

Full Length Research Paper

Contribution to the knowledge of Gnaphosidae (Arachnida: Araneae) in Turkey

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In this study, some additions were made on arachnofauna in Turkey. We recorded *Drassodex* Murphy, 2007 genus and six gnaphosid species: *Drassodex hypocrita* (Simon, 1878), *Drassodes cupreus* (Blackwall, 1834), *Echemus angustifrons* (Westring, 1861), *Setaphis gomerae* (Schmidt, 1981), *Trachyzelotes fuscipes* (L. Koch, 1866) and *Zelotes hermani* (Chyzer, 1897), for the first time in Turkey. Also, we collected specimens from Kahramanmaraş and Adiyaman provinces, between April 2007 and May 2009. The characteristic features, distributions, ecologies, genital structures, identification keys of these species were described according to literature.

Key words: Araneae, Cithaeronidae, *Cithaeron praedonicus*, Turkey, Middle East.

INTRODUCTION

Gnaphosid spiders have been recognized by their abdomen, eyes and spinnerets. The abdomen varies in colour from greyish to black and is elongated in shape. The posterior median eyes are oval or elliptical in shape. Spinnerets are cylindrical in shape, the anterior pairs are widely separated and usually project from the posterior end of the abdomen. They are nocturnal hunters.

Gnaphosidae is one of the familiar families of spiders in Turkey. There are many researchers carrying out detailed study on this family, their systematics, faunistics and ecologic features. It is one of the biggest spider families. In this family, 2123 species of Gnaphosidae (Pocock, 1898c) and 117 genera have been described to date (Platnick, 2011, version: 12). Some of the researchers that studied gnaphosid species are: Varol (1996, 2001), Bayram (2007), Topçu et al. (2005), Varol et al. (2006), Ozdemir et al. (2006), (Seyyar and Demir, 2010, Seyyar et al. 2008, Seyyar, 2009) and Kovblyuk et al. (2009). Particularly, Seyyar et al. (2008) have a checklist of Gnaphosidae from Turkey, which have 107 species belonging to 26 genera. This paper presents the first record of genus *Drassodex* Murphy, 2007 and six

gnaphosid species from Turkey.

MATERIALS AND METHODS

Specimens were collected from Adiyaman and Kahramanmaraş provinces in Turkey between years 2007 and 2009. They were primarily gathered on manual searching and were preserved in 70% ethanol before they were identified. Afterwards, drawings were made under a SZX12 Olympus stereomicroscope.

In the diagnosis of the spider species collected from the research area, the following literature by Simon (1932), Nentwig et al. (2011), Muster and Thaler (2003), Logunov (1996) and Roberts (1995) were used, and the studied specimens were deposited in the Arachnology Museum of the University of Gaziantep. However, all measurements were done in millimetres.

RESULTS

Drassodex Murphy, 2007

These species are small spiders. The prosoma is light brown, while the opisthosoma is lighter brown or grey and it is mottled. The eyes distinctively stand in a darker area. One type of these species is *Drassodes hypocrita* (Simon, 1878). However, this genus was first recorded in Turkey (Seyyar et al., 2008).

Drassodex hypocrita (Simon, 1878) (Figure 2a)

Material: The material used were obtained from Büyük Çamurlu village (37° 54' N, 36° 23' E), 1461 m, 31.07.2008 (1♀) in Göksun district, Kahramanmaraş

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Abbreviations: AM, Anterior median eye; AL, anterior lateral eye; PM, posterior median eye; PL, posterior lateral eye; P, pedipalp; C, clypeus; LE, largest eyes; SE, smallest eyes; rt, retrolateral; v, ventral.

province, Turkey. The spider was found in an open space in the forest, while a locality of the specimen was found close to the stream around *Abies* trees.

Female: The total length for females is 5.29. Its carapace is 2.05 long and 1.70 wide. Its abdomen has a length of 3.24 and a width of 2.35. However, the lengths of the female's legs and pedipalp are: I-[(1.31 + 0.61 + 0.71 + 0.67+0.56) 3.86], II-[(1.38 + 0.46 + 0.70 + 0.57+0.76) 3.87], III-[(1.20 + 0.44 + 0.78 + 0.81 + 0.76) 3.99], IV-[(1.29 + 0.52 + 0.93 + 0.81 + 0.78) 4.33], P-[(0.56 + 0.29 + 0.33 + 0.51) 1.69].

Description: The prosoma, especially, is light brown to brown, but the distal leg segments and the eye regions are darker. However, the opisthosoma is light brown, while the vulva is convoluted with entrance ducts (Nentwig et al., 2011).

General distributions: They are generally distributed in Russia and Europe (Platnick, 2011).

***Drassodes cupreus* (Blackwall, 1834) (Figure 1a and b)**

Material: The material used were obtained from Çuhadarlı village (37° 34' N, 36° 28' E), 1275 m, 02.05.2009 (1♂) in Andirin district; Yarbaşı village (37° 28' N, 37° 13' E), 852 m, 18.05.2008 (1♂) in Pazarcik district; and Alanlı village (37° 32' N, 36° 29' E), 637 m, 02.05.2009 (1♂) in Andirin district, Kahramanmaraş province, Turkey. The spiders were found under stones. The first specimen was found close to the stream of Karasu, the second specimen was found close to Kartalkaya dam and its river, and the last specimen was found close to the Karasu stream, as well.

Male: The total length of the male species is 8.11. Its carapace is 3.77 in length and 2.75 in width. Its abdomen has a length of 4.34 and a width of 2.46. The lengths of the species' legs and pedipalp are: I- [(3.21 + 1.63 + 3.34 + 2.53 + 2.12) 12.83], II- [(3.35 + 1.58 + 3.03 + 2.64 + 2.09) 12.69], III- [(2.72 + 0.84 + 2.34 + 2.11 + 1.67) 9.68], IV- [(4.01 + 1.06 + 3.26 + 4.17 + 2.12) 14.62], P- [(0.83 + 0.48 + 0.94 + 1.03) 3.28]. However, the dimension of the eyes is: AM 0.20, AL 0.67, PM 0.23, PL 1.05, AM-AM 0.02, AM-AL 0.01, PM-PM 0.01, PM-PL 0.26, AM-PM 0.22, AL-PL 0.32, AM-C 0.17, AL-C 0.14. LE (PM), SE (AM).

Description: This species' prosoma is yellow-brown, while the eye region is darker. The chelicerae is darker than the overall colour and it has 3 teeth. The opisthosoma is light to yellow-brown, while the male pedipalp is seen as figs.

General distributions: It is generally distributed as Palaearctic ducts (Nentwig et al. 2011; Platnick, 2011).

***Echemus angustifrons* (Westring, 1861) (Figure 2c)**

Material: The material used were obtained from Tanir

town (38° 25' N 36° 55' E), 1282 m, 15.04.2007 (1♀) in Afşin district, Kahramanmaraş province, Turkey. In this study, the specimens were found under stones on the orchard of *Prunus avium*.

Female: The total length of the female species is 11.01. Its carapace is 8.08 in length and 6.46 in width. Its abdomen has a length of 2.93 and a width of 1.85. The lengths of the species' legs and pedipalp are: I- [(2.49 + 0.78 + 2.03 + 1.18 + 1.06) 7.54], II- [(2.34 + 7.3 + 1.89 + 1.11 + 1.05) 13.69], III- [(1.55 + 0.89 + 1.33 + 1.24 + 1.06) 6.07], IV- [(2.20 + 1.07 + 2.36 + 1.62 + 1.46) 8.71], P- [(0.95 + 0.32 + 0.42 + 0.85) 2.54]. However, the dimension of the species' eyes is: AM 0.23, AL 0.63, PM 0.11, PL 0.98, AM-AM 0.23, AM-AL 0.09, PM-PM 0.01, PM-PL 0.30, AM-PM 0.06, AL-PL 0.19. AM-C 0.22, AL-C 0.45. LE (PM), SE (AM).

Description: The prosoma has darker hairs than the opisthosoma. The distal leg segments are darker than the body colour, which varies from light orange to light brown. Nevertheless, the opisthosoma is grey in colour, and its abdomen is without scutum; although the epigynum has a wide hood and septum, while the spermathecae have recurved anterior lobes.

General distributions: It is generally distributed in Central Asia to Europe (Platnick, 2011).

***Setaphis gomerae* (Schmidt, 1981) (Figure 1c and d)**

Material: The material used were obtained from Altinyayla village (37° 43' N, 36° 29' E), 1260 m, 03.05.2009 (1♂) in Andirin district, Kahramanmaraş province; and from Serince village (38° 05' N, 38° 36' E), 1533 m, 26.05.2007 (1♂) in Sincik district; cross road Hacıhalil and Kuyucak villages (37° 40' N, 38° 16' E), 614 m, 27.04.2008 (1♂) in Besni district; and Gözebaşı village (37° 46' N, 38° 23' E), 644 m, 27.04.2008 (1♂) in City center, Adiyaman province, Turkey. The specimens were found usually under stones or pieces of dried mud, and sometimes they were found in fens on heaths.

Male: The total length of the male species is 4.6. Its carapace is 1.95 in length and 1.64 in width. Its abdomen has a length of 2.30 and a width of 1.36. The lengths of the species' legs and pedipalp are: I- [(1.07 + 0.68 + 1.17 + 0.82 + 0.57) 4.31], II- [(0.68 + 0.46 + 0.76 + 0.70 + 0.51) 3.11], III- [(0.76 + 0.40 + 0.81 + 0.84 + 0.69) 3.5], IV- [(0.83 + 0.59 + 1.48 + 1.25 + 0.52) 4.67], P- [(1.25 + 0.44 + 0.33 + 5.57) 7.59]. However, the dimension of the eyes is: AM 0.11, AL 0.31, PM 0.09, PL 0.52, AM-AM 0.11, AM-AL 0.08, PM-PM 0.09, PM-PL 0.6, AM-PM 0.21, AL-PL 0.18. AM-C 0.22, AL-C 0.49. LE (PM), SE (AM).

Description: The males can be recognized by the short projection restricted to the retrolateral side of the terminal apophysis. They have the metatarsal preening comb that is characteristic of zelotines, in addition to a distinctively coiled embolus in males. The typically enlarged, nearly

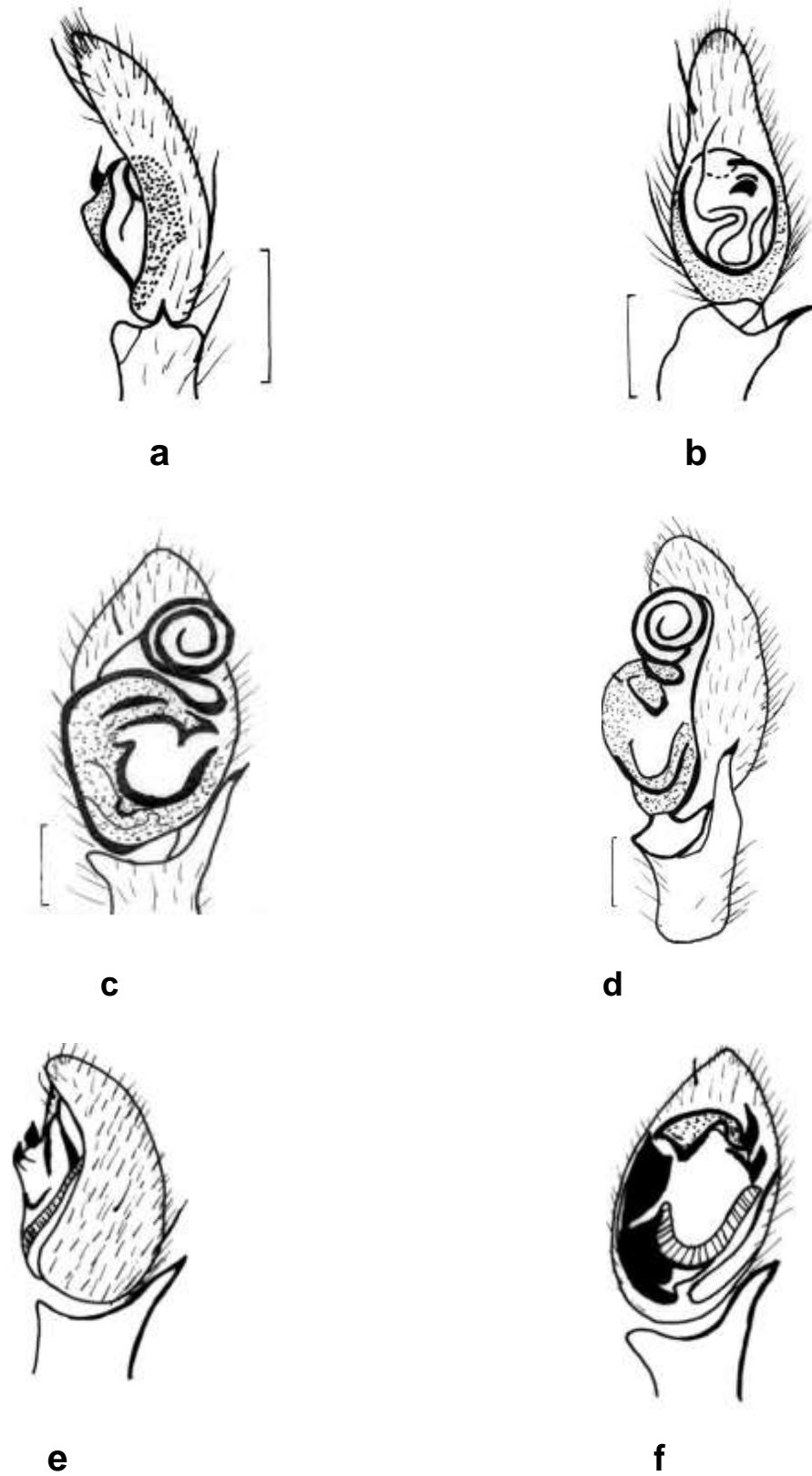


Figure 1. (a) Right view and (b) ventral view of *Drassodes cupreus* (Blackwall, 1834); (c) ventral view; (d) right view of *Setaphis gomarea* (Schmidt, 1981); (e) right view and (f) ventral view of *Zelotes hermani* (Chyzer, 1897). They all show the left male palp, while the scale lines are 0.5 mm.

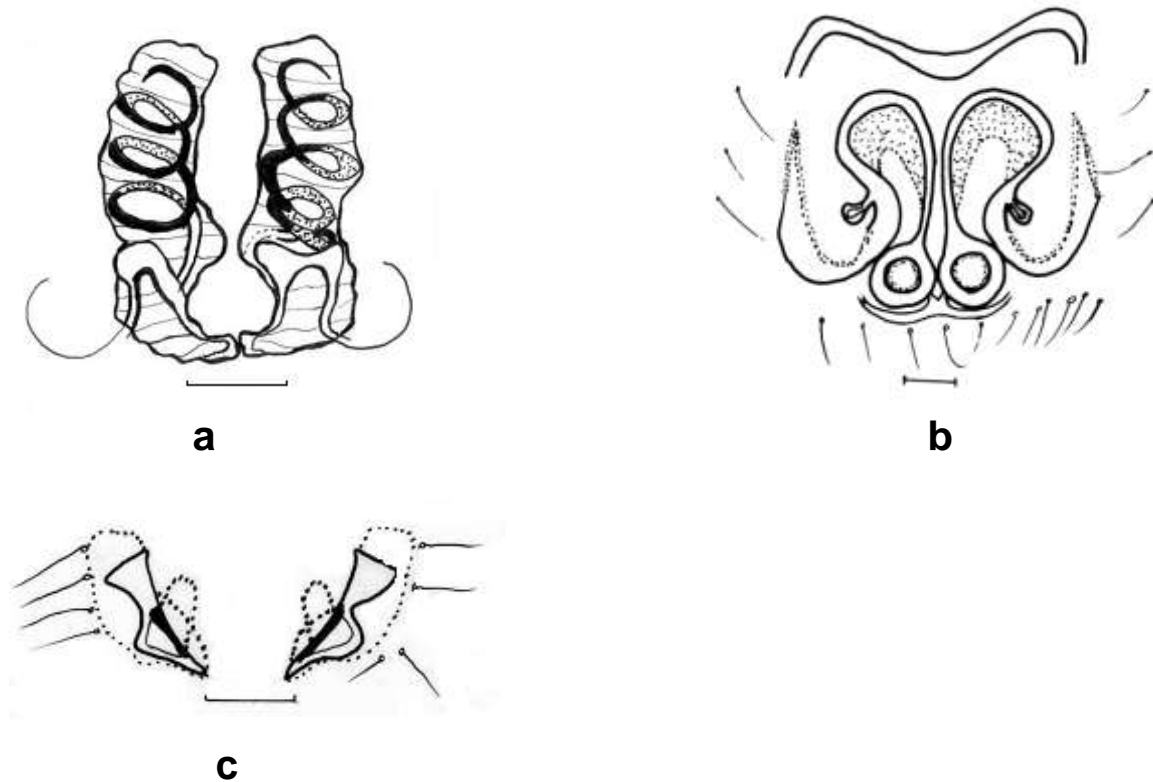


Figure 2. (a) *Drassodex hypocrita* (Simon, 1878); (b) *Trachyzelotes fuscipes* (L. Koch, 1866); (c) *Echemus angustifrons* (Westring, 1861). They all show the ventral view of epigyne, while the scale lines are 0.5 mm.

contiguous posterior median eyes suggest that *Setaphis* is more closely related to *Camillina* and *Drassyllus* than to *Zelotes* (Platnick and Murphy, 1996).

General distributions: The species is generally distributed in Canary Island (Platnick and Murphy, 1996).

***Trachyzelotes fuscipes* (L. Koch, 1866) (Figure 2b)**

Material: The material used were obtained from the cross roads of Boztepe and Sariharman villages (37° 43' N, 38° 27' E), 634 m, 26.04.2008 (1♀) in the city center of Adiyaman province, Turkey. The spider was found under pieces of chalk close to the open space of the forest.

Female: The total length of the female species is 4.6. Its carapace is 1.83 in length and 1.37 in width. Its abdomen has a length of 2.76 and a width of 1.64. The lengths of the species' legs and pedipalp are: I- [(1.09 + 0.61 + 0.96 + 0.73 + 0.61) 4.01], II- [(1.04 + 0.41 + 0.75 + 0.57 + 0.57) 3.35], III- [(0.75 + 0.27 + 0.57 + 0.60 + 0.43) 2.62], IV- [(1.10 + 0.36 + 1.04 + 0.60 + 0.40) 3.51], P- [(0.29 + 0.18 + 0.25 + 0.49) 1.21]. However, the dimension of the eyes is: AM 0.03, AL 0.07, PM 0.12, PL 0.06, AM-AM 0.08, AM-AL 0.06, PM-PM 0.08, PM-PL 0.06, AM-PM 0.11, AL-PL 0.09. AM-C 0.05, AL-C 0.03. LE (PM), SE (AM).

Description: The species' carapace is yellow and brown

in colour, while the opisthosoma is grey-dark brown in colour. The eyes and chelicera are dark brown; though the setas of the chelicera are clannish. The femur, patella and tibia are darker than the metatarsus and tarsus. The epigynal upper lateral margin is sclerotised and the lateral parts are pointed, whereas the vulva has an evident curve and its spermathecal duct is oval.

General distributions: It is generally distributed from the Mediterranean to Central Asia, USA (Platnick, 2011).

***Zelotes hermani* (Chyzer, 1897) (Figure 1e and f)**

Material: The material used were obtained from the city center of Kayatepe village (37° 51' N, 38° 15' E), 974 m, 27.04.2008 (1♂), Adiyaman province, Turkey. The spiders were found running under the sun among loose stones.

Male: The total length of the male spider species' is 3.08. Its carapace is 1.71 in length and 1.40 in width. Its abdomen has a length of 1.37 and a width of 0.77. The lengths of the species' legs and pedipalp are: I- [(1.19 + 0.36 + 0.81 + 0.71 + 0.62) 3.76], II- [(0.91 + 0.40 + 0.79 + 0.65 + 0.58) 3.34], III- [(0.81 + 0.39 + 0.44 + 0.54 + 0.51) 2.70], IV- [(1.18 + 0.52 + 0.89 + 1.09 + 0.62) 4.29], P- [(0.27 + 0.26 + 0.19 + 0.67) 1.39]. However, the dimension of the eyes is completely unmeasured.

Description: The carapace is dark brown to black, though its edge is darker, while the opisthosoma is black in colour. The legs are yellowish in colour and the femur, patella and tibia of the species' (I-II) legs are darker than other leg segments. However, the tibial apophysis are long and slightly oblique, while the embolus are short and broad.

General distributions: The species is generally distributed from Russia to Central Europe (Platnick, 2011).

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REFERENCES

- Bayram A (2007). The Checklist of the Spiders of Turkey (Araneae; Arachnida). Online version: <http://www.spidersofturkey.com/viewpage.php? p. 46>
- Kovblyuk M, Seyyar O, Demir H, Topçu A (2009). New taxonomic and faunistic data on the gnaphosid spiders of Turkey (Aranei: Gnaphosidae). *Arthropoda Selecta*. 18(3-4): 169-187.
- Nentwig W, Blick T, Gloor D, Hänggi A, Kropf C (2011). Spiders of Europe, Version 6. Online version: www.araneae.unibe.ch.
- Özdemir A, Varol I, Akan Z, Kütük M, Kutbay F, Özaslan M (2006). The Fauna of Spider (Araneae) in the Nizip and Karkamış – Gaziantep (Turkey). *Biotechnol. Biotechnol. Equipment*, 20 (1): 74-77.
- Platnick N (2011). The World Spider Catalog, Version 12.0. Online version: <http://research.amnh.org./iz/spiders/catalog/index.html>
- Platnick N, Murphy JA (1996). Review of the Zelotine Ground Spider Genus *Setaphis* (Araneae, Gnaphosidae). *Am. Mus. Novit.* 3162: 1-23.
- Roberts MJ (1995). Spiders of Great Britain and Northern Europe. Collins, Harley Books. Cochester. p. 682.
- Seyyar O (2009). Ground spiders (Araneae:Gnaphosidae) fauna of the East Mediterranean Region of Turkey. University of Erziyes, Science Enstitute, Kayseri, p. 166.
- Seyyar O, Ayyıldız N, Topçu A (2008). Updated Checklist of Ground Spiders (Araneae: Gnaphosidae) of Turkey, With Zoogeographical and Faunastic Remarks, *Ent. News*, 119(5): 509-520.
- Seyyar O, Demir H (2010). New Records of ground spiders from Turkey (Aranea: Gnaphosidae). *Serket*, 12(1): 13-16.
- Topçu A, Demir H, Seyyar O (2005). A Checklist of the Spiders of Turkey. *Serket*. 9(4): 109-140.
- Varol Mİ (1996). Investigation of taxonomy Lycosidae, Gnaphosidae and Clubionidae fauna of the Van lake basin (Ordo: Araneae). University of Yüzüncü Yıl, Science Enstitute, Van, p. 76.
- Varol Mİ (2006). Spider List of Turkey. Online version: http://www1.gantep.edu.tr/~varol/tr/asil_tr.htm
- Varol Mİ (2001). The fauna, ecology and systematics of the ground-living spiders in the Northeast Anatolia Region (Arachnida: Araneae). University of Yüzüncü Yıl, Science Enstitute, Van, p. 147.