

Research Article

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Two Decapod Crustacean Species, *Pontonia pinnophylax* (Otto, 1821) and *Nepinnotheres pinnotheres* (Linnaeus, 1758), Living Inside *Pinna nobilis* Linnaeus, 1758 in Izmir Bay (Aegean Sea, Turkey)

İzmir Körfezi'nde (Ege Denizi, Türkiye) *Pinna nobilis* Linnaeus, 1758 İçerisinde Yaşayan İki Dekapod Krustase Türü: *Pontonia pinnophylax* (Otto, 1821) ve *Nepinnotheres pinnotheres* (Linnaeus, 1758)

Türk Denizcilik ve Deniz Bilimleri Dergisi

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ABSTRACT

Four specimens of *Pontonia pinnophylax* (Otto, 1821) and two specimens of *Nepinnotheres pinnotheres* (Linnaeus, 1758) were collected from four noble pen shells, *Pinna nobilis* Linnaeus, 1758 off Urla coasts, Izmir Bay, Aegean Sea.

These rare species are being reported for the first time in a certain area from the Turkish seas.

Keywords: noble pen shell, *Pontonia pinnophylax*, *Nepinnotheres pinnotheres*, new record, Aegean Sea.

ÖZET

Dört *Pontonia pinnophylax* (Otto, 1821) ve iki *Nepinnotheres pinnotheres* (Linnaeus, 1758) bireyi İzmir Körfezi (Ege Denizi) Urla kıyıları açıklarında dört pinadan (*Pinna nobilis* Linnaeus, 1758) toplanmıştır. Bu nadir türler, Türkiye denizlerinden belirgin bir alanda ilk kez rapor edilmektedir

Anahtar Kelimeler: pina, *Pontonia pinnophylax*, *Nepinnotheres pinnotheres*, yeni kayıt, Ege Denizi.

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1. Introduction

Species of the genus *Pontonia* Latreille, 1829 are distributed in tropical and subtropical waters around the world, living in associated with either molluscan or ascidian hosts and a total of 10 species from the genus is described (Fransen, 2002).

The regular host for *Pontonia pinnophylax* is *Pinna nobilis*, and it inhabits the mantle cavity of the living *P. nobilis* (Richardson et al., 1997). *P. pinnophylax* has been observed to feed on the mixture of mucus and food particles collected on the gill surfaces and on the mantle epithelium of *P. nobilis* and they assimilate carbon from similar sources, and their association is commensal (Kennedy et al., 2001).

P. pinnophylax distributes in the Mediterranean from the east coast of Spain to Turkey, not recorded from the North African coast and the species inhabits to depth of 0-137 m. Maximum postorbital carapace length 11 mm in males, 12.5 mm in females (Fransen, 2002).

Nepinnotheres pinnotheres is unique *Nepinnotheres* species in European waters (Manning 1993). *N. pinnotheres* usually occurs associated with a bivalve mollusk (i.e. *Pinna nobilis*) like *Pontonia* and it descends to 75 m (Manning 1993).

Both commensal species have been recorded from Izmir Bay since XVIII. Century. However, *N. pinnotheres* has been several reported more in 1970s, and

it has never been seen again since then. Thus, both species can be accepted as very rare. This short report contributes to the last knowledge and new material of two decapod crustaceans, *P. pinnophylax* and *N. pinnotheres* associated with *P. nobilis* for Izmir Bay (Aegean Sea) fauna after a long time.

2. *Pontonia pinnophylax* (Otto, 1821)

Material examined: South of Hekim Island, Izmir Bay (38°26'08''N - 26°45'41''E), sandy bottom with *Posidonia* meadows, 3 m depth, skin diving, 13 April 2015, 1 ♂ and 1 ovigerous ♀ (Figure 1), Carapace length (CL) 10 mm and 13 mm, respectively (ESFM-MAL/2015-01). A week later, Esek Island, Izmir Bay (38°24'16''N - 26°46'15''E), sandy bottom with *Posidonia* meadows, 4 m depth, skin diving, 20 April 2015, 1 ♂ and 1 ovigerous ♀, CL: 10 mm and 13 mm, respectively (ESFM-MAL/2015-01).

Remarks: *P. pinnophylax* in a *Pinna* species was first mentioned from Izmir Bay by Hasselquist (1757). In one of his letters to Linnaeus, he mentioned from *Astacus minimus* (as a Cancric species) in a *Pinna* species in Izmir Bay. According to Holthuis (1961), this species refers to *P. pinnophylax*. Additionally, Bakır et al. (2014) added amongst the marine arthropods of Turkey that the species has also been reported from the Levantine Sea in 1961 by Holthuis.



Figure 1. *Pontonia pinnophylax*, collected from Izmir Bay (Scale bar=10 mm): above: male with obvious difference in size of the chelae; lower: gravid female (Photograph: O. Akyol)

3. *Nepinnotheres pinnotheres* Linnaeus, 1758

Material examined: Esek Island, Izmir Bay (38°24'16''N - 26°46'15''E), sandy bottom with *Posidonia* meadows, 4 m depth, skin diving, 20 April 2015, 1 ♀ (with developing gonad), Total length (TL) 14 mm, 1 ovigerous ♀ 17 mm TL (Figure 2) (ESFM-MAL/2015-02).

Remarks: Some little crabs were mentioned first in the great silk muscle shell (*Pinna muricata* Linnaeus, 1758), collected from Milo Island (Cyclades, Greece) during the 8th Smyrna expedition in 1749 (Hasselquist, 1757). They must be *N. pinnotheres*. Before long, *N. pinnotheres* (as *Cancer pinnotheres*) was also reported from both Izmir Bay (Smirnae) and the Bosphorus

(Constantinopoli) by Forskål (1775). Kocataş (1971) and Geldiay and Kocataş (1972) collected some *N. pinnotheres* (as *Pinnotheres pinnotheres*) in the coasts of Urla and Balıklıova during the trawl surveys.

In conclusion, occurrence of both decapod crustaceans indicates established populations in the area in terms of ovigerous females. *P. pinnophylax*, two by two were living together inside of a *Pinna nobilis*, while *N. pinnotheres* was severally living inside. All specimens have the largest size in the Mediterranean. It needs the further researches on these poorly known species in the Bay of Izmir.



Figure 2. *Nepinnotheres pinnotheres*, collected from Izmir Bay (Scale bar=10 mm) (Photograph: O. Akyol)

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