The spitting spider genus *Scytodes* (Araneae: Scytodidae) in Iran

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doi: 10.5431/aramit4706

Abstract. A survey of spiders of the genus *Scytodes* Latreille, 1804 in Iran resulted in six species occurring in this country: *Scytodes fusca* Walckenaer, 1837, *S. strandi* Spassky, 1941, *S. thoracica* (Latreille, 1802), *S. univittata* Simon, 1882 and – recorded for the first time – *S. arwa* Rheims, Brescovit & van Harten, 2006 and *S. makeda* Rheims, Brescovit & van Harten, 2006. Illustrations of the newly recorded species and a key to all known Iranian species are presented.

Keywords: faunistics, Iran, new records

Zusammenfassung. Die Speispinnengattung *Scytodes* (Araneae: Scytodidae) im Iran. Im Laufe einer Untersuchung der Gattung *Scytodes* Latreille, 1804 im Iran, konnten insgesamt sechs Arten nachgewiesen werden: *Scytodes fusca* Walckenaer, 1837, *S. strandi* Spassky, 1941, *S. thoracica* (Latreille, 1802), *S. univittata* Simon, 1882, *S. arwa* Rheims, Brescovit & van Harten, 2006 und *S. makeda* Rheims, Brescovit & van Harten, 2006, wobei die beiden letztgenannten Arten Erstfunde für den Iran sind. Es werden Zeichnungen der erstmals im Iran erfassten Arten und ein Bestimmungsschlüssel für alle iranischen *Scytodes*-Arten präsentiert.

With 229 species, Scytodidae Blackwall, 1864 is a small family of araneomorph, haplogyne spiders with a worldwide distribution (Platnick 2014). They are commonly known as 'spitting spiders' since they have extra silk glands in their chelicerae which they use to eject a mixture of venom, silk and a gluey substance for capturing prey (Monterosso 1928). These glands extend into the prosoma, giving them a hunchback-shaped cephalothorax. Of the five known genera, *Scytodes* Latreille, 1804 is the largest and most widely distributed (Platnick 2014). Four species have so far been reported from Iran: *Scytodes fusca* Walckenaer, 1837, *S. strandi* Spassky, 1941, *S. thoracica* (Latreille, 1802) and *S. univittata* Simon, 1882. The aim of the present study was to make a survey of this genus in Iran, which also yielded records of two species new to the fauna of this country. To help identify *Scytodes* in future studies a key to the Iranian species is presented.

Methods

Specimens were collected by hand or using entomological aspirators in different parts of Iran, by turning stones, investigating leaf litter and crevices in rocks. The vulvae of females were removed and immersed in cold KOH and later examined and photographed using a Canon EOS-1Ds Mark III, attached to a Nikon SMZ-1000 stereo microscope. Specimens were deposited in the Jalal Afshar Zoological Museum of the University of Tehran (JAZM, curator Dr. Alireza Sabouri).

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submitted 8.4.2014, accepted 30.4.2014, online 26.5.2014

Scytodes species recorded in Iran

Scytodes arwa Rheims, Brescovit & van Harten, 2006 (Fig. 1)

Material. 1 ♂ (JAZM), IRAN: Hormozgan Province: Hormuz Island, 27°02'42"N 56°29'35" E, 11 m a.s.l., Jan. 2014, leg. Zamani & Kazemi.

This species – which is known only from males – can be separated from other species of *Scytodes* (except *S. univittata*) by the shape of the palpal organ, the two rows of spines on femur I and the single row of spines on metatarsus III. It can be distinguished from *S. univittata* by the presence of two rows of spines on femur IV, and the shape of the extension on the apical section of the bulb, which is hyaline, large and triangular, rather than being sclerotized, small and rounded as in *S. univittata* (Rheims et al. 2006, figs. 6-11).

Distribution

This species was so far only recorded from Yemen (Rheims et al. 2006) and is reported from Iran here for the first time.

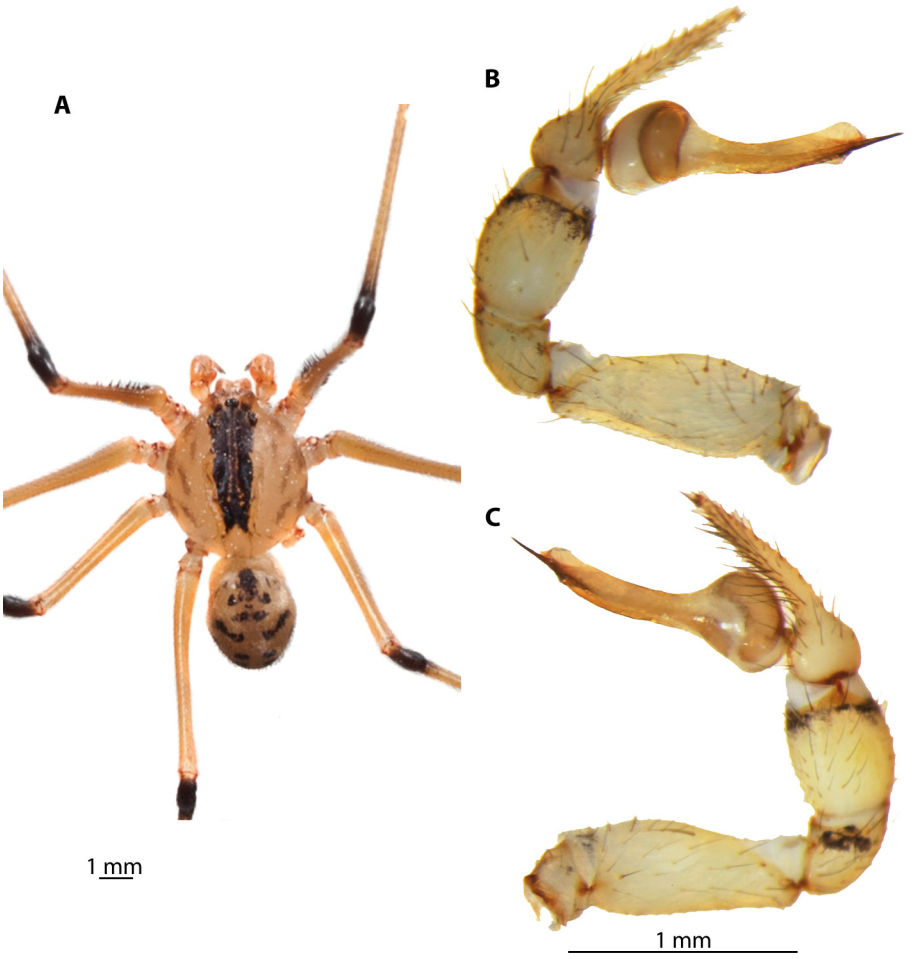

Fig. 1: *Scytodes arwa*. A: habitus of male; B: male right palp, prolateral view; C: male right palp, retrolateral view

Habitat in Iran
This species was found in a sandy, rocky habitat near the sea, in co-habitation with *S. makeda*.

***Scytodes makeda* Rheims, Brescovit & van Harten, 2006 (Fig. 2)**
Material. 2 ♀ (JAZM), IRAN: Hormozgan Province: Hormuz Island, 27°02'42" N 56°29'35" E, 11 m a.s.l, Jan. 2014, leg. Zamani & Kazemi.

This species – which is known only from females – can be separated from other species of *Scytodes* by its bean-shaped spermathecae, U-shaped ducts and sclerotized plates on the sides of the spermathecae (Rheims et al. 2006, figs. 12-14).

Distribution
This species was so far only recorded from Yemen and Oman (Rheims et al. 2006) and is reported here from Iran for the first time.

Habitat in Iran
This species was found in a sandy, rocky habitat near the sea, in co-habitation with *S. arwa*.

***Scytodes strandi* Spassky, 1941**
Material. 1 ♀ (JAZM), IRAN: Tehran Province: Tehran, Tochal mountains, 35°49'40"N, 51°24'15"E, 1912 m a.s.l., May 2013, Zamani leg.

This species is similar to *S. kinzelbachi* Wunderlich, 1995, but can be separated by the shorter, more sclerotized apophysis of the psembolus in males, and a different conformation of the spermathecae in females (Özkütük et al. 2013, fig. 3).

Distribution
Iran, Central Asia (Platnick 2014). This species has been previously reported from Mazandaran (Ghahari & Marusik 2009) and Tehran (Özkütük et al. 2013) Provinces in Iran and our single female specimen was also collected from Tehran.

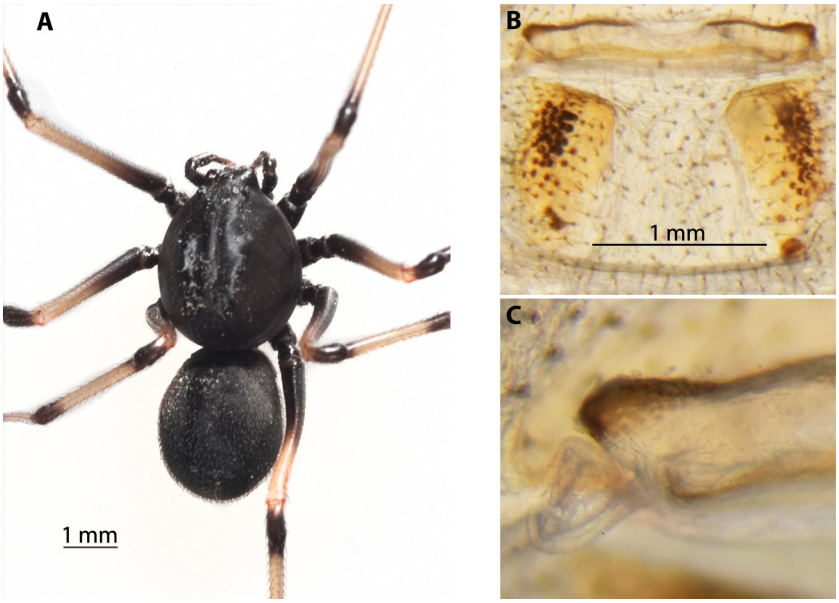

Fig. 2: *Scytodes makeda*. A: habitus of female; B: vulva, dorsal view; C: left spermathecae and copulatory duct

Habitat in Iran
One adult specimen was found along with some juveniles in a rocky, mountainous habitat near a small waterfall.

***Scytodes univittata* Simon, 1882**
Material
1 ♀ 1 ♂ (JAZM), IRAN: Tehran Province: Tehran, May 1994, leg. Savoji. 1 ♀ (JAZM), IRAN: Fars Province: Kangan, 27°58' N, 51°59' E, 552 m a.s.l., Dec 2013, leg. Mirzaee.

Males of this species are diagnosable by the presence of two rows of spines on femur I, a single prolateral row of spines on metatarsus III and by their embolus, which has a sclerotized basal projection. Females are diagnosable from other species by their v-shaped foveae and curved, deep positioning ridges (Brescovit & Rheims 2000, figs. 11-20).
Distribution
Canary Is. to Myanmar, synanthropic in the Neotropics (Platnick 2014). This species has been previously reported from Fars and Mazandaran Provinces in Iran (Özkütük et al. 2013). This is the first record from Tehran Province.
Habitat in Iran
The new specimens were found in rocky plain habitats.

***Scytodes thoracica* (Latreille, 1802)**
Distribution
Holarctic, Pacific Is. (Platnick 2014). This species has been reported in Iran from the Caspian Sea (Roewer 1955), and the Provinces Zanjan (Ghavami 2006), Golestan (Ghavami 2006, Kashefi et al. 2013) and Khorasan (Mirshamsi 2005) previously. No additional material was found during the present study.

***Scytodes fusca* Walckenaer, 1837**
Distribution
Pantropical (Platnick 2014). This species has been previously reported in Iran (albeit questionably; see below) from Kerman Province, based on a single female specimen (Roewer 1955). No additional material was found during the present study.

Key to *Scytodes* species of Iran

1. Male 2
   Female 6
2. Femur I with spines 3
   Femur I spineless 5
3. Femur IV with spines (see Rheims et al. 2006, fig. 11) . . . . . *S. arwa*
   Femur IV spineless 4
4. Metatarsus III with spines (see Özkütük et al. 2013, fig. 4) . . . . . *S. univittata*
   Metatarsus III spineless . . . . . *S. fusca*

5. Terminal part of bulbous as long as basal part, apophysis fine (see Özkütük et al. 2013, fig. 6) . . . . . *S. thoracica*
   Apophysis thicker than stylus and sub-equal in size (see Özkütük et al. 2013, fig. 3) . . . . *S. strandi*
6. Spermathecae strongly curved (see Brescovit & Rheims 2000, figs. 5-8) . . . . . *S. fusca*
   Spermathecae mildly curved, or not curved 7
7. Spermathecae bean-shaped . . . . . *S. makeda*
   Spermathecae not bean-shaped 8
8. Scutula straight (see Özkütük et al. 2013, fig. 3) . . . . . *S. strandi*
   Scutula not straight 9
9. Scutula triangular (see Özkütük et al. 2013, fig. 4) . . . . . *S. univittata*
   Scutula semi-rounded (see Özkütük et al. 2013, fig. 6) . . . . . *S. thoracica*

Discussion

Based on the present study, *Scytodes* is represented in Iran by six species, which in comparison to some adjacent and nearby countries – e.g. Turkey with three species (Bayram et al. 2014), Russia and its adjacent countries with four species (Mikhailov 2013) and Central Europe with two species (Šestáková et al. 2014) – represents a rather rich fauna of spitting spiders. The present study offers the first records of *S. arwa* and *S. makeda* outside the Arabian Peninsula, but considering the position of Hormuz Island relative to Yemen and Oman, their occurrence in this part of Iran is not surprising. In fact another species which might be expected on Hormuz Island is *S. bilqis* Rheims, Brescovit & van Harten, 2006; also originally described from Yemen. It should be mentioned that Mozaffarian & Marusik (2001) suggested that because *S. fusca* is widely distributed in Central America and occurs throughout the tropics, the single female Iranian specimen was misidentified; thus the true presence of this species in Iran remains doubtful.

Acknowledgments

I am grateful to Dr. Antonio D. Brescovit for reviewing an earlier version of this manuscript, Dr. Cristina A. Rheims for her comments on identifications, Dr. Reza Naderloo for organizing the collecting trip to Hormuz Island, Mr. Abbas Kazemi, Mr. Parham Beyhaghi and Mrs. Zohre Mirzaee for field assistance, Mr. Alireza Savoji for access to his collected specimens of *S. univittata*, Mr. Ali Mohajeran for his help with photographing the specimens and the National Museum of Natural History and Genetic Resources for providing me with research supplements.

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