

A new erigonine genus and species from the Russian Far East (Aranei: Linyphiidae), with notes on chaetotaxy

Новые род и вид эригонин из российского Дальнего Востока (Aranei: Linyphiidae) с заметками о хетотаксии

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KEY WORDS: Erigoninae, dwarf-spiders, taxonomy, distribution, Asia.

КЛЮЧЕВЫЕ СЛОВА: Erigoninae, пауки-пигмеи, таксономия, распространение, Азия.

ABSTRACT. A new genus, *Erigokhabarum* gen.n., with *Erigokhabarum articulatum* sp.n. as the type species, is described based on a single male from the Khabarovsk Province, Russian Far East. The palpal structure of *E. articulatum* sp.n. somewhat resembles that of a few other genera like *Silometopus* Simon, 1926, *Trichoncus* Simon, 1884 and partly *Parasisis* Eskov, 1984, but it cannot be assigned to any of them. Four main formulae of leg chaetotaxy in Erigoninae, i.e. 1111, 2211, 2221, 2222, are discussed; the chaetotaxy being shown to be a sufficiently stable and important taxonomic character in the subfamily.

How to cite this paper: Tanasevitch A.V. 2022. A new erigonine genus and species from the Russian Far East (Aranei: Linyphiidae), with notes on chaetotaxy // Arthropoda Selecta. Vol.31. No.1. P.111–114. doi: 10.15298/arthscl. 31.1.13

РЕЗЮМЕ. Новый род *Erigokhabarum* gen.n. с типовым видом *Erigokhabarum articulatum* sp.n. описан по единственному самцу из Хабаровского края (Россия). Строение пальпы у *E. articulatum* sp.n. напоминает *Silometopus* Simon, 1926, *Trichoncus* Simon, 1884 и, отчасти, *Parasisis* Eskov, 1984, однако вид не может быть помещён ни в один из них. Обсуждены четыре основные формулы хетотаксии у пауков подсемейства Erigoninae, такие как 1111, 2211, 2221 и 2222; показано, что хетотаксия достаточно стабильный и важный таксономический признак для подсемейства.

Introduction

A single erigonine male of an unclear generic position, originating from the Khabarovsk Province, Russia, has long been kept in my personal collection, obviously representing a new species. I was hoping that female material corresponding to this male and clarifying its systematic position within Erigoninae would

become available for study. However, after waiting for almost two decades, no conspecific female sample has been found yet. The male palp of the new species is very peculiar, with some of its elements somewhat resembling that of several genera, i.e., *Silometopus* Simon, 1926, *Trichoncus* Simon, 1884, and partly *Parasisis* Eskov, 1984. Still, as the species can be attributed to none of these genera, nor can it be placed into any other known Erigoninae, I feel prompted to describe this single male in a new genus and species.

Material and methods

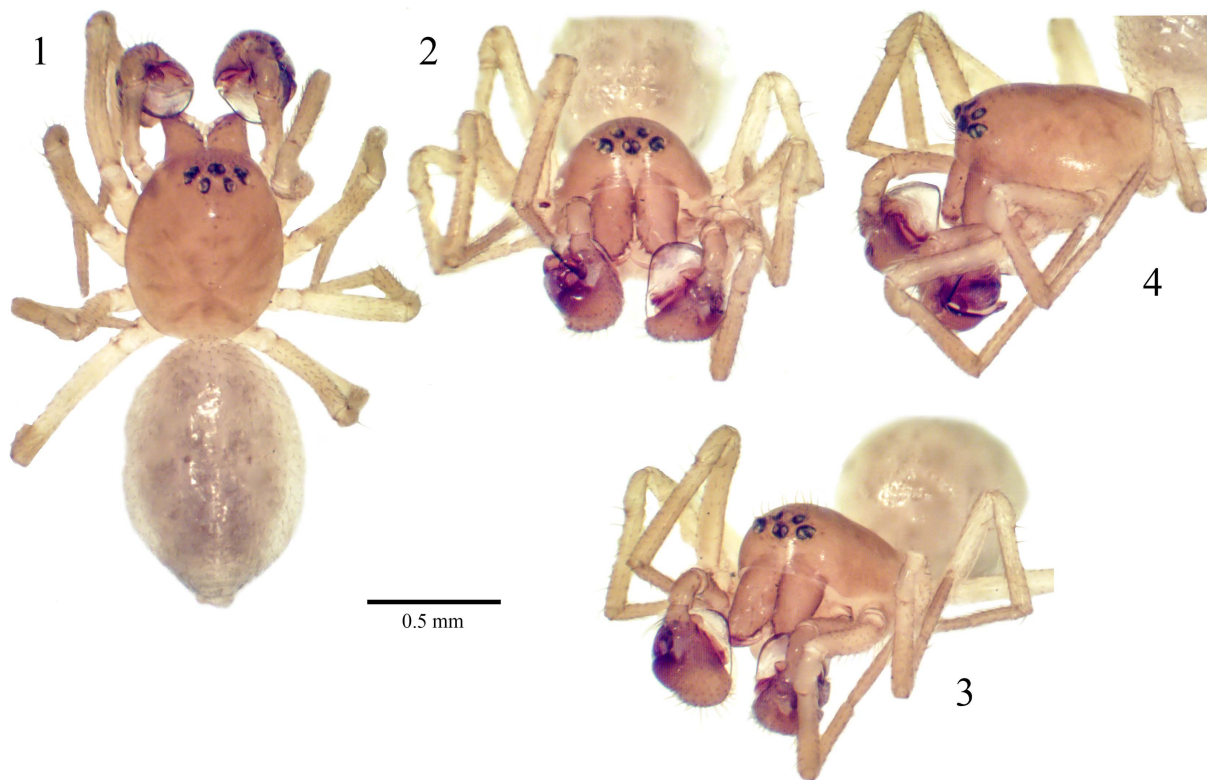
This paper is based on material from the author's personal collection, presently kept in the Zoological Museum of the Moscow State University (ZMMU), Moscow, Russia. The holotype, preserved in 70% ethanol, was studied using an MBS-9 stereomicroscope. Drawings were executed with a drawing tube; a Levenhuk C-800 digital camera was applied for taking photographs.

Leg chaetotaxy is presented in a formula: 2.2.1.1, which refers to the number of dorsal spines on tibiae I–IV. The sequence of leg segment measurements is as follows: femur + patella + tibia + metatarsus + tarsus. All measurements are given in mm. Scale lines in the figures correspond to 0.1 mm unless indicated otherwise.

The following abbreviations were used in the text and figures: ARP — anterior radical process; E — embolus; EM — embolic membrane sensu Tanasevitch [2017], not sensu van Helsdingen [1986] and Hormiga [1994, 2000]; MM — median membrane sensu Helsdingen [1965] (= embolic membrane sensu van Helsdingen [1986] and Hormiga [1994, 2000]); Mt — metatarsus; R — radix; Ti — tibia; Tml — relative position of trichobothrium on the metatarsus of leg I.

Taxonomy

Order Aranei Clerck, 1758
Family Linyphiidae Blackwall, 1859
Subfamily Erigoninae Emerton, 1882



Figs 1–4. Habitus of *Erigokhabarum articulatum* sp.n., holotype. 1–3 — body, dorsal, frontal and frontolateral views, respectively; 4 — prosoma, lateral view.

Рис. 1–4. Внешний вид *Erigokhabarum articulatum* sp.n., голотип. 1–3 — тело, соответственно вид сверху, спереди, спереди и сбоку; 4 — просома, вид сбоку.

Erigokhabarum gen.n.

Type species: *Erigokhabarum articulatum* sp.n.

DIAGNOSIS: The genus contains medium-sized erigonines, with a total length of about 1.6, which are characterized by the following combination of somatic and genitalic characters:

- 1) Carapace and chelicerae unmodified, eyes relatively small, cephalic pits (= sulci) absent (Figs 1–4).
- 2) Leg chaetotaxy formula: 2.2.1.1; metatarsi I–III each with a trichobothrium; TmI about 0.32.
- 3) Palpal tibia unmodified, any outgrowths or processes missing (Figs 5, 6).
- 4) Paracymbium small, simple, L-shaped (Fig. 5).
- 5) Distal suprategular apophysis reduced.
- 6) Median membrane short (Fig. 6).
- 7) Embolic division massive; radix divided into several parts connected to each other with a membranous area formed by a huge, hypertrophied embolic membrane; embolus long and thin, looped, conducted with a long and narrow projection of embolic membrane (Figs 5–7).
- 8) Abdomen without distinct pattern (Fig. 1).

NAME. The generic name *Erigokhabarum* is a combination of two words: “Erigoninae”, partly the name of the subfamily Erigoninae, partly referring to the origin area, the Khabarovsk Province, Russia. The gender is neuter.

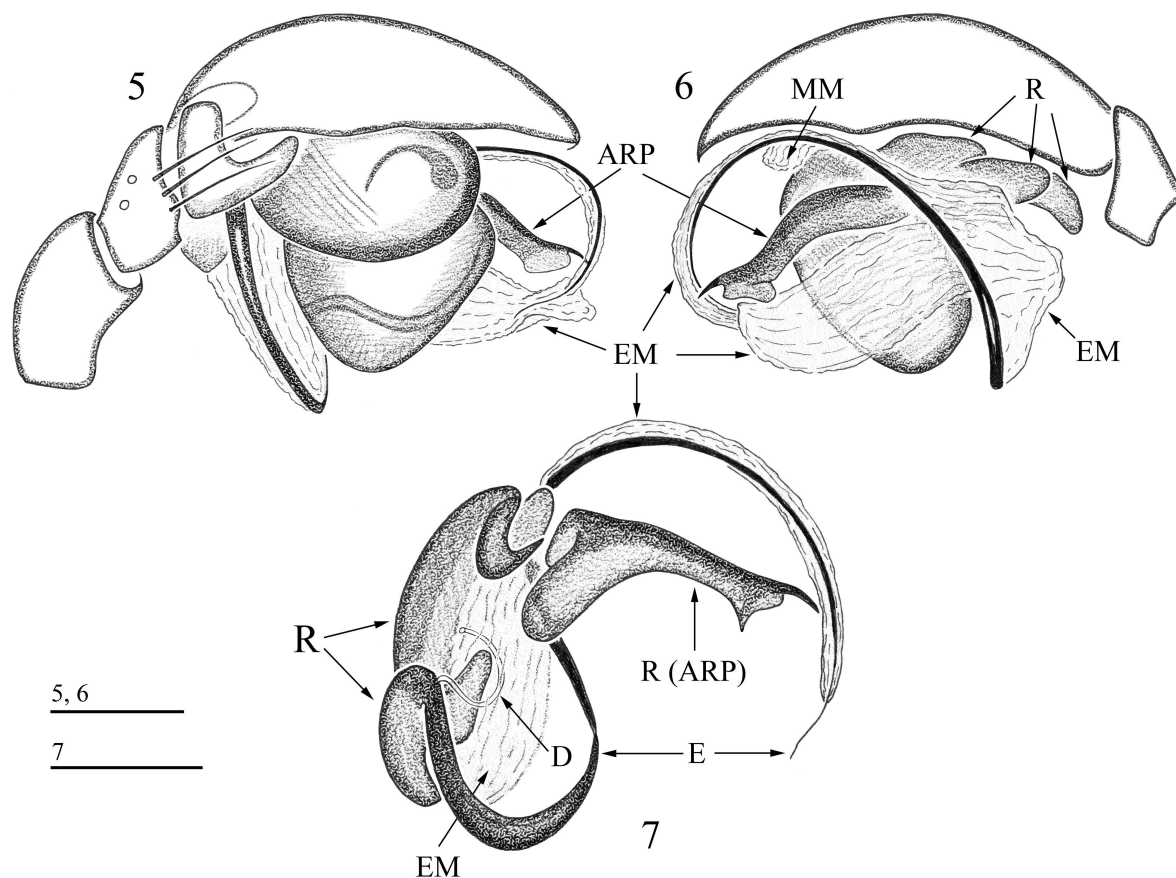
TAXONOMIC REMARKS. The palp of *E. articulatum* sp.n. somewhat resembles that of several genera, as noted earlier. Thus, an elongated, narrow radix with a long, characteristic anterior radical process, coupled with a long, thin

and coiled embolus resembles that of *Silometopus* Simon, 1926 and *Trichoncus* Simon, 1884. The new genus considerably differs by the unmodified carapace which lacks sulci; the simple, unmodified palpal tibia; the segmented radix; the hypertrophied embolic membrane; and particularly by the chaetotaxy formula, 2211, vs 1111 in *Silometopus* and *Trichoncus*. In rare cases, a few representatives of a few erigonine genera may show a chaetotaxy formula different from that observed in most congeners. However, this does not seem to be case concerning *E. articulatum* sp.n. The formula 1111 cannot turn into 2211 in an abnormal specimen, instead becoming only 0011 or 0000 as the result of a partial or complete reduction of the dorsal spines on the leg tibiae (for more information, see below). Due to a long and slender membrane conducting the embolus, the palp of *E. articulatum* sp.n. superficially resembles that of the monotypic genus *Parasisis* Eskov, 1984. However, its membrane is a median membrane, while in the new species this is an embolic membrane. Besides this, *E. articulatum* sp.n. significantly differs by the structures of the palpal tibia and cymbium, the shapes of the paracymbium and distal suprategular apophysis, as well as by a different chaetotaxy formula, 2211, vs 2221 in *Parasisis*. Being unable to place *E. articulatum* sp.n. into any known genus, I am inclined to establish *Erigokhabarum* gen.n. to accommodate the new species alone.

Erigokhabarum articulatum sp.n.

Figs 1–7.

HOLOTYPE ♂ (ZMMU), RUSSIA, Khabarovsk Province, Verkhnebureinsky District, Bureinsky Nature Reserve, environs of



Figs 5–7. Details of male palpal structure of *Erigokhabarum articulatum* sp.n., holotype. 5, 6 — right palp, retrolateral and prolateral views, respectively; 7 — embolic division, ventro-retrolateral view.

Рис. 5–7. Детали строения пальпы самца *Erigokhabarum articulatum* sp.n., голотип. 5, 6 — правая пальпа, соответственно ретролатерально и пролатерально; 7 — эмболюсный отдел, вентро-ретролатерально.

confluence of Pravaya and Levaya Bureya rivers, Cordon Strelka, *Populus* forest, in moss and litter, 22.V.–4.VI.2003, leg. A. Tanasevitch.

NAME. The specific epithet is a Latin adjective meaning “divided” and referring to the partitioned radix in the embolic division of the male palp.

DIAGNOSIS. See Diagnosis of the genus above.

DESCRIPTION. Male holotype. Habitus as in Fig. 1. Total length 1.63. Carapace unmodified, 0.70 long, 0.65 wide, pale brown. Clypeus with a small group of slightly curved hairs (Fig. 2). Eyes relatively small. Chelicerae unmodified, 0.28 long, same colour as carapace. Legs pale brown to yellow. Leg I, 1.87 long ($0.55 + 0.18 + 0.43 + 0.38 + 0.33$), leg IV, 1.81 long ($0.50 + 0.18 + 0.48 + 0.35 + 0.30$). Chaetotaxy 2.2.1.1, spines about as long as diameter of tibia. TmI 0.32. Palp (Figs 5–7): Tibia shorter than patella, unmodified. Cymbium with neither a posterodorsal outgrowth nor a process. Paracymbium small, simple, L-shaped. Distal suprategular apophysis reduced. Median membrane short. Radix very large, divided into several parts connected with a membranous area. Distal part of radix (= anterior radical process) long, well-protruded forwards, ending with a sharp, claw-shaped spike. Embolus thin and long, looped. Embolic membrane very massive at base, its distal part extending into a long and slender ribbon conducting the embolus almost to its end. Abdomen 0.91 long, 0.65 wide, pale grey (Fig. 1).

TAXONOMIC REMARKS. See above under the description of the genus.

Notes on the chaetotaxy in the subfamily Erigoninae

Many authors tend to underestimate the formula of leg chaetotaxy as an important taxonomic feature, often omitting it in descriptions earlier than the middle of the last century. Only four main formulae of chaetotaxy are known in erigonines: 1111, 2211, 2221, and 2222, being stable for most genera, with rare exceptions only. Here and below, only the dorsal spines on the tibiae are meant. A prolateral spine present on tibiae I and sometimes II in a few genera, e.g. *Asthenargoides* Eskov, 1993; *Carorita* Duffey et Merrett, 1963, *Hilaira* Simon, 1884, *Karita* Tanasevitch, 2007, *Sciastes* Bishop et Crosby, 1938, *Scotargus* Simon, 1913, and some others, is disregarded here. In some erigonine taxa (see below), the dorsal tibial spines (usually on tibiae I–II) are barely visible in males, i.e. partially or completely reduced, with their formulae, for example 1111, turning into 0011 or 0000, respectively. Keeping this in mind, the chaetotaxy formula in such genera and spe-

cies is to be taken from females, in which the reduction of tibial spines is extremely rare. The chaetotaxy formula in most erigonine genera is constant even in a historical aspect. Thus, *Floricomus fossilis* Penney, 2005, described from the Miocene Dominican amber, 15–20 Mya, had the same chaetotaxy formula as its recent congeners [Penney, 2005].

A list of aberrant chaetotaxy formulae of some representatives of erigonine genera is given below in the following way: the basic formula for the genus before the slash, followed by both the abnormal formula of its few representatives or some males after the slash and the names of the genera in which these deviations from the basic formula are known. Unfortunately, the chaetotaxy of some genera (especially from the Nearctic) remains unknown, since their authors omitted this feature from the descriptions.

1111/0000: *Epiceraticelus* Crosby et Bishop, 1931; *Gonatoraphis* Millidge, 1991; *Silometopus* Simon, 1926.

1111/0011: *Asiceratinops* Eskov, 1992; *Scutpelecopsis* Marusik et Gnelitsa, 2009; *Xim* Ibarra-Núñez, Chamé-Vázquez et Maya-Morales, 2021.

2211/1111: *Acartauchenius* Simon, 1884; *Araeoncus* Simon, 1884; *Archaraeoncus* Tanasevitch, 1987; *Miftengris* Eskov, 1993; *Paikiniana* Eskov, 1992; *Nasoon* Locket, 1982.

2221/2222: *Asthenargoides*; *Masikia* Millidge 1984; *Mecynargus* Kulczyński, 1894 (2222/2221/2220); *Semljicola* Strand, 1906; *Thaleria* Tanasevitch, 1984.

2221/2211: *Asthenargus* Simon et Fage, 1922; *Erigone* Audouin, 1826; *Glyphesis* Simon, 1926; *Mermessus* O. Pickard-Cambridge, 1899.

2222/2221: *Pseudotyphistes* Brignoli, 1972.

2222/2211: *Neomaso* Forster, 1970.

2222/1111: *Diechomma* Millidge, 1991.

Note the following very rare abnormal formulae:

1100: An especially rare formula known for two genera only: *Erigophantes* Wunderlich, 1995 from Kalimantan, Borneo, Indonesia [Wunderlich, 1995], and *Paragonylidiellum* Wunderlich, 1973 from the Himalayas [Wunderlich, 1973, 1983; Tanasevitch, 2021], and from Tamil Nadu, India [Tanasevitch, 2011, 2019a].

2210: *Aberdaria* Holm, 1962, a monobasic genus known from Kenya [Holm, 1962].

4322: *Aperturina* Tanasevitch, 2014 and *Racata* Millidge, 1995. Representatives of these Oriental genera are of unclear position within the family Linyphiidae. In addition to the formula of dorsal tibial spines 2222, they show one prolateral and one retrolateral spine on TiI, as well as a prolateral spine on TiII (see Tanasevitch [2019b]).

Even though it is difficult to evaluate the exact number of genera, the most common formula among the erigonines is 2211, slightly fewer genera have 1111, followed by 2221, and the lesser number of genera show 2222.

Acknowledgements. I am deeply grateful to Laimonas Trilikauskas (Novosibirsk, Russia) for the opportunity to participate in the expedition to the Bureinsky Nature Reserve, Khabarovsk Area in 2003, and to Sergei Golovatch (Moscow, Russia) for editing this manuscript. This study was supported in part by the Presidium of the Russian Academy of Sciences, Program No. 41 “Biodiversity of Natural Systems and Biological Resources of Russia”.

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Responsible editor K.G. Mikhailov