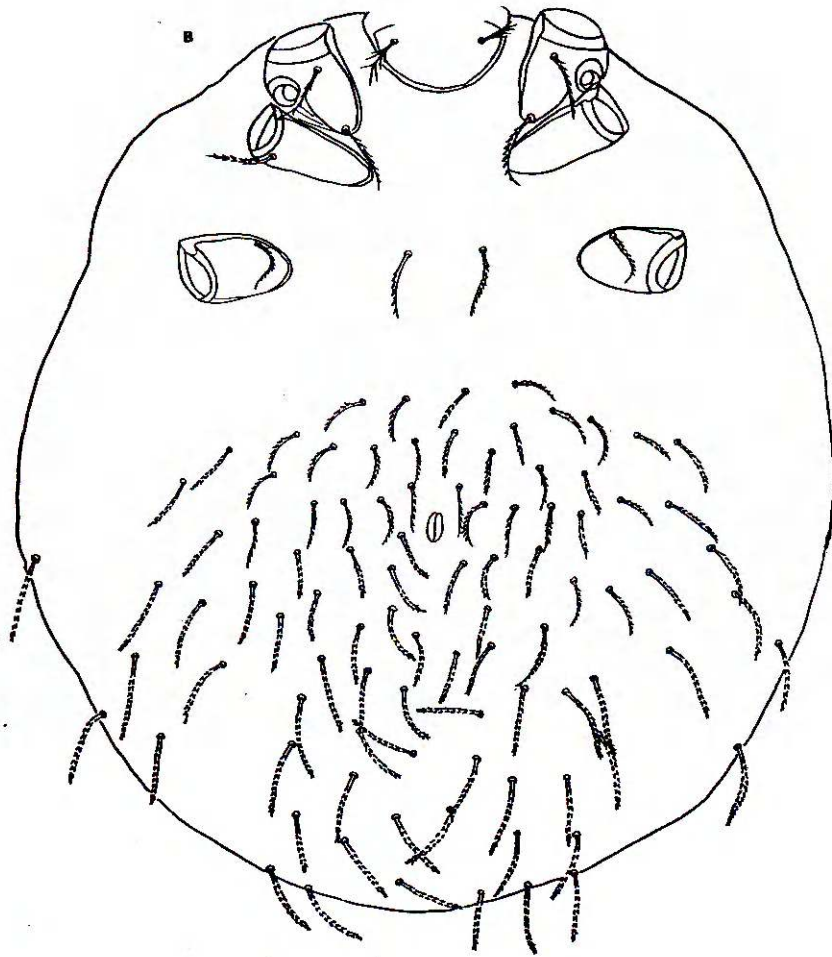


Fig.3. Holotype of *Odontacarus bushcbai* sp.n. The marks as in fig.2.

Revision of *Odontacarus* (s.str.)



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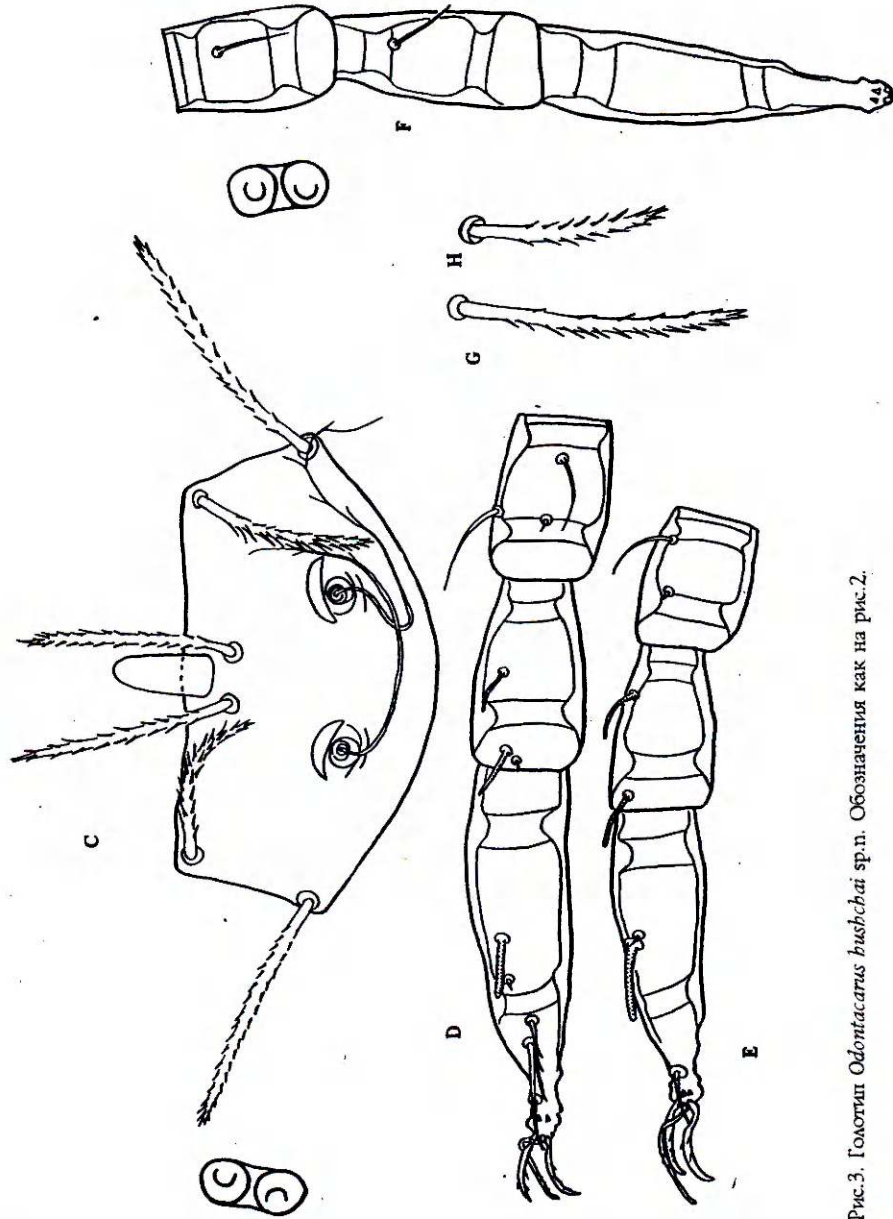


Рис.3. Гололиц *Odontacarus hushchai* sp.n. Обозначения как на рис.2.

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AA=9, AW=72, PW=90, SB=31, ASB=32, PSB=22, SD=54, P-PL=25, AP=25, AM=45, AL=36, PL=54, H=63, D=38-52, V=27-45, pa=275, pm=254, pp=279, tarsus III 67x16, S₁=13, S₂=18.

This species is closest to *O.saxicolis* Schluger, Hushcha & Kudryashova, 1965, but separable in having larger scutum (**SD=54, AW=72, PW=90** vs. 49, 67, 85), longer scutal seta (**PL=54** vs. 45, 49), larger number of **VS** (73-94 vs.66).

Odontacarus naumovi Kudryashova et Rybin, 1974.

Fig.4

Odontacarus naumovi: Kudryashova, Rybin, 1974, S.636, fig.4 (description, holotype No.K-156-2-464 deposited in the Zoological Museum of Moscow University).

Material examined. Holotype, slide number K-156-2-464, larva ex *Nyctalus noctula*, Osh, Kyrgyzstan, 7.05.1970, coll. S.N.Rybin. Paratypes: 16 larvae with same data as holotype; 22 larvae with same data as holotype but 8.09.1971.

Description of larva. **SIF=7B-B-3-2-1-1-1-0-0-0-0; fPp=B/B/BBB; fCx=2-1-1; (PT,PT',ST)=N; pST=B, fSc;PL>AM>AL; fDS=2H-12+7+9-13-13-4-4-2=72, VS=54; NDV=126; Ip=788.**

Scutum trapezoidal, with convex posterior margin, punctuation absent, nasus (13x5) present. Scutum bears a pair of flagelliform sensillae with short, sparse barbs and 3 pairs of scutal setae with minute barbs. **SB** slightly anterior to the line of **PL** bases. Eyes 2+2. Galeal seta with very short barbs and sometimes appearing smooth. Cheliceral blade resembling tricuspid cup with rows of dorsal and ventral teeth. Palpal claw 3-pronged. On the palps all setae barbed. Dorsal setae with short barbs, arranged into irregular rows, their number varying from 64 to 77. Ventral setae 50-61, **NDV=121-134, Hv** absent. Specialized setae on the legs: I - **S₁, f₁** (anterior to **S₁**), (**PT, ST**)=**N, pST=B**, 2 tibialae, microtibiala, 2 genualae, microgenuala; II - **S₂, f₂** (on the same level as **S₂**), **PT'=N**, 2 tibialae (paired), genuala, microgenuala; III - tibiala, genuala. Number of barbed setae on the legs I-III: tarsus 24-17-15, tibia 8-6-6, genu 4-4-4, femur 6-5-4. Standard data of holotype: **AA=9, AW=61, PW=81, SB=29, ASB=27, PSB=18, SD=45, P-PL=20, AP=23, AM=40, AL=34, PL=45, Sens=72, H=50, D=25-38, V=23-34, pa=270, pm=252, pp=266, tarsus III 67x16, S₁=11, S₂=16.**

This species is closest to *O.efferus* Kudryashova, 1976, but separable in having shorter **PL** (45 vs. 50-56) **S₂>S₁** (instead of **S₂~S₁**), shorter legs

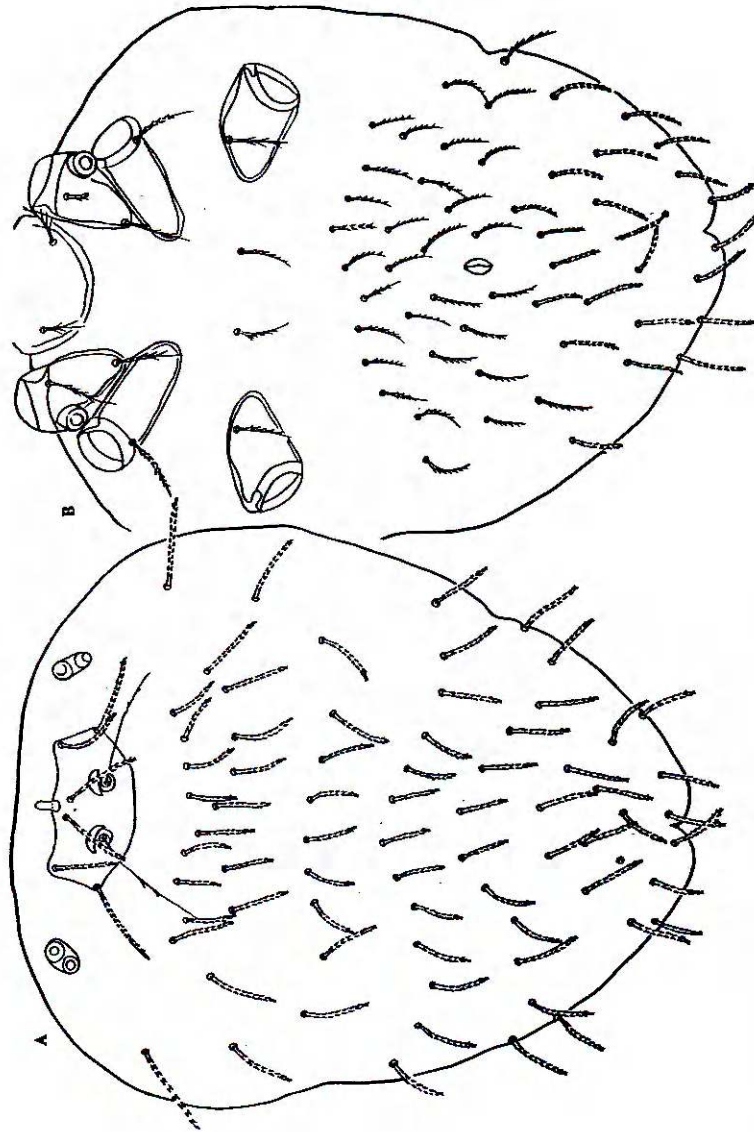


Fig.4. Holotype of *Odontacarus naumovi*. The marks as in fig.2.

Revision of *Odontacarus* (s.str.)

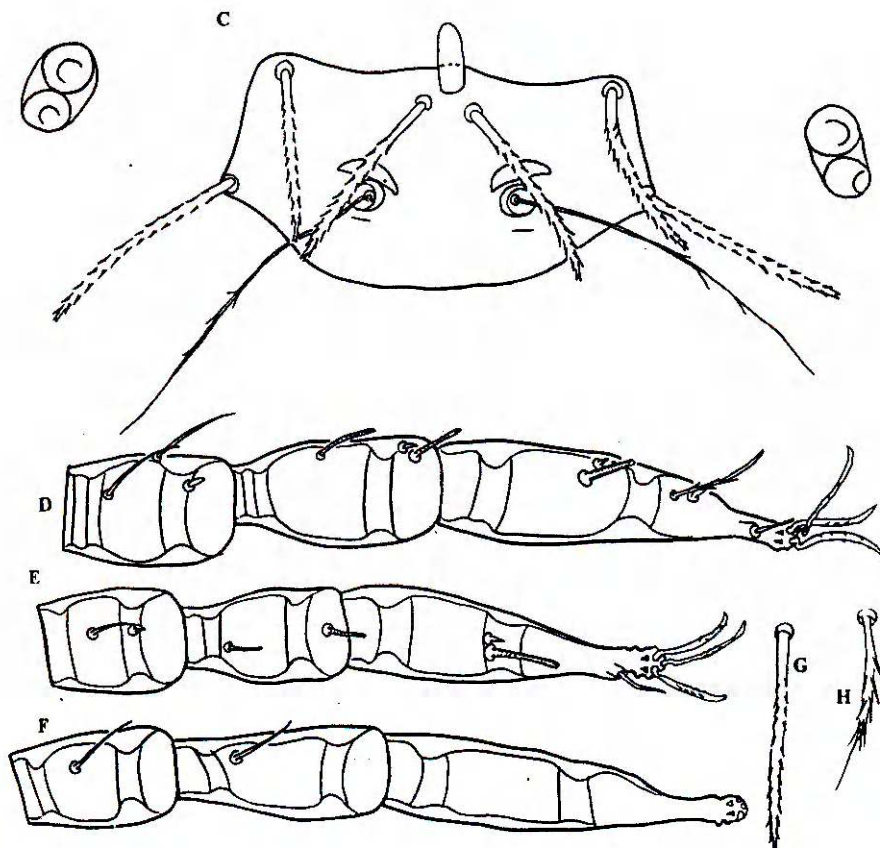


Рис.4. Голотип *Odontacarus paivovi*. Обозначения как на рис.2.

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(**Ip**=788 vs. 839, tarsus III 67x16 vs. 78x17), fewer idiosomal setae (**NDV**=121-134 vs. 131-144) and their length shorter (**D**=25-38 vs. 28-42).

Odontacarus efferus Kudryashova, 1976

Fig.5

Odontacarus efferus: Kudryashova, Neronov, Farhang-Azad, 1976, S.60, fig.4 (description, holotype И-462-3318 and paratypes deposited in the Zoological Museum of Moscow University).

Material examined. Holotype, slide number И-462-3318, larva ex *Nesokia indica*, Iran, Karun River, 3km from Shushtar, 9-13.09.1970, coll. V.M.Neronov. Paratypes. 212 larvae with same data as holotype; 32 larvae ex *Tatera indica*, Iran, 48km from Fasa toward Jahrom part, 20.11.1969, coll. V.M.Neronov.

Description of larva. **SIF**=7B-B-2-2-1-1-1-0-0-0-0; **fPp**=B/B/BBB; **fCx**=2-1-1; (**PT**, **PT'**, **ST**)=N; **fSc**:**PL**>**AM**>**AL**; **fDS**=2H-12-11-12-14-10-8-2-1-4=76, **VS**=52, **NDV**=128, **Ip**=839.

Scutum trapezoidal with convex rounded posterior margin, punctuation absent, nasus 18x9mkm. Scutum bears a pair of flagelliform sensillae with minute barbs near bases and short, sparse ones in distal 1/3, and 3 pairs of barbed scutal setae. **SB** on the same level as **PL** bases. Eyes 2+2. Galeal setae with minute barbs. Cheliceral blade in the shape of tricuspid cup with rows of dorsal and ventral teeth. Palpal claw 2-pronged. On the palps all setae barbed. Dorsal setae lancet-like, with minute barbs, arranged in rows, their number varying (73-81). Ventral setae 52-60, **NDV**=128-141, **Hv** absent. Specialized setae on the legs: I - **S**₁, **f**₁ (anterior to **S**₁), (**PT**, **ST**)=N, **pST**=B, 2 tibialae, microtibiala, 2 genualae, microtibiala; II - **S**₂, **f**₂ (on the same level), **PT''**=N, 2 tibialae, genuala, microgenuala; III - tibiala, genuala. Number of barbed setae on the legs I-III: tarsus 24-17-15, tibia 8-6-6, genu 4-4-4, femur 6-5-4. Standard data of holotype: **AA**=11, **AW**=73, **PW**=87, **SB**=34, **ASB**=28, **PSB**=22, **SD**=50, **AP**=22, **P-PL**=25, **AM**=42, **AL**=34, **PL**=53, **Sens**=84, **H**=56, **D**=28-42, **V**=20-39, **pa**=288, **pm**=263, **pp**=288, tarsus III 73x15, **S**₁=14, **S**₂=15.

This species is closest to *O.saxicolis*, but separable in having a larger size of scutum, larger long **PL**, less long dorsal setae (**D**=28-42 vs. 36-54).

Odontacarus armeniensis Schluger, 1967

Fig.6

Odontacarus armeniensis: Schluger, 1967, S.50, fig.6 (original description, no types noted, type location: Armenia, Echmiadzin,

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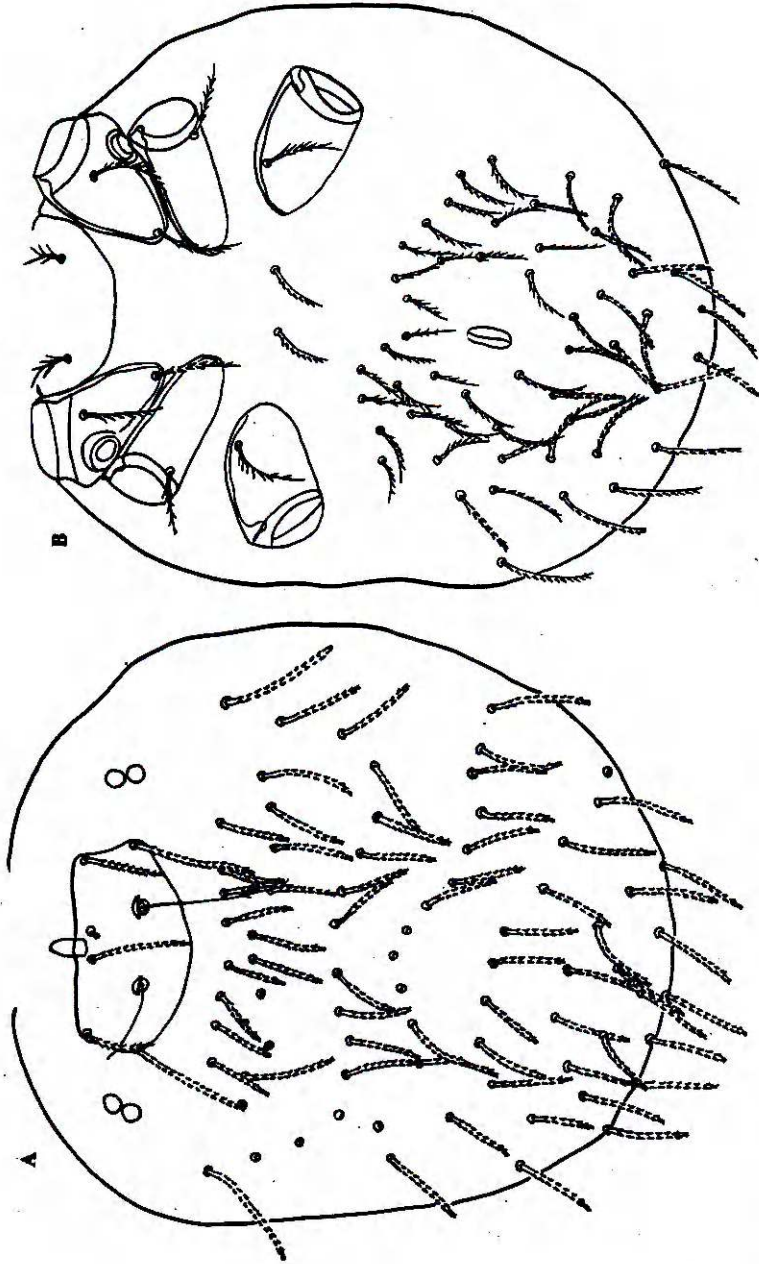


Fig. 5. Holotype of *Odontacarus effusus*. The marks as in fig. 2.

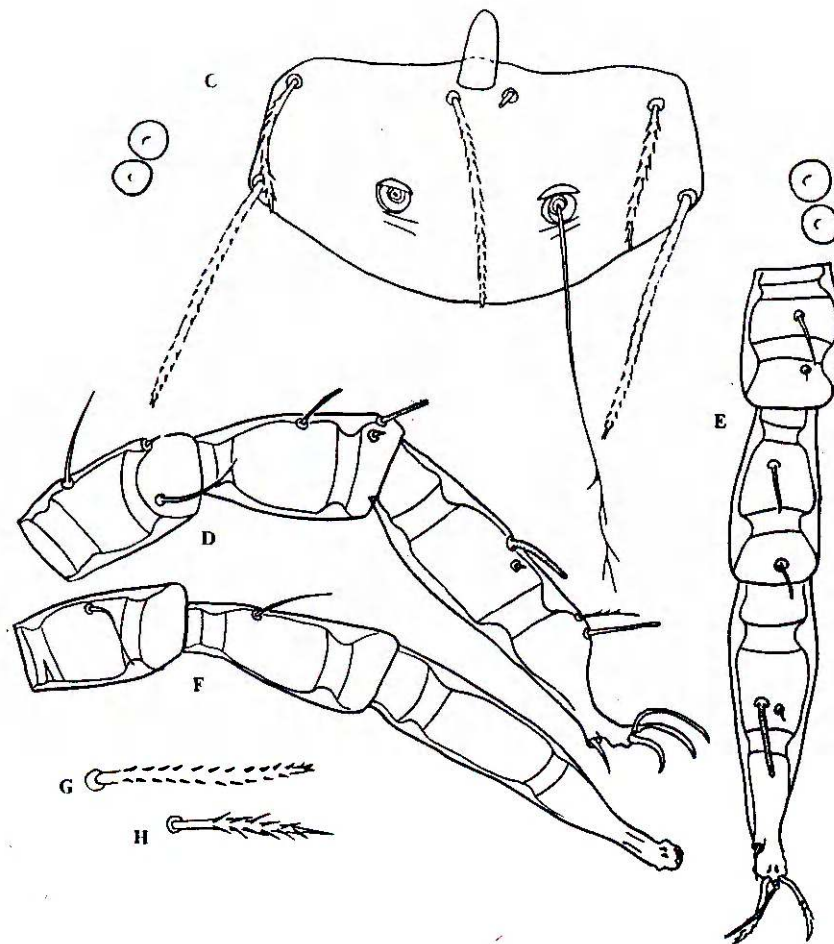


Рис.5. Голотип *Odontacarus efferus*. Обозначения как на рис.2.

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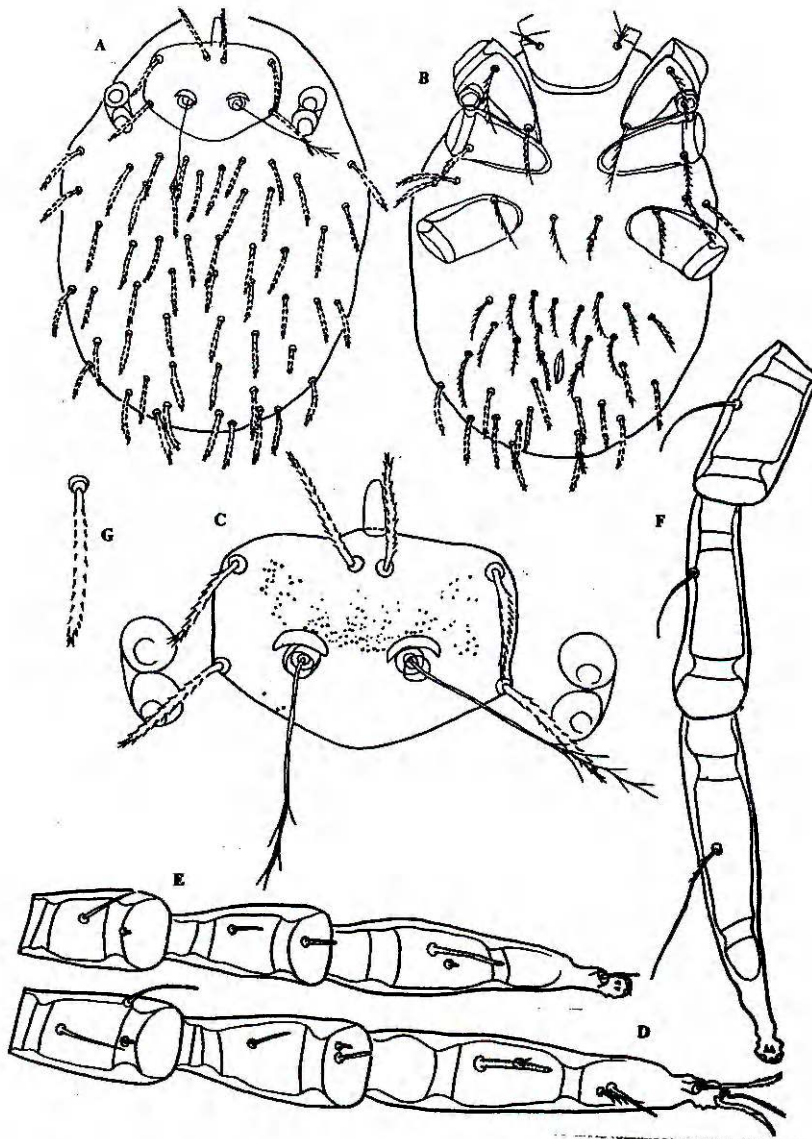


Fig.6. Lectotype of *Odontacarus armeniensis*. The marks as in fig.2.
Рис.6. Лектотип *Odontacarus armeniensis*. Обозначения как на рис.2.

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Zvartnoz ex *Phrynocephalus helioscopus persicus*). - *Odontacarus* sp.:
Kudryashova, 1967, S.728, Tabl.1 (fauna of Caucasus).

Material examined. Reexamined collection of E.G.Schluger deposited in the Zoological Museum of Moscow University. About 100 slides from type locality are syntypes as no holotype is designated. There is distinguished lectotype slide number A3-2-1, larva ex *Phrynocephalus helioscopus persicus* from neighborhood of Echmiadzin (Zvartnoz), Armenia, July 1952, coll. I.S.Darevskiy. Other slides with same data are designated as paralectotypes. Additional material: 1 larva ex *P.helioscopus*, 10km W Djulpha (Djuda), Azerbaijan, 17.07.1961, coll. N.I.Kudryashova; 1 larva ex *Eremias trauchti*, Gorovan village, Vedi Distr., Armenia, 31.08.1971, coll. V.F.Orlova. There are literary data on the finding of this species in Azerbaijan, Armenia, Georgia (Muljarskaja, Zichistavi, 1982) with no mention of particular localities and hosts.

Description of larva. **SIF=7B-B-3-2-1-1-1-1-0-0-0**; **fPp=B/B/BBB**, **fCx=2-1-1**; **(PT', PT'', ST)=N**, **pST=B**, **fSc:PL>=AM>AL**, **fDS=2H-8+6-8-9-8-6-4=51**, **fVS=8-8-2 u 6-1-4-2=31**, **NDV=82**, **Ip=870**.

Scutum subpentagonal with sparse, rather fine punctation, angles rounded, nasus 11x5mkm. Scutum bears a pair of flagelliform sensillae with sparse barbs in distal 1/3 and 3 pairs of barbed scutal setae (**2AM**, **2AL**, **2PL**). **SB** anterior to the line of **PL** bases. Eyes 2+2. Galeal setae with minute barbs. Cheliceral blade like tricuspid cup with rows of dorsal and ventral teeth. Palpal claw 3-pronged. On the palps all setae barbed with minute barbs. Dorsal setae lancet-like, with minute barbs, short (22-31), arranged in indistinct rows. Ventral setae with short barbs, **Hv=4 (2+2)**. Specialized setae on the legs: I - **S₁**, **f₁** (anterior to **S₁**), **(PT', ST)=N**, **pST=B**, 2 tibialae, microtibiala, 2 genualae, microgenuala; II - **S₂**, **f₂** (anterior to **S₂**), **PT''=N**, 2 tibiala, genuala, microgenuala; III - mastitarsala with minute barbs in basal part, tibiala, genuala. Number of barbed setae on the legs I-III: tarsus 26-17-14, tibia 8-6-6, genu 4-4-4, femur 6-5-4. Standard data of lectotype: **AA=7**, **AW=58**, **PW=64**, **SB=24**, **ASB=29**, **PSB=20**, **SD=49**, **P-PL=16**, **AP=23**, **AM=29**, **AL=23**, **PL=29**, **Sens=63**, **H=32**, **D=22-31**, **V=22-27**, **pa=288**, **pm=281**, **pp=301**, tarsus III 77x14, **S₁=18**, **S₂=18**.

This species is closest to *Leeuwenhoekia paradoxa* Andre', 1943 but separable in having a larger number of idiosomal setae. Detailed comparison is impossible due to the lack of standard data and some taxonomical characters in the description of the latter species.

Revision of *Odontacarus* (s.str.)

Odontacarus communis Schluger et Amanguliev, 1972.

Fig. 7

Odontacarus communis: Schluger, Amanguliev, 1972, S.537, fig. 16-18 (description, holotype No-K-5 deposited in Zoological Museum of the Moscow University).

Material examined. Holotype, slide number K-5 (398), larva ex *Cyrtopodion caspius*, Turkmenistan, Ferusa ravine, 13.07.1969, coll. A. Amanguliev, 2 paratypes with same data as holotype. Additional material: 41 larvae ex 4 *C. caspius*, Turkmenistan, Chuli ravine, Geok-Tepinskyi Distr., 31.05-01.06.1990, coll. E.L. Yachontov, 42 larvae ex gecko (species not indicated), Turkmenistan, Kugitang mountain, neighborhood of "Leaden Mine", 27.05.1977, coll. N.A. Filippova; 22 larvae ex *C. fedtschenkoi*, Turkmenistan, Kugitang mountain, Karluk, 19.05.1987, coll. M.R. Chabibulov.

Description of larva. **SIF=7B-B-3-2-0-0-1-1-0-0-0**, **fPp=B/B/BNB**, **fCx=2-1-1**, (**PT'**, **PT''**, **ST**)=**N**, **pST=B**, **fSc:PL>AL>AM**, **fDS=2H-7+6-6-6-10-9-4-4-4=52**, **VS=38**, **NDV=90**, **Ip=839**.

Scutum subpentagonal with sparse rather fine punctation, with rounded angles, nasus 16x7. Scutum bears a pair of flagelliform sensillae with sparse barbs in distal 1/3 and 3 pairs of scutal setae with short barbs. **SB** anterior to the line of **PL** bases. Eyes 2+2. Galeal seta barbed. Cheliceral blade like tricuspid cup with rows of dorsal and ventral teeth. Palpal claw 3-pronged. On the palps all setae barbed, but lateral seta sometimes appearing smooth. Dorsal setae with short barbs, arranged in rows, their number fluctuating from 48 to 52. Ventral setae 28-38, **NDV=76-90**, **Hv=2+2**. Specialized setae on the legs: I - **S₁**, **f₁** (anterior to **S₁**), (**PT'**, **ST**)=**N**, **pST=B**, 2 tibialae, microtibiala, 2 genualae, microgenuala; II - **S₂** with oar-like top, **f₂** slightly anterior **S₂**, **PT''=N**, 2 tibialae, microgenuala; III - mastitarsala with minute barbs in basal part, tibiala. Number of barbed setae on the legs I-III: tarsus 26-17-14, tibia 8-6-6, genu 4-4-4, femur 6-5-4. Standard data of holotype: **AA=7**, **AW=50**, **PW=65**, **SB=23**, **ASB=25**, **PSB=17**, **SD=42**, **P-PL=13**, **AP=25**, **AM=23**, **AL=27**, **PL=36**, **Sens=63**, **H=41**, **D=27-36**, **V=27-34**, **pa=290**, **pm=257**, **pp=292**, tarsus III 77x11, **S₁=16**, **S₂=22**.

This species is closest to *O. shandongensis* Teng, 1983, but separable in having shorter scutum, shorter scutal and dorsal setae, genualae II and III absent, **ST=N**, **pST=B**.

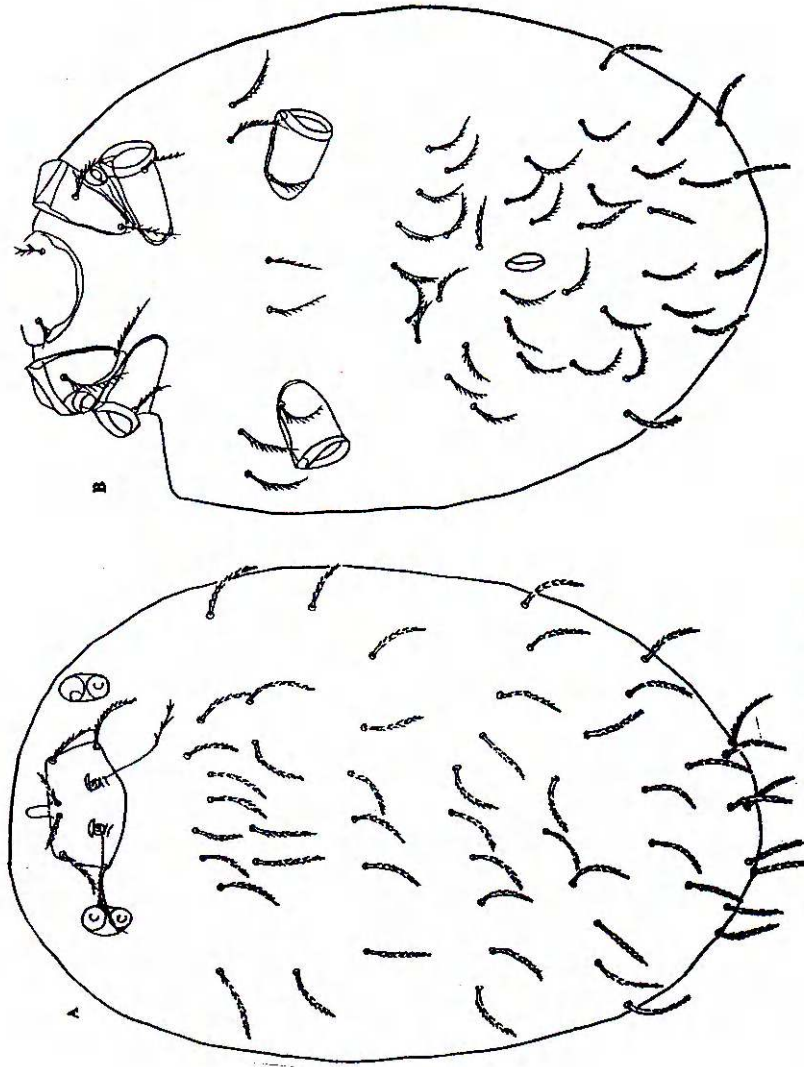


Fig.7. Holotype of *Odontacarus communis*. The marks as in fig.2.

Revision of *Odontacarus* (s.str.)

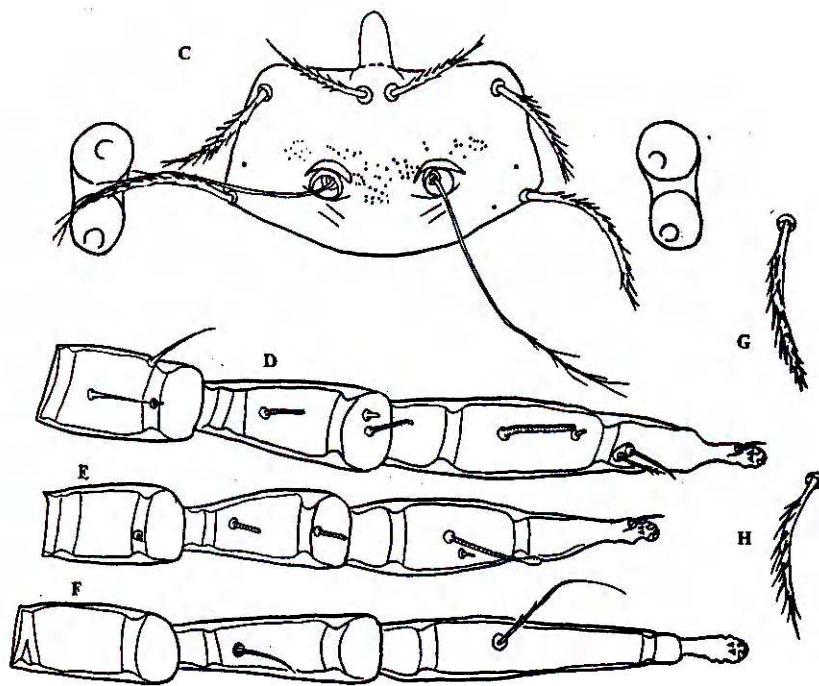


Рис.7. Голотип *Odontacarus setimanis*. Обозначения как на рис.2

N.I.Kudryashova

Odontacarus schlugerae Kartzev, 1994

Fig.8

Odontacarus schlugerae: Kartzev, 1994, S.112-114, fig.1 (description, holotype number Tdt-5000-10-5 deposited in Zoological Museum of Moscow University).

Material examined. Holotype, slide number Tdt-5000-10-5, larva ex *Cyrtopodion fedtschenkoi*, Uzbekistan, bank of Karasu River, 6.08.1966. Paratypes: 7 slides with same data as holotype and 10 larvae ex same host, Turkmenistan, Kugitang mountain, neighborhood of Gaurdak, June and September 1987, coll.M.R.Chabibulov.

Description of larva. **SIF=7B-B-3-2-1-1-1-1-0-0-0**, **fPp=B/N/BNB**, **fCx=2-1-1**, **(PT',PT'',ST)=N**, **pST=B**, **fSc:PL>AL>AM**, **fDS=2H-10+6-8-9-9-4-4=52**, **VS=36**, **NDV=88**, **Ip=816**.

Scutum trapezoidal, with slightly convex rounded posterior margin, punctation absent, nasus 14x6. Scutum bears a pair of flagelliform sensillae with sparse branches in distal 1/2 and 3 pairs of scutal setae: **2PL** with very short barbs and **2AL** and **2AM** with longer barbs. An accessory branch present on each **AM**. **SB** in line with **PL** bases. Eyes 2+2. Galeal seta with very short barbs. Cheliceral blade like tricuspid cup with rows of dorsal and ventral teeth. Palpal claw 3-pronged. Genual and lateral seta on tibia of palps appearing smooth, the other setae noticeably barbed. Dorsal and ventral setae thin, with very short barbs, arranged in indistinct rows. Number **DS=50-54**, **VS=36-39**, **NDV=88-94**, **Hv=2+2**. Specialized setae on the legs: I - **S₁**, **f₁** (anterior to **S₁**), **(PT', ST)=N**, **pST=B**, 2 tibialae, microtibiala, 2 genualae, microgenuala; II - **S₂** with oar-like top, **f₂** slightly anterior **S₂**, 2 tibialae, genuala, microgenuala; III - mastitarsala with barbs in basal part, tibiala, genuala (on both, setae shorter than the width of the respective segment). Number of barbed setae on the legs I-III: tarsus 26-17-14, tibia 8-6-6, genu 4-4-4, femur 6-5-4. Standard data of holotype: **AA=5**, **AW=56**, **PW=70**, **SB=23**, **ASB=27**, **PSB=18**, **SD=45**, **P-PL=18**, **AP=22, 23**, **AM=23**, **AL=27**, **PL=38**, **Sens=72**, **H=41**, **D=27-36**, **V=22-32**, **pa=279**, **pm=259**, **pp=288**, tarsus III 81x13, **S₁=14**, **S₂=23**.

This species is closest to *O.primarius* but separable in having **ST** and **pST**.

Odontacarus fedtschenkoi Hushcha et Amanguliev, 1980

Fig.9

Odontacarus gymnodactylus: Amanguliev, Shammakov, Atayev, 1972, S.83, fig.1-7 (description, holotype in collection of the Institute of

Revision of *Odontacarus* (s.str.)

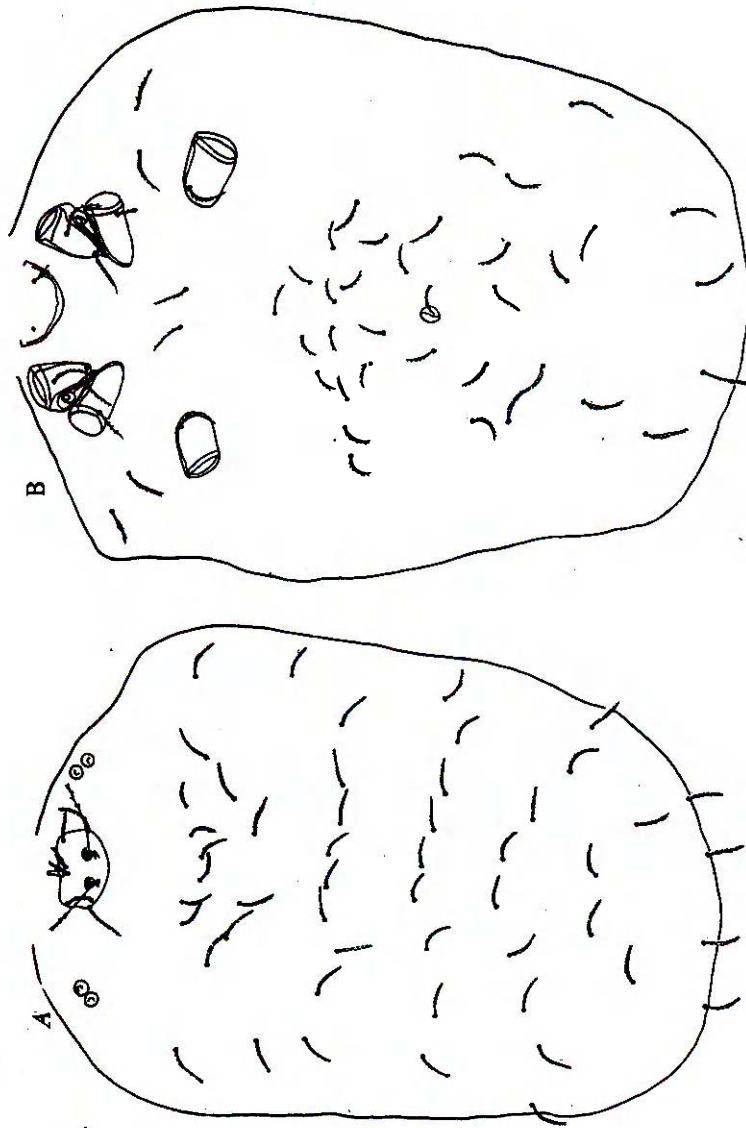


Fig.8. Holotype of *Odontacarus schlugerae*. The marks as in fig.2.

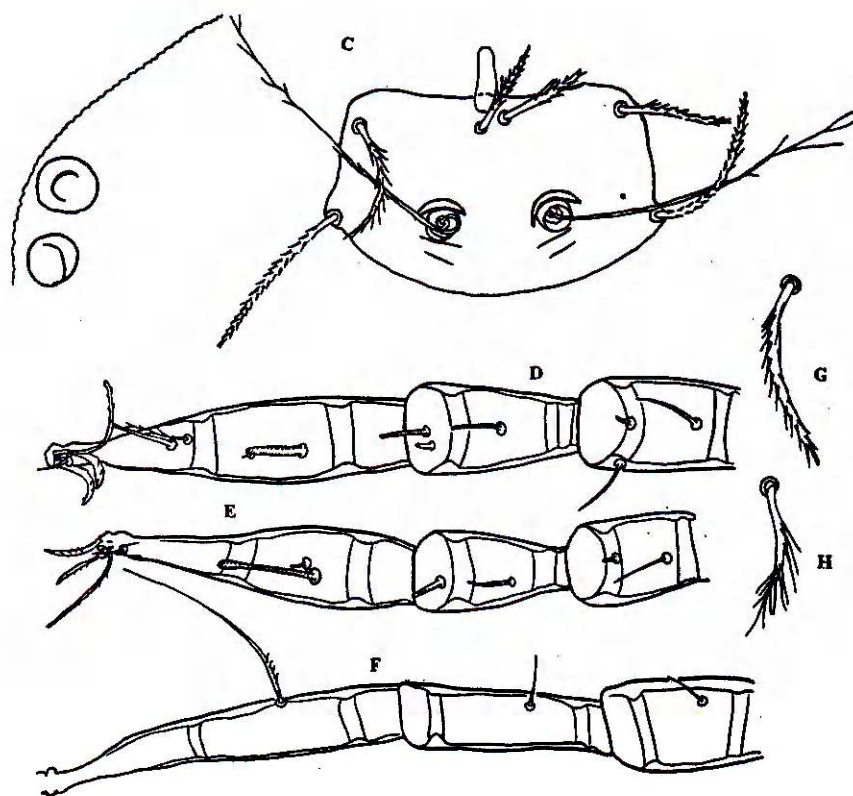


Рис.8. Голостип *Odontacarus schlugerae*. Обозначения как на рис.2.

Revision of *Odontacarus* (s.str.)

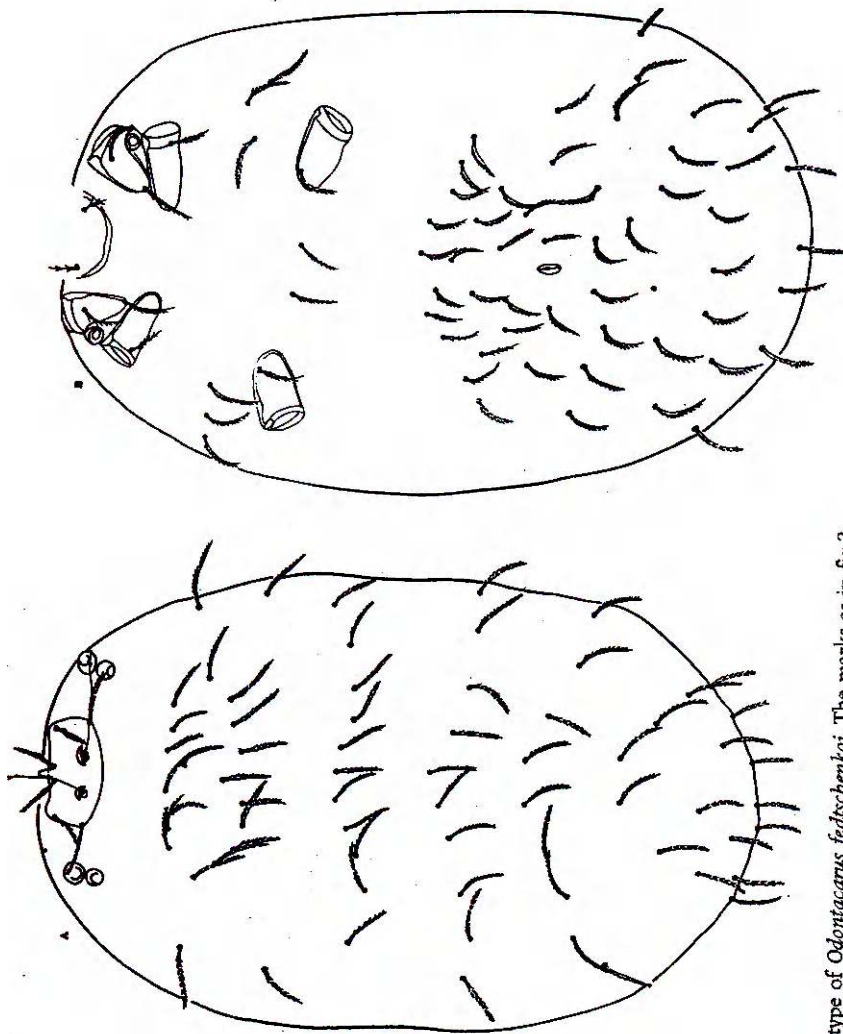


Fig. 9. Paratype of *Odontacarus fedtschenkoi*. The marks as in fig. 2.

N.I.Kudryashova

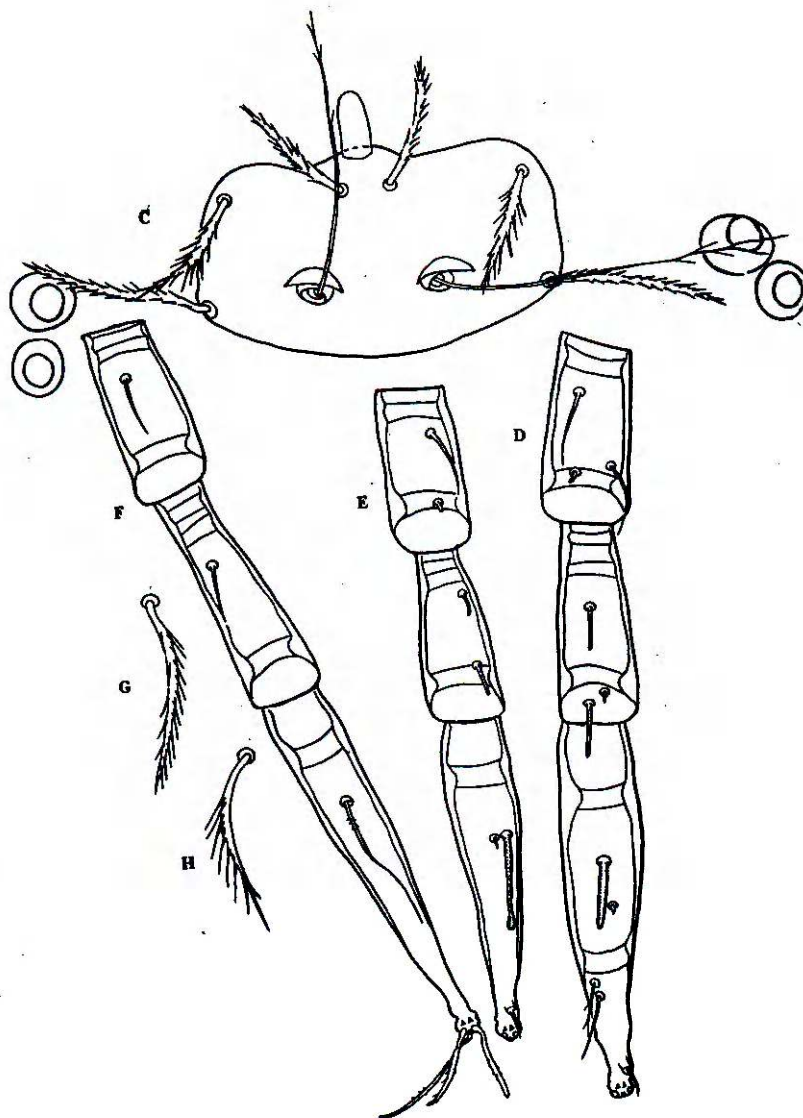


Рис.9. Паратип *Odontacarus fedtschenkoï*. Обозначения как на рис.2.

Revision of *Odontacarus* (s.str.)

Zoology, Academy of Sciences of Turkmenistan). - *Odontacarus fedtschenkoi*: Hushcha, Amanguliev, 1980, S.95 (new nomen instead preoccupied one, nec *Odontacarus gymnodactyli* Ewing, 1925); Hushcha, Amanguliev, 1983, S.28, fig.1-2 (redescription, reexamination of type material, holotype: slide number 85).

Material examined. Paratype: slide number Ty-85, larva ex *Cyrtopodion fedtschenkoi*, Turkmenistan, Kugitang mountain, neighborhood of "Leaden Mine", 3.05.1971, coll. A.Amanguliev. Additional material: 1 larva ex same host, Kugitang mountain, Karluk, 16.05.1987, coll. M.R.Chabibulov.

Description of larva. **SIF=7B-B-2-2-1-1-1-1-0-0-0**; **fPp=B/B/BNB**, **fCx=2-1-1**, (**PT**, **PT'**, **ST**)=**N**, **pST=B**, **fSc:PL>AM>AL**, **fDS=2H-10-10-11-10-9-8-5-3=68**, **VS=52**, **NDV=120**, **Ip=944**.

Scutum trapezoidal, with rounded angles, nasus 13x5, punctuation absent. Scutum bears a pair of flagelliform sensillae with sparse branches in distal 1/3 and 3 pairs of scutal branched setae. **SB** anterior to the line of **PL** bases. Eyes 2+2. Galeal seta with short barbs. Cheliceral blade like tricuspid cup with rows of dorsal and ventral teeth. Palpal claw 2-pronged. Lateral seta on the palpal tibia smooth, the other setae barbed. Dorsal setae arranged in rows, very noticeable in unengorged larvae. Ventral setae shorter than dorsal setae, **Hv=3+3**. Specialized setae on the legs: I - **S₁**, **f₁** (anterior to **S₁**), (**PT**, **ST**)=**N**, **pST=B**, 2 tibialae, microtibiala, 2 genualae, microgenuala; II - **S₂** with oar-like top, **f₂** in line with **S₂**, **PT'**=**N**, 2 tibialae, genuala, microgenuala; III - mastitarsala, tibiala, genuala. Number of barbed setae on the legs I-III: tarsus 27-17-14, tibia 8-6-6, genu 4-4-4, femur 6-5-4. Standard data of paratype: **AA=11**, **AW=67**, **PW=79**, **SB=27**, **ASB=33**, **PSB=16**, **SD=49**, **P-PL=13**, **AP=27**, **AM=34**, **AL=31**, **PL=41**, **Sens=85**, **H=50**, **D=32-45**, **V=27-36**, **pa=324**, **pm=283**, **pp=337**, tarsus III 90x13, **S₁=18**, **S₂=22**.

This species is closest to *O.primarius* but separable in having a different form of **S₂**, longer **S₁** (18 vs. 14), more numerous and longer dorsal setae (32-45 instead of 27-32).

Odontacarus primarius Schluger et Amanguliev, 1972.

Fig.10

Odontacarus primarius: Schluger, Amanguliev, 1972, S.538, fig.13-15 (description, holotype number K-4-29 deposited in Zoological Museum of Moscow University).

N.I.Kudryashova

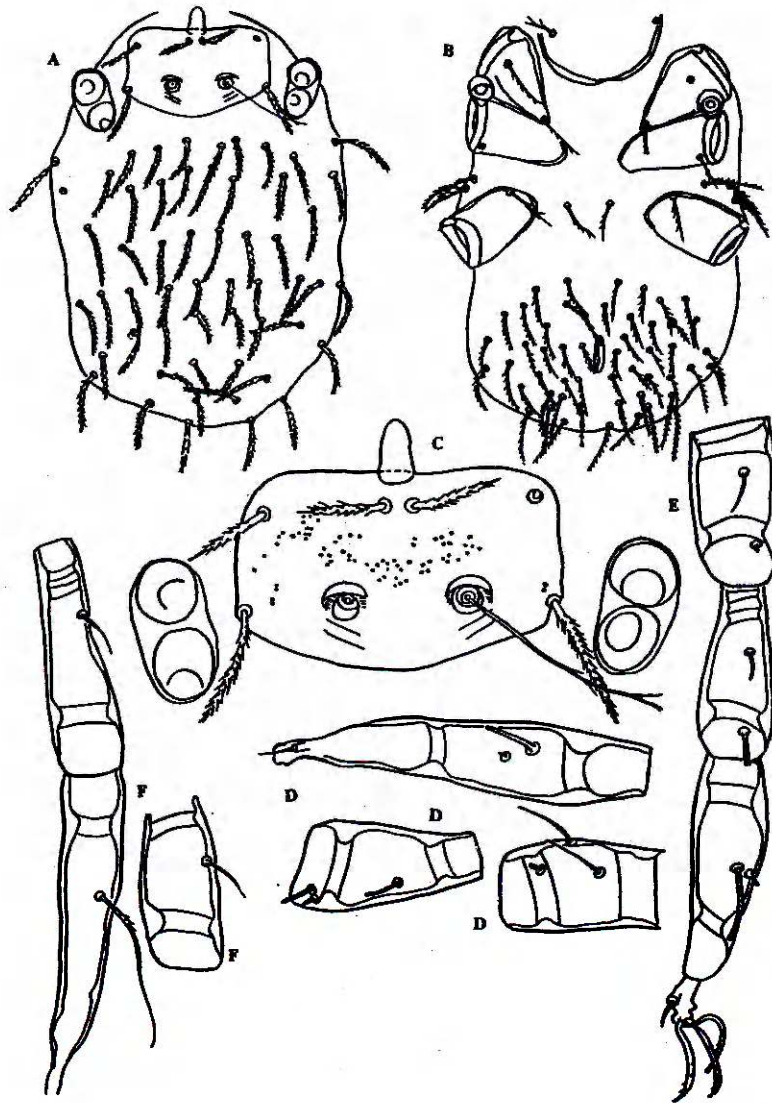


Fig.10. Holotype of *Odontacarus primarius*. The marks as in fig.2.
Рис.10. Голотип *Odontacarus primarius*. Обозначения как на рис.2

Revision of *Odontacarus* (s.str.)

Material examined. Holotype slide number K-4-29, larva ex *Rhombomys opimus*, Turkmenistan, Central Karakums, Kirpili, 11.05.1964, coll. A.Amanguliev, paratypes with same data as holotype. Additional material: 10 larvae ex *Cyrtopodion fedtschenkoi*, Kugitang mountain, Karluk, 19-20.05.1987, coll. M.R.Chabibulov.

Description of larva. **SIF=7B-B-3-2-1-1-1-1-0-0-0**, **fPp=B/B/BBB**, **fCx=2-1-1**, **(PT', PT'')=N**, **(ST, pST)=0**, **fSc:PL>AL>=AM**, **fDS=2H-10-9-6-10-9-6-2-2=56**, **VS=50**, **NDV=106**, **Ip=883**.

Scutum trapezoidal with rounded angles, slightly convex rounded posterior margin, with rather fine sparse punctation, nasus 13x7. Scutum bears a pair of flagelliform sensillae branched in distal 1/3 and 3 pairs of scutal setae with thick, short barbs. **SB** anterior to the line of **PL** bases. Eyes 2+2. Galeal seta barbed. Cheliceral blade like tricuspid cup with rows of dorsal and ventral teeth. Palpal claw 3-pronged. On the palps all setae barbed but lateral seta on the palpal tibia sometimes appearing smooth. Dorsal setae arranged in rows, more noticeable in unengorged larvae. Ventral setae shorter than dorsal setae, **Hv=2+2** (rarely 3+3). All setae of idiosoma with short barbs. Specialized setae on the legs: I - **S₁** (short, closer to basal part of tarsus), **f₁** (anterior to **S₁**), **PT'=N**, **(ST, pST)=0**, 2 tibialae, microtibiala, 2 genualae, microgenuala; II - **S₂** and **f₂** on the same level, **PT''=N**, 2 tibialae, genuala, microgenuala; III - mastitarsala, tibiala, genuala. Number of barbed setae on the legs I-III: tarsus 27-17-14, tibia 8-6-6, genu 4-4-4, femur 6-5-4. Standard data of holotype: **AA=7**, **AW=63**, **PW=72**, **SB=27**, **ASB=31**, **PSB=16**, **SD=47**, **P-PL=14**, **AP=23**, **AM=22**, **AL=23**, **PL=32**. Sens (paratype)=63, **H=36**, **D=27-32**, **V=22-23**, **pa=293**, **pm=275**, **pp=315**, tarsus III 77x13, **S₁=14**, **S₂=22**.

This species is closest to *O.communis* but separable in having genualae II and III, shorter idiosomal setae and **(ST, pST)=0**.

Odontacarus turkmenicus Kartzev, 1994

Fig.11

Odontacarus turkmenicus: Kartzev, 1994, S.114-116, fig.2 (description, holotype number Tdt-5021-19-9 deposited in Zoological Museum of Moscow University).

Material examined. Holotype slide number Tdt-5021-19-9 ex *Cyrtopodion fedtschenkoi*, Turkmenistan, Kugitang mountain, 2800 m, 26.05.1986, coll. M.R.Chabibulov, and paratypes: 30 larvae, same host and locality, April, May 1986 and June 1987.

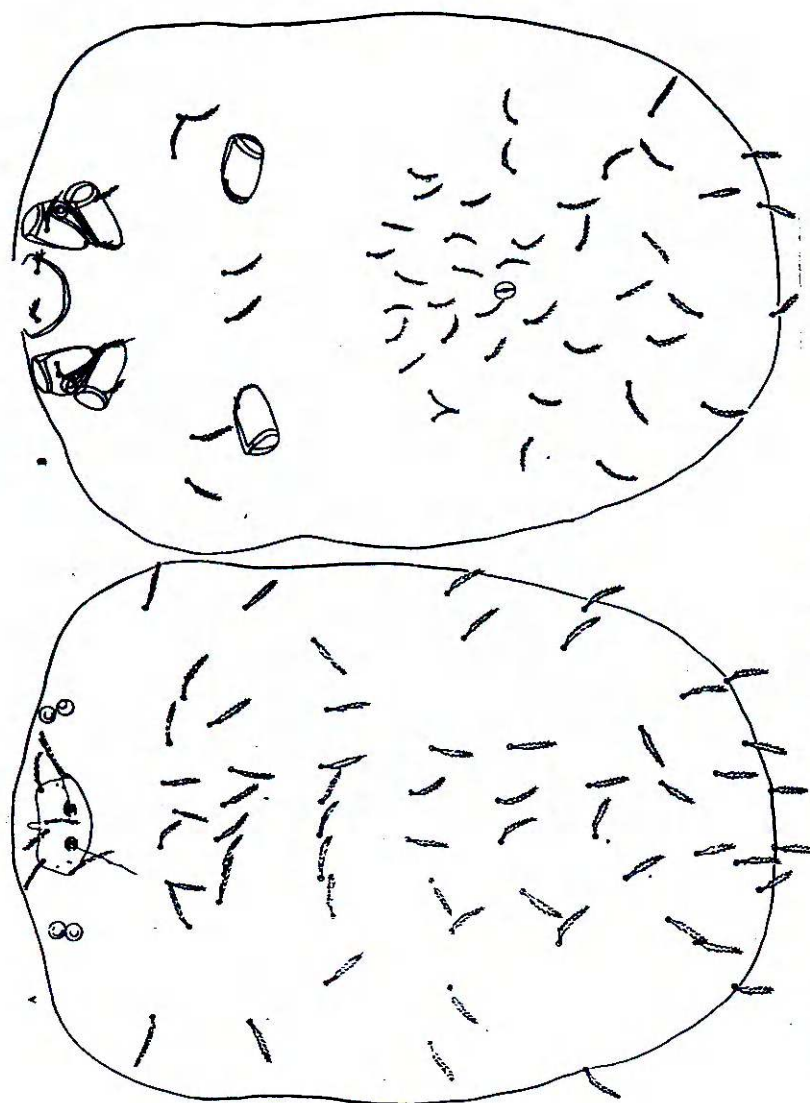


Fig 11. Holotype of *Odontacarus turkmenicus*. The marks as in fig. 2.

Revision of *Odontacarus* (s.str.)

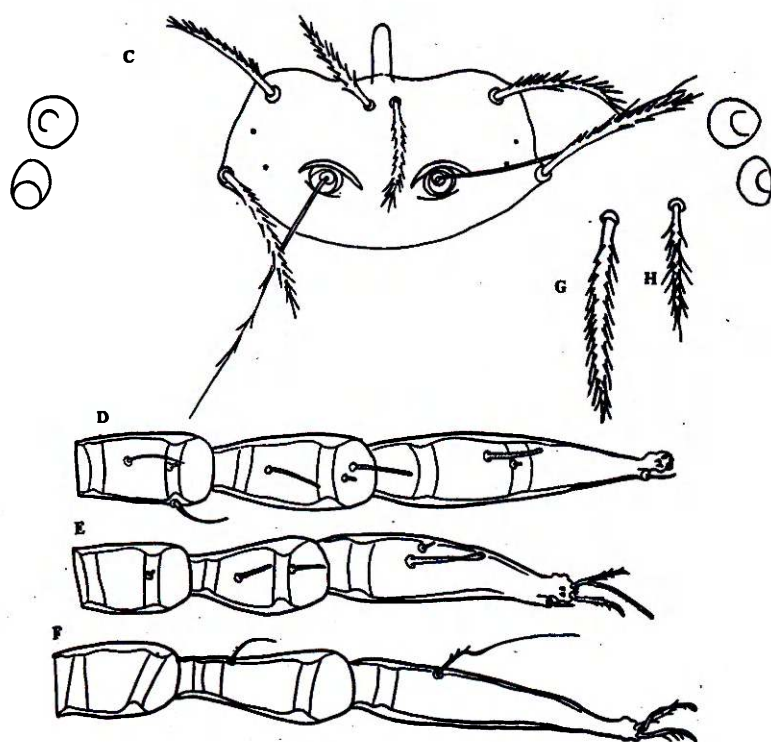


Рис.11. Голотип *Odontacarus turkmenicus*. Обозначения как на рис.2.

Description of larva. **SIF=7B-B-3-2-0-0-1-1-0-0-0**, **fPp=B/B/BBB**, **fCx=2-1-1**, **(PT', PT'')=N**, **(ST, pST)=0**, **fSc:PL>AL>AM**, **fDS=2H-9+6-8-9-8-9-2-4+2=59**, **VS=41**, **NDV=100**, **Ip=749**.

Scutum trapezoidal with slightly convex, rounded posterior margin, nasus from 13x7 to 18x9. Scutum bears a pair of flagelliform sensillae with sparse short barbs in distal 1/2, and 3 pairs of thick-barbed scutal setae (**2AM**, **2AL**, **2PL**). **SB** posterior to the line of **PL** bases. Eyes 2+2. Galeal setae with short barbs. Cheliceral blade like tricuspid cup with rows of dorsal and ventral teeth. Palpal claw 3-pronged. All setae on the palps barbed, sometimes seta on genu and lateral seta on tibia appearing smooth. Dorsal setae thick-barbed, arranged in indistinct rows, slightly fluctuating in number (59-60), **VS=41-47**, **NDV=100-106**, **Hv=2+2** (rarely 2+3). Specialized setae on the legs: I - **S₁** stake-like, **f₁** anterior to **S₁**, **PT'=N**, **ST** and **pST** absent, 2 tibialae, microtibiala, 2 genualae, microgenuala; II - **S₂** with oar-like top, **f₂** on the same level as **S₂**, **PT'=N**, 2 tibialae, microgenuala; III - mastitarsala with short barbs in basal part, tibiala. Number of barbed setae on the legs I-III: tarsus 27-17-14, tibia 8-6-6, genu 4-4-4, femur 6-5-4. Standard data of holotype (paratype): **AA=7(7)**, **AW=52(49)**, **PW=72(70)**, **SB=25(24)**, **ASB=27(25)**, **PSB=14(15)**, **SD=41(40)**, **P-PL=16(18)**, **AP=23(20)**, **AM=27(25)**, **AL=29,31(29)**, **PL=40(36)**, **Sens=63(68)**, **H=41(38, 40)**, **D=27-36(29-38)**, **V=23-36(23-31)**, **pa=256(252)**, **pm=232(225)**, **pp=261(248)**, **Ip=749(725)**, tarsus III 65x14(61x13), **S₁=14(18)**, **S₂=18(22)**.

This species is closest to *O.communis* but separable in having more thickly barbed dorsal setae, 27 barbed setae on the tarsus I (instead of 26), larger number **DS**, **VS** (**NDV=100-106** vs. 76-80).

Odontacarus dignus Kudryashova, 1976.

Fig.12

Odontacarus dignus: Kudryashova, Neronov, Farhang-Azad, 1976, p.57, fig.2-3 (description, holotype No-II-451-1777, in the Zoological Museum of Moscow University).

Material examined. Holotype slide number II-451-1777, larva ex *Meriones persicus* and 10 paratypes, Iran, 16km N Delijan, 14-16.10.1969 and 36 larvae ex 16 *M.persicus* with same data; 1 larva ex *M.persicus*, Iran, 30km S Isfahan, 19.10.1969, coll. V.M.Neronov.

Description of larva. **SIF=7B-B-3-1-0-0-1-1-1-0-0**; **fPp=B/B/BBB**, **fCx=2-1-1**, **(PT', PT'', ST)=N**, **pST=B**, **fSc:AM>=AL>PL**, **fDS=2H-**

Revision of *Odontacarus* (s.str.)

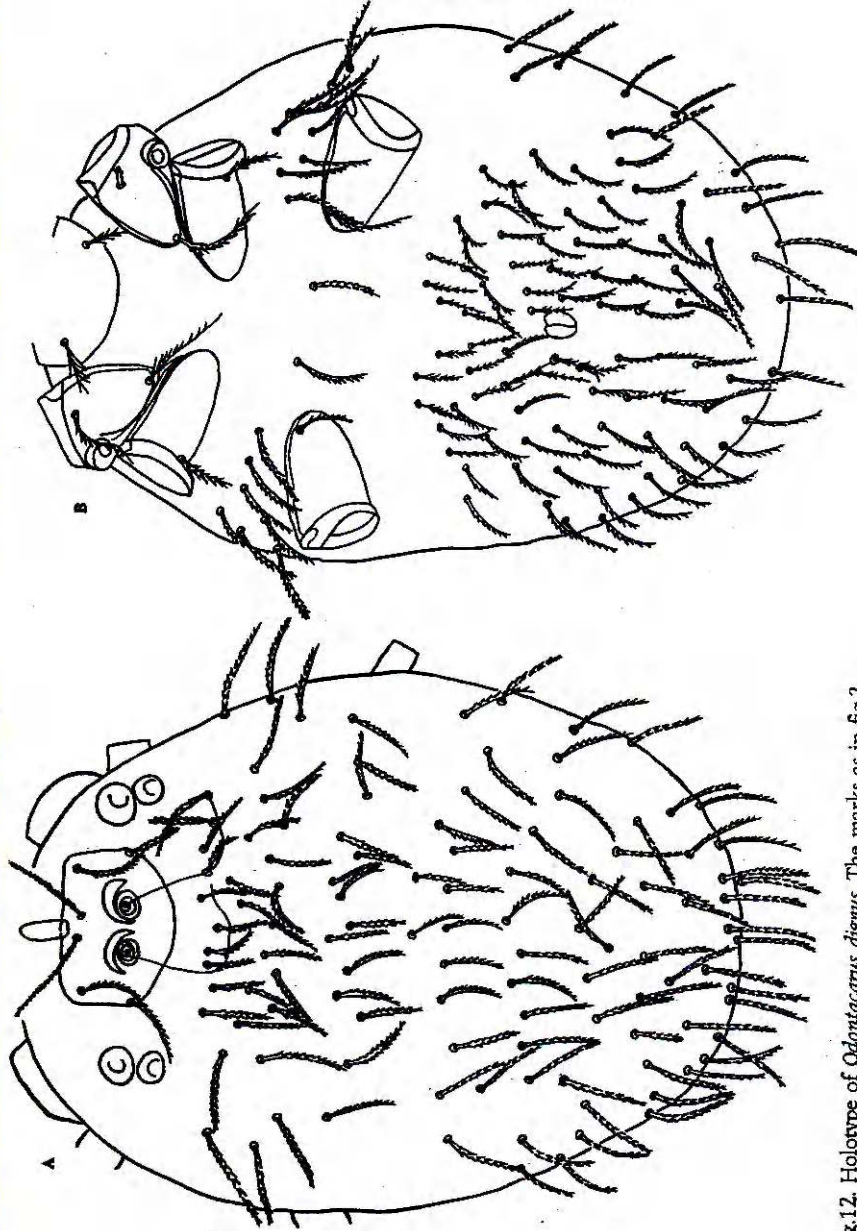


Fig. 12. Holotype of *Odontacarus dignus*. The marks as in fig. 2.

N.I.Kudryashova

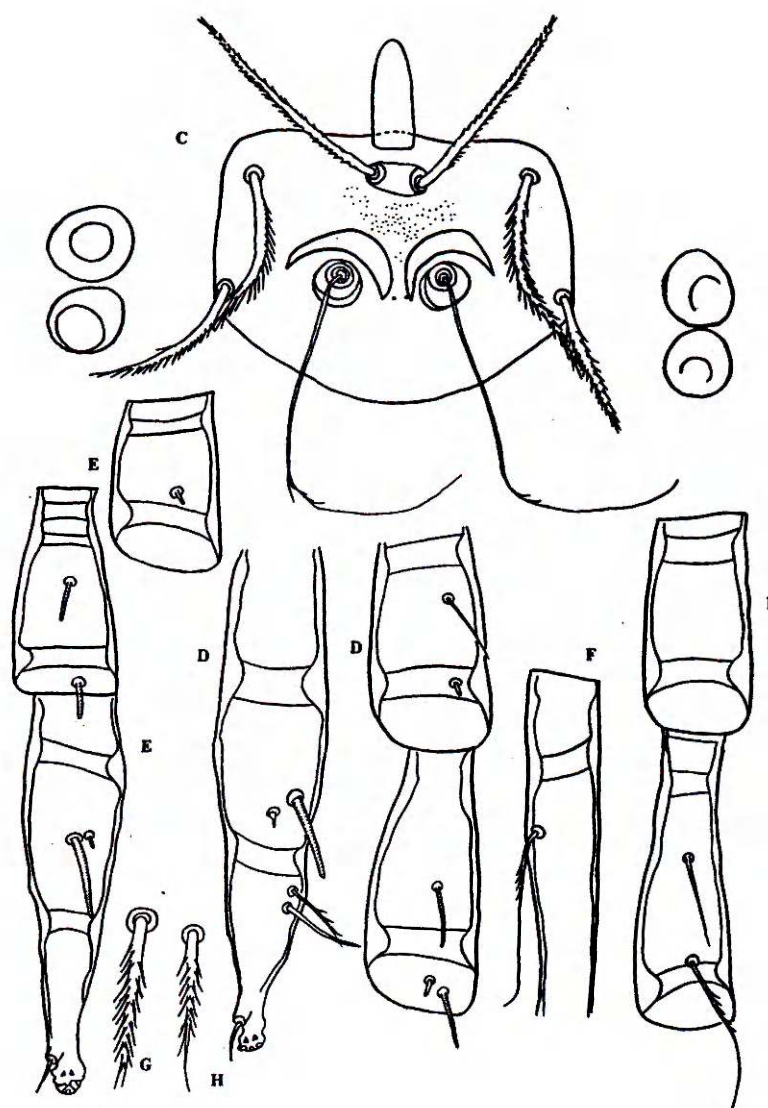


Рис.12. Голстип *Odontacarus dignus*. Обозначения как на рис.2

Revision of *Odontacarus* (s.str.)

12+10+8-14-2+14-14-10-9-6+11=112, **VS**=95, **NDV**=207, **Ip**=1171.

Scutum trapezoidal with convex rounded posterior margin, with small punctures, nasus 25-28x8-11. Scutum bears a pair of flagelliform sensille with minute barbs in basal 1/2 and short, sparse barbs in distal 1/2 and 3 pairs of barbed scutal setae. **SB** anterior to the line of **PL** bases. Eyes 2+2. Galeal setae barbed. Cheliceral blade like tricuspid cup with rows of dorsal and ventral teeth. Palpal claw 3-pronged. On the palps all setae barbed. Dorsal setae arranged in indistinct rows, their number varying (108-128). **VS**=80-96, **NDV**=191-220, **Hv**=12-15. Specialized setae on the legs: I - **S**₁, **f**₁ (anterior to **S**₁), (**PT'**, **ST**)=**N**, **pST**=**B**, 2 tibialae, microtibiala, genuala, microgenuala; II - **S**₂, **f**₂ (on the same level as or posterior to **S**₂), **PT''**=**N**, 2 tibialae, microgenuala; III - tibiala, mastitarsala and mastitibiala with minute barbs in basal part. Number of barbed setae on the legs I-III: tarsus 31-17-15, tibia 8-6-5, genu 5-4-4, femur 6-5-4. Standard data of holotype: **AA**=11, **AW**=64, **PW**=81, **SB**=27, **ASB**=34, **PSB**=28, **SD**=62, **AP**=28, **AM**=53, **AL**=48, **PL**=36, **Sens**=98, **H**=56, **D**=28-48, **V**=22-42, **pa**=398, **pm**=353, **pp**=420, tarsus III 109-112x17, **S**₁=20, **S**₂=18.

This species is closest to *O.apricus* but separable in having larger long **AM** and **AL**, **S**₁>=**S**₂ (instead of **S**₂>**S**₁), and larger size.

Odontacarus apricus Kudryashova, 1976.

Fig.13

Odontacarus apricus: Kudryashova, Neronov, Farhang-Azad, 1976, p.55, fig. 1,3 (description, holotype in Zoological Museum of Moscow University).

Material examined. Holotype slide number VI-440-4489-90, larva ex *Meriones persicus*, Iran, 5km N from Kerman, 2220 m, 7-11.12.1970, coll. V.M.Neronov, 10 paratypes with same data as holotype and 244 larvae ex 5 *M.persicus* with same data.

Description of larva. **SIF**=7B-B-3-1-0-0-1-1-1-0-0, **fPp**=B/B/BBB, **fCx**=2-1-1, (**PT'**, **PT''**, **ST**)=**N**, **pST**=**B**, **fSc**:**AM**>=**PL**>**AL**, **fDS**=2H-10-11-11-13-13-10-4-2-2=78, **VS**=68, **NDV**=78+68=146, **Ip**=1019.

Scutum trapezoidal with convex rounded posterior margin, punctuation absent, nasus 20-22x8-11. Scutum bears a pair of flagelliform sensillae with short, sparse barbs in distal 1/3 and 3 pairs of barbed scutal setae. **SB** anterior to the line of **PL** bases. Eyes 2+2. Galeal setae with short barbs. Cheliceral blade like tricuspid cup with rows of dorsal and ventral

N.I. Kudryashova

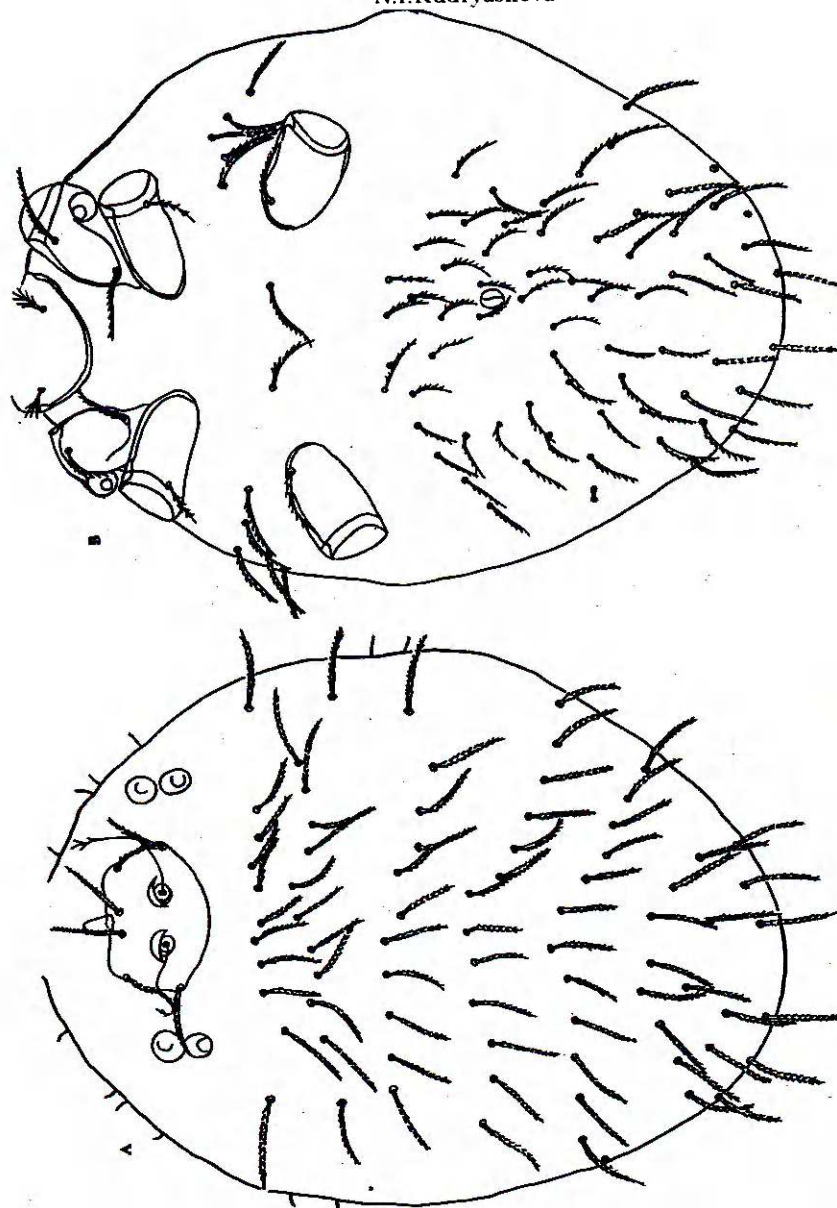


Fig.13. Holotype of *Odeinatocarus apricus*. The marks as in fig.2.

Revision of *Odontacarus* (s.str.)

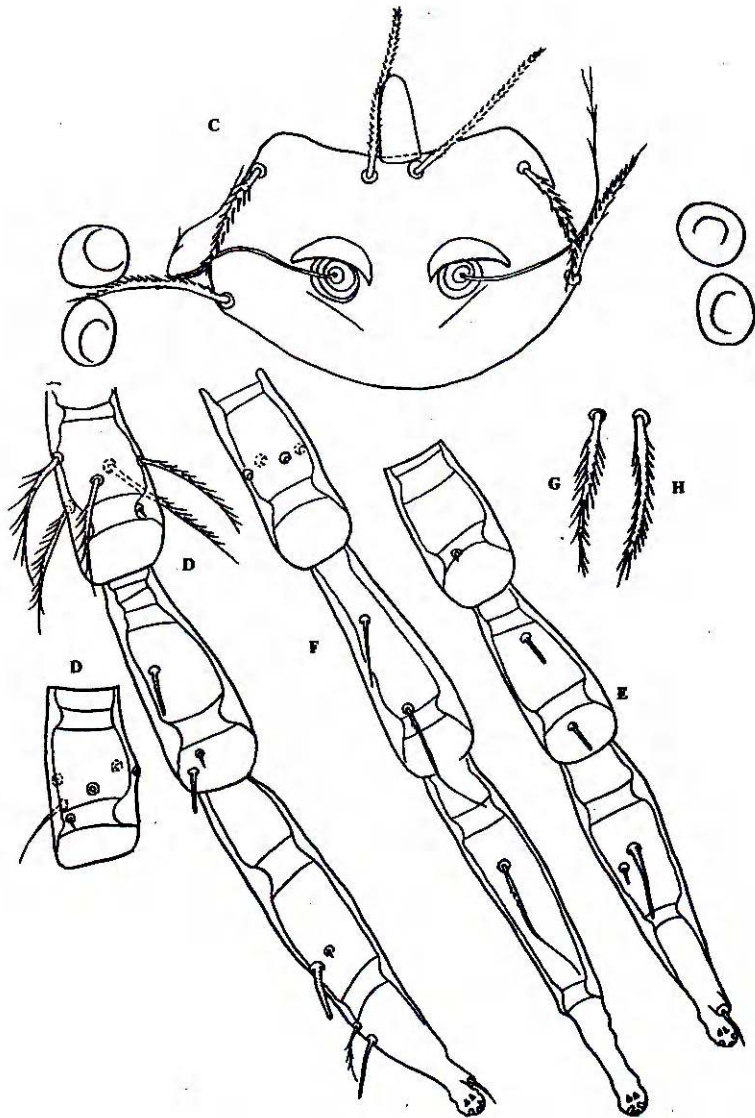


Рис.13. Голотип *Odontacarus apricus*. Обозначения как на рис.2.

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teeth. Palpal claw 3-pronged. On the palps all setae barbed. Dorsal setae with short barbs, their number varying (75-95), **VS**=66-77, **NDV**=141-161, **Hv**=8-10, rarely 12. Specialized setae on the legs: I - **S**₁, **f**₁ (posterior to or on the same level as **S**₁), **PT'** and **ST**=**N**, **pST**=**B**, 2 tibialae, microtibiala, genuala, microgenuala; II - **S**₂, **f**₂ (anterior to **S**₂), **PT''**=**N**, 2 tibialae, microgenuala; III - tibiala, mastitibiala and mastitarsala with minute barbs in basal part. Number of barbed setae on the legs I-III: tarsus 29-17-14, tibia 8-6-5, genu 4(5)-4-4, femur 6-5-4. Standard data of holotype: **AA**=11, **AW**=62, **PW**=78, **SB**=31, **ASB**=35, **PSB**=27, **SD**=62, **AP**=31, **AM**=45, **AL**=34, **PL**=39, **Sens**=76, **H**=50, **D**=28-45, **V**=28-42, **pa**=350, **pm**=308, **pp**=361, tarsus III 92x14, **S**₁=18 (16), **S**₂=22.

This species is closest to *O.mastigophorus* Brennan and Dalmat, 1960, but separable in having tibiala III, **pST**=**B**, number of barbed setae on tarsus I-III 29-17-14 (instead of 20-16-13), and other characters.

Odontacarus jinanensis Teng, 1983.

Odontacarus jinanensis: Teng, 1983a, p.75, fig.1-4 (description, holotype and paratypes are deposited in the Department of Parasitology, Shandong College of Chinese Traditional Medicine, Jinan).

Records of the original description: 10 larvae ex *Coluber spinalis* in the bean field of Qianfoshan, Jinan, Shandong Province, 16.07.1957, China.

Odontacarus shandongensis Teng, 1983.

Odontacarus shandongensis: Teng, 1983b, p.106, fig.1-4 (description, holotype deposited in the Department of Parasitology, Shandong College of Chinese Traditional Medicine, Jinan).

Records of the original description: 20 larvae ex *Gekko swinhoana* in the cave of Qianfoshan, Jinan, Shandong Province, 5.09.1963 and 15.08.1980, China.

Odontacarus tetrasetosus Yu, Yang, 1986.

Odontacarus (Odontacarus) tetrasetosus: Yu, Yang, 1986, p.64, fig.5-9 (original description, type specimens are deposited in the Control and Research Institute of Epidemic Diseases of Yunnan Province).

Records of the original description: larva ex *Rattus rattus sladeni*, Yunlong County, Yunnan, 18.04.1979, China.

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Odontacarus sichuanensis Zhou, Wen, Wang et Zhang, 1981.

Odontacarus sichuanensis: Zhou, Wen, Wang, Zhang, 1981, p.317, fig (original description, holotype deposited in Sanitarian and Antiepidemic Station of Sichuan Province, China).

Records of the original description: larva ex rat (gen. and sp. undet.), at Batang County (s.l.3600m), Sichuan Province, November 1963, China.

Key to the *Odontacarus* (s.str.) species of the Palearctic.

- 1(4) Mastitibiala present, 1 genuala I
2(3) $S_2 > S_1$, Ip less than 1100, DS less than 100 *apricus*
3(2) $S_2 \sim S_1$, Ip more than 1100, DS more than 100 *dignus*
4(1) Mastitibiala absent, 2 genualae I
5(12) Hv absent
6(9) Length of dorsal setae more than 34-50
7(8) SD less than 50, AW=67, PL=45,49, D=36-54
..... *saxicolis*
..... *jinanensis*
8(7) SD more than 50, AW=72, PL=54, D=38-52 *hushchai*
9(6) Length of dorsal setae less than 34-50
10(11) PL=45, D=25-38, $S_2 > S_1$ *naumovi*
11(10) PL=50-56, D=28-42, $S_2 > S_1$ *efferus*
12(5) Hv present
13(16) Genualae II and III absent
14(15) Tarsus I with 26 barbed setae, dorsal setae with minute barbs, NDV less than 100 *communis*
15(14) Tarsus I with 27 barbed setae, dorsal setae with thick long barbs, NDV more than 100 *turkmenicus*
16(13) Genualae II and III present
17(26) Hv 2-3 pairs
18(19) $S_1 \sim S_2$, both elongate *armeniensis*
19(18) $S_2 > S_1$, S_2 with oar-like top
20(23) ST and pST absent
21(22) D=37-42, PL more than 40 *shandongensis*
22(21) D=27-32, PL less than 40 *primarius*
23(20) ST and pSt present
24(25) NDV less than 100, Hv=2+2 *schlugerae*

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25(24) NDV more than 100, Hv=3+3	<i>fedtschenkoi</i>
26(17) Hv more than 3 pairs	
27(28) PL>AL>=AM	<i>tetrasetosus</i>
28(27) AM>PL>AL	<i>sichuanensis</i>

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Table 1.
List of occurrence sites of *Odontacarus* species

NN on karte	Locality	Species of chiggers	Data
1	Neighborhood Krasnodar, Russia	hushchai	this article
2	Caucasus Reservation, 40 km NE from Sochi, Russia	hushchai	this article
3	Neighborhood Zvirli, Grusia	hushchai	this article
4	Achaldaba, Chashur Distr., Grusia	hushchai	Hushcha, 1981
5	Zvartnoz, Echmiadsin, Armenia	armeniensis	Schluger, 1967
6	Gorovan, Vedi Distr., Armenia	armeniensis	this article
7	Chosrov Reservation, Armenia	saxicolis	this article
8	Djuda, 10 km W Djulpha, Azerbaijan	armeniensis	Kudryashova, 1967
9	Pirasora, Lerick Distr., Azerbaijan	saxicolis	Schluger, Hushcha, Kudryashova, 1965
10	Osh, Kyrgyzstan	naumovi	Kudryashova, Rybin, 1974
11	Ferusa ravine, Turkmenistan	communis	Schluger, Amanguliev, 1972
12	Chuli ravine, Geok-Tepinskyi Distr., Turkmenistan	communis	Schluger, Amanguliev, 1972
13	Neighborhood "Leaden Mine", Kugitang mountain, Turkmenistan	communis	this article
14	Kirpili, Center of Karakum desert, Turkmenistan	primarius	Schluger, Amanguliev, 1972
15	Karluk, Kugitang mountain, Turkmenistan	primarius	this article
16	"Leaden Mine", Kugitang mountain, Turkmenistan	fedtschenkoi	Amanguliev et al., 1972; Hushcha, Amanguliev, 1980

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(Continued)

NN on karte	Locality	Species of chiggers	Data
17	Karluk, Kugitang mountain, Turkmenistan	fedtschenkoi	this article
18	Bank of Karasu River, Uzbekistan	schlugerae	Kartzev, 1994
19	Gaurdak, Kugitang mountain, Turkmenistan	schlugerae	Kartzev, 1994
20	Kugitang mountain, Turkmenistan	turkmenicus	Kartzev, 1994
21	3 km to Shushtar, Iran	efferus	Kudryashova et al., 1976
22	48 km from Fasa for Jahrom part, Iran	efferus	Kudryashova et al., 1976
23	5 km N Kerman, Iran	apricus	Kudryashova et al., 1976
24	16 km N Delijan, Iran	dignus	Kudryashova et al., 1976
25	30 km S Isfahan, Iran	dignus	Kudryashova et al., 1976
26	Jinan, Shandong Province, China	jinanensis	Teng, 1983
27	Cave of Qianfoshan, Jinan, Shandong Province, China	shandongensi	Teng, 1983
28	Yunlong Country (25°34'N, 99°19'E), Yunnan, China	tetrasetosus	Yu, Yang, 1986
29	Batang Country, Sichuan Province, China	sichuanensis	Zhou et al., 1981

Table 2.
Distribution of species of the genus *Odontacarus* in Palearctic

Species of mites	Krasnodar District Russia	Georgia	Armenia	Azerbaijan	Iran	Turkmenistan	Uzbekistan	Kyrgyzstan	China
<i>Odontacarus hushchai</i>	+	+	+						
<i>Odontacarus saxicolis</i>				+					
<i>Odontacarus armeniensis</i>			+	+					
<i>Odontacarus apricus</i>					+				
<i>Odontacarus efferus</i>					+				
<i>Odontacarus dignus</i>					+				
<i>Odontacarus communis</i>						+			
<i>Odontacarus primarius</i>						+			
<i>Odontacarus fedtschenkoi</i>						+			
<i>Odontacarus turkmenicus</i>						+			
<i>Odontacarus schlugerae</i>						+	+		
<i>Odontacarus naumovi</i>								+	
<i>Odontacarus jinanensis</i>									+
<i>Odontacarus shandongensis</i>									+
<i>Odontacarus sichuanensis</i>									+
<i>Odontacarus tetrasetosa</i>									+
Total	1	1	2	2	3	5	1	1	4