Ecribellate *Tricholathys relicta* sp. n. (Araneae: Dictynidae: Tricholathysinae) from Kyrghyzstan

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Camberlin & Gertsch (1958) in their very qualitative and complete monograph that was devoted to the North American cribellate dictynid spiders distributed north of Mexico included 13 species into the genus *Tricholathys* Chamberlin & Ivie, 1935. P.T. Lehtinen (1967) restored the status of the genus *Arctella* Holm, 1945 known to that time only from *A. lapponica* Holm, 1945, the type species; he also separated from *Tricholathys* the new genus *Iviella* Lehtinen, 1967 with two species, *I. ohioensis* (Chamb. & Ivie, 1935) and *I. reclusa* (Chamb. & Ivie, 1935). It should be noted that Chamberlin & Gertsch in their monograph of 1958 referred two last species to the separate species-group. Other 10 species they have divided into two groups based on the differences in size of the apertures and receptacle ducts and shape of the male palpal conductor. The first group includes species with wide epigynal apertures and long spirally twirled apophyses of the conductor: *T. spiralis* Chamb. & Ivie, 1935; *T. dakota* Chamb. & Gertsch, 1958; *T. knulli* Gertsch, 1936; *T. jacinto* Chamb. & Gertsch, 1958; the second – with small epigynal apertures, thin receptacle ducts and more short and weakly twirled apex of the conductor: *T. hirsutipes* (Banks, 1921); *T. saltona* Chamb., 1948; *T. monterea* Chamb. & Gertsch, 1958; *T. hansii* (Schenkel, 1950); *T. rothi* Chamb. & Gertsch, 1958; *T. cascadea* Chamb. & Gertsch, 1958. Lehtinen (1967) suggested that some congeners should be placed into the synonyms of the type species, referring on the geographical variability. At first he synonymised *T. dakota* with *T. spiralis* without any substantiation. Maybe, this taxonomical operation is quite correct, however according to the good illustrations given by Chamberlin & Gertsch (1958, Pl. 3, fig. 3, 7), it is evident that the female spermathecae in *T. dakota* are much stronger removed each from other; besides, apertures of the epigynal ducts in the mentioned species are further removed from the epigastral furrow. I consider this synonymy to be not proven; in other words, the validity of the last specific epithet is accepted here at least at the present. Hence, taken in its modern limits the genus *Tricholathys* included hitherto 10 species distributed exclusively within the USA. A representative of the genus has been found in the limits of the Palearctic region for the first time. Both a fact of the occurrence of the Nearctic element in the fauna of Tien-Shan and some morphological features of a new species connected with adaptations to the extreme conditions of the habitat appear to be undoubtedly interesting. They give one more confirmation to the thesis about repeated and independent reduction of the cribellum in various groups of the spiders. The species forms a separate group, probably of a subgeneric range. The description of a new species is placed below.

Abbreviations. Mt - metatarsus; Tb – tibia; a – apical; Pm – prolateral median; psa – prolateral subapical; rm – retrolateral median; Rsa – retrolateral subapical; v – ventral; va – ventral apical; vm – ventral median (position). All measurements are given in millimeters.

Tricholathys relicta Ovtchinnikov, sp.n. (Figs. 1–4)

Diagnosis. By the structure of the female copulatory organs the new species seems to be similar to the species of the *T. spiralis* species-group and, especially, to *T. dakota*. Male also appears to be more similar to the species of the mentioned group, than to other 6 species, since it possesses the bulky conductor with apical half twisted spirally. Differs from all other known species by larger body size (up to 6.85 mm vs. 5.0 mm in the largest representatives of other species), by the relatively long legs, the reduced cribellum, loss of the calamistrum as well as by the presence of 5-8 tarsal trichobothria (vs. 3 in other congeners).

Types. Holotype ♂: Kyrghyzstan, W part of Terskei Alatau Mt. R., nr. Kol-Ukok lake, h-3500 m, 24.08.1993 (S.V. Ovtchinnikov). Paratypes: 2 ♂, 2 ♀ (including allotype), ibidem.

Female (allotype). Total length 6.85 Carapace 2.75 long, 2.0 wide. Carapace slightly elevated, broadly-pyriform with weakly protruding cephalic part, which only 1.3 times narrower then thorax. Shallow fovea represented by black furrow. Eyes small and subequal in size. Eye area occupies 0.6 of head width. Clypeus inclined. Chelicerae convex, directed ahead and downwards (as in some desid spiders). Anterior margin of cheliceral furrow with 5 (4) teeth, basal tooth separated from others and located on vertical inner surface. Second (angular) tooth differs by its irregular shape and considerably larger size from other 2-3 subequal triangular teeth. Posterior margin of cheliceral furrow with 3–4 equal teeth. Cheliceral surface covered with sparse granules – bases of cheliceral hairs. Labium in basal third with concave lateral margins, narrowed anteriorly, 1.3 times as long as broad, with marginal depressions - well developed anterior depression and weakly developed lateral ones. Maxillae more than 2 times as long as broad, outer lateral margin arched, maxillary apex rounded, coxal corners well developed. Sternum broadly-oval with posterior acute-triangle apophysis between posterior coxae. Coxae long, anterior ones achieve in length 10 % of maximal width of sternum. Trochanters unnotched. Legs rather of running type, longer then body, with relatively thin segments. Leg formula 4123, first and fourth pairs subequal in

length. Spination taken as in whole as in other congeners. Leg I, II: Mt 3 a, 2 vm. Leg III: Tb 1 psa, 1 rsa, 1 va; Mt 1 pm, 1 psa, 1 rm, 1 rsa, 3 vm, 5 a. Leg IV: Tb 1 rsa, 1 vm, 2 va; Mt 1 pm, 1 psa, 1 rm, 1 rsa, 1.1.1 v in apical third, 5 a. Tarsi III–IV with 5-6 small lateral and ventral spines in apical third. All legs without dorsal spines. Tarsi with 5–6 trichobothria which occupy all length of segment. Anterior trichobothria longest, length of others decreases gradually up to fifth, three last trichobothria equally short. Each tarsus is subdivided into weakly visible parts (separated each from other by membranes), whose number corresponds to number of bothrium bases. Metatarsi IV without calamistrum. Pubescence of legs variable, main hair types are: small-sized appressed light hairs that are more dense on tarsi and distal metatarsi; long erect bristle-shaped dark hairs with tapered and curved back top, confined mainly to tibiae and metatarsi; long black bristles occupying certain position on basal parts of leg segments (including patellae) are probably homologs of true spines. Color of body and legs is not contrastic, with gradual transitions from yellowish-brown tone (legs, maxillae partially) to brown-ferruginous (sternum, chelicerae, carapace, labium and maxillae). Cephalic part more darkened. Fovea and 3 back radial strips dark-grey, anterior of them triangle-extended. Dorsal part of caput with lateral longitudinal grey spots, behind with two short and inclined intensive-black stripes that are sharply contrasted with general coloration of carapace. Legs concolorous, without spots. Abdomen dorsally and ventrally covered with light-grey appressed hairs without certain pattern, only with mediodorsal dark-grey lanceolate spot, composed of more dark short hairs, which are almost black at the basal edge. Dorsal abdominal surface with sparse and regularly spaced long dark hairs. Cribellum reduced. Its vestige is represented by plate of broad-triangular shape with almost indistinct posterior margin, which slightly elevates over membranous surface lacking cribellate area. Anterior lateral spinnerets cylindrical, without characteristic flattened area known for cribellate dictynids. Structure of epigyne that is typical for genus, as shown on Figs. 3–4.

Male (holotype). Total length 6.6 Carapace 2.6 length, 2.2 wide. Abdomen 3.8 length, 2.2 wide. Leg measurements (those of the female allotype are shown in brackets):

	I	II	III	IV
Femur	2.35 (2.18)	2.08 (1.93)	1.83 (1.73)	2.35 (2.20)
Patella	1.05 (1.00)	1.00 (0.95)	0.95 (0.90)	1.10 (1.03)
Tibia	2.25 (1.85)	1.85 (1.63)	1.50 (1.33)	2.15 (1.93)
Metatarsi	2.00 (1.63)	1.78 (1.53)	1.68 (1.48)	2.13 (2.05)
Tarsi	1.13 (0.98)	1.08 (0.95)	0.98 (0.93)	1.10 (1.05)
Total	8.78 (7.64)	7.79 (6.99)	6.94 (6.37)	8.83 (8.26)

In general, male is similar to female both in body size and in coloration. Sexual differences as usual: relatively longer legs, somewhat more long chelicerae that curved basally. Posterior margin of cheliceral furrow with 2 teeth. Tarsi with large number of trichobothria – up to 8. Cymbium short, embolic base located in middle part of bulb, conductor with long and wide flattened apophysis. Tibial palpal apophysis distinctly curved with rounded lateral margins and darkened sclerotized apex, its apical margin abruptly truncated (Figs. 1–2).

Variability. The number of cheliceral teeth shows considerable range and varies from 4 to 5 on the anterior margin of the furrow and from 2 to 5 on the posterior one; besides, this number often occurs to be different on the right and left chelicerae of the same specimen. The number of tarsal trichobothria, especially that of the short ones, varies from 4 up to 8.

Depository. The holotype and allotype specimens are prepared to be placed into the spider collection of American Museum of Natural History. The paratypes are distributed between Zoological Museum of Moscow University, Zoological Museum of Siberian Department, Russian Acad. Sci., and Institute for Biology & Pedology, National Acad. Sci., Kyrghyzstan.

Habitat and biology. The type series is collected on the rocky northern slope at the end of a moraine near the constant snow line. Vegetation is represented there by small and sparse areas of low shrubs growing on the rocky screes. Despite the reduction of the cribellum, all other features of the species form the pattern that is typical for Tricholathys. An elongation of the legs, an increasing of the body dimensions and the number of the tarsal trichobothria appear to be resulted from the transition of the new species from sedentary life inside the tubes made of the cribellate silk to more free mode of life. In other words, these spiders belong to another kind of the living forms that are more adapted to a highland zone with a shortage of the potential victims. Under severe highland conditions, the active search for the prey is necessary. *Arctella subnivalis* Ovtchinnikov living sympatrically with *T. relicta* sp. n. possesses well developed cribellum and calamistrum. However, this species

inhabits slopes located at the lesser altitude, within a zone of alpine and subalpine meadows with considerably greater number of small-sized terrestrial arthropods; moreover, the first species is much more small then the second one. *T. relicta* sp.n. shows a rare opportunity to observe, within the generic limits, a transition from the cribellate state to the ecribellate one as well as to occur the probable reason, namely the useless of cribellate web under the certain conditions, for such a modification at least in spiders of the given size-class living in the localities with a very limited number of the potential victims. The most portion of the feed of the new species consists probably of the ground and litter microarthropods, for instance, of specimens of the Collembola.

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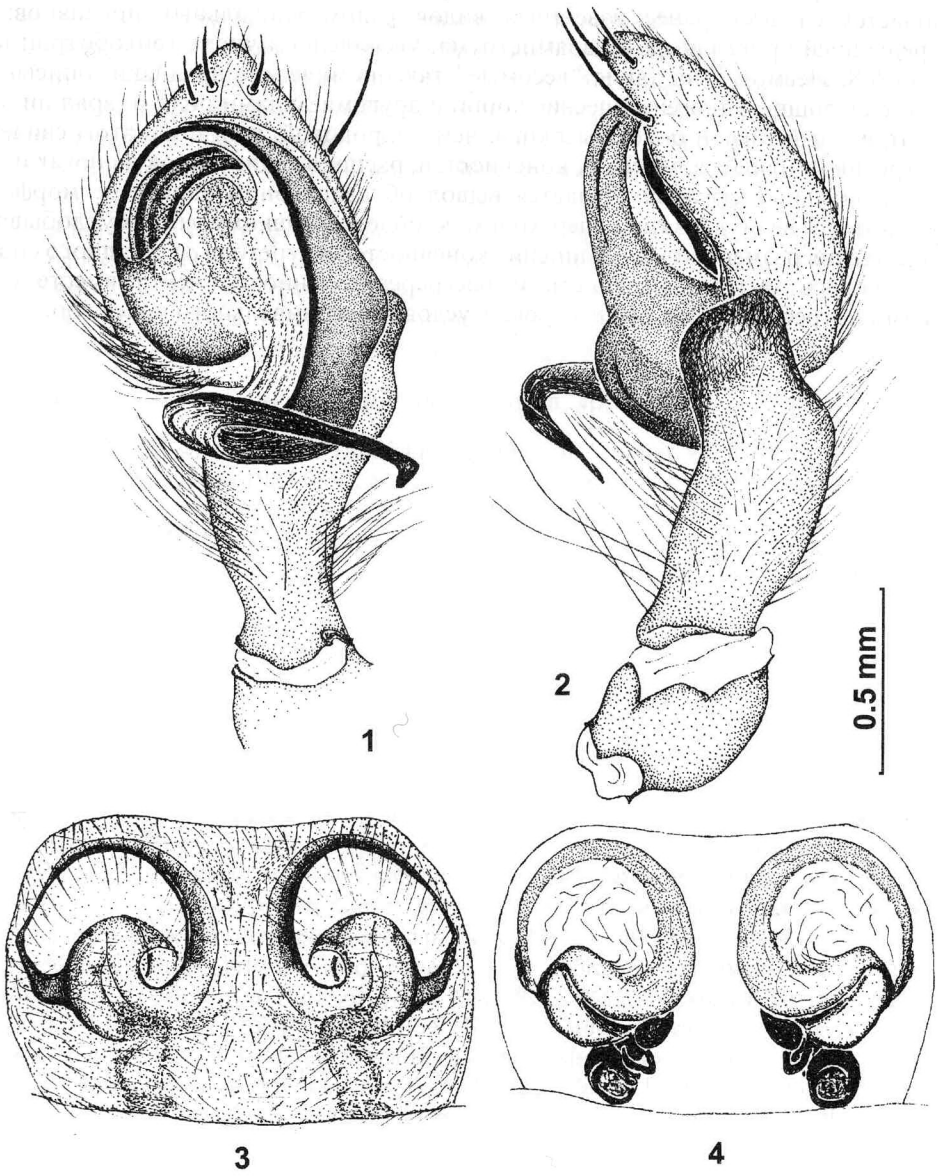

Figs. 1–4. *Tricholathys relicta* sp.n.: 1 – male palpus, ventral view; 2 – ditto, retrolateral view; 3 – epigyne, external structure; 4 – ditto, internal structure.

References

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Резюме

Овчинников С. В. **Бескрибеллятный *Tricholathys relicta* sp. n. (Araneae: Dictynidae: Tricholathysinae) из Киргизии.**

Описывается новый вид *Tricholathys relicta* sp. n. из высокогорий западной части хребта Терскей Ала-Тоо (Киргизия). До сих пор виды этого рода были известны только из западных районов США. Отличается от всех ранее известных видов рядом уникальных признаков: крупными размерами, редукцией крибеллюма и каламиструма, увеличением числа трихоботрий на лапках и предлапках до 5-8. Несмотря на такие "весомые" таксономические признаки, описываемый вид, несомненно, имеет общие филогенетические корни с другими видами рода и, вряд ли заслуживает выделения в отдельный таксон более высокого, чем подродовой, ранга. Об этом свидетельствуют идентичное строение карапакса, хелицер, конечностей, расположение шипов на ногах и однотипное устройство копулятивных органов. Делается вывод об адаптивном характере морфологических особенностей нового вида в связи с переходом к более активному способу добывания пищи. Причиной увеличения размеров тела, удлинения конечностей и перехода от засадного способа охоты к активному явилась малая численность и рассосредоточенность жертв вместе с большими энергетическими потребностями в очень суровых условиях субнивального пояса гор.