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A survey of *Dysderella* Dunin, 1992 (Araneae, Dysderidae), with a new species from Iran

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Abstract

The dysderid spider genus *Dysderella* Dunin, 1992 is surveyed. The genus currently comprises two species: *D. caspica* (Dunin, 1990) from Azerbaijan and North Caucasus and *D. transcaspica* (Dunin & Fet, 1985) from Turkmenistan and north-eastern Iran. Herein, *D. elburzica* **sp. nov.** is described based on male specimens collected in Tehran Province, northern Iran. All three species are illustrated and their distributions are mapped.

Key Words

Aranei, Caucasus, Dysderinae, Middle East, Turkmenistan, woodlouse spiders

Introduction

Dysderella Dunin, 1992, a small genus of dysderid spiders, is presently composed of only two known species, both of which were originally described in *Dysdera* Latreille, 1804. The first, *D. caspica* (Dunin, 1990), was described from Azerbaijan (Dunin 1990) and subsequently recorded from North Caucasus (Ponomarev and Alieva 2010). The second species, *D. transcaspica* (Dunin & Fet, 1985), was initially discovered in Turkmenistan (Dunin and Fet 1985) and later reported from north-eastern Iran (Zamani et al. 2015). In this study, we present a survey of this genus and describe a new species from Tehran Province of Iran. All three species are depicted with illustrations and their distribution records are mapped.

Material and method

Photographs of specimens and their copulatory organs were obtained using a Nikon D300S DSLR camera attached to a Nikon SMZ-800 stereomicroscope, a Tucsen TrueChrome Metrics microscope camera attached to a Nikon Eclipse E200 compound microscope and an Olympus E-520 camera attached to an Olympus SZX16 stereomicroscope or to the eye-piece of an Olympus BH2 transmission microscope. Digital images of different focal planes were stacked with Helicon Focus 8.1.1. Illustrations of the endogynes were made after digesting off tissues with a Neo PanPur commercial pancreatic enzyme cocktail pill, clearing the structures in wintergreen oil (methyl-salicylate), then mounting them on a temperate slide preparation (Coddington 1983). Lengths were measured without the chelicerae and the spinnerets. Leg segments were measured on the dorsal side and their measurements are listed as: total length (femur, patella, tibia, metatarsus, tarsus). All measurements are given in millimetres. Geographic coordinates of collection localities were obtained from the labels (given in parentheses) or georeferenced using Google Earth (given in square brackets). The distribution map was prepared using SimpleMappr (Shorthouse 2010).

Abbreviations: Eyes: AME – anterior median eye, **PLE** – posterior lateral eye, **PME** – posterior median eye. **Spination: Mt** – metatarsus, **pl** – prolateral, **Ti** – tibia, **v** – ventral.

Depositories: MMUE – Manchester Museum of the University of Manchester, United Kingdom (D.V. Logunov); **ZMFUM** – Zoological Museum of Ferdowsi University of Mashhad, Iran (O. Mirshamsi); **ZISP** – Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia (D.V. Logunov); **ZMMU** – Zoological Museum of Moscow State University, Russia (K.G. Mikhailov).

Taxonomy

Family Dysderidae C.L. Koch, 1837
Subfamily Dysderinae C.L. Koch, 1837

Genus *Dysderella* Dunin, 1992

Type species. *Dysdera transcaspica* Dunin & Fet, 1985, from Turkmenistan.

Diagnosis. The genus is most similar to *Dysdera* C.L. Koch, 1837, but can be distinguished from it by the smaller size (i.e. carapace < 2.1 mm vs. > 4 mm) and the spineless legs I and II (vs. spinose in most species).

Description. Small-sized (i.e. body length less than 5 mm). Pars cephalica very flat (Figs 1C, F, 4C, 6C). Interdistance of AMEs smaller than AME diameter. PMEs closely spaced. Legs with few spines; legs III and IV, if spinose, with only a few spines on tibiae and metatarsi. Gnathocoxae and tarsal claws as in *Dysdera*. Bulb with a hook-like posterior apophysis. Endogyne with Π-shaped anterior diverticulum and dumbbell-shaped 'spermatheca'.

Composition. Three species, including the new one described here (WSC 2023).

Distribution. From Northern Caucasus (Dagestan) southward to Tehran Province of Iran and eastward to southern Turkmenistan (Fig. 8).

***Dysderella caspica* (Dunin, 1990)**
Figs 1A–F, 2A–C, 3A–F

Dysdera kollari: Dunin 1984: 53 (as per Dunin 1992: 71).
Dysdera caspica Dunin, 1990: 143, figs 4.1–4 (♂♀).
Dysderella caspica: Dunin 1992: 67, fig. 12 (♂♀); Ponomarev and Alieva 2010: 12.

Material. Azerbaijan: Baku Region: 1♂ (ZMMU), environs of Baku, Dyubendy, (40°29'N, 50°13'E), 18.05,

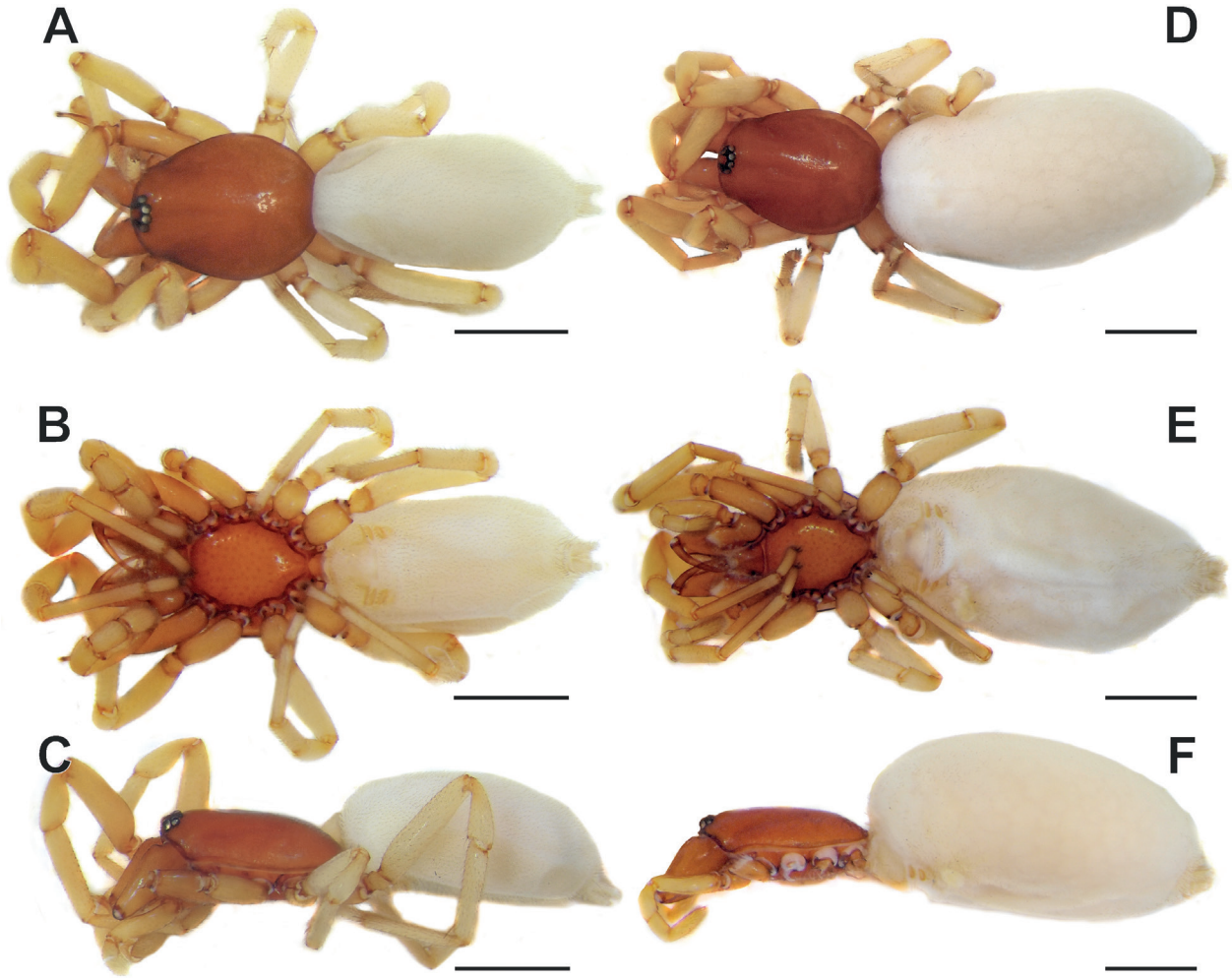

Figure 1. Male (**A–C**) and female (**D–F**) of *Dysderella caspica*: **A, D.** Habitus, dorsal view; **B, E.** Same, ventral view; **C, F.** Same, lateral view. Scale bars: 1.0 mm.

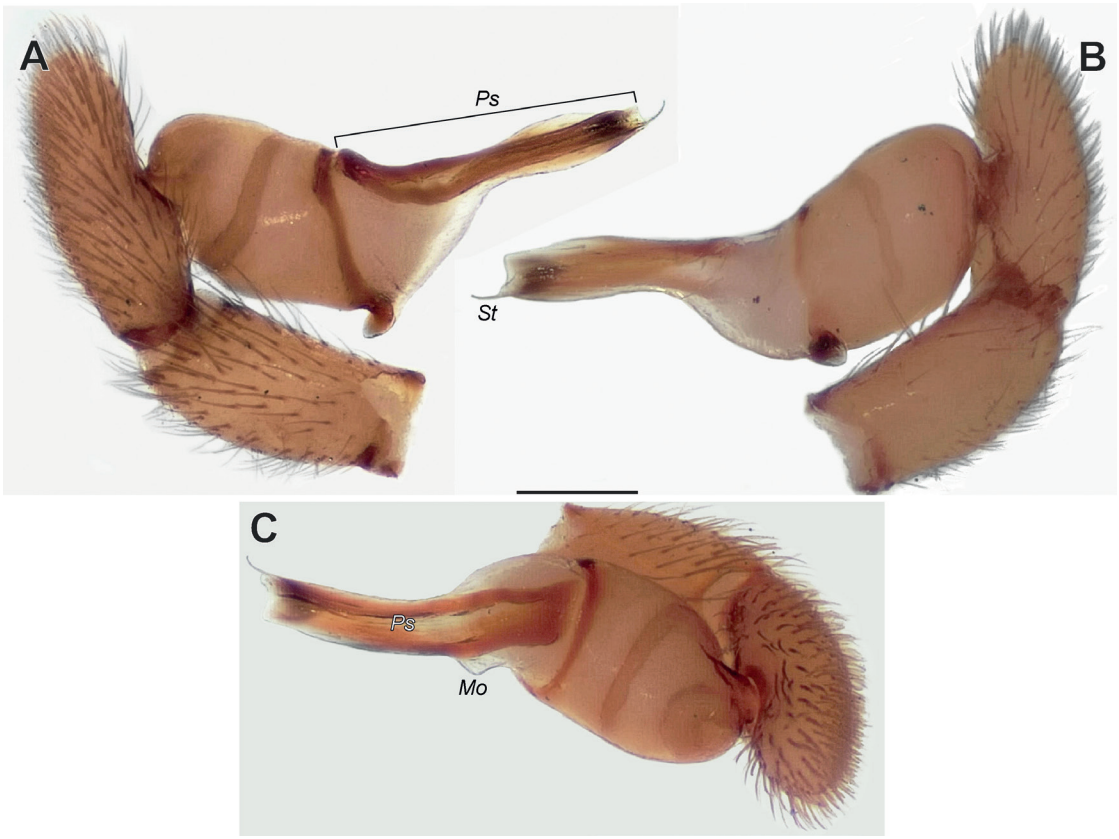

Figure 2. Male palp of *Dysderella caspica*: **A.** Prolateral view; **B.** Retrolateral view; **C.** Anterior view. Scale bar: 0.2 mm. Abbreviations: *Mo* – membranous outgrowth; *Ps* – psembolus; *St* – stylus.

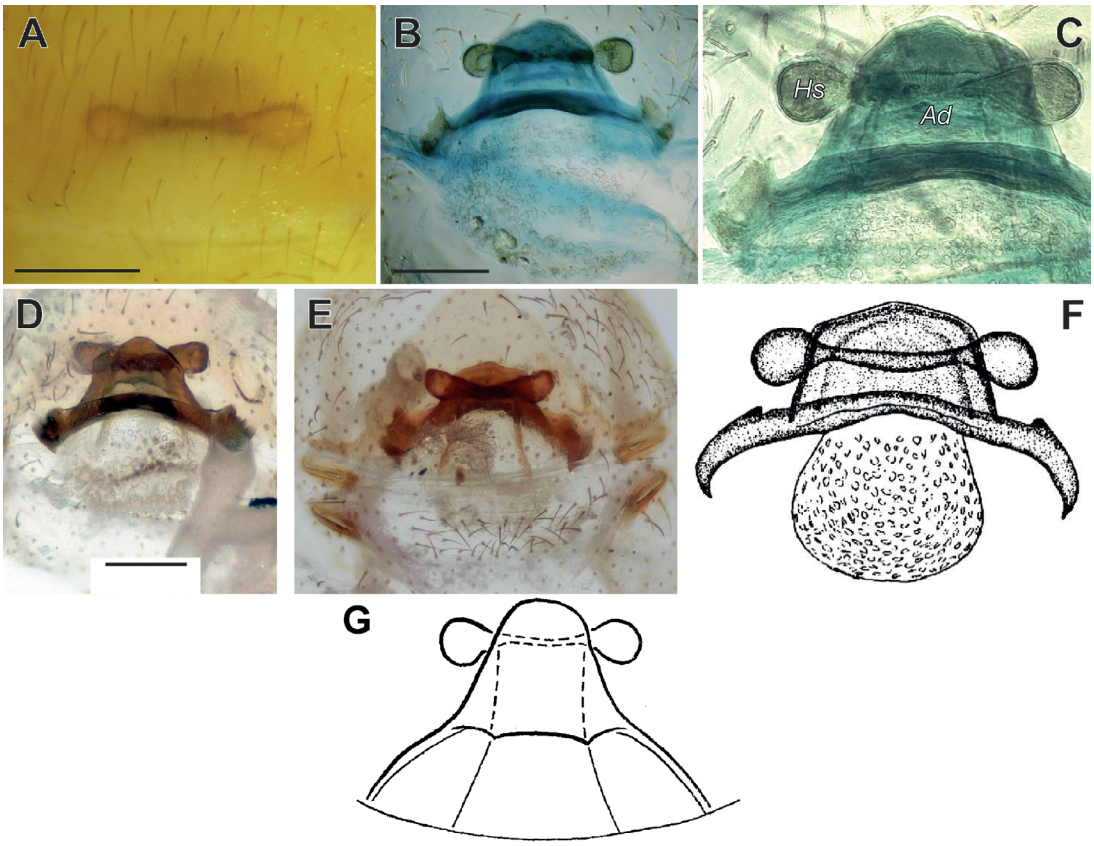

Figure 3. Endogynes of *Dysderella caspica* (**A–F**) and *D. transcaspica* (**G**): **A.** Intact, ventral view; **B–D, F, G.** Macerated, dorsal view; **E.** Same, ventral view; **F.** Reproduced from Dunin (1990); **G.** Reproduced from Dunin and Fet (1985). Scale bars: 0.2 mm. Abbreviations: *Ad* – anterior diverticulum; *Hs* – head of 'spermatheca'.

8.06.2003 (Y.M. Marusik); 1♂1♀2j. (ZMMU), Gobustan, (40°07'N, 49°23'E), 17–31.05.2003 (Y.M. Marusik).

Diagnosis. Male palp of *D. caspica* is most similar to that of *D. transcaspica*, but differs by the relatively shorter psembolus (*Ps*) (i.e. length/width ratio ca. 5, vs. 5.4) and the presence of a membranous outgrowth (*Mo*). Female of *D. caspica* differs from that of *D. transcaspica* by the relatively wider anterior diverticulum (*Ad*) (i.e. almost twice broader than long, vs. 1.5 times broader than long). Males of the two species differ also in spination (i.e. 1 spine on metatarsus III and 2 spines on leg IV in *D. caspica*, vs. 2 spines on metatarsus III and 3 spines on leg IV).

Description. Male. Habitus as in Fig. 1A–C. Total length 3.91. Carapace 1.62 long, 1.26 wide. Eye sizes: AME 0.07, PME 0.08, PLE 0.08. Carapace, sternum, chelicerae, labium and maxillae light reddish. Legs yellowish orange. Abdomen light beige, without any pattern. Spinnerets uniformly beige. Measurements of legs: I: 4.14 (1.23, 0.76, 0.89, 0.84, 0.42), II: 3.68 (1.10, 0.67, 0.78, 0.76, 0.37), III: 2.89 (0.81, 0.51, 0.53, 0.76, 0.28), IV: 3.90 (1.10, 0.61, 0.86, 0.97, 0.36). Spination: III: Ti: 1pl, 1v; Mt: 1pl. IV: Ti: 1pl; Mt: 1pl.

Palp as in Fig. 2A–C; tibia twice longer than wide, slightly shorter than cymbium; bulb ca. 3 times longer than wide, tegular part ca. 2 times longer than wide; psembolus ca. as long as tegular part, margins almost parallel, stylus short, shorter than width of psembolus; middle part of bulb with triangular membranous outgrowth (*Mo*).

Female. Habitus as in Fig. 1D–F. Total length 5.44. Carapace 1.83 long, 1.36 wide. Eye sizes: AME 0.11, PME 0.06, PLE 0.05. Colouration and spination as in male. Measurements of legs: I: 6.88 (1.96, 1.07, 1.53, 1.73, 0.59), II: 6.05 (1.69, 1.13, 1.34, 1.37, 0.52), III: 4.83 (1.38, 0.84, 0.84, 1.27, 0.50), IV: 6.69 (1.81, 1.29, 1.48, 1.53, 0.58).

Endogyne as in Fig. 3A–F; dumbbell-shaped 'spermatheca' well visible through integument; anterior diverticulum (*Ad*) almost 2 times broader than long, heads of spermatheca (*Hs*) globular, spaced by ca. 2.5 diameters.

Habitats. A xerophilous species that inhabits wormwood (*Artemisia absinthium* L.) and ephemeroid semi-deserts and can be found under stones, in soil cracks and within rodent burrows (Dunin 1992).

Distribution. Azerbaijan (Baku, Ganja and Goygol), North Caucasus (Dagestan) (Fig. 8).

Dysderella elburzica sp. nov.

https://zoobank.org/7DE212D7-1235-446D-BC53-46CB7BF1F41B

Figs 4A–C, 5A–F

Type material. ***Holotype*** ♂ (MMUE), Iran: Tehran Province: Latian Dam, (35°48'N, 51°08'E), 6–19.6.2000 (Y.M. Marusik). ***Paratype*:** 1♂ (MMUE), same data as for the holotype.

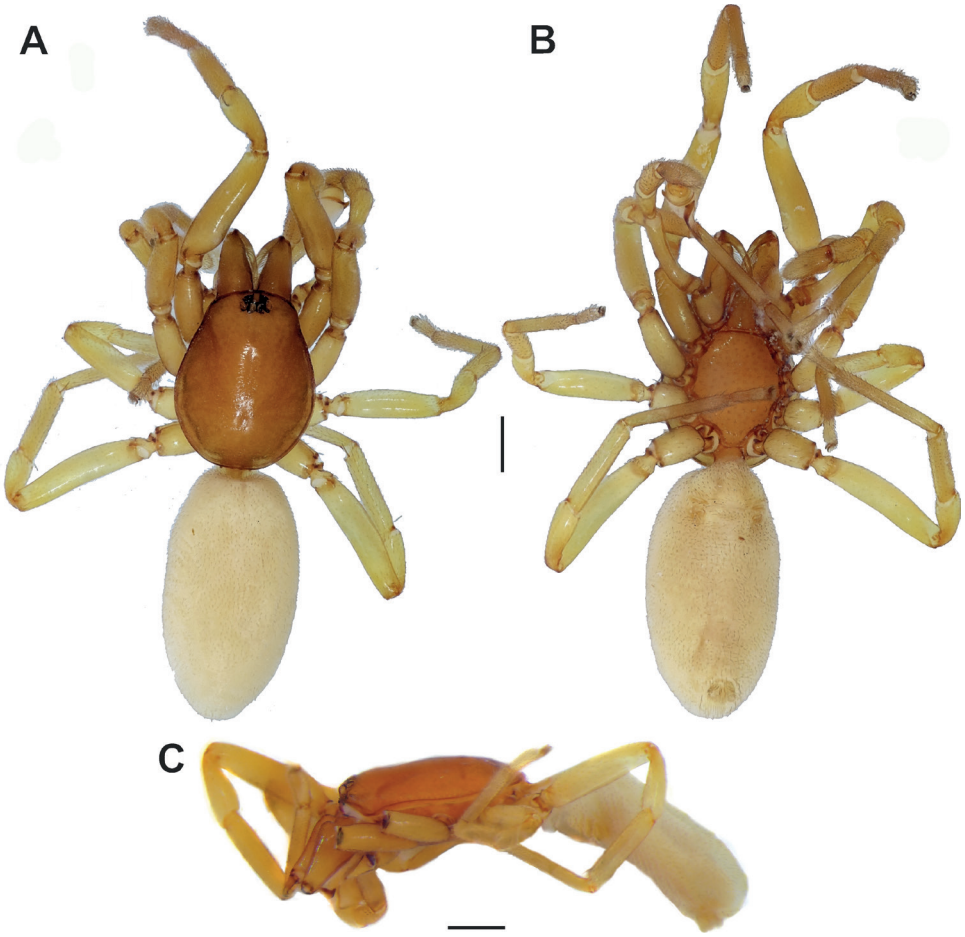

Figure 4. Male of *Dysderella elburzica* sp. nov.: **A.** Habitus, dorsal view; **B.** Same, ventral view; **C.** Same, lateral view. Scale bars: 0.5 mm.

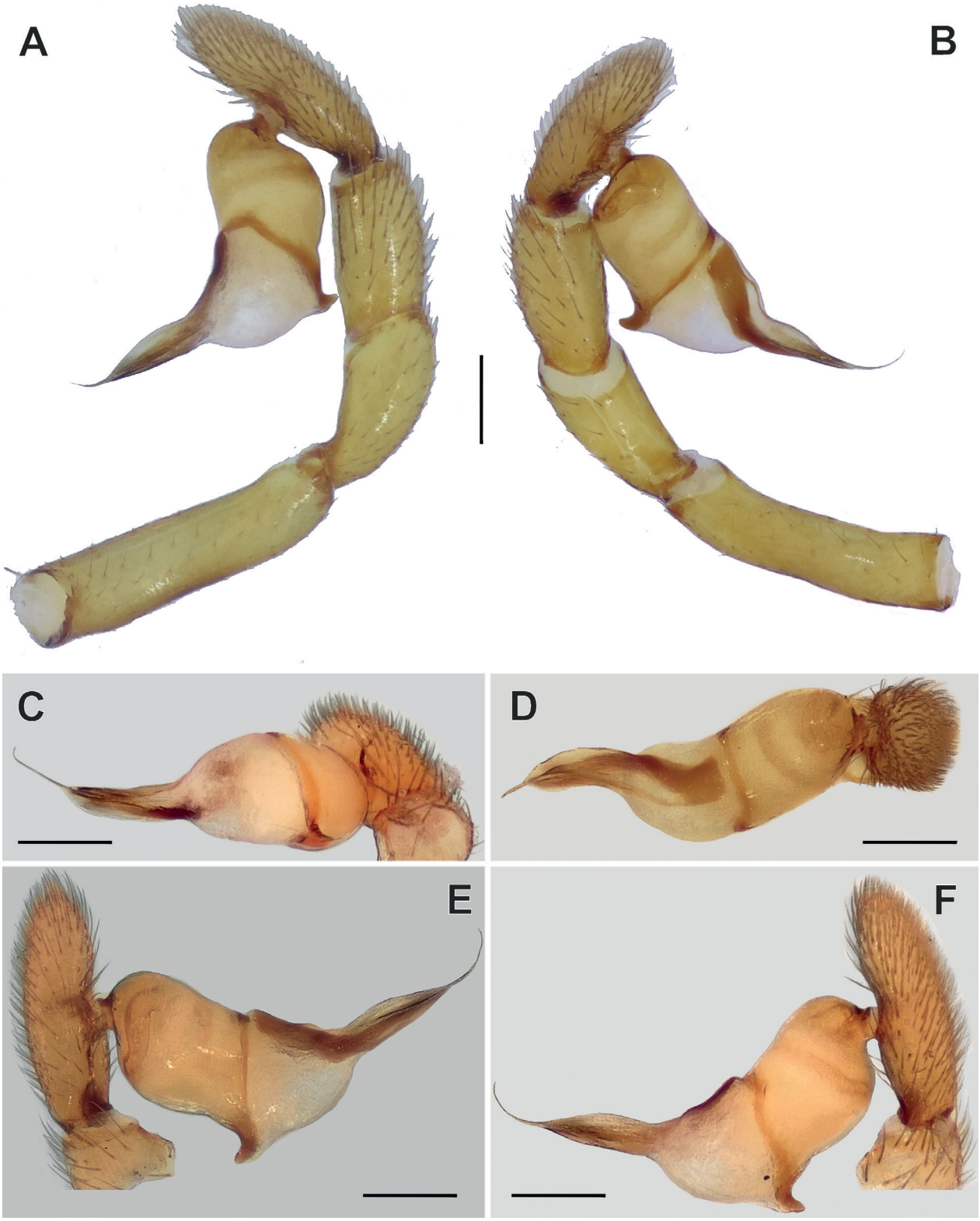

Figure 5. Male palp of *Dysderella elburzica* sp. nov.: **A.** Whole palp, retrolateral view; **B.** Same, prolateral view; **C.** Cymbium and bulb, posterior view; **D.** Same, anterior view; **E.** Same, prolateral view; **F.** Same, retrolateral view. Scale bars: 0.2 mm.

Etymology. The specific epithet is an adjective, referring to the Elburz Mountain Range in northern Iran.

Diagnosis. Male of the new species differs from its congeners by having tapering psembolus (vs. psembolus with subparallel margins).

Description. Male. Habitus as in Fig. 4A–C. Total length 3.63. Carapace 1.63 long, 1.19 wide. Eye sizes: AME 0.08, PME 0.08, PLE 0.06. Carapace, sternum, chelicerae, labium and maxillae light reddish. Legs yellowish orange. Abdomen light beige, without any pattern.

Spinnerets uniformly beige. Measurements of legs: I: 5.30 (1.35, 0.99, 1.27, 1.21, 0.48), II: 5.12 (1.51, 0.86, 1.16, 1.16, 0.43), III: 4.25 (1.22, 0.71, 0.77, 1.04, 0.51), IV: 5.32 (1.68, 0.69, 1.19, 1.37, 0.39). Spination: III: Ti: 1pl; Mt: 1pl. IV: Ti: 1pl; Mt: 1pl.

Palp as in Fig. 5A–F; femur 4 times longer than wide, almost as long as patella+tibia; patella and tibia subequal in length; bulb ca. 3.4 times longer than wide; psembolus ca. 1.7 times longer than tegulum (in prolateral view); psembolus gradually tapering, with long stylus.

Female. Unknown.

Distribution. Known only from the type locality in Tehran Province, northern Iran (Fig. 8).

Dysderella transcaspica (Dunin & Fet, 1985)

Figs 3G, 6A–C, 7A–J

Dysdera kollari: Ovtsharenko and Fet 1980: 443; Fet 1983: 837 (as per Dunin and Fet 1985: 298).

Dysdera transcaspica Dunin & Fet, 1985: 298, figs 1–4 (♂♀).

Dysdera transcaspica: Dunin 1985: 118, figs 5–7 (♂).

Dysderella transcaspica: Dunin 1992: 67; Zamani et al. 2015: 340, fig. 1a–g (♀).

Material. Turkmenistan: Balkan Province: 1♂1♀ (ZMMU), south-western Kopetdagh, Yoldere (= Eldere) Valley, [38°31'N, 56°23'E], under garland thorn, 25.05.1982 (N.S. Ustinova); 1 juv. (ZMMU), Aydere Valley, [38°24'N, 56°45'E], 27.05.1980 (V.Y. Fet). Iran: Razavi Khorasan Province: 1♂ (only palp) (ZMFUM), Torbat-e Jam, Ghader Abad, [35°16'N, 60°37'E], 05.2014 (B. Jannesar).

Note. Dunin and Fet (1985) stated that all type series (consisting of 16 males and 12 females) were deposited in ZISP. However, according to D.V. Logunov (personal communication), the material could not be located there. Three specimens were found in ZMMU, consisting of one male, one female without endogyne and a juvenile.

Diagnosis. See diagnosis for *D. caspica*.

Description. Male. Habitus as in Fig. 6A–C. Total length 4.00. Carapace 1.95 long, 1.45 wide. Eye sizes: AME 0.11, PME 0.10, PLE 0.11. Carapace, sternum, chelicerae, labium and maxillae reddish. Legs yellowish orange. Abdomen light beige, without any pattern. Spinnerets uniformly beige. Measurements of legs: I: 5.40 (1.45, 1.03, 1.26, 1.24, 0.42), II: 4.75 (1.17, 0.87, 1.13, 1.17, 0.41), III: 3.63 (1.07, 0.62, 0.68, 0.92, 0.34), IV: 5.00 (1.35, 0.83, 1.16, 1.21, 0.45). Spination: III: Ti: 1pl, 1v; Mt: 2v. IV: Ti: 1v; Mt: 2v.

Palp as in Fig. 7A–J; femur 4 times longer than wide and as long as patella+tibia; tibia almost as long as cymbium; psembolus almost straight, with subparallel margins, ca. 5.4 times longer than wide, with stylus (broken in the illustrated specimen).

Female. See Dunin and Fet (1985). Colouration and spination as in male; endogyne as in Fig. 3G.

Habitats. The habitats of this species range from foothills to low mountains. It can be found in various microhabitats, including under stones, within ground cracks and inside rodent burrows (Dunin 1985).

Distribution. Turkmenistan (Ahal, Ashgabat, Balkan, Mary), Iran (Razavi Khorasan) (Fig. 8).

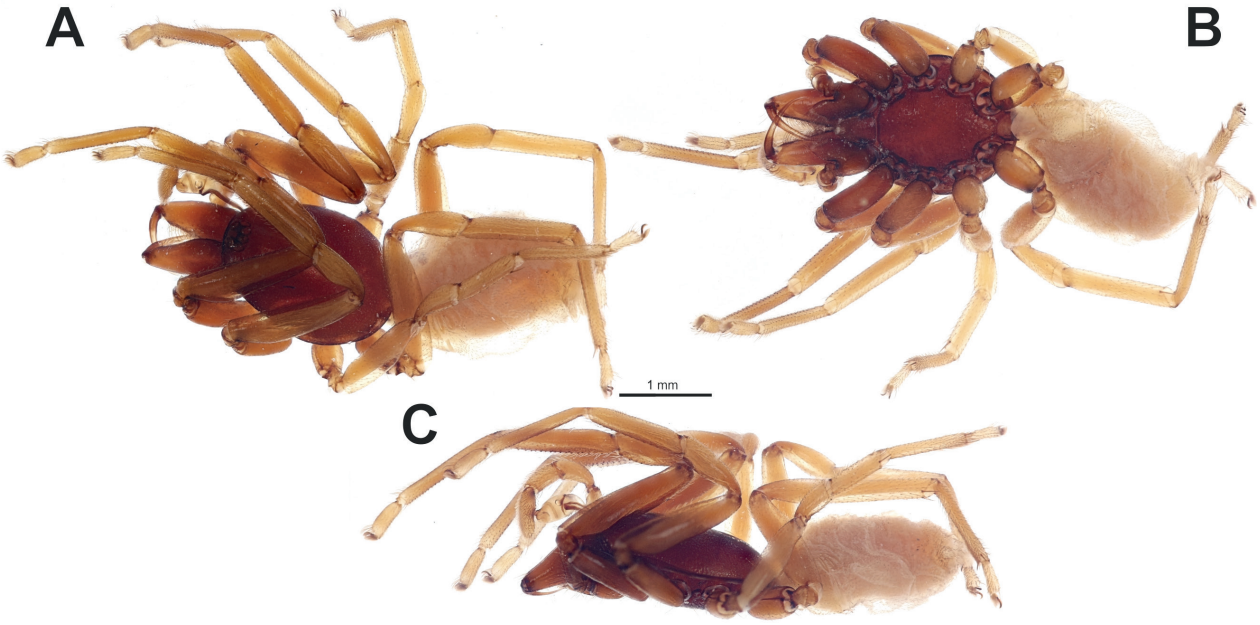

Figure 6. Male of *Dysderella transcaspica*: **A.** Habitus, dorsal view; **B.** Same, ventral view; **C.** Same, lateral view.

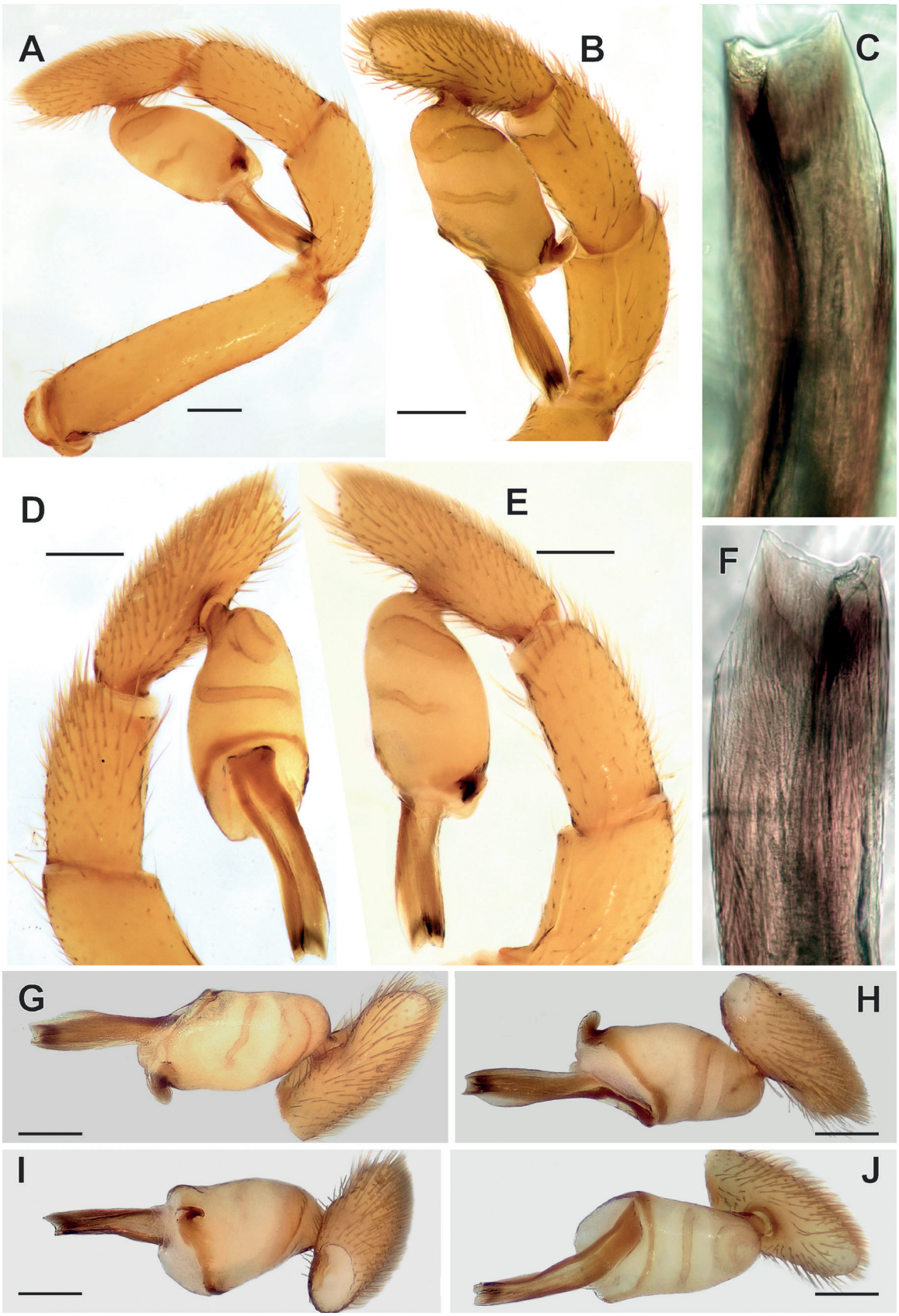

Figure 7. Male palp of *Dysderella transcaspica* (stylus broken): **A.** Whole palp, retrolateral view; **B, D, E.** Close-up, anteroretrolateral, prolateral and retrolateral views; **C, F.** Tip of psembolus, retrolateral and prolateral views; **G.** Cymbium and bulb, retrolateral view; **H.** Same, prolateral view; **I.** Same, posterior view; **J.** Same, anterior view. Scale bars: 0.2 mm.

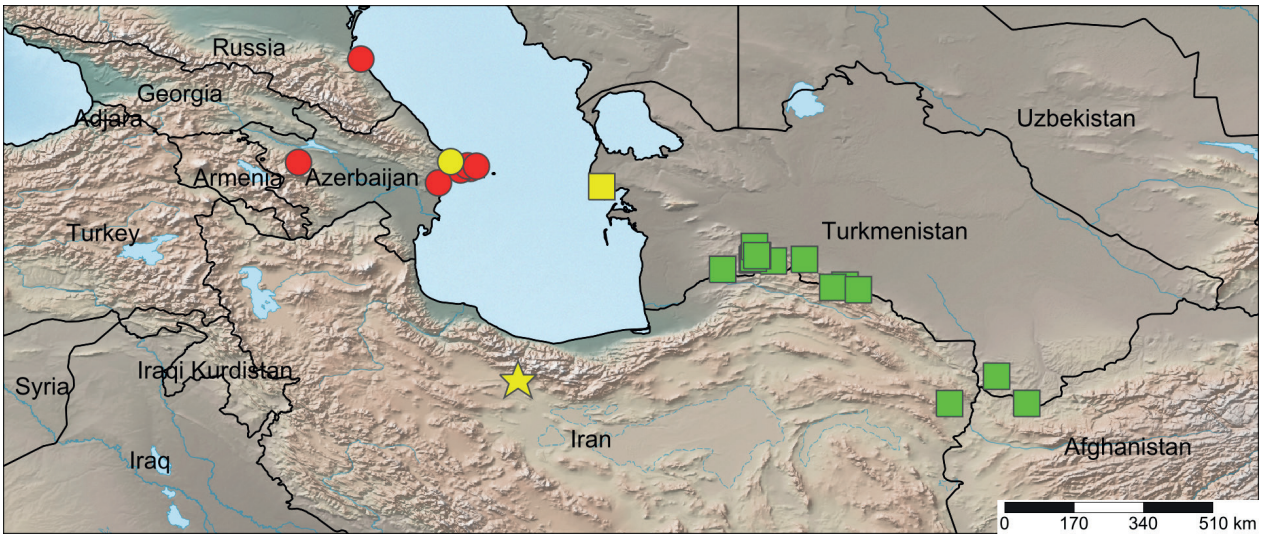

Figure 8. Distribution records of *Dysderella* spp.: circles – *D. caspica*; star – *D. elburzica* sp. nov.; square – *D. transcaspica*. Yellow symbols refer to the type localities.

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References

Coddington JA (1983) A temporary slide-mount allowing precise manipulation of small structures. Verhandlungen des Naturwissenschaftlichen Vereins in Hamburg 26: 291–292.

Dunin PM (1984) [Fauna and ecology of the spiders of the Apsheron Peninsula, Azerbaijan SSR]. In: Utochkin A (Ed.) Fauna and Ecology of Arachnids. University of Perm, 45–60. [in Russian]

Dunin PM (1985) [The spider family Dysderidae (Aranei, Haplogynae) in the Soviet Central Asia]. Trudy Zoologicheskogo Instituta Akademii Nauk SSSR, Leningrad 139: 114–120. [in Russian]

Dunin PM (1990) [Spiders of the genus *Dysdera* (Aranei, Haplogynae, Dysderidae) from Azerbaijan]. Zoologicheskiĭ Zhurnal 69(6): 141–147. [in Russian]

Dunin PM (1992) [The spider family Dysderidae of the Caucasian fauna (Arachnida Aranei Haplogynae)]. Arthropoda Selecta 1(3): 35–76. [in Russian]

Dunin PM, Fet VY (1985) [*Dysdera transcaspica* sp. n. (Aranei, Dysderidae) from Turkmenia]. Zoologicheskiĭ Zhurnal 64: 298–300. [in Russian]

Fet VY (1980) [Spider fauna (Aranei) of southwestern Kopetdag]. Entomologicheskoe Obozrenie 62(4): 835–845. [in Russian]

Ovtsharenko VI, Fet VY (1980) [Fauna and ecology of spiders (Aranei) of Badhyz (Turkmenian SSR)]. Entomologicheskoe Obozrenie 59(2): 442–447. [in Russian]

Ponomarev AV, Alieva SV (2010) [The new data on spiders (Aranei) fauna of Dagestan]. Vestnik Permskogo Universiteta: Seria Biologia 3: 12–16. [in Russian]

Shorthouse DP (2010) SimpleMappr, an online tool to produce publication-quality point maps. http://www.simplemappr.net [accessed 11.03.2023]

WSC (2023) World Spider Catalog. Version 23.5. Natural History Museum Bern. http://wsc.nmbe.ch [accessed on 05.04.2023]

Zamani A, Mirshamsi O, Jannesar B, Marusik YM, Esyunin SL (2015) New data on spider fauna of Iran (Arachnida: Araneae), Part II. Zoology and Ecology 25(4): 339–346. https://doi.org/10.1080/21658005.2015.1068508