

## A Pycnogonid Species New for the Mediterranean Coast of Türkiye: *Achelia langi* (Dohrn, 1881) (Arthropoda, Pycnogonida)

Türkiye'nin Akdeniz Kıyıları İçin Yeni Bir Pycnogonid Türü: *Achelia langi* (Dohrn, 1881) (Arthropoda, Pycnogonida)

Cengiz Koçak<sup>1,\*</sup> 

<sup>1</sup>Department of Hydrobiology, Fisheries Faculty, Ege University, TR 35100, Bornova-İzmir, Türkiye.

\*Corresponding author: [cengiz.kocak@ege.edu.tr](mailto:cengiz.kocak@ege.edu.tr)

Received: 02.08.2022

Accepted: 19.10.2022

Published: 01.12.2022

**How to Cite:** Koçak, C. (2022). A Pycnogonid species new for the Mediterranean coast of Türkiye: *Achelia langi* (Dohrn, 1881) (Arthropoda, Pycnogonida). *Acta Aquatica Turcica*, 18(4), 513-517. <https://doi.org/10.22392/actaquatr.1153151>

**Abstract:** A male specimen of *Achelia langi* (Dohrn, 1881) was found in Antalya Bay (Turkish coast of the Mediterranean Sea) at 1.5 m depth in July 2019. A distribution map of the species in the Mediterranean Sea is provided, together with a photograph and line drawing of the species. *A. langi* is reported in this study for the first time from Antalya Bay and the Mediterranean coast of Türkiye and also the third time from the eastern Mediterranean Sea. The record further extends the known distribution of this species from the Aegean Sea to the Mediterranean coast of Türkiye in the eastern Mediterranean Sea.

### Keywords

- Pycnogonida
- Ammotheidae
- *Achelia langi*
- Mediterranean Sea
- Mediterranean coast of Türkiye

**Özet:** *Achelia langi* (Dohrn, 1881) türüne ait bir erkek birey Temmuz 2019 tarihinde 1.5 m derinlikten Antalya Körfezi'nden tespit edilmiştir. Türün Akdeniz'deki dağılımı, fotoğraf ve çizimi çalışmada verilmiştir. *A. langi*, Antalya Körfezi'nden ve Türkiye'nin Akdeniz kıyılarından ilk kez, doğu Akdeniz'den ise üçüncü kez bu çalışmada rapor edilmektedir. Bu kayıt, doğu Akdeniz'de türün bilinen dağılımını Ege Denizi'nden Türkiye'nin Akdeniz kıyılarına kadar genişletmektedir.

### Anahtar kelimeler

- Pycnogonida
- Ammotheidae
- *Achelia langi*
- Akdeniz
- Türkiye Akdeniz kıyıları

## 1. INTRODUCTION

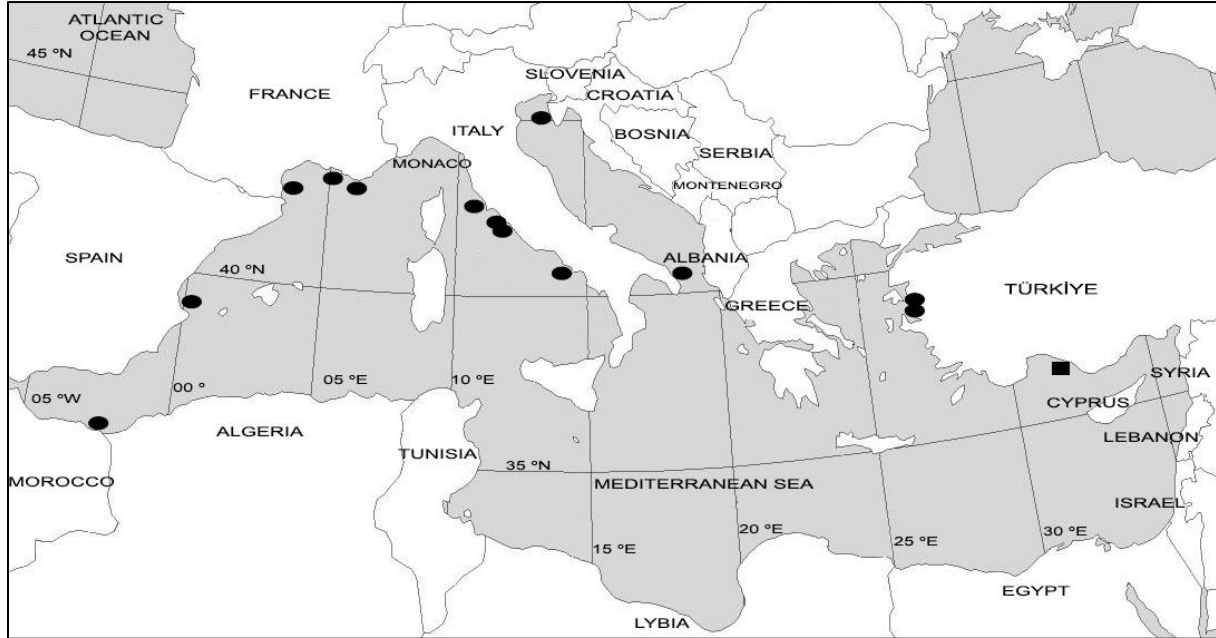
*Achelia langi* (Dohrn, 1881) has occasionally been found in the Mediterranean Sea, mainly in its western and central regions (Dohrn, 1881; Faraggiana, 1940; Stock, 1968; Chimenz et al., 1979; Arnaud, 1987; Sanchez & Munilla, 1989; Munilla, 1993; Chimenz et al., 1993; Munilla & Nieto, 1999; Piscitelli, 2000; Vignoli et al., 2006;). In the eastern Mediterranean Sea, it was reported only from Çandarlı Bay (Koçak & Katağan, 2007) and Foça (Krapp et al. 2008) on the Aegean Sea coast of Türkiye. An examination of sea spiders collected in Antalya Bay revealed the presence of a species belonging to the genus *Achelia* Hodge, 1864, which is identified in this paper as *Achelia langi*. The species is new to Antalya Bay and the Mediterranean coast of Türkiye. It is also reported here for the third time in the eastern Mediterranean Sea.

## 2. MATERIALS AND METHODS

A male specimen of *Achelia langi* was collected by snorkeling from *Cystoseira crinita* Duby, 1830 facies in the upper infralittoral zone (1.5 m depth) of Alanya, Antalya Bay (eastern Mediterranean Sea, Türkiye) (Figure 1). The specimen was fixed in 5% formaldehyde, later rinsed with fresh water, and then preserved in 70% ethanol. The specimen was examined under a stereomicroscope. The drawing



was made with the aid of a drawing tube mounted on an Olympus CX31 compound microscope. The following papers were used for the species identification: Stock (1968), Koçak and Katağan (2007), and Lehmann et al. (2014). The specimen was deposited in the ESFM (Museum of the Faculty of Fisheries, Ege University, İzmir).



**Figure 1.** Earlier established the occurrence of *Achelia langi* (Dohrn, 1881) in the Mediterranean Sea (filled circle) and the sampling area (filled rectangle) reported in the present study.

### 3. RESULTS

#### 3.1. Systematics

Class PYCNOGONIDA Latreille, 1810

Order PANTOPODA Gerstaecker, 1863

Family AMMOTHEIDAE Dohrn, 1881

Genus *Achelia* Hodge, 1864

*Achelia langi* (Dohrn, 1881) (Figures 2-3)

Material examined: 1 ♂, (EFSM-PYC/2019-1), Alanya (Antalya Bay, Mediterranean coast of Türkiye), 36°33'16"N, 31°58'19"E, *Cystoseira crinata* Duby, 1830, 1.5 m, 23 July 2019.

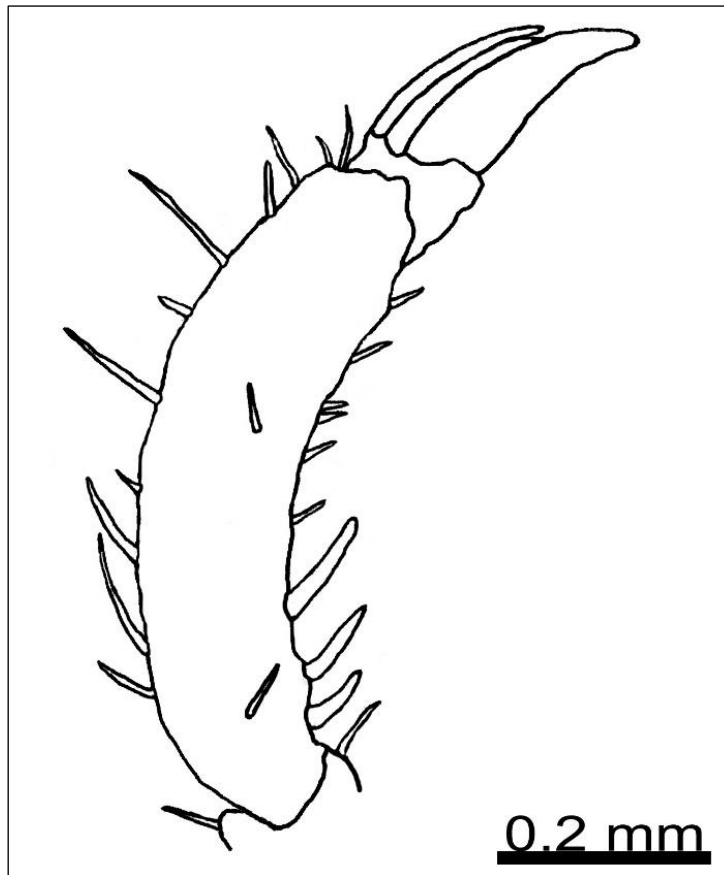
Measurements (mm): Trunk length (frontal margin of a cephalic segment to tip of the fourth lateral process), 1.22; Trunk width (across second lateral processes), 0.95.

Remarks: The present specimen agrees well with the specimen given by Koçak and Katağan (2007). I noted only that the trunk length of the present specimen is slightly smaller than those in Koçak and Katağan's (2007) specimen (1.25 mm in ♂).

Worldwide Distribution: Atlantic-Mediterranean (eastern Atlantic Ocean, Mediterranean Sea) (Soler-Membrives & Munilla, 2015).



**Figure 2.** *Achelia langi* (Dohrn, 1881), ♂, Antalya Bay. Dorsal view.



**Figure 3.** *Achelia langi* (Dohrn, 1881), ♂, Antalya Bay. Propodus of right leg 3.

#### 4. DISCUSSION

Most previous records of *A. langi* from the Mediterranean Sea are from the western and central regions: the Italian coast. Napoli (Dohrn, 1881); Levanto (Faraggiana, 1940); Civitavecchia port, Torvaldaliga (Chimenz et al., 1979); Apulian coast (Chimenz et al., 1993); Tremiti Island (Piscitelli, 2000); Costa d'Argento, southern Tuscany (Vignoli et al., 2006). Spanish coast. Canary Islands (Sanchez & Munilla, 1989); Nuevo Faro, Valencia (Munilla, 1993); Chafarinas Islands (Munilla & Nieto, 1999). French coast. Banyuls (Stock, 1968); vicinity of Marsilia and Toulon (Arnaud, 1987). In the eastern Mediterranean Sea, this species is reported only from the Aegean Sea coast of Türkiye: Çandarlı Bay (Koçak & Katağan, 2007); Foça (Krapp et al. 2008) (Figure 1).

Three pycnogonid species were recorded so far from Antalya Bay. The present study raises the total number of pycnogonid species found in Antalya Bay to 4, with the addition of the species (*Tanystylum orbiculare* Wilson, 1878; *T. conirostre* (Dohrn, 1881); *Achelia* sp. and *A. langi* (Dohrn, 1881). These four different species of pycnogonids, out of a total number of 30 species in Türkiye (Koçak, 2022), represent 13.3% of all known pycnogonid species.

Kocak (2015) stated that the number of pycnogonids known from the Mediterranean coast of Türkiye was 8 species. Then *Ammothea hilgendorfi* (Böhm, 1879) was reported from the Mersin Bay by Ragkousis et al. (2020). In a later study, Koçak (2022) recorded *Ammothella longiocularata* (Faraggiana, 1940) from Fethiye Bay. These records increased the total number of species to 10. With *A. langi*, the total number of species is raised to 11 on the Mediterranean coast of Türkiye. Thus, the reported four species in Antalya Bay represent 36.6% of the actual Turkish Mediterranean Sea species.

The new record of *A. langi* reported in this study further extends the known distribution of this species from the Aegean Sea to the Mediterranean coast of Türkiye in the eastern Mediterranean Sea. Therefore, *A. langi* now has an established distribution ranging from the eastern Atlantic to the Turkish coast of the Mediterranean Sea.

#### FUNDING

No financial support was received for the study.

#### CONFLICT of INTEREST

The author declares that there are no financial interests or personal relationships that may affect this work.

#### AUTHOR CONTRIBUTIONS

Single author.

#### ETHICAL STATEMENTS

Local Ethics Committee Approval was not obtained because experimental animals were not used in this study.

#### DATA AVAILABILITY STATEMENT

Data sharing is not applicable for this article, as no new data was created or analyzed in this study.

#### REFERENCES

- Arnaud, F. (1987). Les pycnogonides (Chelicerata) de Méditerranée: Distribution écologique, batyhmétrique et biogéographie. *Mésogée*, 47, 37–58.
- Chimenz C., Brignoli P. M. & Basciano G. (1979). Pantopodi del porto di Civitavecchia e dintorni (Italia centrale). *Cahiers de Biologie Marine*, 20, 471–497.

- Chimenz, C., Tosti, M., & Cottarelli, V. (1993). Taxonomical and ecological observations on Pycnogonida from Apulian coasts (Southern Italy). *Bollettino di Zoologia*, 60, 339–347.
- Dohrn A. (1881). Die Pantopoden des Golfes von Neapel und der angrenzenden Meeres-Abschnitte. *Fauna Flora Golfes Neapel*, 3, 1–252.
- Faraggiana, R., (1940). Pantopodi del Mare Ligure. *Bollettino dei Musei di Zoologia e Anatomia Comparata di Torino*, 48, 145–158.
- Kocak, C. (2015). A checklist of the Pycnogonids (Arthropoda) from Turkish waters. *Acta Adriatica*, 56, 189–198.
- Koçak, C. (2022). *Ammothella longiocularata* (Arthropoda, Pycnogonida): A Sea Spider New For the Mediterranean Coast of Turkey. *Acta Aquatica Turcica*, 18(1), 076-080. <https://doi.org/10.22392/actaquatr.975106>
- Koçak, C. & Katağan, T. (2007). A pycnogonid new to the eastern Mediterranean: *Achelia langi* (Dohrn, 1881) (Pycnogonida, Ammotheidae). *Marine Biodiversity Records*, 1, e93, 1-3. <https://doi.org/10.1017/S1755267207009335>
- Krapp, F., Kocak, C. & Katagan, T. (2008). Pycnogonida (Arthropoda) from the eastern Mediterranean Sea with description of a new species of *Anoplodactylus*. *Zootaxa*, 1686, 57-68.
- Lehmann, T., Heß, M. & Melzer, R. R. (2014). Common littoral pycnogonids of the Mediterranean Sea. *Zoosystematics and Evolution*, 90 (2), 163–224. <https://doi.org/10.3897/zse.90.7520>
- Munilla T. (1993). Contribucion a la picnogonifauna del Mediterraneo Espanol. *Annali del Museo Civico di Storia Naturale "Giacomo Doria"*, 89, 445–455.
- Munilla, T. & Nieto, D. (1999). Littoral pycnogonids from the Chafarinas Islands (Alboran Sea, western Mediterranean). *Vie et Milieu*, 49, 155–161.
- Piscitelli G. (2000). Primi dati sui picnogonidi delle Isole Tremiti. *Biologia Marina Mediterranea*, 7, 718–722.
- Ragkousis, M., Abdelali, N., Azzurro, E., Badreddine, A., Bariche, M., Bitar, G., Crocetta, F., Denitto, F., Digenis, M., El Zrelli, R., Ergenler, A., Fortič, A., Gerovasileiou, V., Grimes, S., Katsanevakis, S., Koçak, C., Licchelli, C., Loudaros, E., Mastrototaro, F., Mavrič, B., Mavruk, S., Miliou, A., Montesanto, F., Ovalis, P., Pontes, M., Rabaoui, L., Sevingel, N., Spinelli A., et al. (2020). New Alien Mediterranean Biodiversity Records (October 2020). *Mediterranean Marine Science*, 21(3), 631-652. <https://doi.org/10.12681/mms.23673>
- Sanchez E. & Munilla T. (1989). Estudio ecologico de los primeros Picnogonidos litorales de las islas Canarias. *Cahiers de Biologie Marine*, 30, 49–67.
- Soler-Membrives, A. & Munilla, T. (2015). PYCNOIB: Biodiversity and Biogeography of Iberian Pycnogonids. *PLoS ONE*, 10(3), e0120818. <https://doi.org/10.1371/journal.pone.0120818>
- Stock, J. H. (1968). Faune marine des Pyrénées-Orientales. 6: Pycnogonides. *Vie et Milieu*, 19, (1–A), 11–38.
- Vignoli, V., Magari, V. & Bernini, F. (2006). Preliminary study on the pycnogonids associated to photophilous algae from the ‘Costa d’Argento’ (Southern Tuscany) (Arthropoda Pycnogonida). *Bollettino della Società Entomologica Italiana Genova*, 138, 3–8.
-