Philodromus musteri spec. nov. of the Philodromus aureolus group from Turkey (Araneae: Philodromidae)

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Abstract. Philodromus musteri spec. nov., a member of the Philodromus aureolus group from the Mediterranean coast of south-west Turkey, is described from a male specimen. Photos, drawings, diagnosis and a complement to the determination key are provided.

Keywords: new species, running crab spiders, taxonomy

Zusammenfassung. Philodromus musteri spec. nov. aus der Philodromus aureolus-Gruppe aus der Türkei (Araneae: Philodromidae). Philodromus musteri spec. nov., ein Vertreter der Philodromus aureolus-Gruppe, wird von der Mittelmeerküste im Südwesten der Türkei auf Basis eines Männchens beschrieben. Fotos, Zeichnungen, Diagnose und eine Ergänzung des Bestimmungsschlüssels werden vorgelegt.

Zusammenfassung. Philodromus musteri spec. nov. out of the Philodromus aureolus group from Turkey (Araneae: Philodromidae). Philodromus musteri spec. nov., a member of the Philodromus aureolus group from the Mediterranean coast of south-west Turkey, is described from a male specimen. Photos, drawings, diagnosis and a complement to the determination key are provided.

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The philodromid fauna of Turkey includes a fairly large number of species (i.e., 37 species according to Logunov & Kunt 2010; 38 species according to Danışman et al. 2019) but is still incompletely known. So far, 11 members of the Philodromus aureolus group – among the 15 known from the Mediterranean region (Muster & Thaler 2004) – have been recorded from Turkey (Danışman et al. 2019). Philodromus musteri spec. nov. thus constitutes the 12th species of the aureolus group for Turkey and the 16th member of the group in the Mediterranean region.

Material and methods

The male specimen described below was caught alive, immature and then raised in captivity to adulthood (molting on 21. Apr. and 19. May 2019). A second specimen, male, immature was also bred in captivity but without reaching the last moult.

For measurements, an eyepiece micrometer was used; all measurements are in mm. The measurement of the leg articles was done in dorsal view. Geographic coordinates are presented in the WGS 84 system; they were obtained using a smartphone’s GPS. Terminology of the genital organs follows Muster & Thaler (2004).

For identification and diagnosis, we refer to Dondale & Redner (1976), Segers (1992), Kubcová (2004), Muster & Thaler (2004), Szita & Logunov (2008), Wunderlich (2012), Lecigne et al. (2019), Nentwig et al. (2020), Oger (2020). Nomenclature follows the World Spider Catalog (2020).

Abbreviations

AME–AME – distance between anterior median eyes; CH – clypeus height (below AME); Co – conductor; CyL – ventral length of cymbium; CyP – cymbial process; CyW – ventral width of cymbium; dSDL – descending part of sperm duct loop; ITA – intermediate tibial apophysis; PL – prosoma length; PME – posterior median eyes; PLE – posterior lateral eyes; PME–PME – distance between PMEs; PME–PLE – distance between PME and PLE; PW – prosoma width; RTA – retrolateral tibial apophysis; VTA – ventral tibial apophysis.

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view (Figs 2c, 3b); RTA robust, pointing outwards, distally truncated (Figs 2, 3d), the ventral (black arrow, Fig. 2a) and dorsal (white arrow, Fig. 2g) borders straight. Cymbium asymmetrical, markedly widened prolaterally; cymbial process moderately protruding as a transparent, rounded lamella. Tegulum, subcircular, prolateral side with projection, visible in ventro-prolateral view (white arrow, Fig. 2e); retrolateral tegular projection barely developed; intertegular retinaculum discreet, visible in ventro-retrolateral view (Fig. 2d). Descending part of sperm duct loop pointing to retrolateral corner of cymbium (white arrow, Fig. 2a). Embolus, sickle-shaped, regularly curved, embolar base weakly thickened on its inner side, originating near mid-half of tegulum.

Female. Unknown.

Distribution and habitat. Only known from the type locality (Tekirova, Phaselis archeological site) (Fig. 4); undergrowth of a pine forest, in the branches of a holly (*Ilex aquifolium*).

Determination key

The determination key for males to species of the *Philodromus aureolus* group in the Mediterranean region, proposed by Muster & Thaler (2004), can be adopted in the number 5 and can be complemented between the numbers 12 and 13 as follows to include the new species and *Philodromus azcursor* from Azerbaijan. Remarks: amended or added text is shown in bold; *P. bonneti* was not included (see Muster & Thaler 2004).

12  Dorsal border of RTA straight to convex (Fig. 3g)  
12a  Dorsal border of RTA concave (Muster & Thaler 2004: Fig. 5)  ........................................... 13
12a  Cymbium asymmetrical, conspicuously widened prolaterally; descending part of sperm duct loop pointing to retrolateral corner of cymbium (Fig. 3a)  
12b  Cymbium narrow, only slightly enlarged prolaterally; descending part of sperm duct loop pointing to prolateral corner of cymbium (Muster & Thaler 2004: Fig. 13)  .................................. 12b
12b  Retrolateral tegular projection weakly developed; intertegular retinaculum visible in ventral view; embolar base thickened (Muster & Thaler 2004: Fig. 13)  
12b  Retrolateral tegular projection markedly developed; intertegular retinaculum not visible in ventral view; embolar base almost not marked (Logunov & Huseynov 2008: Fig. 1)  ...........................................  *P. azcursor*

Discussion

*Philodromus musteri* spec. nov. has the characters distinguishing members of the *Philodromus aureolus* group (Dondale & Redner 1976: 129, Wunderlich 2012: 37, Fig. 22, Lecigne et al. 2019: 39, Tab. I), particularly the genital characters. Distinctive is a stiff membrane (conductor) on which the embolus of the male rests and a stout and curved seta on the tegulum (the intertegular retinaculum according to Braun 1965) (Dondale & Redner 1976). Wunderlich (2012) also mentioned an asymmetrical cymbium widened prolaterally, a palpal tibia with three apophyses and most often the base of the embolus thickened (inconspicuous for the new species).
The *Philodromus aureolus* group is rich in species. Since its creation by Chyzer & Kulczyński (1891), many species and subspecies related to this group have been described while introducing at the same time some taxonomic confusion. Thereafter, further works, notably Kubcová (2004), have clarified the situation. Furthermore, Muster & Thaler (2004) updated the list of the species of the *P. aureolus* group known from the western Palaearctic region and the Mediterranean, and at the same time specified the nature of genitalia characters as criteria for differentiation. These works enabled the study of the specimen found at Tekirova.

The discovery of this new species can probably be explained by the absence or lack of surveys on the site but also in this area of the province of Antalya. However, it cannot be excluded that the species has already formerly been collected and misidentified. It presents similarities with respect to genital structure with *P. praedatus* O. Pickard-Cambridge, 1871 but is rather closely related to *P. lunatus* and *P. buchari*, even if none of these two species shows the same combination (see Diagnosis).

**Distribution.** *Philodromus lunatus* appears to be mainly spread out in the eastern Mediterranean (Muster & Thaler 2004) while *P. buchari* and *P. praedatus* show a much wider range; *P. buchari* occurs in Europe as far as Turkey, *P. praedatus* is widespread in the western Palaearctic region and occurs in the Mediterranean area as far as Azerbaijan. However, the latter has not been yet mentioned from Turkey (Danışman et al. 2019). Fig. 4 shows the distribution in Turkey, by provinces, of two of these three closely related species.

Four other immature/subadult specimens of the *P. aureolus* group were collected during the survey, two of which probably represented the new species. No other species of this group has been recorded within the same site or in its vicinity. Nevertheless, it is very likely, in view of its distribution, that *P. lunatus* may also be present there (see Fig. 4).

**Other species of the Philodromus aureolus group.** As evidence that the knowledge of this group is still incomplete, *P. azcursor*, another species close to *P. buchari* and *P. cespitum* (Walckenaer, 1802), has been recently described from Azerbaijan (Logunov & Huseynov 2008). It has been added to the updated determination key (see above).
Philodromus musteri Karol, 1968 is a reportedly endemic species known so far only from northwest Turkey (Bursa) and only from the male. It was described by Karol (1968) as belonging to the Philodromus aureolus group and recognized as such by Muster & Thaler (2004), but could not be traced at the Paris museum. The authors state that this species resembles *P. lunatus* with respect to characters of the male palpal organ. However, several details actually suggest that some structures have been schematized in the figures, i.e. simple, conical shape of several apophyses (RTA, ITA), unfigured descending part of sperm duct loop, schematic conductor contour and the unfigured intertegular reticulum, at least in retrolateral view.

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Fig. 4: Geographical location of Philodromus musteri spec. nov., locus typicus (●) and location by province of three other species of the Philodromus aureolus group: *P. bonneti* (○), *P. buchari* (□), *P. lunatus* (►), based on Demir (2008) and Logunov & Kunt (2010) (source: https://d-maps.com)