

Short article

**The first report of *Dactylochelififer spasskyi* Redikorzev  
(Pseudoscorpiones: Cheliferidae) from Iran**

*M. Nassirkhani*<sup>1\*</sup>, *H. M. Takaloo zade*<sup>2</sup>

1- Department of Entomology, Islamic Azad University, Arak Branch, Iran

2- Assistant Professor, Department of Plant Protection, Faculty of Agriculture, Shahid Bahonar University of Kerman, Kerman, Iran

**Abstract**

*Dactylochelififer spasskyi* Redikorzev 1949 is the rare Pseudoscorpion that existed in Kazakhstan and Uzbekistan. This is a new report of this species collected from leaf litter habitats in Iran.

**Key words:** Arachnid, Pseudoscorpion, Leaf Litters, Kerman, Iran

**Introduction**

Pseudoscorpions are small Arachnids usually 2-8 mm in length living secretly in hidden places like leaf litters (Buddle, 2011). The first pseudoscorpion reported from Iran, *Chelififer spinipalpis* Redikorzev, 1918, now placed in the genus *Strobilochelififer*, was described from Bazman, south-eastern Iran (Redikorzev, 1918). The next faunistic attempt was done by Beier (1951, 1971) who has been reported nine families, 21 genera and 39 species from several places in Iran (Harvey, 2011). Numerous specimens belong to nine families and 17 genera have been collected in recent faunistic investigations during 2010-2011 from Kerman, Iran.

The genus *Dactylochelififer* Beier 1932 is distributed widely throughout Kerman Province. These specimens can be identified by the following characters: presence of coxal sacs with developed atrium situated within the coxae of fourth pair of legs of males (Fig. 1c, d); the simple sub terminal seta (Fig. 1j, k); the presence of a median seta on each half tergite (Fig. 1a, b) and only one cribriform plate in female (Beier, 1932; Dashdamirov & Schawaller, 1995).

**Material and Methods**

In this study, samples were collected from various geographical parts of Kerman Province, south-eastern Iran. The specimens were collected directly from moist leaf litters by sieving and using thin needles. All specimens were preserved in 70% ethanol and prepared for study as follows. The pedipalps, chelicera, first and fourth legs were dissected using thin needles, cleared with 60% lactic acid, and mounted on glass microscope slides in Hoyer's medium. The duration of the clearing phase was dependent on the degree of sclerotization of the body. The specimens were examined and illustrated with an Olympus BH-2 compound microscope and drawing tube attachment. The specimens are lodged in Collection of the Acarology Laboratory, Shahid Bahonar University of Kerman, Iran.

Morphological terminology follows Chamberlin (1931), Harvey (1992) and Judson (2007). The following trichobothrial abbreviations were employed: *eb*= external basal; *esb*= external sub-basal; *ib*= internal basal; *isb*= internal sub-basal; *ist*= internal sub-terminal; *est*= external sub-terminal;

\* Corresponding author : E-mail address: [greenartificialturfgrass@gmail.com](mailto:greenartificialturfgrass@gmail.com)

Received: 31 Oct. 2012 – Accepted: 18 Jun. 2013



*it*= internal terminal; *et*= external terminal; *t*= terminal; *sb*= sub-basal; *st* = sub-terminal. In addition, the following abbreviations are used: mm= millimeter; L= length; W= width; H= height.

## Results

### Family cheliferae

#### Genus *Dactylochelifera* Beier, 1932

#### *Dactylochelifera spasskyi* (Redikorzev, 1949)

*Dactylochelifera spasskyi* Redikorzev, 1949: 667-668, Fig. 37; Harvey, 1991a; Dashdamirov & Schawaller, 1995.

**Material examined:** Iran: *Kerman Province*: 5 ♂, 0 ♀, 29°49'17"N, 56°17'33"E.

## Description

**Male:** *Body length*: 2.62-2.85 mm.

**Carapace:** brown with dark lateral margins; darker than abdomen; anterior and lateral margin more granulate; area between eyes slightly granulate; longer than wide generally; L/W 1.12-1.24; with 2 well-developed corneate eyes; setae short with terminal denticulations; anterior margin with 8-9 and posterior margin with 9-10 setae; 2 transverse furrows present; anterior furrow U-shaped and situated proximally to anterior margin, narrow and extending to lateral margins; posterior furrow curved anteriorly, wider than anterior furrow and extending to proximity of the lateral margins.

**Abdomen:** with 11 segments.

**Tergites:** sclerotized and granulate; lighter in color than carapace, brown with 2 dark brown and extensive stripes, tergites with setae arranged: 11: 13: 13: 15: 18: 19: 18: 14: 16: 17: 13; most tergal setae short with terminal denticulations; tergite XI with 2 very long and simple setae; tergal setae situated irregularly, tergite I to III with serial setae (in one row); each half-tergite of segments IV to X with 2 median seta, one seta situated between half-tergites and one seta situated on middle zone of each half-tergite, tergite XI with scattered setae; tergite I divided completely; tergites II to X divided by narrow and obvious median line; tergite XI not divided.

**Sternites:** with 10 segments; slightly granulate with many lyrifissures; sternite I absent; sternites II and III deformed and made anterior operculum and posterior operculum, anterior operculum with 36-39 simple setae and posterior operculum with 13-14 simple setae; sternites IV to X divided by narrow median line; sternite XI divided incompletely; sternite X and XI with 2 long median setae, Setae of sternite XI longer than setae of sternite X; sternal setae arranged: 36: (0)13(0): (1)11(1): 14: 13: 15: 15: 13: 12: 7; sternal setae simple and longer than tergal setae.

**Chelicera:** brown; movable finger slightly darker in color; galeal seta present; hand with 5 simple setae; external seta shorter than fixed finger, b and sb simple and very short; galea longer than nymphs, with 2 distal rami; rallum with 3 blades, distal blade longest, with lateral denticulations; serrula exterior with 19-20 blades; fixed finger with 8 teeth, 3 terminal teeth small and acute, fourth teeth elongate and acute and 4 basal teeth large and blunt.

**Pedipalps:** long and narrow; brown to red, darker than carapace; lateral margins darker and more granulate; trochanter, femur, patella and chelal hand completely granulate; most setae short with 1 lateral and few terminal denticulations; chelal fingers with simple and long setae; trochanter with 2 dorsal ridges; femur with distinct pedicel; retrolateral margin of femur slightly curved posteriorly and prolateral margin straight; femur L/W 4.29-4.54; patella distinctly shorter and somewhat wider than femur; patella with distinctly curved and short pedicel; retrolateral margin of patella slightly and prolateral margin distinctly curved anteriorly; patella L/W 3.11-3.42; femur more granulate than chelal hand; chela with distinct and moderate pedicel; chela (with pedicel) L/W 4.35-4.48; chela (without pedicel) L/W 4.03-4.13; hand (with pedicel) L/W 2.45-2.48; movable finger shorter than hand with pedicel; hand 1.11-1.14 longer than movable finger; fixed finger with 8 and movable finger with 4

trichobothria; fixed finger with trichobothrium *et* situated distal to *it* and very close to terminal end, *ist* situated posterior and *it* anterior to *est*, *est* situated closer to *ist* than *it*, *eb-esb-ib-isb* aggregated basally; movable finger with trichobothrium *st* situated between *t* and *sb*, *sb* situated close to *b*; fixed finger with 46-48 and movable finger with 46-48 similar-shaped teeth; nodus ramosus present in both fingers, apparently longer in movable finger than fixed finger, situated distinctly anterior to *st* in movable finger, and between *est* and *it* in fixed finger.

**Leg I:** very stout and large; light brown; lighter in color than body; each coxa with 14-15 setae; trochanter slightly granulate and stout, L/W 1.06-1.13; femur slightly granulate, L/W 1.93-2.00; patella granulate, L/W 2.42-3.00; tibia granulate, prolateral margin curved anteriorly, L/W 2.83-2.84; tarsus deformed, stout and smooth, retrolateral margin curved posteriorly and prolateral margin straight, terminal margin concave; L/W 2.40-2.51; most setae with one lateral and few terminal denticulations; retrolateral margin of tarsus with denticulate setae except 2 long terminal setae that situated on dorsal terminal ridge and prolateral margin with denticulate setae except setae that situated proximally to claws; claws asymmetric, narrow claw with 6 teeth.

**Leg IV:** stout and large; each coxa with more 30 setae; coxal sac present, short and wide, with well-developed and symmetric atrium; trochanter slightly granulate, L/W 1.86-2.00; femur granulate, L/W 1.43-1.53; lateral margins of patella more granulate than ventral and dorsal margins, L/W 3.16-3.35; retrolateral margin of tibia slightly and prolateral margin curved posteriorly, slightly longer and somewhat narrower than patella, L/W 5.63-6.00; tarsus apparently shorter than tibia, with small granules, L/W 5.62; most setae with one lateral and few terminal denticulations; tarsus with distal simple setae; claws symmetric, without teeth.

#### Dimensions (mm)

Body: L. 2.62, Carapace: 0.86/0.71, Pedipalp: trochanter 0.43/0.22; femur 0.90/0.21; patella 0.79/0.25; chela (with pedicel) 1.30/0.29; chela (without pedicel) 1.20; hand 0.72; movable finger 0.63. Leg I: trochanter 0.17/0.15; femur 0.30/0.15; patella 0.38/0.13; tibia 0.34/0.12; tarsus 0.34/0.13. Leg IV: trochanter 0.25/0.13; femur 0.20/0.14; patella 0.57/0.17; tibia 0.58/0.10; tarsus 0.44/0.08.

#### Discussion

There are currently 44 species belonging to the genus *Dactylochelifera*, of which 28 species are represented in Middle East and Central Asia (Harvey, 2011). Some specimens were found as a part of this investigation, those are *D. spasskyi* Redikorzev 1949 that is very similar to *D. gracilis* Beier 1951, which was reported only from Kazakhstan and Uzbekistan (Dashdamirov & Schawaller, 1995).

*D. spasskyi* is very similar to *D. gracilis* Beier 1951. These two species can be recognized by the following characters: The shape of anterior furrow is the first observable difference. The anterior furrow of *D. gracilis* is curved posteriorly (Fig. 1a) while the anterior furrow of *D. spasskyi* is distinctly U-shaped with elongate lateral margins to anterior margin of carapace (Fig. 1b). The body length of *D. gracilis* is 2.47-3.00 (♂) mm, the chela with pedicel is 1.48/0.35 (♂) mm, the pedipalpal femur is 0.98/0.23 (♂) mm and the first tarsus is 0.36/0.17 (♂) mm while the body length of *D. spasskyi* is 2.62-2.85 (♂) mm, the chela with pedicel (Fig. 1e) is 1.30/0.29 (♂) mm, the pedipalpal femur (Fig. 1g) is 0.90/0.21 (♂) mm and the first tarsus (Fig. 1j) is 0.34/0.13 (♂) mm. So, *D. spasskyi* is commonly smaller than *D. gracilis*.

The other differences are recognized by investigating of long coxal sacs (Fig. 1c,d), Genital organ shape and setae of anterior operculum of *D. gracialis* (♂) that have been observed with 42-52 simple setae on anterior operculum (Fig. 1c) while anterior operculum of *D. spasskyi* (♂) has 36-39 simple setae (Fig. 1d). The number of claws teeth of leg I is another difference (Fig. 11). There are more teeth on narrower claw of *D. spasskyi* than *D. gracilis*.

*D. spasskyi* has been reported from Kazakhstan and Uzbekistan by Dashdamirov & Schawaller (1995) for the first time. There is only one difference between Iranian specimens and those which have been collected previously.

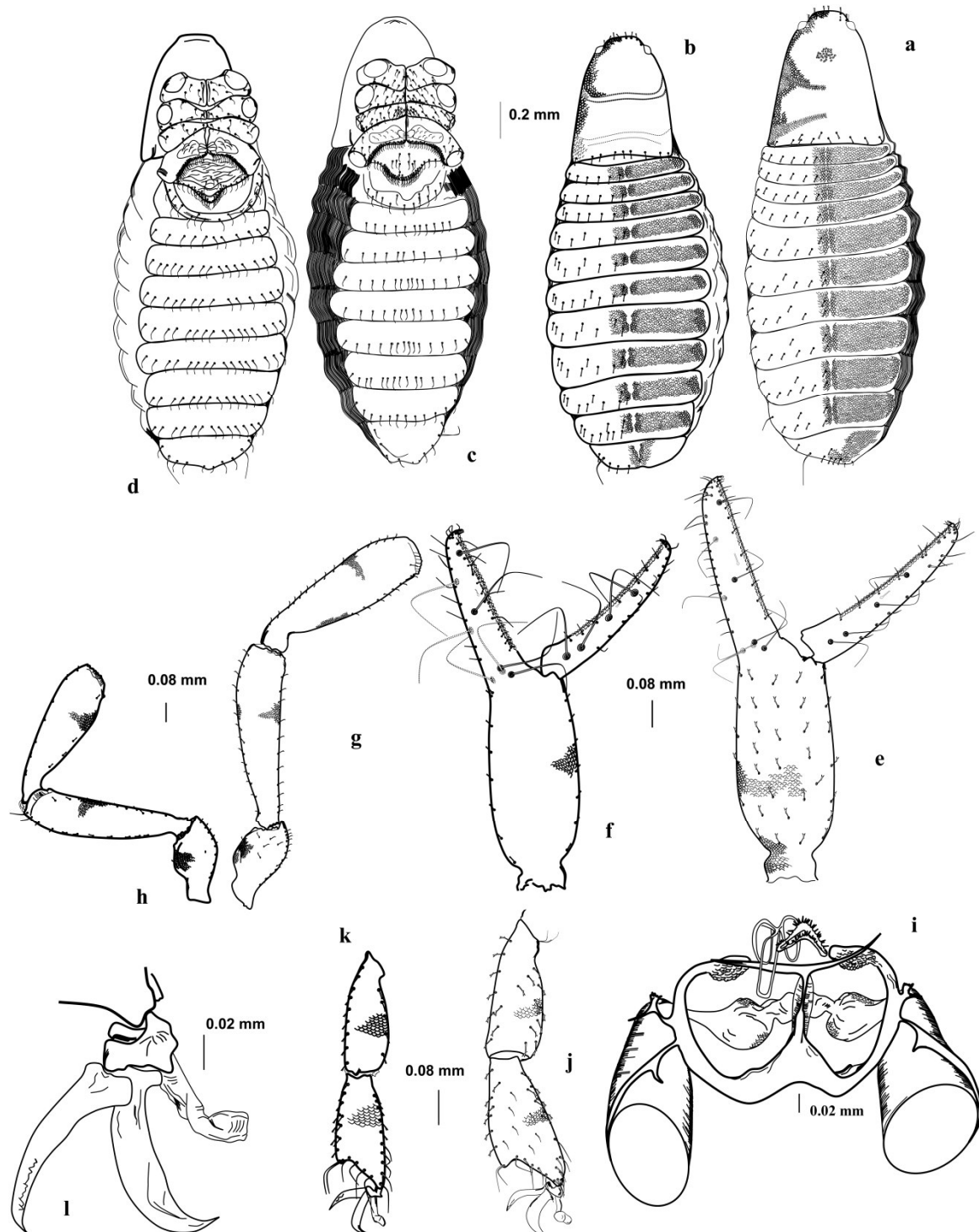
Chela with pedicel of those specimens reported by Dashdamirov and Schawaller (1995) is distinctly longer and slightly stouter (1.47/0.33 ♂ mm) than chela (1.30/0.29 ♂ mm) of Iranian specimens. The other characters are similar with reference to previous description specially Tarsus I ratio (fig. 1k). Tarsus I of those specimens collected from Uzbekistan and Kazakhstan have been measured 0.35/0.13 (♂) mm and Iranian specimens are being measured 0.34/0.13 (♂) mm that shows they are matched, so we result that our specimens are *D. spasskyi*.

### Acknowledgements

The authors are grateful to vice chancellor of Research and the Faculty of Agriculture at Shahid Bahonar University of Kerman, Iran for their support and are very thankful to Prof. Mark S. Harvey who assisted us in Pseudoscorpions identification. We wish to thank Mr. Mahmoud Nassirkhani for his assistance.

### References

- Beier, M. 1932.** Pseudoscorpionidea II, Subord. C. Cheliferinea. Das Tierreich., Berlin, i-xxi: 1-259.
- Beier, M. 1951.** Ergebnisse der österreichischen Iran-Expedition 1949/50, Pseudoscorpione und Mantiden. Annalen des Naturhistorischen Museums in Wien, 58: 96-101.
- Beier, M. 1971.** Pseudoscorpione aus dem Iran. Annalen des Naturhistorischen Museums in Wien, 75: 357-366.
- Buddle, C. M. 2010.** Photographic key to the Pseudoscorpions of Canada and the adjacent USA. Canadian Journal of Arthropod Identification, 10: 1- 477.
- Dashdamirov, S. and Schawaller, W. 1995.** Pseudoscorpions from Middle Asia, Part 4 (Arachnida: Pseudoscorpiones). Stuttgarter Beiträge zur Naturkunde- Serie A, 522(24): 21-22.
- Harvey, M. S. 2011.** Pseudoscorpions of the World, version 2. Western Australian museum. Online at: <http://www.museum.wa.gov.au/arachnids/pseudoscorpions> (viewed 21 Jun 2011)
- Redikorzecz, V. V. 1918.** Pseudoscorpions nouveaux I. Ezhegodnik Zoologicheskogo Muzea Akademii Nauk, 22: 91-101.
- Redikorzecz, V. V. 1949.** Pseudoscorpions of Middle Asia. Travaux de l'Institut de Zoologie de l'Académie des Science de l'URSS, 8: 638-668.



**Fig .1- Male: a- Dorsal view of body of *Dactylochelifer gracilis*; b- Dorsal view of body of *Dactylochelifer spasskyi*; c- Ventral view of body of *Dactylochelifer gracilis*; d- Ventral view of body of *Dactylochelifer spasskyi*; e- Right chela of *Dactylochelifer gracilis*; f- Right chela of *Dactylochelifer spasskyi*; g- Pedipalp of *Dactylochelifer gracilis*; h- Pedipalp of *Dactylochelifer spasskyi*; i. Genital organ of *Dactylochelifer spasskyi*; j- Tarsus of leg I of *Dactylochelifer gracilis*; k- Tarsus of leg I of *Dactylochelifer spasskyi*; l- claws of leg I of *Dactylochelifer spasskyi* (Original drawings)**

مقاله کوتاه

اولین گزارش *Dactylochelifer spasskyi* Redikorzev

(Pseudoscorpiones :Cheliferidae) از ایران

مهراد نصیرخانی<sup>۱\*</sup>، حاجی محمد تکلوزاده<sup>۲</sup>

۱- گروه حشره‌شناسی، دانشکده کشاورزی، دانشگاه آزاد اسلامی، اراک، ایران

۲- استادیار، گروه گیاه‌پزشکی، دانشکده کشاورزی، دانشگاه شهید باهنر کرمان

چکیده

پیش‌تر گونه نادر شبه عقرب *Dactylochelifer spasskyi* Redikorzev 1949 از قزاقستان و ازبکستان جمع‌آوری شده بود. ما نمونه‌های جدیدی متعلق به این گونه را از بقایای گیاهی در ایران جمع‌آوری نموده و گزارش می‌کنیم.

واژه‌های کلیدی: عنکبوت مانند، شبه عقرب، بقایای گیاهی، کرمان، ایران

\* نویسنده رابط، پست الکترونیکی: greenartificialturfgrass@gmail.com

تاریخ دریافت مقاله (۹۱/۸/۹) - تاریخ پذیرش (۹۲/۳/۲۸)

