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First Record of *Anilocra physodes* (Isopoda, Cymothoidae) on the *Phycis blennoides* (Pisces; Phycidae) with Morphological Characters and Hosts Preferences

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Abstract

Anilocra physodes (Linnaeus, 1758) (Isopoda, Cymothoidae) is reported for the first time on *Phycis blennoides* (Brünnich, 1768) (Pisces; Phycidae) from the North Aegean Sea Coasts of Turkey. The present paper aims to present the morphological characters of *Anilocra physodes* from Turkey. Some morphological characters of this parasitic isopod are illustrated. A new host species for *Anilocra physodes* and the host's preferences with it, according to family characteristics, habitat selections, feeding habits, are presented.

Keywords: *Anilocra*, Cymothoidae, Isopoda, morphology, *Phycis*, Turkey.

1. Introduction

Cymothoids are ectoparasitic isopods on the body, fins, or inside the buccal or the branchial cavities of numerous freshwater and marine fishes. They are the protandrous hermaphrodite (Bariche and Trilles, 2005). Cymothoids are serious parasites currently affecting a number of fish farms in the World (Sarusic, 1999; Papapanagiotou *et al*., 1999; Papapanagiotou and Trilles, 2001).

The family Cymothoidae includes 43 genera according to Hadfield *et al*. (2017). Although that Cymothoidae family is well-known, there are some deficiencies from the taxonomic point of view. Studies concerned with molecular and morphological are needed on this family according to some researchers (Poore and Bruce, 2012; Martin *et al*., 2013; Hadfield *et al*., 2016).

Fifty-one species in the genus *Anilocra* were listed by The World Register of Marine Species (Bruce and Schotte, 2008). Two species (*Anilocra physodes* and *Anilocra frontalis*) were reported from Turkish waters, but these studies include limited information about the morphology of mouth-parts (Öktener and Trilles, 2004; Kırkım, 1998).

The present study aims to report a new host species for *Anilocra physodes* and its host preference according to family characteristics, habitat selections, feeding habits.

2. Material and Methods

Seventy greater forkbeard, *Phycis blennoides* (Brünnich, 1768) (Pisces; Phycidae) were collected from the North Aegean Sea in 2014. Collected parasites were fixed in 70% ethanol. Mouthparts and pleopods were dissected using a Wild M5 stereo microscope. The dissected parts were mounted on slides in a glycerin-gelatine mounting medium. The pleopods were stained with methylene blue. The appendages were drawn with the aid of a camera lucida (Olympus BH-DA). The photos were taken with the aid of Canon camera (EOS 1100D) attached to the microscope. Measurements were taken in millimeter (mm) with a micrometric program (Pro-way). Scientific names, synonyms were checked with the WoRMS Editorial Board (2018). The information of feeding habits, habitat characteristics of the host were prepared according to Froese and Pauly (2017). Specimens of *Anilocra physodes* were deposited in the collections of the Muséum National d'Histoire Naturelle (MNHN), Paris, France (MNHN-IU-2013-18754).

3. Results

Anilocra physodes (Linnaeus, 1758) (Figures 1-5)

Synonyms

Oniscus physodes Linne, 1758: 636. —Linne, 1767: 1060. —Fabricius, 1787: 241

Asellus physodes Olivier, 1789: 255

Cymothoa physodes Fabricius, 1793: 507

Idotea physodes Fabricius, 1798: 320

Anilocra cuvieri Leach, 1818: 350. —Desmaret, 1825: 306. —White, 1847: 109. —Lucas, 1850: 250. —Ellis, 1981: 123. —Bruce, 1987: 91

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Anilocra mediterranea Leach, 1818: 350.—Desmaret, 1825: 306.—Audouin, 1826: 94, pl.11, fig.10-11.—Edwards, 1833: 321-334, pl.14.—Edwards, 1839: 66, fig.1.—Edwards, 1840: 257.—White, 1847: 108.—Lucas, 1850: 250.—Hope, 1851: 32.—Heller, 1866: 741.—Barcelo Combis, 1875: 67.—Bullar, 1877: 254-256.—Stalio, 1877: 234.—Mayer, 1879: 165-179.—Stossich, 1880: 46.—Saint-Loup, 1885: 175-176.—Gourret, 1891: 13-14, pl.I, fig.8.— Ide, 1892: 106, pl.VII, fig.84-92.—Bolivar, 1892: 132.—Gerstaecker, 1901: 255,257, taf.XXVI, fig.2.—Gourret, 1907: 50,89.—Coulon, 1908: 92.—Gibert i Olive, 1919-1920: 87.—Zimmer, 1926-1927: 746.—Gunther, 1931: 1-79.—Demir, 1952-1954: 363-364, fig.150,tab.VI(fig.3).—Balcells, 1953: 550.—Fain-Maurel, 1966: 7-10, fig.1-3.—Ellis, 1981: 123

Canolira albicornis Guérin, 1832-1835: 48.—Gerstaecker, 1901: 257

Anilocra physodes Edwards, 1840: 257.—Lucas, 1849: 77.—Hope, 1851: 32.—Heller, 1866: 741.—Stalio, 1877: 234-235.—Stossich, 1880: 46.—Schioedte and Meinert, 1881: 131-139, tab.IX, fig.4-7.—Carus, 1885: 441.—Saint-Loup, 1885: 175-176.—Buen, 1887: 14.—Bolivar, 1892: 132.—Gerstaecker, 1901: 255-257, taf.XXVI, fig.2.—Tattersall, 1905: 85.—Gourret, 1907: 89.—Nierstrasz, 1915: 80.—Buen, 1916: 363.—Nierstrasz, 1918: 115.—Gibert i Olive, 1919-1920: 87.—Monod, 1923a: 16-18.—Dudich, 1931: 18.—Monod, 1931: 496.—Nierstrasz,1931: 130.—Montalenti, 1941: 357-362, fig.9-11.—Montalenti, 1948: 63-67, tab.VII, 1-6, fig.24-25.—Holthuis, 1950: 7.—Amar, 1951: 530.—Balcells, 1953: 550.—Remy and Veillet, 1961: 54.—Lee, 1961: 470.—Trilles, 1962: 114-118, fig.8-9.—Trilles, 1964a: 110-116.—Trilles, 1964b: 365-369.—Trilles, 1964c: 127-134.—Trilles, 1965: 575-594.—Cicero, 1965: 119, 122-123,125-128, fig.5.—Quintard-Dorques, 1966: 10-11.—Fain-Maurel, 1966: 7-10, fig.1-3.—Trilles, 1968: 85-101, phot.18-21, pl.XXV-XXIX.—Macquart-Moulin, 1969: 266.—Berner, 1969: 93.—Trilles, 1969: 433-445.—Lagarrigue and Trilles, 1969: 117-136, phot.2.—Roman, 1970: 501-514.—Trilles and Raibaut, 1971: 80-81, pl.II.—Ktari-Chakroun and Azouz, 1971: 21.—Romestand, Trilles and Lagarrigue, 1971: 447-450.—Geldiay and Kocataş, 1972: 19, 23-24, fig.I.—Trilles and Raibaut, 1973: 275-276,280.—Romestand, 1974: 571-591, fig.1-13.—Thampy and John, 1974: 580-582.—Trilles, 1975: 347-354, fig.1-74, pl.I.—Lombardo, 1975: 301-316, fig.1-4, fig.5A-C.—Capape and Pantoustier, 1976: 203.—Romestand, Voss-Foucart, Jeuniaux and Trilles, 1976: 981-988.—Trilles, 1977: 10-12.—Romestand, Janicot and Trilles, 1977: 171-180, p.I-IV.—Romestand and Trilles, 1977: 91-95.—Rokicki, 1977: 178.—Holthuis, 1978: 29.—Brusca, 1978: 10.—Romestand and Trilles, 1979: 195-202.—Trilles, 1979: 514.—Romestand, 1979: 423-448, pl.I-IV.—Quignard and Zaouali, 1980: 357.—Williams and Williams, 1980: 578.—Renaud, Romestand, Trilles, 1980: 467-476, pl.I.—Brusca, 1981: 127.—Ellis, 1981: 123.—Korner, 1982: 248-250.—Radujkovic, 1982: 155-161.—Radujkovic, Romestand, Trilles, 1984: 161-181.—Rokicki, 1985: 95-122.—Rokicki, 1984: 1-220, figs.1-68.—Sartor, 1987: 49.—Segal, 1987: 351-360.—Bruce, 1987: 91.— Wägele, 1987: 1-398.—Trilles, Radujkovic and Romestand, 1989: 279-306, fig.1.—Avdeev, 1990: 32-42, fig.1-6.

Anilocra edwardsii Saint-Loup, 1885: 175-176.—Carus, 1885: 441.—Buen, 1916: 363

Anilocra frontalis Monod, 1923b: 84-85

Anilocra mediterranea Sanada, 1941: 209

Livoneca motasi Vasiliu and Carausu, 1948: 176-180, pl.1, fig.1-21

Nec Anilocra physodes (Linnaeus, 1758): Holthuis, 1950: 7.—Fryer, 1968: 40.—Lincoln, 1971: 185, fig.1.—Holthuis, 1972: 22-23, pl.I.—Lanzing and Connor, 1975: 360.—Holthuis, 1975: 65.—Huwae, 1977: 23

Host: Phycis blennoides

Locality: Babakale Port

Infection site: Caudal peduncul

Prevalence: 7.14%

Mean intensity: 1

Total parasite number: 5

Dissected parasite number: 4

Female morphological characteristics: Body (Figure 1) length varies from 25 to 35 mm. Body expands from anterior to posterior, later narrower at 7. pereonite. Body about 2-2.5 times as long as wide. The width of the head is about 2 times the head length. The eyes are small, 0.33 times at head width. Coxal plates visible in dorsal view, posterior margins with sharpened. Pereon longest at pereonite 1, shortest at pereonite 7. Pereon widest at pereonite 6, most narrow at pereonite 1. All pleonites visible in dorsal, the first pleonite distinctly narrow, 2-5. pleonites slightly wider. Pleon 1 largely and pleon 2 partially concealed by pereonite 7. Pleotelson 0.75 times as length as width, posterior margin broadly rounded. Pleotelson not wider than seven pleonite.

Antennula (Figures 2b, 3b) composed of 8 articles, antenna longer than antennula. Antenna (Figures 2 a, 3a) composed of 9 articles, extending to the middle of 1. pereon. Maxillula (Figures 2i, j, 3f) with four terminal spines, one long and three short. Maxilla (Figure 2e, f, 3d) medial and lateral lobe with 2 spines. Mandible (Figures 2 c, d, 3c) palp third article distinctly shorter than others. First and second article without seta, the third article with 16-20 seta. Maxilliped (Figures 2g, h, 3e) article 3 with three hooked spines.

Pereopods (Figures 4a-g) 1-5 nearly in size, 6-7 pereopods longer than others. The behind edge of carpus at all of pereopods include with one setae while only the front edge of the propodus, carpus, merus at seventh pereopod with various seta. Pleopods (Figures 5a-e) 1-3 nearly in size, pleopods 4-5 smaller than others. Pleopods 1 to 5 having peduncle medial margin with 4 hooks. The proximomedial lobe of pleopod 3-5 developed. Fifth pleopod with three curved structures. Uropods (Figure 4h). beyond margin of pleotelson. Exopod slightly larger than endopod. Endopod beyond slightly margin of pleotelson. Uropod peduncle without spines.

Figure 1. *Anilocra physodes* ♀

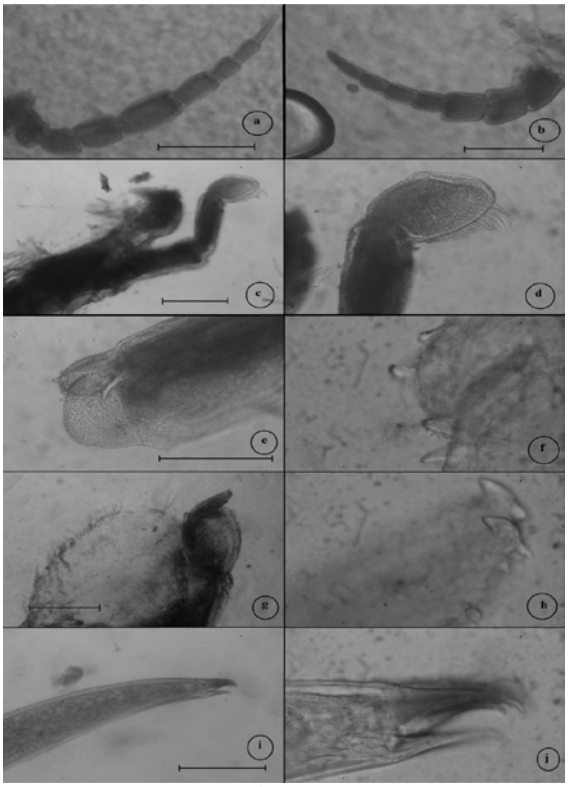

Figure 2. *Anilocra physodes* ♀, a) antenna (1.16mm), b) antennula (1.73mm), c) mandible (0.32mm), d) distal of mandible, e) maxilla (0.43mm), f) distal of maxilla, g) maxilliped (0.35mm), h) distal of maxilliped, i) maxillula (0.67mm), j) distal of maxillula.

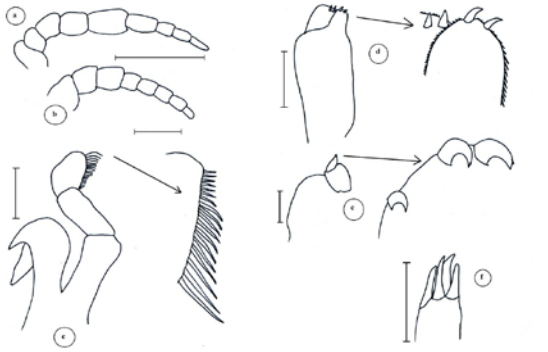

Figure 3. *Anilocra physodes* ♀, a) antenna (1.16mm), b) antennula (1.73mm), c) mandible (0.46mm), d) maxilla (0.43mm), e) maxilliped (0.35mm), f) maxillula (0.18mm).

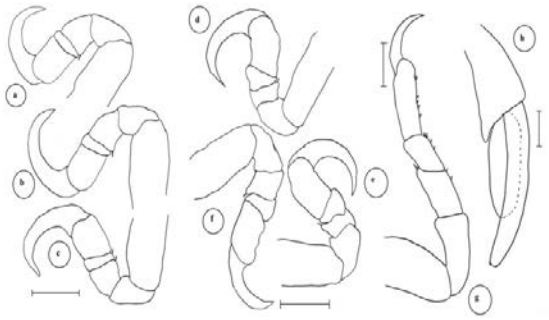

Figure 4. *Anilocra physodes* ♀, a) Pereopod I, b) Pereopod II, c) Pereopod III, d) Pereopod IV, e) Pereopod V, f) Pereopod VI, g) Pereopod VII (1.81mm), h) Uropod (0.72mm).

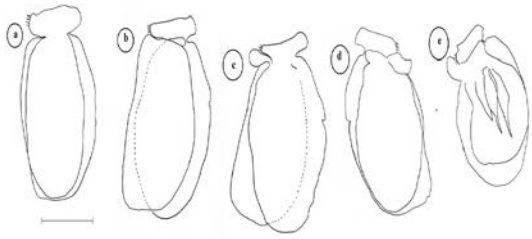

Figure 5. *Anilocra physodes* ♀, a) Pleopod I, b) Pleopod II, c) Pleopod III, d) Pleopod IV, e) Pleopod V (2.51mm).

4. Discussion

Anilocra physodes has been reported from North Atlantic Ocean, Mediterranean Sea, Adriatic Sea (Trilles, 1994). It is associated with Actinopterygii and Elasmobranchii (Table 1). The hosts' parasitism with *Anilocra physodes* was examined according to family characteristics, 28% of 57 hosts belong to Sparidae, %30 to Carangidae, Mugilidae, Centracanthidae, Sciaenidae, Mullidae, Scorpaenidae, 44% to 25 different families. The host's parasitism with *Anilocra physodes* was examined according to habitat selections; 40% of 57 species host fish species are demersal, 26% to benthopelagic, 16% to pelagic-neritic, 11% reef-associated, 5% pelagic-oceanic, 2% bathydemersal. The host parasitism with *Anilocra physodes* according to feeding habits; 68% of 57 species host fish species are carnivorous, 30% omnivorous, %2 herbivorous.

It may be said that this parasite selects the fishes with carnivorous and demersal character. In the present study, the examined *Phycis blennoides* is carnivorous and demersal character fish. It is fit as a preferred host for *Anilocra physodes*.

Table 1. *Anilocra physodes* and hosts

Host species	References
Boops boops	Balcells (1953); Berner (1969); Trilles and Raibaut (1973); Romestand *et al.* (1976); Trilles *et al.* (1989); Akmirza (1998); Charfi-Cheikhrouha *et al.* (2000); Bariche and Trilles (2005); Perez-del-Olmo (2008).
Diplodus annularis	Berner (1969); Trilles and Raibaut (1973); Papoutsoglou (1976); Trilles (1977); Trilles *et al.* (1989); Akmirza (2000); Charfi-Cheikhrouha *et al.* (2000); İnnal *et al.* (2007).
Spondyliosoma cantharus	Holthuis (1972); Trilles and Raibaut (1973); Dollfus and Trilles (1976); Akmirza (2000); Charfi-Cheikhrouha *et al.* (2000); Ramdane *et al.* (2007).
Pagellus erythrinus	Balcells (1953); Berner (1969); Trilles *et al.* (1989); Akmirza (2000); Bariche and Trilles (2005); İnnal *et al.* (2007); Kırkım *et al.* (2008).
Lithognathus mormyrus	Charfi-Cheikhrouha *et al.* (2000); Bariche and Trilles (2005); İnnal *et al.* (2007).
Merluccius merluccius	Balcells (1953); Trilles and Raibaut (1973); Trilles *et al.* (1989).
Spicara smaris	Demir (1952-1954); Berner (1969); Geldiay and Kocataş (1972); Trilles (1977); Trilles *et al*. (1989); Kırkım *et al.* (2008).
Diplodus vulgaris	Papoutsoglou (1976); Akmirza (2000); Öktener *et al.* (2010).
Mullus surmuletus	Papoutsoglou (1976).
Scorpaena porcus	Papoutsoglou (1976).
Umbrina cirrosa	Papoutsoglou (1976).
Solea solea	Papoutsoglou (1976).
Serranus scriba	Papoutsoglou (1976); Kırkım *et al.* (2008); Öktener *et al*. (2009).
Torpedo sp	Gibert i Olive (1919-1920).
Trigla sp	Gibert i Olive (1919-1920).
Lichia sp	Gibert i Olive (1919-1920).
Scorpaena sp	Gibert i Olive (1919-1920).
Naucrates ductor	Gibert i Olive (1919-1920).
Sardina pilchardus	Gibert i Olive (1919-1920), Lee (1961).
Liza ramada	Trilles (1977).
Sciaena sp	Trilles (1977).
Lophius piscatorius	Stalio (1877).
Oblada melanura	Berner (1969); Papoutsoglou (1976); Akmirza (2000);, Öktener *et al.* (2010).
Pagellus sp	Montalenti (1948); Geldiay and Kocataş (1972).
Dentex dentex	Trilles and Raibaut (1973); Trilles and Öktener (2009).
Pagellus acarne	Bariche and Trilles (2005).
Pagrus auriga	Trilles and Raibaut (1973).
Pomatomus saltatrix	Trilles and Raibaut (1973).
Pagrus caeruleostictus	Trilles *et al.* (1989); Bariche and Trilles (2005).
Sarpa salpa	Berner (1969); Papoutsoglou (1976).
Sciaena umbra	Charfi-Cheikhrouha *et al.* (2000); Kırkım *et al.* (2008).
Uranoscopus scaber	Charfi-Cheikhrouha *et al.* (2000).
Serranus hepatus	Trilles *et al.* (1989).
Trachinus draco	Trilles *et al.* (1989).
Atherina boyeri	Trilles *et al.* (1989).
Sparisoma cretense	Thorsen *et al.* (2000).
Siganus luridus	Shakman *et al.* (2009).
Trisopterus capelanus	Berner (1969).
Sparus aurata	Oğuz and Öktener (2007); Kırkım *et al.* (2008).
Spicara maena	Berner (1969); Dollfus and Trilles (1976); Akmirza (2001); Öktener *et al.* (2010);
Spicara sp	Montalenti (1948); Trilles and Raibaut (1973).
Squatina squatina	Nierstrasz (1918).
Zeus faber	Rokicki (1985).
Sphyraena chrysotaenia	İnnal *et al*. (2007).
Liza aurata	İnnal *et al*. (2007).
Raja clavata	Capape and Pantoustier (1976).
Trachurus trachurus	Oğuz and Öktener (2007).
Dentex macrophthalmus	Kırkım *et al.* (2008).
Dicentrarchus labrax	Kırkım *et al.* (2008).
Labrus merula	Kırkım *et al.* (2008).
Chromis chromis	Öktener *et al*. (2009).
Conger conger	Öktener *et al*. (2009).
Belone belone	Öktener *et al*. (2009).
Diplodus sargus	Akmirza (2000).
Mullus barbatus	Roman (1970).
Mugil cephalus	Roman (1970).
Scomber japonicus	Akmirza (1997).

Anilocra physodes was also reported in the cephalopod *Loligo vulgaris* from the northern Tyrrhenian Sea (western Mediterranean) by Gestal *et al.* (1999). There are the symbiotic associations of *Anilocra physodes*, such as that betwen *Obelia geniculata* and *Anilocra physodes* (Stechow, 1921), between epiphytes and *Anilocra physodes* (Öktener *et al.*, 2010). There are some reports as feeding source among diets of some fish (Pais, 2002; Narvaez *et al*., 2015; Châari *et al*., 2016).

The number of articles on antennula and antenna found in the present study agree with findings of Schioedte and Meinert (1881), Montalenti (1948), Trilles (1975), Kussakin (1979), Kırkım (1998). The maxillula with four terminal spines found in the present study is compatible with Trilles (1975), while two spines found by Kussakin (1979). The medial lobe and lateral lobe with two spines of maxilla found in this study are compatible with the findings indicated by Kussakin (1979), while medial lobe with 2 spines and lateral lobe 4 spines found by Trilles (1975), medial lobe 1 spine and lateral lobe with 2 spines found by Montalenti (1948). The third article with setae on the lateral margin of the mandible palp found in this study are compatible with the descriptions of Trilles (1975), Kussakin (1979), while without setae found by Montalenti (1948). Three spines on article 3 of the maxilliped of

ovigerous female observed in this study are compatible with the descriptions of Trilles (1975), while five spines found by Kussakin (1979).

References

Akmirza A. 1997. The parasites of Chub Mackerel (*Scomber japonicus*). *EgeJFAS*, **14**:173-181.

Akmirza A. 1998. Parasites in bogue (*Boops boops* Linnaeus, 1758). *EgeJFAS*, **15**:183-198.

Akmirza A. 2000. Seasonal distribution of parasites detected in fish belonging to the sparidae family found near Gökçeada. *Turkish J Parasitol*, **24**:435-441.

Akmirza A. 2001. The samples from metazoon parasites detected in fish around Gökçeada. *I.Congress of National Aegean Islands* (Gökçeada), **7**:85-96.

Amar R. 1951. Isopodes marins de Banyuls. *Vie et Milieu*, **2**:529-530.

Audouin V. 1826. Description de l'Égypte, ou, Recueil des observations et des recherches qui ont été faites en Égypte pendant l'expédition de l'armée française, publie par les orders de sa Majeste l'Empereur Napoleon Le Grand. Histoire Naturelle, Tome premier. Explication sommaire des planches de Crustaces de l'Egypte et de la Syrie, publiees par Jules-Cesar Savigny, Membre de l'Institut; offrant un expose des caracters naturels des genres, avec la distinction des especes. Imprimerie Imperiale, Paris: 93-94, pl. II, fig.10-11.

Avdeev VV. 1990. Morpho-physiological adaptation in ecto and mesoparasitic Isopoda of the suborder Flabellifera. *Zool Zhurnal SSSR*, **69**:33-42.

Balcells E. 1953. Sur des isopodes, parasites de poissons. *Vie et Milieu*, **4(3)**:547–552.

Barcelo Combis F. 1875. Apuntes para la Fauna Balear. Catalogo de los crustaceos marinos observados en las costas de las Islas Baleares. *Ann Soc Esp Hist Nat*, **4**:53-68.

Bariche M and Trilles JP. 2005. Preliminary check-list of Cymothoids (Crustacea, Isopoda) from Lebanon, parasiting on marine fishes. *Zool Middle East*, **34**:5-12.

Berner L. 1969. Les principaux Cymothoides (Crustaces Isopodes) du Golfe de Marseille. *Bull Mus Natl Hist Nat de Marseille*, **29**:93-95.

Bolivar J. 1892. Lista de la coleccion de crustaceos de Espana y Portugal del Museo de Historia Natural de Madrid. *Ann Soc Esp Hist Nat*, **2(21)**:124-41.

Bruce NL. 1987. Australian Pleopodias Richardson, 1910, and Anilocra Leach, 1818 (Isopoda: Cymothoidae), crustacean parasites of marine fishes. *Rec Aust Mus*, **39**:85-130.

Bruce NL and Schotte M. 2008. *Anilocra* Leach, 1818. http://www.marinespecies.org (Accessed on 23.08.2017).

Brusca RC. 1978. Studies on the cymothoid fish symbionts of the eastern pacific (Crustacea: Isopoda: Cymothoidae) II. Systematics and biology of *Lironeca vulgaris* Stimpson 1857. *Occas Pap Allan Hancock Foundation*, **2**:1-19.

Brusca RC. 1981. A monograph on the Isopoda Cymothoidae (Crustacea) of the eastern Pacific. *Zool J Linn Soc*, **73**:117-199.

Buen O.de. 1887. Materiales para la fauna carcinologica de Espana. *Bol R Soc Esp Hist Nat*, **16**(3):405-433.

Buen O.de. 1916. Los Crustaceos de Baleares. *Bol R Soc Esp Hist Nat*, **16**:355-367.

Bullar J. 1877. Hermaphroditism among the Parasitic Isopoda. Reply to Mr. Moseley's remarks on the generative organs of the Parasitic Isopoda. *Ann Mag Nat Hist*, **19**:254-256.

Capape C and Pantoustier G. 1976. Liste commentee des Isopodes parasites de Selaciens des cotes Tunisiennes. I Cotes septentrionales de Tabarka a Bizerte. *Arch Inst Pasteur Tunis*, **3**:197-210.

Carus JV. 1885. **Coelenterata, Echinodermata, Vermes, Arthropoda. Prodromus fauna Mediterranae,sive descriptio animalium Maris Mediterrenei incolarum quam comparata silva rerum quatenus innotuit odiectis locis et nominibus vulgaribus e orumque auctoribus in commodum Zoologorum**. E. Schweizerbatsche, Stuttgart, 525 pp.

Châari M, Boudaya L and Neifar L. 2016. Preliminary observations on the feeding habits of the Mediterranean needlefish *Tylosurus acus imperialis* (Teleostei: Belonidae). *J Coast Life Med*, **4**(6):426-429.

Charfi-Cheikhrouha F, Zghidi W, Oould Yarba L and Trilles JP. 2000. Les Cymothoidae (isopodes parasites de poissons) des côtes tunisiennes: écologie et indices parasitologiques. *Syst Parasitol*, **46**:146-150.

Cicero R. 1965. Osservazioni sulla ultrastruttura della cuticola intestinale di Isopodi aquatici. *Atti Accad Gioenia Scie Nat Catania*, **17(6)**:119-128.

Coulon L. 1908. **Les Crustacés du Musée d'Histoire Naturalle d'Elbeuf**. Société d'Etude des Sciences Naturelles d'Elbeuf, 99pp.

Demir M. 1952-1954. **The bentic Invertebrates of the Bosphorus and Islands Coasts**. Ist Univ Sci. Fac. Hidrobiol, 615p.

Desmarest AG. 1825. **Considérations générales sur la classe des crustacés : et description des espèces de ces animaux, qui vivent dans la mer, sur les côtes, ou dans les eaux douces de la France**. Paris: F.G. Levrault, 1-446pp.

Dollfus RP and Trilles JP. 1976. A propos de la collection R. Ph. Dollfus, mise au point sur les Cymothoadiens jusqu' à présent récoltés sur des Téléostéens du Maroc et de l' Algérie. *Bull Mus Natl Hist Nat*, **272**:821-830.

Dudich E. 1931. Systematische und biologische Untersuchungen uber die Kalkeinlagerungen des Crustaceenpanzers in polarisiertem lichte. *Zool Stuttgart*, **30**(80):1-54.

Edwards HM. 1833. Observations sur les changements de forme que divers Crustacés éprouvent dans le jeune âge. *Annl Sci Nat zool*, **III**: 321-334.

Edwards HM. 1839. **Les Crustacés in: Cuvier, Règne Animal (Atlas)**: 1-80.

Edwards HM. 1840. **Histoire Naturelle des Crustacés comprenant l'anatomie, la physiologie et la classification de ces animaux**. Librairie encyclopédique de Roret, 605pp.

Ellis J. 1981. Some type specimens of Isopoda (Flabellifera) in the British Museum (Natural History), and the isopods in the Linnaean Collection. *Bull Br Mus Nat Hist Zool*, **40**:121-128.

Fabricius JC. 1787. **Mantissa insectorum**. Hafniae, I: p.241.

Fabricius JC. 1793. **Entomologia systematica emendate et aucta**. II: I-VIII and 1-519.

Fabricius JC. 1798. **Supplementum entomologiae systematicae**. Hafniae, 302.

Fain-Maurel MA. 1966. Contribution à l'histologie et à la caryologie de quelques Isopodes. Spermiogenèse et infrastructure du spermatozoide des Oniscidés et des Cymothoidés. *Annl Sci Nat, 12e série*, **8**(1):1-188.

Froese, R. and D. Pauly. Editors. 2017. FishBase. World Wide Web electronic publication. www.fishbase.org, version (10/2017).

Fryer G. 1968. A new parasitic isopod of the family Cymothoidae from clupeid fishes of Lake Tanganyika-a further Lake Tanganyika enigma. *J Zool*, **156**:35-43.

Geldiay R and Kocataş A. 1972. Isopods collected in Izmir Bay, Aegean Sea. *Crustaceana*, **3** (Studies on Peracarida):19-30.

Gerstaecker A. 1901. **Isopoda** In: Bronn, H.G. (Ed.). Die Klassen und Ordnungen der Arthropoden wissenschaftlich dargestellt in Wort und Bild. Crustacea (Zweite Hälfte: Malacostraca). Leipzig: C.F. Winter, 1866-1901, Fünfter Band. II., Abtheilung, 278 pp.

Gestal C, Belcari P, Abollo, E and Pascual S. 1999. Parasites of cephalopods in the northern Tyrrhenian Sea (western Mediterranean): new host records and host specificity. *Sci Mar*, **63**(1):39-43.

Gibert i Olive AM. 1919-1920. Crustacis de Catalunya. Treballs *Inst Catalana Hist Nat Publicat*, **5**:9-128.

Gourret P. 1891. Les Lemodipodes et les Isopodes du Golfe de Marseille. *Bull Mus Natl Hist Nat de Marseille*, **4**(1):1-44.

Gourret P. 1907. Topographie zoologique des Etangs de Caronte, de Labillon, de Berre et de Bolmon. Flore, Faune, Migrations, etc. *Bull Mus Natl Hist Nat de Marseille*, **11**:1-166.

Guérin FE. 1832-1835. I.re Classe. Crustacés. In: Brullé A Expédition Scientifique de Morée. Section des Sciences Physiques. Tome III. – 1ère Partie. Zoologie. Deuxième Section. Des animaux articulés, Crustacés: 30-50.

Gunther K. 1931. Bau und Funktion der Mundwerkzeuge bei Crustacea aus der Familie der Cymothoidea (Isopoda). *Z Morphol Oekol Tiere*, **23**:1-79.

Hadfield KA, Bruce NL and Smit NJ. 2016. Redescription of poorly known species of Ceratothoa Dana, 1852 (Crustacea, Isopoda, Cymothoidae), based on original type material. *ZooKeys*, **592**:39-91.

Hadfield KA, Bruce NL and Schotte M. 2017. Cymothoidae Leach, 1818. http://www.marinespecies.org (Accessed on 23.08.2017).

Heller C. 1866. Carcinologische Beiträge zur Fauna des adriatischen Meeres. *Verh Zool–Bot Ges Wien*, **16**:723-760.

Holthuis LB. 1950. Isopodes et Tanaidacés marins de la Belgique; remarques sur quelquesespèces de la zone méridionale de la Mer du Nord. *Bull Inst R Sci Nat Belg*, **24**:1-19.

Holthuis LB. 1972. De Isopode *Anilocra physodes* (Linnaeus, 1758) voor de Nederlandse kust gevonden. *Zool Bijdr Leiden*, **13**:21-23.

Holthuis LB. 1975. De mariene isopode *Cymodoce truncata* Leach, 1814, in Nederland gevonden. *Zool Bijdr Leiden*, **17**:65-67.

Holthuis LB. 1978. Cymothoide isopode vande Nederlandse Kust en de zuidelijke moordzee. *Bijdragen tot de faunistiek van Nederland. V. Zool Bijdr Leiden*, **23**(3):28-33.

Hope FG. 1851. **Catalogo dei crostacei Italiani e di molti altri del Mediterraneo**. Stabilemento Tipografico di Fr. Azzolino, Napoli, 1-48.

Huwae PHM. 1977. **De Isopoden van de Nederlandse Kust**. Wetenschappelijke Mededelingen KNNV 118: Hoorn: Koninklijke Nederlandse Natuurhistorische Vereniging, 24p.

Ide M. 1892. Le tube digestif des Edriophthalmes. *Celluler*, **8**:99-204.

İnnal D, Kırkım F and Erk'akan F. 2007. The parasitic isopods, *Anilocra frontalis* and *Anilocra physodes* (Crustacea; Isopoda) on some marine fish in Antalya Gulf, Turkey. *Bull Eur Assoc Fish Pathol*, **27**:239-241.

Kırkım F. 1998. Ege Denizi Isopoda (Crustacea) Faunasının Sistematiği ve Ekolojisi Üzerine Araştırmalar. PhD thesis, Ege University, Science Institute, İzmir, Turkey.

Kırkım F, Kocataş A, Katağan T and Sezgin M. 2008. A Report on Parasitic Isopods (Crustacea) from Marine Fishes and Decapods Collected from The Aegean Sea (Turkey). *Turkish J Parasitol*, **32**:382-385.

Korner HK. 1982. Contershading by physiological colour change in the fish Louse *Anilocra physodes* L. (Crustacea:Isopoda). *Oecologia (Berl.)*, **55**:248-250.

Ktari-Chakroun F and Azouz A. 1971. Les fonds chalutables de la région Sud-Est de la Tunisie (golfe de Gabès). *Bull Inst Natl Sci Techn Océanogr Pêche de Salammbô*, **2**(1):5-47.

Kussakin OG. 1979. **Marine and Brackish Water lsopod Crustacea**. *Suborder Flabellifera*. Leningrad: Akademy of Science, USSR, 470 p.

Lagarrigue JG and Trilles JP. 1969. Nouvelles recherches ecologiques sur les Isopodes Cymothoidae mediterraneens. I. L' importance la calcification et les constituants organiques de la cuticule, ses variations suivant les especes. *Vie et Milieu*, **20**(1A):117-136.

Lanzing WJR and O´Connor PF. 1975. Infestation of luderick (*Girella tricuspidata*) populations with isopods. *Aust J Mar Freshw Res*, **26**:355-361.

Leach WE. 1818. Cymothoidae, in: *Dictionnaire des Sciences Naturelles*. Paris, **12**:338-354.

Lee JY. 1961. La sardine du golf edu Lion (Sardina pilchardus sardina Regan). *Revue Trav Inst (Scient. Tech.) Pec Marit*, **25**:417-511.

Lincoln RJ. 1971. Isopod fish parasites. *Marine Observer*, **41**:184-186.

Linne CV. 1758. **Systema naturae**. Holmiae. 107eme ed., I.

Linne CV. 1767. **Systema naturae**. 12eme ed., I, Pt.2.

Lombardo CA. 1975. Morfologia del dermascheletro del Capo di *Anilocra physodes* L. (Crustacea, Isopoda, Cymothoidae). *Cah Biol Mar*, **16**:301-316.

Lucas H. 1849. **Histoire naturelle des animaux articules. Exploration scientifique de l'Algerie pendant les annees 1840, 1841, 1842.** Sciences Physiques Zoologie I, 403p

Lucas H. 1850. **Histoire naturelle des Crustaces, des Arachnides et des Myriapodes**. In: Histoire naturelle des animaux articules. Paris: 47-288, pl.1-20.

Macquart-Moulin CM. 1969. Les Isopodes Cirolanidae, Cymothoidae, Sphaeromidae et Idoteidae dans le plancton du Golfe de Marseille. *Tethys*, **1**:261-270.

Martin MB, Bruce NL and Nowak BF. 2013. Redescription of *Ceratothoa carinata* (Bianconi, 1869) and *Ceratothoa oxyrrhynchaena* Koelbel, 1878 (Crustacea: Isopoda: Cymothoidae), buccal-attaching fish parasites new to Australia. *Zootaxa*, **3683** (4):395-410.

Mayer P. 1879. Carcinologische Mitteilungen. VI. Ueber den Hermaphroditismus bei einigen Isopoden. *Mitt Zool Stn Neapel*, **1**:165-179.

Monod T. 1923a. Notes carcinologiques (Parasites et commensaux). *Bull Inst Océanogr (Monaco)*, **427**:1-23.

Monod T. 1923b. Prodrome d'une faune Tanaidacea et des Isopoda (excl. Epicaridea) de cotes de France (exc. Mediterranee). *Annls Soc Sci Nat La Rochelle*, **37**:19-124.

Monod T. 1931. Crustacés de Syrie. In: Les Etats de Syrie. Richesses marines et fluviales. Exploitation actuelle. Avenir. *Biblioteque Faune Colon France*, 397-435.

Montalenti G. 1941. Studi sull'ermafroditisme dei Cimotoidi. I. *Emetha audouinii* (M. Edw.) e *Anilocra physodes* (L.). *Pubbl Stn Zool Napoli*, **18**(3):337-394.

Montalenti G. 1948. Note sulla sistematica e la biologia di alcuni Cimotoidi del Golfodi Napoli. *Arch Oceanogr Limnol Venezia*, **5**:25-81.

Narvaez P, Barreiros JP and Soares MC. 2015. The parasitic isopod *Anilocra physodes*, as a novel food source for the lizardfish *Synodus saurus* (Synodontidae). *Cybium*, **39**(4):313-314.

Nierstrasz HF. 1915. Die Isopoden-Sammlung im Naturhistorischen Reichsmuseum zu Leiden-1. Cymothoidae. *Zool Med (Leiden)*, **1**:71-108.

Nierstrasz HF. 1918. VIII. Atle und neue Isopoden. *Zool Med (Leiden)*, **4**:103-142.

Nierstrasz HE. 1931. **Isopoda genuina. II. Flabellifera**. In: Weber, M. & De Beaufort, L.F. (Eds.) Die Isopoden der Siboga-Expedition. Siboga Expeditie (Uitkomsten op Zoölogisch, Botanisch, Oceanographisch en Geologisch Gebied verzameld in de Oost-Indische 1899-1900 aan boord H.M. Siboga onder commando van Luitenant ter zee 1e kl. G.F. Tydeman). E.J. Brill, Leiden, pp. 123-233.

Oğuz MC and Öktener A. 2007. Four Parasitic Crustacean Species from marine fishes of Turkey. *Turkish J Parasitol*, **31**:79-83.

Olivier M. 1789. Histoire naturelle des Insectes. *Encycl Method*, **4**:246-256.

Öktener A and Trilles JP. 2004. Report on the Cymothoids (Crustacea, Isopoda) collected from marine fishes in Turkey. *Acta Adriatica*, **45**(2):145-154.

Öktener A, Trilles JP, Alaş A and Solak K. 2009. New hosts for species belonging to the genera *Nerocila, Anilocra, Ceratothoa, Mothocya* and *Livoneca* (Crustacea, Isopoda, Cymothoidae). *Bull Eur Assoc Fish Pathol*, **29**:49-54.

Öktener A, Koç HT, Erdoğan Z and Trilles JP. 2010. Underwater photographs taken by scuba divers are useful for taxonomic and ecological studies about parasitic cymothoids (Crustacea, Isopoda, Cymothoidae). *J Mar Anim Ecol*, **3**:3-9.

Pais C. 2002. Diet of a deep-sea fish, *Hoplostethus mediterraneus*, from the south coast of Portugal. *J Mar Biol Assoc UK*, **82** (2):351-352.

Papapanagiotou E, Trilles JP and Photis G. 1999. First record of *Emetha audouini*, a cymothoid isopod parasite from cultured sea bass *D. labrax* in Greece. *Dis Aquat Organ*, **38**:235-237.

Papapanagiotou E and Trilles JP. 2001. Cymothoid parasite *Ceratothoa parallela* inflicts great losses on cultured gilthead sea bream *Sparus aurata* in Greece. *Dis Aquat Organ*, **45**:237-239.

Papoutsoglou SE. 1976. Metazoan parasites of fishes from Saronicos Gulf, Athens, Greece. *Thalassographica*, **1**:69-91.

Perez-del-Olmo A. 2008. Biodiversity and structure of parasite communities in *Boops boops* (Teleostei, Sparidae) from the Western Mediterranean and of the North East Atlantic coasts of Spain. PhD thesis, Universitat de Valencia, Spain.

Poore GCB and Bruce NL. 2012. Global Diversity of Marine Isopods (Except Asellota and Crustacean Symbionts). *PLoS One*, **7**:1-15.

Quintard-Dorques B. 1966. Contribution a l'etude des poissons de la famille des Centracanthidae, Genra Spicara de la region de Sete. *Annl Univ Ass Reg Rech Sci*, **4**:79-88.

Quignard JP and Zaouali J. 1980. Les lagunes péri-méditerranéennes. Bibliographie ichtyologique annotée. Premiere partie: les étangs français de Canet à Thau. *Bull Off Nat Pêch Tunisie*, **4**:293-360.

Radujković BM. 1982. Isopoda - parasites of the south Adriatic economically important fish species. *Acta Adriat*, **23**:153-161.

Radujkovic BM, Romestand B and Trilles JP. 1984. Les Isopodes Parasites de la Faune Yougoslave. *Acta Adriat*, **25(1/2)**:161-181.

Ramdane Z, Bensouilah MA and Trilles JP. 2007. The Cymothoidae (Crustacea, Isopoda), parasites on marine fishes, from Algerian fauna. *Belg J Zool*, **137**(1):67-74.

Remy C and Veillet A. 1961. Evolution de la glande androgène chez l'Isopode *Anilocra physodes* L. *Bull Acad Lorr Sci Mars*, **1961**:53-80.

Renaud F, Romestand B and Trilles JP. 1980. Faunistique et ecologie des metazoaires parasites de Boops boops Linnaeus (1758) (Teleosteen Sparidae) dans le Golfe du Lion. *Ann Parasitol Hum Comp*, **55**:467-476.

Rokicki J. 1977. *Anilocra capensis* Edwards (Crustacea, Isopoda) u ryb szelfu północno-zachodniej Afryki. *Wiad Parazytol*, **23**:177-178.

Rokicki J. 1984. Parasitic isopods of the North West African Shelf in connection with their occurrence in fish. *Zeszyty naukowe, Univ Gdański, Rozprawy i Monografie*, **50**:1-120.

Rokicki J. 1985. Biology of Adult Isopoda (Crustacea) parasitizing fishes of North-west Africa shelf. *Acta Ichthyol Piscat*, **15**:95-122.

Roman ML. 1970. Contribution a l'etude de la biologie des Cymothoidae (Crustaces, Isopodes) de la Baie de la Ciotat. *Thethys*, **II (2)**:501-514.

Romestand B. 1974. Variations des proteins de l'hémolymphe de deux Cymothoadiens (Isopoda, Flabellifera; parasites de poissons): *Meinertia oestroides* (Risso, 1826) et *Anilocra physodes* (L., 1967). *Bull Soc Zool Fr*, **99**:571-591.

Romestand B. 1979. Etude écophysiologique des parasitoses à Cymothoadiens. *Ann Parasitol Hum Comp*, **54**:423-448.

Romestand B and Trilles JP. 1977. Influence des Cymothoadiens (Crustacea, Isopoda, Flabellifera) sur certaines constantes hématologiques des poissons hôtes. *Z Parasitenkd*, **52:**91-95.

Romestand B and Trilles JP. 1979. Influence des cymothoadiens *Meinertia oestroides*, *Meinertia parallela* et *Anilocra physodes* (Crustacés, Isopodes; parasites de poissons) sur la croissance des poissons hôtes *Boops boops* et *Pagellus erythrinus* (Sparidés). *Z Parasitenkd*, **59**:195-202.

Romestand B, Trilles JP and Lagarrigue JG. 1971. Essai pour une systematique biochimique chez les Isopodes Cymothoidae. Analyse electrophoretique en gel d'acrylamide des proteines de l'hemolymphe de six especes. C.r.hebd. Seanc. *Acad Sci Paris*, **272**:447-450.

Romestand B, Voss-Foucart MF, Jeuniaux Ch and Trillès JP. 1976. Les Acides Aminés Libres Du Sérum Des Cimothoidae (Crustacés, Isopodes, Parasites De Poissons) Et De Quelques Téléostéens. *Arch Physiol Biochem*, **84**:981-988.

Romestand B, Janicot M and Trilles JP. 1977. Modifications tissulaires et reactions de defense chez quelques Teleosteens parasiter par les Cymothoidae (Crustaces, Isopodes, Hematophages). *Ann Parasitol Hum Comp*, **52**:177-180.

Saint-Loup R. 1885. Sur les parasites de la *Maena vulgaris. C R Hebd Acad Sci*, 75-176.

Sanada M. 1941. On sexuality in Cymothoidae, Isopoda, *Rhexana verrucosa* Schioedte and Meinert parasitic in the buccal cavity of the porgyi, *Pagrosomus major* (Temminck and Schlegel). *J Sci Hiroshima Univ*, **B(9)**:209-217.

Sartor SM. 1987. Desenvolvimento marsupial e ciclo de vida de *Cymothoa liannae* Sartor & Pires (Isopoda, Cymothoidae), parasita de peixes. *Bol Inst Oceanogr*, **35**(1):43-51.

Sarusic G. 1999. Preliminary report of infestation by isopod *Ceratothoa oestroides* (Risso, 1826) in marine cultured fish. *Bull Eur Assoc Fish Pathol*, **19**:110-113.

Schioedte JC and Meinert F. 1881. Symbolae and Monographiam Cymothoarum Crustaceorum Isopodum Familie. II. Anilocridae. *Naturhist Tidsskr Ser*, **13**:1-166.

Segal E. 1987. Behavior of juvenile *Nerocila acuminata* (Isopoda, Cymothoidae) during attack, attachment and feeding on fish prey. *Bull Mar Sci*, **41**:351-360.

Shakman E, Kinzelbach R, Trilles JP and Bariche M. 2009. First occurrence of native cymothoids parasites on introduced rabbitfishes in the Mediterranean Sea. *Acta Parasitol*, **54**: 380-384.

Stalio L. 1877. Catalogo metodico e descrittivo dei Crostacei podottalmi ed Edriottalmi dell'Adriatico. *Atti Ist Veneto Sci*, **3**:1-274.

Stechow E. 1921. Symbiosen zwischen Isopoden und Hydroiden. *Zool Anz*, **53**:221-223.

Stossich M. 1880. Prospetto della fauna de mare Adriatico. Parte III. *Boll Soc Adriat Sci Nat Trieste*, **6**:178-271.

Tattersall WM. 1905. **N° 11. The Marine Fauna of the Coast of Ireland. Part V. Isopoda**. Scienct Invest Minist Fish Irish Free St. (1904): 1-90.

Thampy DM and John PA. 1974. Sex-reversal and androgenic gland in the fish parasite *Irona far* (Cymothoidae: Isopoda: Crustacea). *Int J Parasitol*, **4**:575-583.

Thorsen DH, Mille KJ, Van Tassell JL and Hajagos JG. 2000. Infestation of the parrotfish *Sparisoma cretense* (Scaridae) by the fish louse *Anilocra physodes* (Isopoda: Cymothoidae) in the Canary Islands. *Cybium*, **24**:45-59.

Trilles JP. 1962. Remarques morphologiques et biologiques sur les "Isopodes Cymothoidae" parasites de poissons de l'etang de Thau. *Nat Monspeliensis Zool*, **3**:101-124.

Trilles JP. 1964a. Specificite parasitaire chez les Isopodes Cymothoidae, mediterraneens. Note preliminaire. *Vie et Milieu*, **15**(1):105-116.

Trilles, JP. 1964b. A propos d,un fait particulier d,ethologie parasitaire chez les isopodes cymothoidae: la relation de taille entre parasites et poissons. *Vie et Milieu*, **2**:366-369.

Trilles JP. 1964c. Note preliminaire sur quelques aspects de la reproduction chez les isopodes Cymothoidae Mediterrannéens. *Arch Zool Exp Gen*, **104**:127-134.

Trilles JP. 1965. Sur deux espèces d'Anilocres (Isopodes, Cymothoidae) mal connues: *Anilocra physodes* L. et *Anilocra frontalis* (Milne-Edwards). *Ann Parasitol Hum Comp*, **40**(5):575-594.

Trilles JP. 1968. **Recherches sur les Isopodes Cymothoidae des côtes Françaises**. PhD Thesis, University of Montpellier, France.

Trilles JP. 1969. Recherches sur les Isopodes, Cymothoidae, des côtes françaises. Aperçu général et comparatif sur la bionomie el la sexualité de ces Crustacés. *Bull Soc Zool Fr*, **94**(3):433-445.

Trilles JP. 1975. Les Cymothoidae (Isopoda, Flabellifera) des côtes françaises. II. Les Anilocridae Schioedte & Meinert. 1881. Genres Anilocra Leach, 1818 et Nerocila Leach, 1818. *Bull Mus Natl Hist Nat*, **290**:347-378.

Trilles JP. 1977. Les Cymothoidae (Isopoda, Flabellifera) parasites des poissons du Rijksmuseum van Natuurlijke Historie de Leiden. Méditerranée et Atlantique Nord-Oriental. *Zool Med Leiden*, **52**:7-17.

Trilles JP. 1979. Elements pour la faune parasitaire de Senegal. Sur quelques Cymothoidae (Isopoda, Flabellifera: parasites de poissons) en collection a l'Lfan. *Bulletin de l'l.FAN*, **41**(3):513-526.

Trilles JP. 1994. Les Cymothoidae (Crustacea, Isopoda) du Monde (Prodrome pour une Faune). *Studia Marina*, **21/22**:1-288.

Trilles JP and Raibaut A. 1971. Aegidae et Cymothoidae parasites de poissons de Mer Tunisiens: Premiers resultats. *Bull Inst Natl Sci Techn Océanogr Pêche de Salammbô*, **2**:71-86.

Trilles JP and Raibaut A. 1973. Sur les Cymothoidae (Isopoda, Flabellifera) parasites de poissons marins de Tunisie, 2nd Note. *Bull Mus Natl Hist Nat*, **3**(144):273-281.

Trilles JP and Öktener A. 2009. New Host Records for *Ceratothoa oestroides* and *Anilocra physodes* (Isopoda, Cymothoidae) in Turkish Waters. *Kafkas Univ Vet Fak Derg*, **15**:469-471.

Trilles JP, Radujkovic BM and Romestand B. 1989. Parasites des Poissons Marins du Montenegro: Isopodes, *Acta Adriat*, **30**(1/2):279-306.

Vasiliu G and Carausu MA. 1948. Contribution A l'etude des Cymothoinae (Isopodes parasites) de la Mer Noire. *Annl Sci Univ Jassy*, **31**:175-188.

Wägele JW. 1987. Evolution und phylogenetisches System der Isopoda: Stand der Forschung und neue Erkenntnisse. Universität Oldenburg, 1-399.

White A. 1847. List of the specimens of Crustacea in the collection of the British Museum. London: Trustees of the British Museum, 143pp.

Williams EHJr and Williams LB. 1980. Four new species of Renocila (Isopoda: Cymothoidae), the first reported from the New World. *Proc Biol Soc Wash*, **93**:573-592.

WoRMS Editorial Board (2018). World Register of Marine Species. Available from http://www.marinespecies.org at VLIZ. Accessed 2018-02-05. doi:10.14284/170 (Last accessed 11 December 2016).

Zimmer C. 1926-1927. 4. Ordnung der "Reihe Peracarida" der Crustacea Malacostraca, 11. Ordnung der Crustacea: Isopoda=Asseln. In: Handbuch Der Zoology Dr.Kükenthal, Dritter Band-Erst Halfte: 697-766.