

New records of Leptostracans (Crustacea, Phyllocarida) from the eastern Mediterranean

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Abstract: Knowledge about leptostracans from the Mediterranean Sea is still scarce. Examination of samples collected from the Aegean Sea off Turkey and from Cyprus in the eastern Mediterranean Sea revealed new localities and range extensions for 2 species of leptostracans: *Nebalia strausi* Risso, 1826, and *N. kocatasi* Moreira, Koçak, and Katagan, 2007. The record of *N. kocatasi* is the first for Cyprus and for the Levantine Basin. Additional specimens (*Nebalia* sp. 1 and *Nebalia* sp. 2) might prove to belong to 2 new species but the lack of material prevents their formal description.

Key words: Leptostraca, *Nebalia*, eastern Mediterranean, distribution, new records

Doğu Akdeniz'den yeni Leptostraca (Crustacea, Phyllocarida) kayıtları

Özet: Akdenizde Leptostracanlar üzerine bilgi hayli yetersizdir. Türkiye'nin Ege denizi kıyılarında ve Kıbrıs'da yapılan örnekleme çalışmaları sonucunda *Nebalia strausi* Risso, 1826 and *N. kocatasi* Moreira, Kocak and Katagan, 2007 türlerine rastlanılmıştır. *N. kocatasi* Kıbrıs ve Levantin havzası için yeni kayıttır. Ayrıca çalışmada tespit edilen *Nebalia* sp. 1 ve *Nebalia* sp. 2 bilim için iki yeni tür olabilirler. Fakat bu türlere ait eksik materyal kesin sonuca ulaşmada engel teşkil etmektedir. Tespit edilen türlerin tanımlamaları ve bu türler hakkındaki taksonomik görüşler çalışmada sunulmuştur.

Anahtar sözcükler: Leptostraca, *Nebalia*, Doğu Akdeniz, dağılım, yeni kayıtlar

Introduction

The taxonomy and ecology of Leptostracan crustaceans (Phyllocarida) from the Mediterranean Sea are poorly known (Dahl, 1985; Ledoyer, 1997). Only 2 species of leptostracans have been reported to

occur in the eastern Mediterranean: *Nebalia strausi* Risso, 1826 (Kocak and Katagan, 2006; Koçak et al., 2007), from the Aegean Sea off the coast of Turkey and northern Cyprus, and *N. kocatasi* Moreira, Koçak, and Katagan, 2007, from İzmir Bay in Turkey. The

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specimens from the northern coast of Cyprus that were identified by Kocatas et al. (2001) as *Nebalia bipes* (Fabricius, 1780) have recently been identified as *N. trausi* (Koçak et al., 2007). An examination of other leptostracan specimens from the Levantine Basin (Cyprus) and the Aegean Sea (Turkey) yielded *N. trausi* and *N. kocatasi*. This is the first time that *N. kocatasi* has been reported from Cyprus. Furthermore, additional specimens not belonging to the aforementioned species might represent 2 new species of *Nebalia* Leach, 1814, but the material is in too poor a condition to make a formal description. A description and taxonomic remarks are provided for *N. trausi* and *N. kocatasi*, and the number of leptostracan species from the eastern Mediterranean is raised to 4.

Materials and methods

Leptostracans were captured at 3 stations in Turkey: Ildırı Bay (between 38°24'32" and 38°23'15"N and from 26°27'29" to 26°27'04"E), Gerence Bay (between 38°27'30" and 38°25'68"N and from 26°30'13" to 26°26'32"E), and Engeceli Harbour, İzmir Bay (38°27'86"N-26°35'88"E), using a dredge and a Van Veen grab, and at Güzelyurt Bay in northern Cyprus (between 35°12'50" and 35°11'02"N and from 32°52'03" to 32°51'08"E), using a bottom trawl (Figure 1). Samples were preserved in 5% formaldehyde for further analysis back in the laboratory and later rinsed with fresh water through a 0.5 mm mesh sieve. The leptostracans were sorted and transferred to 70% ethyl alcohol.

Line drawings of selected specimens were done with the aid of a camera lucida connected to a compound microscope. Measurements were made using an ocular micrometer. Measurements given are those of either the largest male or female, or of both genders when present in the same sample. Total length (TL) was measured from the articulation between the rostrum and the carapace to the posterior end of the caudal furca (excluding setation); dorsal carapace length (DCL) was measured as the distance between the articulation of the rostrum and the margin of the posterodorsal cleft; lateral carapace length (LCL) was measured as the distance along the lateral surface between the anteriormost and



Figure 1. Map of the study area showing the sampling localities.

posteriormost margins; carapace height (CH) was measured between the dorsalmost and the ventralmost margins; rostrum length (RL) was measured along the midline. All specimens are deposited in the Museum of the Faculty of Fisheries (ESFM), Ege University, İzmir, Turkey.

Results

Family Nebaliidae Samouelle, 1819

Genus *Nebalia* Leach, 1814

Nebalia trausi Risso, 1826

Material examined.- ♂, RL 1.0 mm, DCL 2.4 mm, LCL 3.0 mm, CH 1.6 mm, TL 5.3 mm, St. Ildırı Bay, 38°23'25"N – 26°27'04"E, 01.V.2003, dredge, sand, 45 m [ESFM-MAL/2003-001]. ♀, RL 0.8 mm, DCL 1.9 mm, LCL 2.5 mm, CH 1.6 mm, TL 4.8 mm, St. Ildırı Bay, 38°23'15"N – 26°27'12"E, 27.IV.2004, dredge, sand-mud, 50 m [ESFM-MAL/2004-001]. ♀ broken in 2 pieces, RL 0.5 mm, DCL 1.8 mm, LCL 2.4 mm, CH 1.5 mm, TL approx. 4.6 mm, St. Gerence Bay, 38°25'68"N – 26°30'13"E, 25.V.2004, dredge, sand-mud, 50 m [ESFM-MAL/2004-002]. ♀, RL 0.8 mm, DCL 2.2 mm, LCL 2.4 mm, CH 1.7 mm, TL 5.1 mm, St. Gerence Bay, 38°26'33"N – 26°29'67"E, 21.IX.2006, dredge, sand-mud and corals, 61 m [ESFM-MAL/2006-001].

Remarks.- Specimens were identified as *N. strausi* because they share a number of morphological characters with those previously described for the type specimens from Turkey (Koçak and Katagan, 2006; Koçak et al., 2007).

Nebalia cf. strausi Risso, 1826

Material examined.- ♂, RL 0.8 mm, DCL 1.7 mm, LCL 2.2 mm, CH 1.5 mm, TL 4.7 mm, St. Ildırı Bay, 38°23'15"N – 26°27'12"E, 27.IV.2004, dredge, mud-sand, 50 m [ESFM-MAL/2004-003]. ♂, RL 0.8 mm, DCL 1.6 mm, LCL 2.5 mm, CH 1.3 mm, TL 5.4 mm, St. Ildırı Bay, 38°23'27"N – 26°27'04"E, 22.IX.2005, dredge, sand with *Posidonia oceanica* (L.), 10 m [ESFM-MAL/2005-001]. 2 ♂♂, RL 1.0 mm, DCL 2.3 mm, LCL 2.8 mm, CH 1.8 mm, TL 5.6 mm, St. Gerence Bay, 38°27'30"N – 26°26'32"E, 16.III.2005, dredge, mud-sand, 55 m [ESFM-MAL/2005-002].

Remarks.- These specimens superficially resemble males of *N. strausi* but pleonites 6-7 bear dorsal denticles that are not so acutely produced distally as in *N. strausi*.

Nebalia kocatasi Moreira, Koçak,
and Katagan, 2007

Material examined.- ♂, RL 0.8 mm, DCL 1.5 mm, LCL 2.2 mm, CH 1.4 mm, TL 4.2 mm, St. Güzelyurt Bay, northern Cyprus, between 35°12'50" and 35°11'02"N and from 32°52'03"E to 32°51'08"E, bottom trawl, 13.V.1998, muddy sand with *Caulerpa racemosa* (Forsskal) J. Agardh, 80 m [ESFM-MAL/1998-001].

Remarks.- The only specimen found is a juvenile male with an antennal flagellum comprising about 30 articles, with 3 thick distal spines on the fourth article of the antennule, with 2 subequal articles of the endopod of maxilla 2, with the proximal article of endopod as long as the exopod, with rounded or pointed denticles on the posterior border of pleonites 6-7; and 3 thick spines on the lateral external face of the third article of the antenna, of which the proximal spine is shortest. These features agree well with the description of specimens from the type locality, İzmir Bay (Moreira et al., 2007), making this the first report of this species for Cyprus.

Nebalia cf. kocatasi Moreira, Koçak,
and Katagan, 2007

Material examined.- ♂, RL 0.6 mm, DCL 1.2 mm, LCL 1.6 mm, CH 1.0 mm, TL 3.5 mm, 2 ♀♀, RL 0.7

mm, DCL 1.5 mm, LCL 2.0 mm, CH 1.4 mm, TL 4.1 mm, St. Engeceli Harbour, 38°27'86"N – 26°35'88"E, 03.VI.2002, Van Veen grab, mud, 22 m [ESFM-MAL/2002-005].

Remarks.- These specimens agree well with the description of *N. kocatasi* in most of the diagnostic characters except that the 3 specimens available have 1 distal thick spine in the fourth article of the antennule instead of 3 or 4 as seen in the type series (Moreira et al., 2007). Although this might be due to intraspecific variability, the specific identity of these individuals is pending confirmation until more material is available.

Nebalia sp. 1

(Figures 2-3)

Material examined.- 1 juvenile, RL 0.5 mm, DCL 1.0 mm, LCL 0.9 mm, CH 1.3 mm, TL 2.3 mm, St. Ildırı Bay, 38°23'27"N – 26°27'04"E, 09.VI.2003, dredge, sand with *Posidonia oceanica* (L.), 18 m [ESFM-MAL/2003-002]. 2 juveniles, RL 0.6 mm, DCL 1.1 mm, LCL 1.4 mm, CH 1.1 mm, TL 2.1 mm, St. Ildırı Bay, 38°23'27"N – 26°27'04"E, 26.IX.2002, dredge, sand with *Posidonia oceanica* (L.), 20 m [ESFM-MAL/2002-006].

Description.- Fixed animals brownish. Carapace more or less rounded, covering lateral sides of pleonite 3 and partially covering lateral sides of pleonite 4 (Figure 2A). Rostrum long, extending beyond eyestalk, with parallel margins. Compound eye oval, with ommatidial part covering distal half of total length of eye (Figure 2B). Eyestalk not lobed. Supraorbital scale tapering distally to acute tip, about half length of eyestalk.

Antennular peduncle 4-segmented (Figure 2C). First article shorter than eyestalk. Second article with (1) plumose seta arising from anterior third, (2) cluster of 6 setae (some of them plumose) arising from posterolateral surface, (3) subterminal cluster of short and long simple setae. Third article shorter than the second, widest distally, with cluster of simple setae on superior distal margin, 2 simple setae on inferior distal margin. Fourth article shorter than third, with (1) medial row of 5 simple setae, (2) 1 thick short spine distally, (3) lateral row of 2 simple setae, (4) simple long seta arising from inferior distal margin, longer than antennular scale. Antennular scale oval,

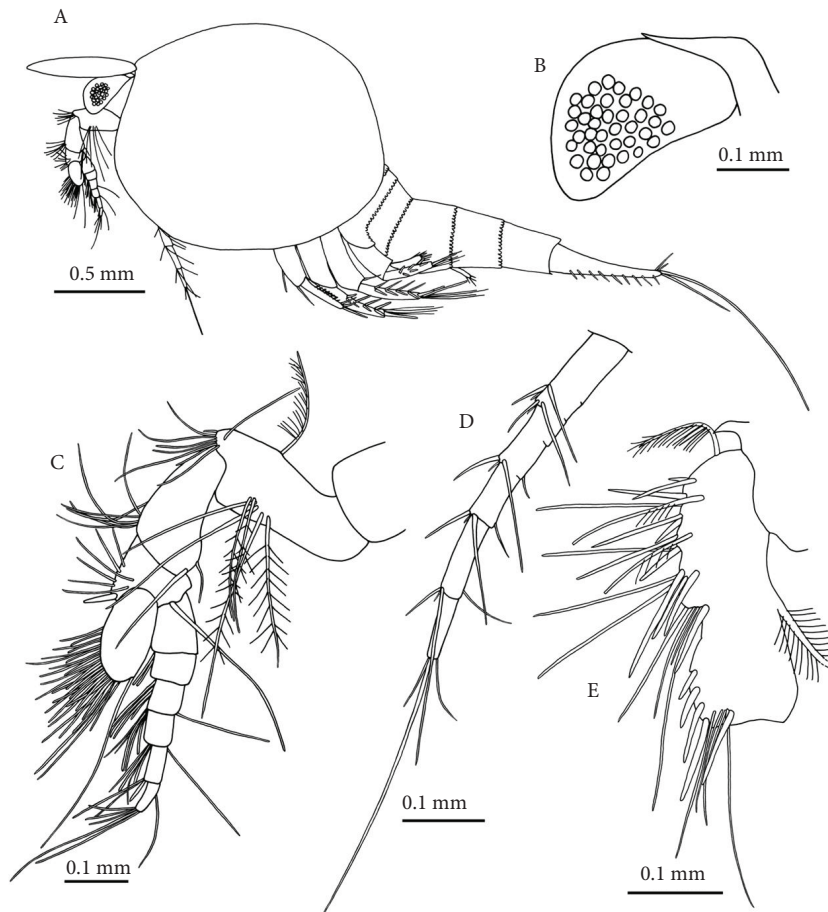


Figure 2. *Nebalia* sp. 1: (A) lateral view; (B) eye, lateral view; (C) antennule, lateral view; (D) antenna, detail of flagellum; (E) antenna, third article, external side, lateral view.

about twice as long as wide; anterior margin convex, with (1) row of setae provided with teeth along margin of distal half, (2) numerous simple setae of different lengths, (3) one long simple seta arising from inferior distal margin. Flagellum well-developed, with 6 articles, shorter than the peduncle; each article with several aesthetascs and simple setae on anterodistal margin, 1 seta longer than the others, oriented backwards.

Antennal flagellum composed of at least 2 defined articles (Figure 2D); each article with 4 terminal setae, 1 shorter than the others. Antennal peduncle 3-segmented. First article with anterodistal process ending in small acute spine. Second article with distal acutely pointed process (Figure 2E). Third article longer than second; with one plumose seta on

proximal margin and several rows of setae along medial anterior margin (1) 1 short simple, 2 sparsely plumose setae, and 3 spine-like setae of the same length, the distalmost associated to several longer and thinner setae, (2) 5-6 simple setae, the 2 distalmost associated with several simple thinner setae, (3) 4 setae thicker than those of (2) along proximal half, being the distalmost the longest, (4) 3 long setae along medial internal border, (5) terminal row of 4 spines, increasing distally in length; long plumose seta on posterior margin; cluster of 12 plumose setae along distal interior margin.

Second maxilla endopod 2-segmented, longer than exopod, proximal article about 1.8 times as long as distal one; medial margin with spaced plumose setae; second article with 2 distal terminal setae, one of them

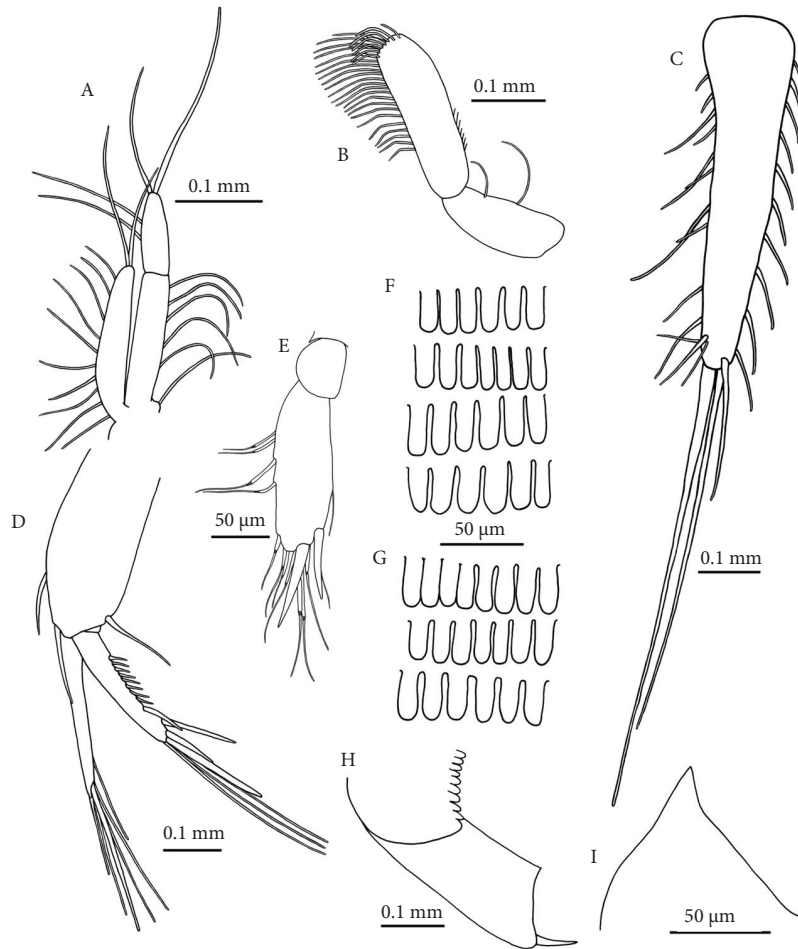


Figure 3. *Nebalia* sp. 1: (A) second maxilla (endites not shown); (B) mandibular palp, second and third articles; (C) right uropod, dorsal view; (D) first pleopod, lateral view; (E) fifth pleopod, ventral view; (F) pleonites 4-7, posterior lateral border, denticles; (G) pleonites 5-7, posterior dorsal border, denticles; (H) fourth pleopod, protopod, lateral view; (I) anal scale.

as long as second article (Figure 3A). Exopod about as long as proximal article of endopod; medial margin with plumose setae, 2 distalmost setae shorter than exopod.

Mandibular palp 3-segmented. Second article with 2 simple setae, one at mid-length on lateral face, the other shorter positioned subterminally on anterior margin (Figure 3B). Third article longer than second; proximal half of superior margin with row of short setae; inferior margin with 3 rows of setae (1) plumose setae from ending of proximal third extending to first half, (2) longer plumose setae than those of (1) extending along distal half, (3) about 6 curved, dentate setae along distal margin.

Uropods elongate, about twice the length of pleonite 8. Each uropod with about 12 setae along lateral margin increasing in size distally, the terminal longer than the entire ramus; several simple and plumose setae on lateral inner margin, cluster of 3 simple setae subterminally (Figure 3C).

Pleopods 1-4 stenopodous, composed of protopod, endopod, and exopod. First pleopod protopod with posterior margin even (Figure 3D), with 3 basal setae, all simple, 1 long arising subdistally, 1 between the 2 rami, 1 near base of exopod, surpassing first half of exopod spine-row. Endopod 2-segmented, longer than exopod; distal article with several plumose setae along lateral and medial

margins, distal margin with acute process at apex and long terminal seta. Basal article shorter, with *appendix interna*. Exopod about 0.7 times as long as protopod; with row of about 8 short serrate spines along lateral border ("spine-row"), each spine with tridentate tip, central tooth bifid; 4 stout smooth spines on distolateral border, distalmost the longest; long plumose setae along medial margin. Pleopods 2-4 similar. Exopod without row of stout spines, instead with row of about 3-4 spine pairs, each pair consisting of 1 long spine and 1 shorter spine. Fourth pleopod with posterior border even; posterior corner acutely produced.

Fifth pleopod uniramous, 2-segmented (Figure 3E). Distal article about 3 times as long as wide, with 2 conical spines along distolateral and terminal border, the distalmost the longest. Several simple setae along medial and distal border, setae appear jointed at midlength. Sixth pleopod uniramous, 1-segmented; with 3 conical spines along distolateral and terminal border, the distalmost the longest. Medial and terminal borders with "jointed" setae similar to those of fifth pleopod. Both pleopod pairs with broad, acute triangular process between bases of rami, extending posteriorly.

Pleonites 4-7 with denticles of more or less parallel sides, distally truncated to rounded (Figure 3F-G). Pleonite 4 with distally rounded denticles along posterior lateral border, posterior lateral corner rounded to pointed (Figure 3H).

Anal somite (pleonite 8) as long as pleonite 7. Anal plates with broad bases and acutely tapering distally (Figure 3I).

Remarks.- The only available material comprises 3 juveniles, which differ in a number of characteristics from *N. strausi* and *N. kocatasi*, the other 2 species of *Nebalia* already reported from the eastern Mediterranean. For example, *N. kocatasi* differs from *Nebalia* sp. 1 in that the endopod of the second maxilla of *N. kocatasi* has 2 subequal articles; the proximal article of the endopod of *N. kocatasi* is clearly longer than the distal article of *Nebalia* sp. 1. *Nebalia strausi* differs from *Nebalia* sp. 1 in that the denticles along the posterior dorsal borders of pleonites 6-7 of *N. strausi* are acute and pointed rather than truncated and rounded in *Nebalia* sp. 1. Other species from nearby geographical areas, such as *N.*

marerubri Wägele, 1983, from the Red Sea, *N. clausi* Dahl, 1985, from the western Mediterranean, and *N. dahli* Kazmi and Tirmizi, 1989, from Pakistan, differ from *Nebalia* sp. 1 in the shape of carapace and dorsal denticles of pleonites 6-7, and in characters of the antennule and antenna.

The specimens of *Nebalia* sp. 1 somewhat resemble *N. capensis* Barnard, 1914, from South Africa and other species of *Nebalia* (e.g., *N. daytoni* Vetter, 1996, from California, *N. troncosoi* Moreira, Cacabelos, and Domínguez, 2003, from the Iberian Peninsula) that have a rounded carapace and an antennular flagellum with less than 8-9 articles. Nevertheless, because the specimens described here are not adults we cannot be sure of the exact number of articles in the antennular flagellum, because the number of antennular articles and setae vary during the development of leptostracans (Dahl, 1985). It is equally possible that the juvenile specimens of *Nebalia* sp. 1 could represent a third species of *Nebalia* in the eastern Mediterranean, but this would require examination of adults.

Nebalia sp. 2

(Figures 4-5)

Material examined.- Ovigerous ♀, RL 0.7 mm, DCL 1.7 mm, LCL 2.2 mm, CH 1.6 mm, TL 4.3 mm, St. Gerence Bay, 38°27'30"N – 26°26'32"E, 21.IX.2006, dredge, sand, 58 m [ESFM-MAL/2006-002]. Juvenile, RL 0.6 mm, DCL 1.3 mm, LCL 1.7 mm, CH 1.3 mm, TL 3.2 mm, St. Ildırı Bay, 38°24'32"N – 26°27'29"E, 05.X.2006, dredge, mud-sand, 60 m [ESFM-MAL/2006-003].

Description of ovigerous female.- Fixed specimen whitish. Carapace weakly oval, covering lateral sides of pleonites 3-4 (Figure 4A). Rostrum long, extending beyond eyestalk, with parallel margins. Compound eye oval, with ommatidial part covering about distal 2/3 of total length of eye (Figure 4B). Eyestalk not lobed. Supraorbital scale tapering distally to acute tip, about half length of eyestalk.

Antennular peduncle 4-segmented (Figure 4C). First article shorter than eyestalk. Second article with plumose seta arising from anterior third, with cluster of 8 setae (some of them plumose) arising from posterolateral surface, with subterminal cluster of short and long simple setae. Third article shorter than

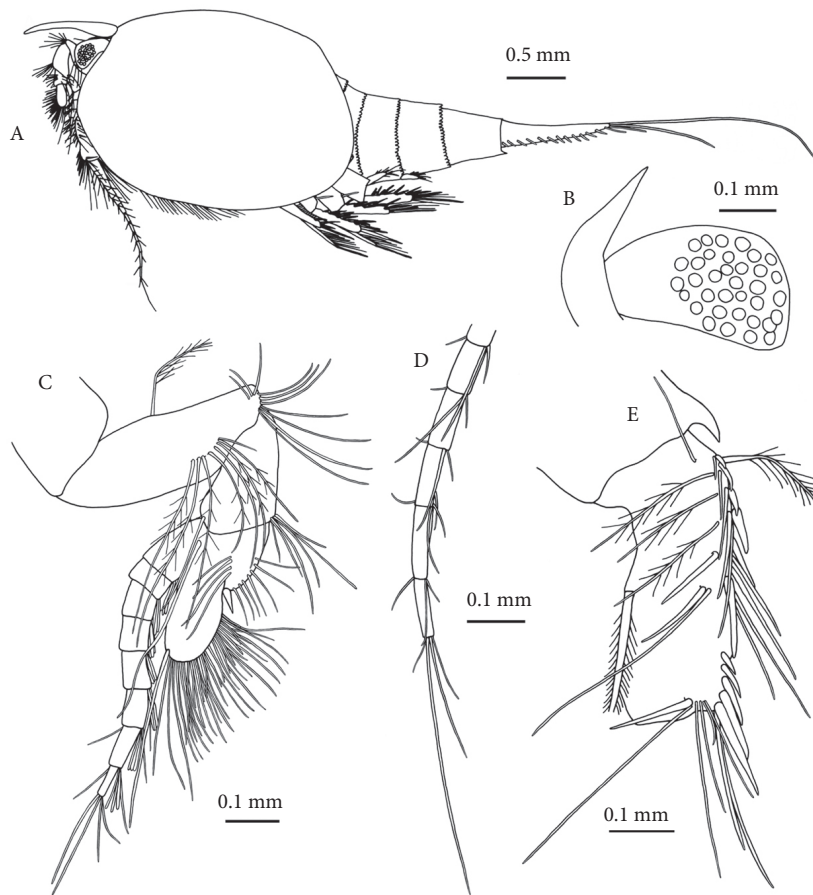


Figure 4. *Nebalia* sp. 2: (A) lateral view; (B) eye, lateral view; (C) antennule, lateral view; (D) antenna, flagellum, distal end; (E) antenna, third article, external side, lateral view.

second, widest distally, with cluster of simple setae on superior distal margin, 1 simple long seta on inferior distal margin. Fourth article shorter than third, with (1) medial row of 7 simple setae, (2) 1 thick short spine distally, (3) lateral row of 4 simple setae, (4) simple long seta arising from inferior distal margin, longer than antennular scale. Antennular scale oval, about twice as long as wide; anterior margin convex, with (1) row of setae provided with teeth along margin of distal half, (2) numerous simple setae of different lengths, (3) 1 long simple seta arising from inferior distal margin. Flagellum well-developed, with 8 articles, shorter than the peduncle; each article with several aesthetascs and simple setae on anterodistal margin.

Antennal flagellum composed of 12 articles (Figure 4D); each article with 4 terminal setae, 1

shorter than the others. Antennal peduncle 3-segmented. First article with anterodistal process ending in small acute spine. Second article with distal acutely pointed process (Figure 4E). Third article longer than second; with 1 plumose seta on proximal margin and several rows of setae along medial anterior margin (1) 1 simple, 3 sparsely plumose setae and 3 spine-like setae of the same length, the distalmost associated to several longer and thinner setae, (2) 7 simple setae, the distalmost associated with 2 simple thinner setae, (3) 6 setae thicker than those of (2) along proximal half, being the distalmost the longest, (4) 4 long setae along medial internal border, (5) terminal row of 7 spines, increasing distally in length, the 2 distalmost thinner than the others; long plumose seta on posterior margin; cluster of 12 plumose setae along distal interior margin.

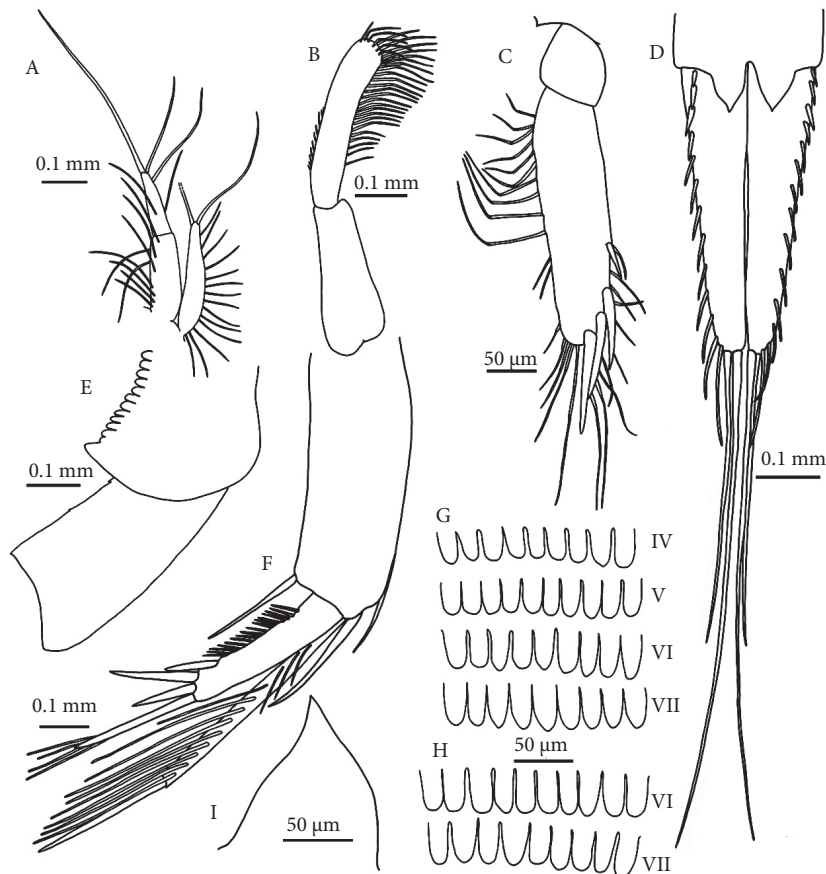


Figure 5. *Nebalia* sp. 2: (A) second maxilla (endites not shown); (B) mandibular palp, second and third articles; (C) fifth pleopod, ventral view; (D) uropods, ventral view; (E) fourth pleopod, protopod, lateral view; (F) first pleopod, lateral view; (G) pleonites 4-7, posterior lateral border, denticles; (H) pleonites 6-7, posterior dorsal border, denticles; (I) anal scale.

Second maxilla endopod 2-segmented, longer than exopod, proximal article about 1.3 times as long as distal one; medial margin with spaced plumose setae; second article with 2 distal terminal setae, 1 of them longer than endopod (Figure 5A). Exopod longer than proximal article of endopod; medial margin with plumose setae, 2 distalmost setae, 1 of them longer than exopod.

Mandibular palp 3-segmented. Second article lacking setae (Figure 5B). Third article longer than second; proximal half of superior margin with row of short setae; inferior margin with 3 rows of setae (1) plumose setae from ending of proximal third extending to first half, (2) longer plumose setae than those of (1) extending along distal half, (3) about 6 curved, dentate setae along distal margin.

Fifth pleopod uniramous, 2-segmented (Figure 5C). Distal article about 3.5 times as long as wide, with 4 conical spines along distolateral and terminal border, the distalmost the longest. Several simple setae along medial and distal border, setae appear jointed at midlength. Sixth pleopod uniramous, 1-segmented; with 4 conical spines along distolateral and terminal border, the distalmost the longest. Medial and terminal borders with “jointed” setae similar to those of fifth pleopod. Both pleopod pairs with broad, acute triangular process between bases of rami, extending posteriorly.

Uropods elongate, about twice the length of pleonite 8 (Figure 5D). Each uropod with 15-16 setae along lateral margin increasing in size distally, the terminal about twice the length the entire ramus;

several simple and plumose setae on lateral inner margin.

Pleonite 4 with distally rounded denticles along posterior lateral border, posterior lateral corner slightly pointed (Figure 5E).

Pleopods 1-4 stenopodous, composed of protopod, endopod, and exopod. First pleopod protopod with posterior margin even (Figure 5F). Three basal simple setae (1) long seta arising subdistally, (2) 1 seta between the 2 rami, (3) 1 seta near the base of exopod, almost reaching distal end of exopod spine-row. Endopod 2-segmented, longer than exopod; distal article with several plumose setae along lateral and medial margins, distal margin with acute process at apex and long terminal seta. Basal article shorter, with *appendix interna*. Exopod about 0.6 times as long as protopod; with row of about 16 short serrate spines along lateral border ("spine-row"), each spine with tridentate tip, central tooth bifid; 4 stout smooth spines on distolateral border, distalmost the longest; long plumose setae along medial margin. Pleopods 2-4 similar. Exopod without row of stout spines, instead with row of 4-5 spine pairs, each pair consisting of 1 long spine and 1 shorter spine, with short seta in between. Fourth pleopod with 2 small serrations along posterior border; posterior corner pointed.

Pleonites 4-7 with denticles of more or less parallel sides distally rounded to slightly pointed (Figure 5G-H).

Anal somite (pleonite 8) slightly longer than pleonite 7. Anal plates almost triangular, acutely tapering distally (Figure 5I).

Remarks.- It is possible that *Nebalia* sp. 2 represents a new species of leptostracan from the eastern Mediterranean. The specimens described here are closely related to 2 Mediterranean species: *N.*

kocatasi and *N. clausi*. *Nebalia* sp. 2 most closely resembles *N. kocatasi* in the shape of the dorsal denticles of pleonites 6-7 and the shape of the antennular scale. However, adult females of *N. kocatasi* have a fourth article of the antennule that bears 3-4 thick spines instead of 1, the antennular flagellum has a greater number of articles (11 vs. 8), the 2 articles of the endopod of the second maxilla are similar in length, and the 3 spines on the external lateral face of the third antennal article are thicker than those present in *Nebalia* sp. 2. *Nebalia clausi* from the western Mediterranean also possesses distally rounded to slightly pointed dorsal denticles on pleonites 6-7 but differs from *Nebalia* sp. 2 in having an antennular flagellum that bears more articles, the fourth article of the antennule bearing 3 thick spines and a longer antennular scale. *Nebalia* sp. 2 also resembles *Nebalia herbstii* Leach, 1814, in shape of the antennular scale, of the anal scales, of the dorsal denticles of pleonites 6-7, and of the second maxilla. The latter characters were reported by Ledoyer (1997) for the first time for any Mediterranean species of this genus, and differ from *Nebalia* sp. 2 in the number of articles of the antennular flagellum and the armature of the fourth article of the antennule. Nevertheless, the specific identity of these specimens cannot be determined until more material has been examined because these morphological differences may be due to intraspecific variability.

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