

## A new species of the jumping spider genus *Evarcha* (s. lat.) from southwestern Iran (Araneae: Salticidae)

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**Abstract:** In this paper, a new species of the jumping spider genus *Evarcha* Simon, 1902 is described and illustrated based on two male specimens collected in Kohgiluyeh & Boyer-Ahmad Province, SW Iran, and a map of distribution records of this genus in this country is provided.

**Key words:** *Evarcha dena*, fauna, Kohgiluyeh & Boyer-Ahmad, Middle East, taxonomy, Zagros

### Introduction

The jumping spider genus *Evarcha* Simon, 1902 is a relatively large and widespread genus comprised of 89 nominal species, with a general distribution ranging from the Palaearctic, Africa and southern Asia to the middle Pacific area, with also a few species recorded from America and Australia (Žabka 1993; WSC 2017). Judging by the vast differences in the morphology of genital organs in species currently classified in this genus (e.g. embolus ranging from short, strong and compact to very long and filamentous; tegulum ranging from simply rounded to more complex shapes bearing outgrowths; insemination ducts ranging from wide and membranous to thin and tube-shaped), it should be considered polyphyletic, and with further taxonomic and phylogenetic studies it will most probably be split into a number of genera in the future. Although there are several publications dealing with the taxonomy and faunistics of *Evarcha* in Central Asia and the Middle East (e.g. Rakov 1997; Logunov 1999; Logunov & Zamanpoore 2005; Wesolowska & van Harten 2007; Prószyński 2000), this genus should be considered as poorly-studied in the region. Until now only three species of *Evarcha* have been recorded in Iran, all by Logunov et al. (2002): *E. arcuata* (Clerck, 1758) (widely-distributed in the Palaearctic), *E. negevensis* Prószyński, 2000 (known from Israel and Iran only) and *E. praeclara* Prószyński & Wesolowska, 2003 (known from North Africa and the Middle East) (Zamani et al. 2017). In this paper we describe a new species of this genus on the basis of two male specimens collected in southwestern Iran, and also provide a map of recorded localities for the four species currently known to occur in Iran.

### Materials & Methods

Terminology for morphological features follows Rakov (1997). Illustrations were produced using an Olympus SC100 camera attached to an Olympus SZ61 stereomicroscope. All measurements are in mm. Length of leg segments was measured on the dorsal side. Description of the palp refers to the left one. Specimens will be deposited in the Entomological Museum of Shiraz University of Medical Sciences

(EMSUMS) and the Jalal Afshar Zoological Museum of University of Tehran (JAZM). Abbreviations used in the text and figures are as follows: **ALE**: anterior lateral eye, **AME**: anterior median eye, **ba**: bifurcated apex of RTA, **dcRTA**: dorsal curve of RTA, **e**: embolus, **eb**: embolic base, **Fm**: femur, **Mt**: metatarsus, **PLE**: posterior lateral eye, **PME**: posterior median eye, **Pt**: patella, **RTA**: retrolateral tibial apophysis, **Ta**: tarsus, **Tb**: tibia, **vcRTA**: ventral curve of RTA.

### Taxonomy

Clade names above the genus level follow Maddison (2015).

#### Family Salticidae Blackwall, 1841

##### Subfamily Salticinae Blackwall, 1841

##### Clade Salticoida Maddison & Hedin, 2003

##### Clade Saltafresia Bodner & Maddison, 2012

##### Clade Simonida Maddison, 2015

##### Tribe Plexippini Simon, 1901

##### Subtribe Plexippina Simon, 1901

### Genus *Evarcha* Simon, 1902

**Type species.** *Evarcha falcata* (Clerck, 1757), by subsequent designation.

**Diagnosis.** Unident salticid with male palpal organ bearing a round, oval or conical tegulum, sometimes bearing distinctive outgrowths. Sperm duct not meandering, embolus encircling the tegulum, and in some species a conductor is present. A single tibial apophysis present (retrolateral). Epigyne with posterior pockets. Leg III longer than IV (Žabka 1993).

### *Evarcha dena* Zamani, sp. n.

Figures 1-2

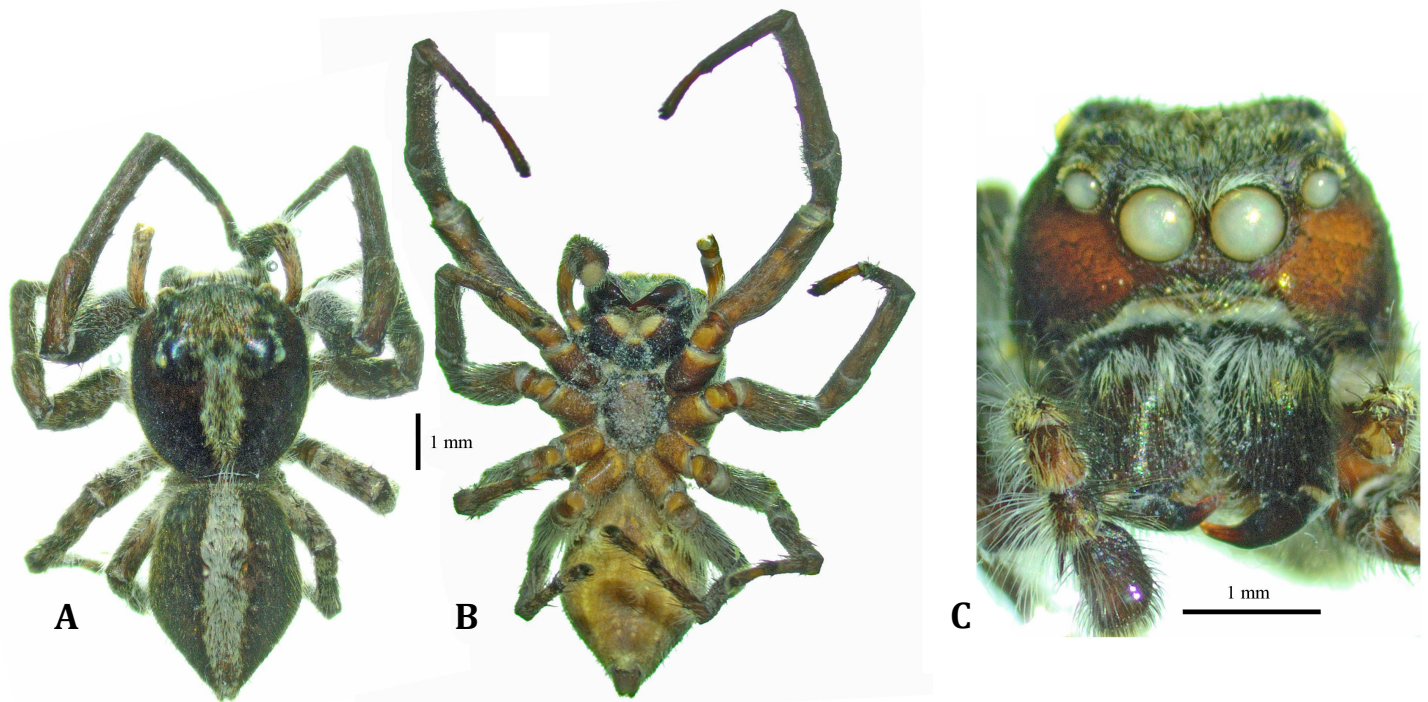
**Type material.** Holotype ♂ (JAZM), IRAN: Kohgiluyeh & Boyer-Ahmad Province: 35 km of Yasuj, Rahmali, 30°28'27"N, 51°14'01"E, alt. 1699 m, April 2016 (A. Hosseinpour); Paratype ♂ (EMSUMS), IRAN: Kohgiluyeh & Boyer-Ahmad Province: Yasuj, Park-e Jangali, 30°24'27"N, 51°21'24"E, alt. 1944 m, April 2016 (A. Hosseinpour).

**Etymology.** The specific epithet is a noun in apposition, and refers to Mount Dena, a well-recognized mountain in the area of the type localities and in the Zagros Mountain Range.

**Diagnosis.** This new species belongs to the *flavocincta* species-group, and closely resembles *Evarcha kirghisica* Rakov, 1997 (Kyrgyzstan), *E. acuta* (Blackwall, 1877) (the Seychelles) and *E. bulbosa* Žabka, 1985 (SE Asia), by the presence of a filamentous embolus and a deeply-bifurcated apex of the RTA. This new species can be distinguished from *E. kirghisica* by the different position of the embolic base (near 11:30 o'clock in the new species (Figure 2A), vs. near 9 o'clock in *E. kirghisica*, cf. Rakov 1997: figure 10), and by differences in the shape of the RTA apex (narrowing, with slimmer bifurcations in the new species (Figure 2B), vs. not narrowing and with strong bifurcations in *E. kirghisica*, cf. Rakov 1997: figure 11). It clearly differs from *E. acuta* by having a bulb lacking a posterior lobe and by the different shape of the bifurcations of the RTA (in *E. acuta* a distinct posterior lobe of bulb is present, and the RTA is shorter with stronger and asymmetrical tips, cf. Wesołowska 2006: figure 24). Finally, the new species differs from *E.*

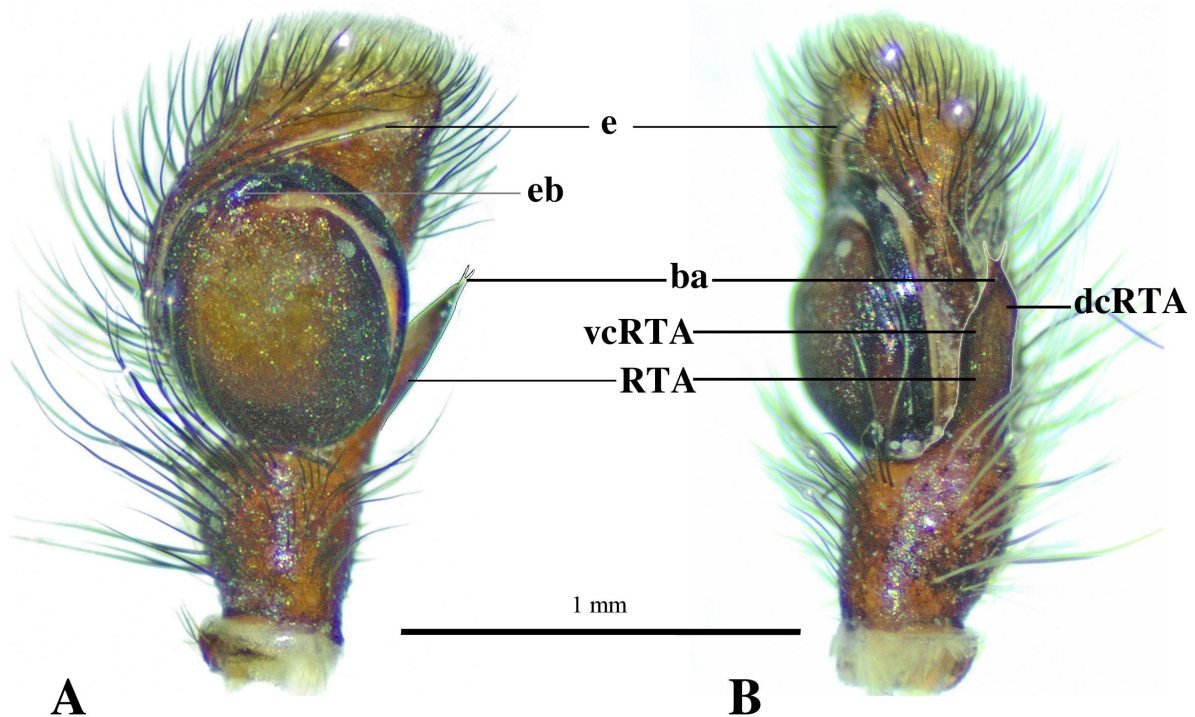
*bulbosa* by the less-wavy embolic tip and deeper bifurcation of the RTA apex, with more symmetrical tips (distinctly wavy embolic tip and RTA with asymmetrical tips in *E. bulbosa*, cf. Žabka 1985: figures 173-175).

**Description.** *Male (holotype):* body length 8.08; carapace 3.84 long, 3.31 wide. Eye sizes and interdistances: ALE 0.32, AME 0.60, PLE 0.25, PME 0.05, AME-AME 0.11, AME-PLE 0.19. General appearance as in Figures 1A-C. Carapace blackish, with a wide patch of greyish setae starting behind the AME and narrowing in the interdistances of PLE-PLE, leading to a greyish median line; lateral marks unclear (Figure 1A); clypeus and the area beneath the anterior eye row light reddish brown, with long white hairs below AME (Figure 1C); labium and sternum oval and blackish; maxillae slightly converging, blackish (Figure 1B); chelicerae blackish, with long, white hairs projecting from the frontal base (Figure 1C), with two small promarginal teeth and one large retromarginal tooth. Abdomen oval, dorsally blackish in the margins, with a distinct, wide longitudinal patch of white hairs medially (Figure 1A); ventrally cream-colored, with 4 unclear longitudinal lines of indistinct light patches (Figure 1B). Legs dark brown (lighter in the ventral side), covered with white hairs and numerous spines.



**Figure 1.** *Evarcha dena* sp. n., holotype male. **A**, habitus, dorsal view. **B**, habitus, ventral view. **C**, prosoma, frontal view.

Palp as in Figure 2A-B. Bulbus simple and rounded, occupying about 2/3 of the cymbium. Embolic base (eb) located at about 11:30 o'clock, projecting in a clockwise manner and leading to a filamentous embolus (e), which encircles the bulbus and ends near the cymbial apex, slightly waving toward the ventral side. RTA distinct, extending to about half of the length of cymbium, with a lower ventral curve (vcRTA) and an upper dorsal curve (dcRTA), narrowing near the apex and deeply-bifurcated with symmetrical tips (ba).



**Figure 2.** Male palp of *Evarcha dena* sp. n., holotype. **A**, ventral view. **B**, retrolateral view. Abbreviations: **ba**, bifurcated apex of RTA; **dcRTA**, dorsal curve of RTA; **e**, embolus; **eb**, embolic base; **RTA**, retrolateral tibial apophysis; **vcRTA**, ventral curve of RTA.

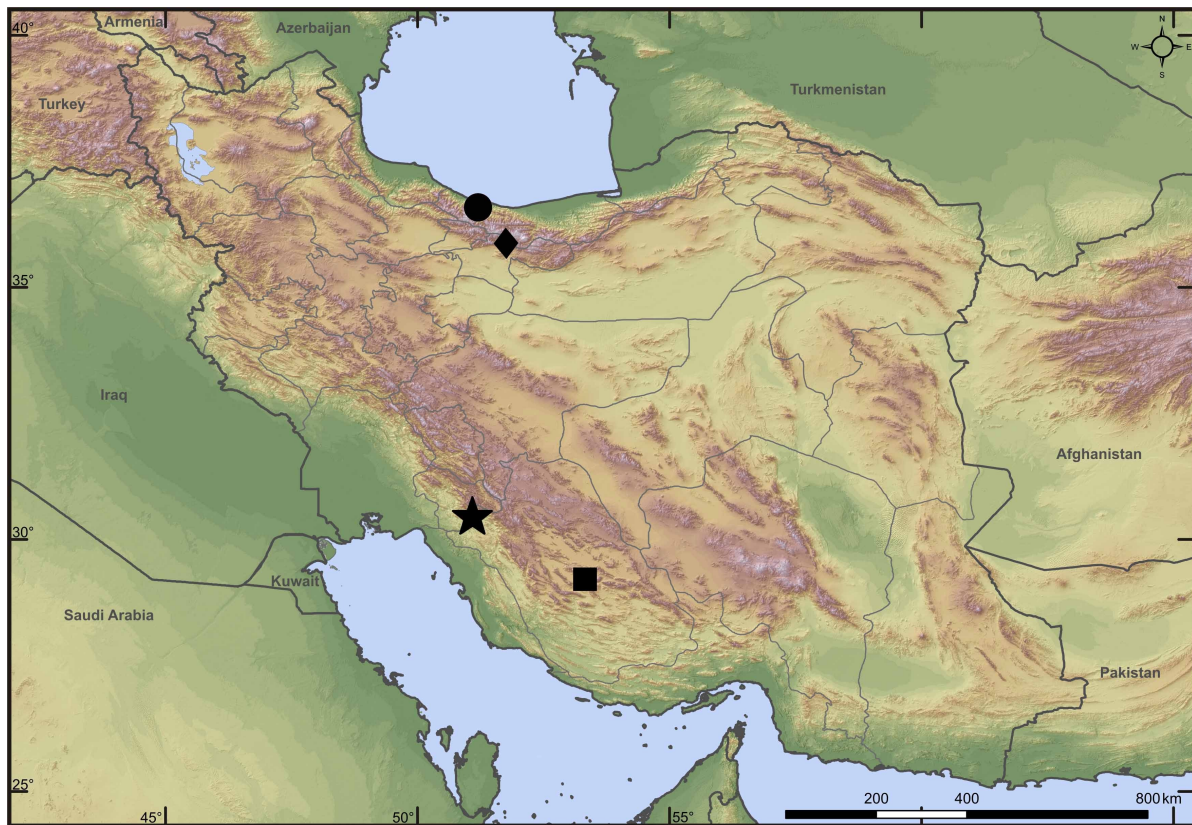
Length of leg segments (holotype):

|     | Fe   | Pa   | Ti   | Mt   | Ta   | Total |
|-----|------|------|------|------|------|-------|
| I   | 3.03 | 2.00 | 2.84 | 1.36 | 1.12 | 10.35 |
| II  | 2.45 | 1.60 | 1.91 | 1.55 | 0.85 | 8.36  |
| III | 2.46 | 1.43 | 1.58 | 1.85 | 0.82 | 8.14  |
| IV  | 2.09 | 1.25 | 1.32 | 1.69 | 0.79 | 7.14  |

*Female*: unknown.

**Comments.** Although the female of this species is currently unknown, we assume that it should have wide and long insemination ducts, correlating with the long embolus of the male as seen in the closely related *Evarcha kirghisica*, and according to a suggested general rule by Žabka (1993).

**Habitat and distribution.** Both specimens were collected from high altitudes, in relatively open habitats with sparse vegetation and rocky ground. Although this species is currently known only from the type localities in Kohgiluyeh & Boyer-Ahmad Province, SW Iran, it is probably widespread in the Zagros Mountain Range (Figure 3).



**Figure 3.** Map of distribution records for the genus *Evarcha* in Iran. **Circle**, *E. arcuata*. **Diamond**, *E. negevensis*. **Square**, *E. praeclara*. **Star**, *E. dena* sp. n.

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