A new species of Hersiliola Thorell, 1870 (Araneae, Hersiliidae) from Turkey

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Abstract
A new species Hersiliola turcica sp. n. is described on the basis of both sexes from Southeast Turkey. Males of the new species have an extraordinarily long embolus and females have very long insemination ducts.

Keywords
Hersiliidae, Hersiliola, new species, Turkey

Introduction
Hersiliidae is a rather small, globally distributed entelegyne spider family that currently includes 167 species belonging to 15 genera (Platnick 2010). The majority of hersiliid species are found in tropical and subtropical regions. The family was the subject of several revisions for the Australian, Oriental, Neotropical, and Afrotropical faunas (Baehr and Baehr 1987, 1993, 1998; Rheims and Brescovit 2004a–b; Rheims et al. 2004;
Foord and Dippenaar-Schoeman 2005a-b, 2006). Recently, the most speciose genus in the Palaearctic, *Hersiliola* Thorell, 1870, was revised by Marusik and Fet (2009). It was shown that the genus is distributed from western Africa to Xinjiang, NW China and in Asia was reported from Afghanistan, Israel, Iran, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan and Yemen. Currently *Hersiliola* contains 9 species (Marusik and Fet 2009). In Turkey, *Hersiliola macullulata* (Dufour, 1831) was recently reported from southernmost Hatay Province (Yağmur et al. 2008).

When the revision of the genus (Marusik and Fet, 2009) was published, it became clear that the specimens from Turkey belonged to an undescribed species with a very peculiar male palp. The aim of this paper is the description of the new species of *Hersiliola*.

**Material and methods**

A total of 15 specimens of *Hersiliola turcica* sp. n. (6♂♂, 7♀♀ and 2 juveniles) were collected between 2004 and 2008 from Gaziantep, Hatay, Kahramanmaraş, Kilis and Şanlıurfa Provinces which are located in the southeastern part of Turkey. The specimens were collected from irregular webs under stones by means of a hand aspirator.

Specimens were photographed using an Olympus Camedia E-520 camera attached to an Olympus SZX12 stereomicroscope. The images were montaged using “Combin-eZM” image stacking software. Specimens were photographed in dishes of different sizes with paraffin wax in the bottom. Holes were made in the paraffin wax to keep the specimens in the right position. All measurements are given in mm.

Material treated herein is deposited in the Senckenberg Museum (SMF, Frankfurt am Main, Germany), the Museum of Turkish Arachnological Society (MTAS, Ankara, Turkey) and in the Zoological Museum of the Moscow State University (ZMMU, Moscow, Russia).

**Taxonomy**

*Hersiliola turcica* sp. n.
urn:lsid:zoobank.org:act:005B2FD9-F68C-4EDF-BF44-CAB9F973B76F

*H. macullulata*: Yağmur et al., 2008: 63, f. 2a–b (figures belong to *H. macullulata*).

**Material**: Holotype ♂ (SMF) Kahramanmaraş Province, Nurhak District, Yeşilkent (Kullar) Town [37°58′54.39″N; 37°30′56.01″E], 9.07.2006 (E.A. Yağmur & S. Anlaş). Paratypes: 1♀♀ 1juv. (SMF), Kahramanmaraş Province, Türkoğlu District [37°30′10.51″N; 36°51′07.60″E], 4.06.2006 (E.A. Yağmur & M. Özkörük);
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1♀ 1juv. (SMF), Kahramanmaraş Province, Elbistan District, Taşburun Village [38°10'03.68"N; 37°12'06.07"E], 17.06.2006 (E.A. Yaşmur & M. Yalçın); 1♀ (ZMMU), Gaziantep Province, Nizip District, Türkyurdü Village [37°00'05.21"N; 37°38'44.54"E], 20.01.2008 (E.A. Yaşmur & Gökhan Katırcı); 1♂ (ZMMU), Şanlıurfa Province, Birecik District, Birecik (Kelaynak) Valley [37°02'49.72"N; 37°59'28.88"E], 5.06.2004 (E.A. Yaşmur & A. Akkaya); 1♂ (without embolus) (ZMMU), Şanlıurfa Province, Birecik District, Birecik (Kelaynak) Valley [37°02'49.72"N; 37°59'28.88"E], 5.06.2004 (E.A. Yaşmur & A. Akkaya); 1♀ (ZMMU), Şanlıurfa Province, Harran Town [36°51'51.62"N; 39°01'54.54"E], 6.04.2006 (E.A. Yaşmur & M.Z. Yıldız); 1♀ (ZMMU), Kilis Province, Musabeyli District, Kürtüncü Village [36°55'37.83"N; 36°58'41.30"E], 17.05.2006 (E.A. Yaşmur & M. Özkörük); 3♂ 2♀ (MTAS), Hatay Province, Yayladağı District, Güveççi Village [(35°53'36.63"N, 36°09'38.10"E], 29.04.2007 (E.A. Yaşmur & H.Koç).

**Etymology.** The specific name refers to the area of distribution.

**Diagnosis.** Males of the new species differ from all other congeners by the extremely long embolus with 3.5 coils, the position of embolic base, and the long regular apophysis. Females of *H. turcica* sp. n. are similar to those of *H. macullulata*, *H. afghanica* and *H. sternbergsi* in the shape of epigynal plate, but can be distinguished by its proportions (height/width ratio). The vulva of new species is similar to that in *H. afghanica* in having numerous coils, but the two species can be easily separated by

**Figures 1–3.** Habitus and pattern of *Hersiliola turcica* sp. n. 1 holotype male, dorsal 2 female from Nizip District 3 female abdomen from Harran Town.

1♀ 1juv. (SMF), Kahramanmaraş Province, Elbistan District, Taşburun Village [38°10'03.68"N; 37°12'06.07"E], 17.06.2006 (E.A. Yaşmur & M. Yalçın); 1♀ (ZMMU), Gaziantep Province, Nizip District, Türkyurdü Village [37°00'05.21"N; 37°38'44.54"E], 20.01.2008 (E.A. Yaşmur & Gökhan Katırcı); 1♂ (ZMMU), Şanlıurfa Province, Birecik District, Birecik (Kelaynak) Valley [37°02'49.72"N; 37°59'28.88"E], 5.06.2004 (E.A. Yaşmur & A. Akkaya); 1♂ (without embolus) (ZMMU), Şanlıurfa Province, Birecik District, Birecik (Kelaynak) Valley [37°02'49.72"N; 37°59'28.88"E], 5.06.2004 (E.A. Yaşmur & A. Akkaya); 1♀ (ZMMU), Şanlıurfa Province, Harran Town [36°51'51.62"N; 39°01'54.54"E], 6.04.2006 (E.A. Yaşmur & M.Z. Yıldız); 1♀ (ZMMU), Kilis Province, Musabeyli District, Kürtüncü Village [36°55'37.83"N; 36°58'41.30"E], 17.05.2006 (E.A. Yaşmur & M. Özkörük); 3♂ 2♀ (MTAS), Hatay Province, Yayladağı District, Güveççi Village [(35°53'36.63"N, 36°09'38.10"E], 29.04.2007 (E.A. Yaşmur & H.Koç).

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the shape of the epigynal plate (which has no transverse part in *H. afghanica*) and the smaller receptacula in the new species.

**Description.** Male (holotype). Total length 5.65. Carapace 2.13 long, 2.25 wide, femur I 4.8, femur I/carapace length ratio 2.25. Pattern distinct, carapace with dark marginal bands, four pairs of dots and thin median stripe, cephalic area dark. Abdomen with rhomboidal cardiac spot and four pairs of transverse bands. The upper transverse band originates from the cardiac spot. Sides of abdomen with dark band. Legs with wide annulations.

**Figures 4–9.** Male palp of *Hersiliola turcica* sp. n. 4–5, 8–9 ventral 6 retrolateral 7 prolateral. 4–7 holo-type 8–9 from Birecik. 8 palp with broken embolus. Abbreviations: **Be** base of embolus **Ef** tegular furrow for embolus **Em** embolus **Ta** tegular apophysis.
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Palp as in Figs 4–9. Cymbium 1.43 long; tegulum round, its diameter 0.74; tegular apophysis (Ta) long, claw like, its length almost equal to tegular radius; base of embolus (Be) located at 4 o’clock, embolus (Em) very long and thin, with approximately 3.5 coils, in resting position located in furrow (Ef) running around edge of tegulum. Number of coils is unclear because in all specimens examined, embolus either broken or removed from the tegular furrow.

**Female.** Total length 5.75–6.75. Carapace 2.25–2.38 long, 2.18–2.43 wide, femur I 30.8–3.75, femur I/carapace length ratio 1.37–1.58. Coloration variable from light to dark. Dark specimens with indistinct abdominal pattern.

Epigyne as in Figs 10–13, size slightly variable; with a distinct median plate (Mp) and windows, proportions of median plate and atria slightly variable; septum (Se) as wide as height of epigynal plate, insemination duct (Id) very long, with seven coils around fertilization duct (Fd); receptacula (Re) small and round, diameter equal to that of insemination duct.

**Note.** One male from Birecik District has totally broken embolus (Fig. 8) and a rotated tegulum that caused translocation of the position of embolic base.

**Distribution.** The specimens were collected from several provinces in South-eastern Turkey (Gaziantep, Hatay, Kahramanmaraş, Kilis and Şanlıurfa) (Fig.14).

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**Figures 10–13.** Epigyne of *Hersiliola turcica* sp. n. 10, 12–13 ventral 11 dorsal. 11, 12 after maceration in lactic acid. 10–12 from Kahramanmaraş Province 13 from Nizip District. Scale = 0.1 mm. Abbreviations: *Fd* fertilisation duct *Id* insemination duct *Mp* median plate *Re* receptaculum *Se* septum *Wi* window.
During the field trips, we observed that the new species was common between the west of the Fırat (=Euphrates) River and the Mediterranean region. However, the new species was also collected from the east side of the Fırat River. This suggests that the distribution range of the new species extends to eastern Turkey which has a Mediterranean climate.

Discussion

With the new species described here, *Hersiliola* now contains 10 valid species occurring in West and North Africa and the western half of the Palaearctic region. It includes *H. afghanica* Roewer, 1960 (Afghanistan); *H. turcica* sp. n. (Turkey), *H. esyunini* Marusik & Fet, 2009 (Uzbekistan); *H. foordi* Marusik & Fet, 2009 (southern Iran), *H. lindbergi* Marusik & Fet, 2009 (Afghanistan); *H. macullulata* (Dufour, 1831) (from Spain to Yemen); *H. simoni* (O.P.-Cambridge, 1872) (from Morocco to Israel); *H. sternbergsi* Marusik & Fet, 2009 (Turkmenistan, Uzbekistan); *H. versicolor* (Blackwall, 1865) (Cape Verde); and *H. xinjiangensis* (Liang & Wang, 1989) (Xinjiang, China). Although *H. macullulata* was reported from Turkey (Yağmur et al. 2008), this record refers to *H. turcica* sp. n., and correspondingly only one species of *Hersiliola* is documented from the country.
Key to the *Hersiliola* species

1. Male .......................................................................................................... 2
   – Female ................................................................................................... 7
2. Embolus very long, with about 3.5 coils, embolic base at about 4 o’clock, tegular apophysis sharply pointed ........................................... *H. turcica* sp. n
   – Embolus shorter, embolic base at different position.......................... 3
3. Embolic base at about 12–12:30 o’clock ............................................... 4
   – Embolic base at different position ...................................................... 5
4. Embolus makes less than one coil, tegular apophysis blunt, tip of cymbium is about one radius of the tegulum ........................................... *H. esyunini*
   – Embolus makes almost one coil, tegular apophysis not blunt, tip of cymbium is about one diameter of the tegulum .................................... *H. sternbergsi*
5. Tegular apophysis blunt ....................................................................... *H. xinjiangensis*
   – Tegular apophysis not blunt ................................................................ 6
6. Embolic base at about 11 o’clock ....................................................... *H. simoni*
   – Embolic base at about 5:30 o’clock .................................................. *H. macululata*
7. Epigyne without distinct windows and/or without distinct median plate .......................................................... 8
   – Epigyne with distinct windows and plate ........................................... 9
8. Median plate absent, receptacula round, insemination duct makes at least 7 coils ............................................................... *H. lindbergi*
   – Median plate present, receptacula oval, insemination duct makes only 1 coil .......................................................... *H. foordi*
9. Insemination duct with 5 or more coils ............................................. 10
   – Insemination duct with less than 5 coils .......................................... 11
10. Insemination duct with 7 coils ......................................................... *H. turcica* sp. n.
    – Insemination duct with 5–6 coils .................................................... *H. macululata*
11. Septum thinner than median plate height part of the median plate rounded ................................................................. *H. esyunini*
    – Septum wider than median plate height ...................................... 12
12. Size > 5.5 mm ................................................................................... *H. xinjiangensis*
    – Size < 5.5 mm .................................................................................. *H. versicolor*
13. Median plate triangle shaped ......................................................... 13
    – Median plate transversal ................................................................. 14
14. Receptaculum droplet shaped ........................................................... 15
    – Receptaculum with conical terminal outgrowth ............................ *H. simoni*
15. Receptaculum thinner than window ................................................ *H. sternbergsi*
    – Receptaculum wider than window .................................................. *H. afghanica*
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References

Baehr B, Baehr M (1987) The Australian Hersiliidae (Arachnida: Araneae): Taxonomy, phylogeny, zoogeography. Invertebrate Taxonomy 1: 351–437.
Baehr M, Baehr B (1993) The Hersiliidae of the Oriental Region including New Guinea. Taxonomy, phylogeny, zoogeography (Arachnida, Araneae). Spixiana Supplement 19: 1–96.
Baehr B, Baehr M (1998) New species and new records of Hersiliidae from Australia (Arachnida: Araneae: Hersiliidae). Sixth supplement to the revision of the Australian Hersiliidae. The Records of the Western Australian Museum 19: 13–28.
Foord SH, Dippenaar-Schoeman AS (2005a) A revision of the Afrotropical species of Hersiliola Thorell and Tama Simon with the description of a new genus Tyrotama (Araneae: Hersiliidae). African Entomology 13: 255–279.
Foord SH, Dippenaar-Schoeman AS (2005b) First records of the genus Neotama Baehr & Baehr (Araneae: Hersiliidae) from the Afrotropical region. African Invertebrates 46: 125–132.
Foord SH, Dippenaar-Schoeman AS (2006) A revision of the Afrotropical species of Hersilia Audouin (Araneae: Hersiliidae). Zootaxa 1347: 1–92.
Marusik YM, Fet V (2009) A survey of east Palearctic Hersiliola Thorell, 1870 (Araneae, Hersiliidae), with a description of three new genera. ZooKeys 16: 75–114.
Platnick NI (2010) The world spider catalog, Version 10.5. New York: American Museum of Natural History. http://research.amnh.org/iz/spiders/catalog/HERSILIIDAE.html [accessed 24.01.2010]
Rheims CA, Brescovit AD (2004a) Revision and cladistic analysis of the spider family Hersiliidae (Arachnida, Araneae) with emphasis on Neotropical and Nearctic species. Insect Systematics and Evolution 35: 189–239.
Rheims CA, Brescovit AD (2004b) Description of four new species of Hersiliidae (Arachnida, Araneae) from Kimabalu National Park, Sabah, Borneo, Malaysia. Journal of Natural History 38: 2851–2861.
Yağmur EA, Kunt KB, Yalçın M (2008) The first record of family Hersiliidae from Turkey. Serket 11: 62–64.