

## ***Rafalskia azizsancari* sp. n., a new harvestman (Opiliones: Phalangiidae) from Turkey**

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A new harvestman species, *Rafalskia azizsancari* sp. n., is described and illustrated based on male specimens collected from Bozdağlar Mountains, İzmir Province, Turkey. Most important differences between the new species and the three other species of the genus are included.

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### **1. Introduction**

*Rafalskia* Starega, 1963 is a genus of the harvestman family Phalangiidae, established as a subgenus of the genus *Paropilio* by Starega (1963). Subsequently, Šilhavý (1965) raised it from subgenus to the rank of genus. The genus *Rafalskia* currently includes four valid taxa, distributed in Bulgaria, Serbia, Greece and Turkey: *R. olympica olympica* (Kulczyński, 1903), *R. olympica bulgarica* Starega, 1963, *R. cretica* (Roewer, 1923) and *R. petrophila* (Martens, 1965).

*Rafalskia cretica* was described by Roewer (1923) from Crete (Greece) as *Metaplathybunus creticus* Roewer 1923. Later it was found in Bulgaria (Mitov 2004) and Turkey (Kahramanmaraş, Osmaniye and Gaziantep provinces) (Kurt *et al.* 2011). *Rafalskia petrophila* was described by Martens (1965) from Karpathos (Greece) in the genus *Metaplathybunus* Roewer, 1911. The species was transferred to the genus *Rafalskia* by Starega (1981). *Rafalskia petrophila* is found in

Greece and Turkey (Nevşehir and Van provinces) (Martens 1965, Kurt 2014). *Platybunus strigosus olympicus* was described by Kulczyński (1903) from Asia Minor (Uludag; Olympus Bithynicus). Roewer (1923) transferred *Platybunus strigosus olympicus* to the genus *Metaplathybunus*. Later, Starega (1981) transferred *Metaplathybunus olympicus* into the genus *Rafalskia*. The species *Rafalskia olympica* were divided into two subspecies as *R. olympica olympica* and *R. olympica bulgarica* by Karaman (2002). *Rafalskia olympica olympica* is an endemic subspecies in Turkey (Bursa and Trabzon province). *Rafalskia olympica bulgarica* is known from Bulgaria, Serbia, and Turkey (Kırklareli and İstanbul provinces) (Mitov 2012).

The genus is recognized by the following morphological characters: cheliceral second article is sometimes with distinct humps frontally and palpal femur has a basal conical apophysis (Starega 1963, 1976, Šilhavý 1965, Karaman 2002).

Here, we describe a new species of the genus

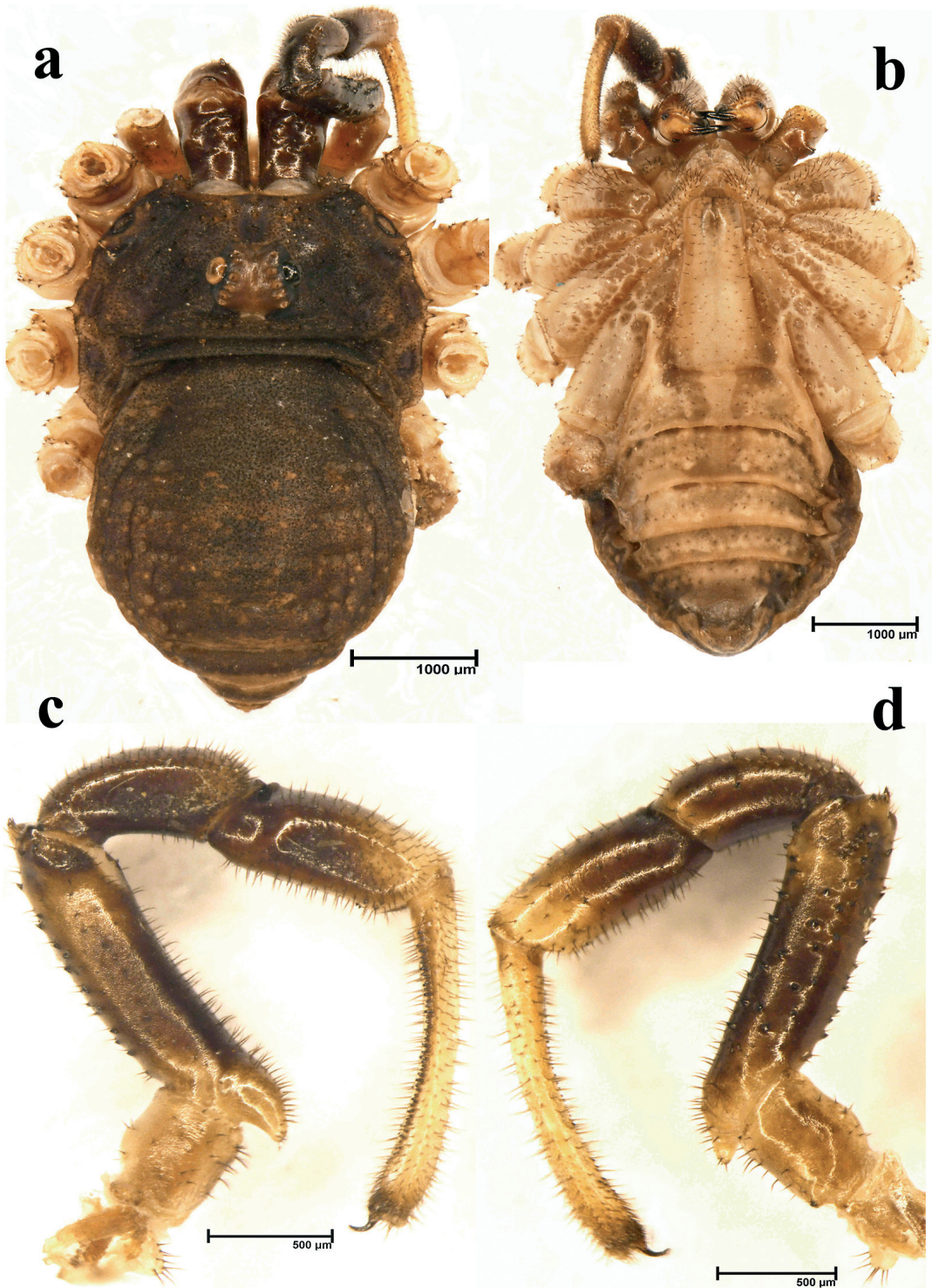


Fig. 1. *Rafalskia azizsancari* sp. n. (male, paratype). – a. Dorsal view. – b. Ventral view. – c–d. Pedipalp, mesal and lateral views.

*Rafalskia* from the Aegean region of Turkey and compare it to the other species of the genus.

## 2. Materials and methods

The samples were collected in the İzmir Province, Turkey by pitfall traps with car coolant as a fixative. The collection locality is a red pine forest including a thick layer of leaf litter and located close to the Gölçük lake, and thus the habitat was very humid. The specimens examined were preserved in 70% ethanol. All the measurements are in millimetres. The specimens are deposited in the collections of Arachnological Laboratory of Şiran Vocational School, Gümüşhane University (GUSAL), Gümüşhane, Turkey and Alaşehir Zoological Museum, Manisa (AZMM).

## 3. Description of *Rafalskia azizsancari* sp. n. Figs 1–2

*Material.* Holotype: ♂, Turkey, İzmir Province, Bozdağ Mountains (38°18'11.0" N, 28°02'06.7" E), 1,211 m a.s.l., 28.VI.2012, E. A. Yağmur leg. (GUSAL). Paratypes: 3♂♂, same data as holotype (2♂♂ in GUSAL, 1♂ in AZMM).

*Diagnosis.* Characterized mainly by morphology of penis (a specific shape of truncus, glans penis dorsally almost flat; ventrally slightly widened), abdomen dorsally without distinct mark, no saddle; cheliceral basal segment covered with dorsal denticles, distal segment apically covered with three or four denticles plus a distinct apophysis (hump), and palpal femur basally with conical apophysis.

*Description.* Male. Body: Almost oval-shaped (Fig. 1a, b), length (first for holotype, range with all type material) 3.20 (2.95–3.20,  $n = 4$ ), width 1.72 (1.64–1.72,  $n = 4$ ). Anterolateral angles of prosoma and opening of odoriferous gland with several black denticles. A group of 5–6 black denticles in front of eye mound on each side. Abdominal tergites not distinctly saddle marked, with irregularly spaced microdenticles. Genital operculum, leg coxae and opisthosoma ornamented with ventral setae. Body colour light brown to dark brown.

Eye mound: Trapezoid in shape, large and

with 5 or 6 denticles to both sides from median line.

Supracheliceral lamellae: Smooth, bearing one spine each.

Chelicerae (Fig. 2a, b): Length of first article 0.56, second article 1.08. Dorsal side of distal part of first article spinulated. Second article frontally covered with setae, with a distinct apophysis. Dorsal side of proximal part of second article spinulated, with 3 or 4 small spines. Chelal fingers elongated, characteristically decussated. Chelicerae light brown.

Pedipalps (Fig. 1c, d): Femur basally with conical apophysis covered with setae. Femur with small distomesal apophysis covered with setae, ventrally with setae and denticles, dorsally and laterally with denticles and sparse setae. Patella covered with setae. Tibia covered with setae, distoventrally with several denticles, ventrobasally slightly enlarged. Tarsus covered with setae and a long row of ventral microdenticles; tarsal claw smooth. Length of palpal segments: femur 1.16, patella 0.56, tibia 0.59, tarsus 0.95; total length: 3.26 (2.98–3.26,  $n = 4$ ). Palpal tibia yellowish, other parts light brown.

Legs: Strong, round in cross-section. The first pair of legs slightly thicker. Femur covered with microdenticles and setae; patella with dorsal microdenticles; tibia with dorsal and ventral microdenticles and setae; metatarsi with ventral microdenticles and setae; tarsus only with setae. Length of legs: I: 1.69 (Fe) + 0.62 (Pa) + 1.49 (Ti) + 2.06 (Mta) + 3.20 (Ta) = 9.06 (8.8–9.06,  $n = 4$ ), II: 3.04 + 0.83 + 2.59 + 3.90 + 6.80 = 17.16 (16.5–17.16,  $n = 4$ ); III: 1.89 + 0.65 + 1.53 + 2.52 + 3.67 = 10.26 (10–10.26,  $n = 4$ ), IV: 2.74 + 0.76 + 2.01 + 3.71 + 5.03 = 14.25 (13.9–14.25,  $n = 4$ ). Legs light brown.

Male genitalia (Fig. 2c–f): Truncus penis thin and long, basally wide, narrowed towards subapex; glans dorsally almost flat, ventrally slightly widened, apically with a pair of setae; stylus long. Length of truncus penis: 2.76 (2.51–2.76,  $n = 4$ ), glans: 0.50. Penis light to dark brown.

Female. Unknown.

*Etymology.* The specific epithet is in honor of Prof. Dr. Aziz Sancar (University of North Carolina, Chapel Hill, NC, USA), who was awarded the Nobel Prize in Chemistry in 2015.

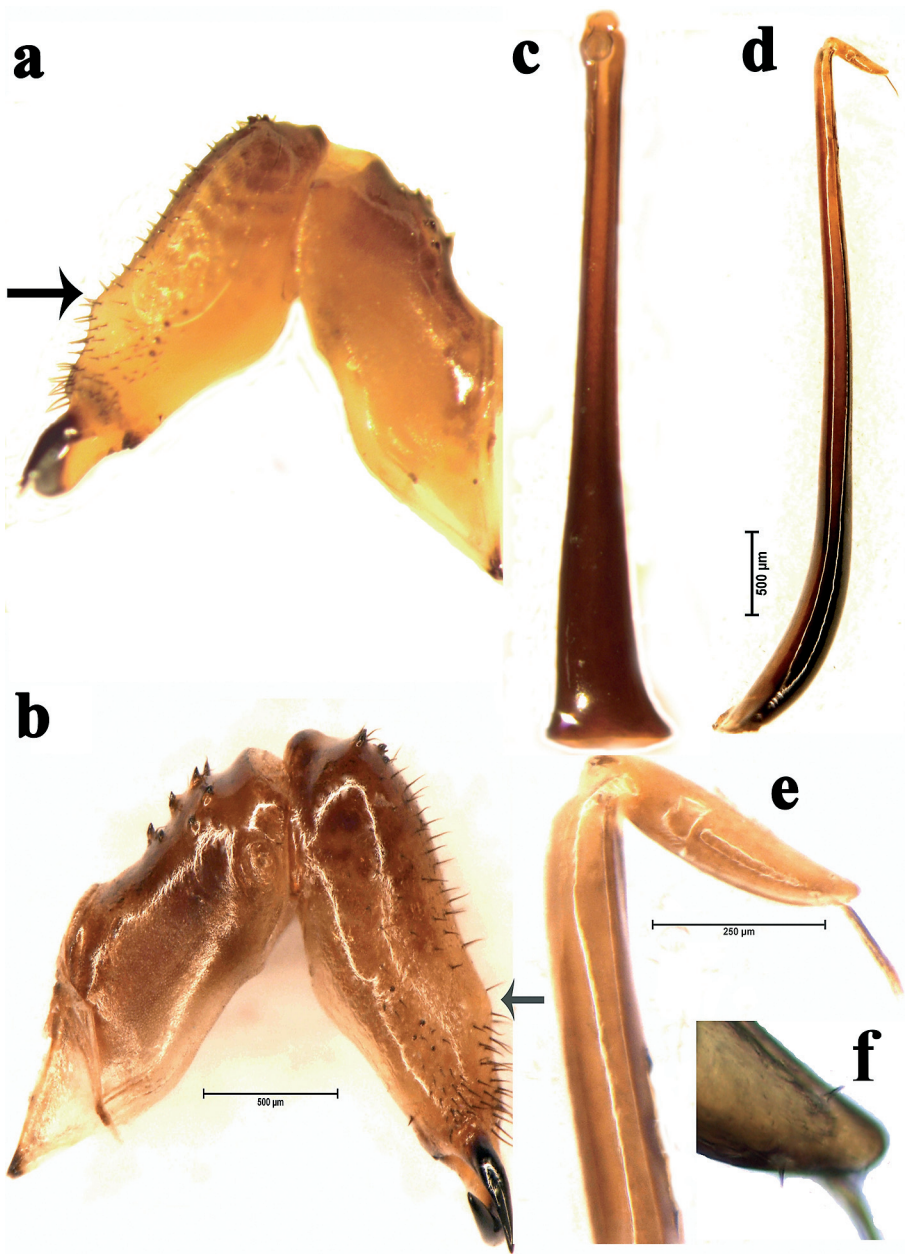


Fig. 2. *Rafalskia azizsancari* sp. n. (male, paratype): – a, b. Chelicera, mesal and lateral view (arrows: chelical apophysis). – c. Penis, dorsal view. – d. Penis, lateral view. – e. Glans penis, lateral view. – f. Tip of glans penis showing positions of the two setae, lateral view.

*Remarks.* *Rafalskia azizsancari* sp. n. can be distinguished from *R. cretica* and *R. petrophila* by the following characters: abdomen has indistinct dorsal mark and no saddle (in *R. cretica* dorsal saddle is distinct, in *R. petrophila* it is slightly distinct); eye mound is covered with 5 or 6 denticles on each side (in *R. cretica* eye mound with 8–10 denticles, in *R. petrophila* with 10 or 11 denticles); cheliceral basal segment has 5 or 6

dorsal denticles (in *R. cretica* with 10 denticles), distal segment has distinct frontal humps, apically covered with 3 or 4 denticles (in *R. cretica* and *R. petrophila* without distinct humps), glans penis is almost rectangular in shape (triangular in *R. cretica* and *R. petrophila*). The comparison of the subspecies *Rafalskia olympica olympica* and *R. olympica bulgarica* with *Rafalskia azizsancari* sp. n. is given in Table 1.

Table 1. Main diagnostic characters of the most closely related taxa of *Rafalskia*.

Characters	<i>R. azizsancari</i> sp. n.	<i>R. olympica bulgarica</i>	<i>R. olympica olympica</i>
Body	Dorsal saddle mark not distinct; dark brown; length 2.95–3.20 mm	Dorsal saddle distinct (dorsal saddle indistinct in some specimens) (Karaman 2002: 64, fig. 1a, b; Mitov 2012: 76, fig. 2e); light yellowish to light brown (Karaman 2002); length 4.9–6.3 mm	Dorsal saddle mark unnoticeable (Roewer 1923: 852, fig. 1022; Karaman 2002: 64, fig. 1c); pale yellowish, marbled yellowish brown (Karaman 2002); length 3.8–5.3 mm
Colour of chelicerae	Light brown	Yellowish marbled with brown to dark brown (Karaman 2002)	Yellowish (Karaman 2002)
Cheliceral second article	With distinct frontal apophysis (hump), with 3–4 small proximal spines	With distinct frontal hump, only apical setae (Karaman 2002: 65, fig. 2c, d)	With small frontal hump, only apical setae (Karaman 2002: 65, fig. 2h)
Penis	Glans rectangular, with dorsal and ventral margins almost straight and parallel; truncus 2.51–2.76 mm long; penis light to dark brown	Glans triangular, dorsally curved inward, ventrally bulged, curved outward; truncus 4.5–5.6 mm long (Karaman 2002: 65, fig. 2a, b; Starega 1963: 291, fig. 4–5); truncus light to dark brown, glans yellow (Karaman 2002)	Glans triangular, dorsally curved inward, ventrally narrowed; truncus 3.8–4.1 mm long (Karaman 2002: 65, fig. 2g); penis yellowish (Karaman 2002)

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