NEW GENERA AND SPECIES OF THE SUBTERRANEAN FAMILY BOGIDIELLIDAE FROM THE NEAR EAST

(CONTRIBUTION TO THE KNOWLEDGE OF THE AMPHIPODA 179)

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Abstract

The new genus and species, *Hebraegidiella bromleyana*, n. gen. n. sp. and a new species *Bogidiella (?Bogidiella) copia*, n. sp. *(Amphipoda Gammaridea*, fam. *Bogidiellidae)*, are described and figured from the subterranean salt (brackish) waters of Enot Qane (En Gedi region, W. coast of Dead Sea), and their taxonomic relations are discussed.

Izvod

NOVI RODOVI I VRSTE PODZEMNE FAMILIJE BOGIDIELLIDAE IZ BLISKOG ISTOKA (179. PRILOG POZNAVANJU AMPHIPODA)

Novi rod i vrsta, *Hebraegidiella bromleyana*, n. gen., n. sp. i nova vrsta *Bogidiella (?Bogidiella) copia*, n. sp. *(Amphipoda Gammaridea*, fam. *Bogidiellidae)*, opisane su i nacrtane iz podzemnih slanih (brakičnih) voda u Enot Qane (En Gedi region, zapadna obala Mrtvog mora), i njihovi taksonomski odnosi su analizirani.

Postavljen je novi rod, *Nubigidiella*, n. gen. sa tipičnom vrstom *Bogidiella nubica* Ruffo 1984 iz podzemnih voda Sudana.

INTRODUCTION

The numbers of the family *Bogidiellidae (Amphipoda Gammaridea)* have been discovered during last 50 years in numerous subterranean waters over Europe, Asia, Africa, North and South America, New Zealand and numerous islands of Atlantic, Pacific, Indian Ocean and the Mediterranean Sea.

First member of this family in Africa was described by Ruffo (1970) under the name *Bogidiella somala*, n. sp. from Somalia; Karaman, G. and Barnard, J. L. (1979) removed it to the new genus *Afridiella* G. Karaman & J. L. Barnard 1979 as a type species.

Ruffo described later (1974) a new genus and species *Bollegidia capensis*, n. gen. n. sp. from South Africa (Cape Town).

Karaman, G. and Pesce (1980) described a new subspecies *Bogidiella ichnusae africana*, n. ssp. from Algeria (Biskra).

Karaman, G. (1981, 1982) and Stock (1981) proposed more comprehensive division of the family *Bogidiellidae* into various groups, subgenera and genera.

Ruffo discovered (1982) *Afridiella somala* in other localities in Somalia (El Mocoile; El Ali), and he described a second species of this genus, *Afridiella pectinicauda*, n. sp. from Somalia (Bud Bud).

Later (1984) Ruffo discovered and described *Bogidiella nubica*, n. sp. from the subterranean waters of Sudan (removed here into a distinct new genus *Nubigidiella)*, and he mentioned that the taxonomic characters of this genus »might be sufficient to ascribe this species to a new subgenus«.

Diviacco and Ruffo (1985) described a third species of the genus *Afridiella* from Somalia, *A. messanai*, n. sp. (from Uebhao), as well as a new genus and species *Maghrebidiella maroccana*, n. gen. n. sp. from the subterranean waters of Morocco (Marrakech).

On the other side, within the Near East region, Ruffo described (1963) the subterranean species *Bogidiella hebraea*, n. sp. from Dead Sea region (Ein Hakikar).

Recently, the scientists from the Hebrey University of Jerusalem sent me very kindly the material of amphipods collected in the salt (brackish) subterranean streams near Dead Sea, including two new species of the family *Bogidiellidae*, described in this work: *Bogidiella (?Bogidiella) copia*, n. sp. and *Hebraegidiella bromleyana*, n. gen., n. sp. All these discoveries indicate that the numerous other new taxa of the family *Bogidiellidae* can be discovered in the future also from these regions, still poorly studied.

Acknowledgments: I am indebted to the scientists from the Hebrey University of Jerusalem (Dr. Heather Bromley, Dr. Reuven Ortal, Dr. G. Müller, Dr. D. Por, Dr. C. Dimentman) for the collected material of amphipods sent me very kindly for study.

TAXONOMIC PART

Genus HEBRAEGIDIELLA, n. gen.

Type species: *Hebraegidiella bromleyana,* n. sp.

Diagnosis: (?male): Body *Bogidiella* -like, with shallow coxae 1-7. Head and antennae 1-2 normal, accessory flagellum developed. Labrum concave distally, broader than long. Mandible with toothed incisor and with molar nontriturative, ridged, toothed distally and with distolateral short plumose seta; mandibular palp normal, 3-segmented. Labium with small inner lobes. Maxilla 1: inner plate with setae, outer plate with 7 spines, palp 2-segmented (left and right palp symmetric to each other). Maxilla 2 with marginal setae only. Maxilliped like that of *Bogidiella*-genus.

Gnathopods 1-2 with large segment 6, segment 5 of gnathopod 1 posteriorly lobate, that of gnathopod 2 unlobed. Pereopods 3-7 normal. Pleopods 1-3 with 3-segmented normal outer ramus and 1-segmented inner ramus with distal seta. Uropods 1-2 normal, unmodified, with distal spines. Uropod 3 unknown. Telson like that in genus *Bogidiella.*

Taxa: *bromleyana,* n. sp.

Remarks and Affinities: The genus *Hebraegidiella,* n. gen. is close to the *Bogidiella* — Complex of genera and subgenera by numerous characters (Hertzog's Organ, shape of gnathopods 1-2 and pereopods 3-7, antennae 1-2, pleopods, uropods 1-2, telson, labrum, labium, maxillae 1-2, maxilliped). But, it differs from most of these genera and subgenera by nontriturative molar and 2-segmented palp of maxilla 1.

Among the genera and subgenera allied to the *Bogidiella* genus, there are three with nontriturative molar of mandible and 2-segmented palp of maxilla 1: *Actogidiella* Stock 1981, *Hagidiella* Stock 1985, *Antillogidiella* Stock 1981.

But, the genus *Actogidiella* Stock 1981 (type species: *Actogidiella cultrifera* Stock 1981) from West Indian Islands, differs from genus *Hebraegidiella* by modified uropod 1 in males and by pointed both rami of uropod 1 in females; as well as by modified pleopod 2 in males and inflated palp segment 2 of mandible.

The subgenus *Bogidiella (Hagidiella)* Stock 1985 (type species: *Bogidiella (Hagidiella) prionura* Stock 1985 from Haiti) has mandibular molar exceptionally small, with bent, thumb-like process ending into short seta, as well as by modified pleopod 2 and uropod 1 in males.

The subgenus *Bogidiella (Antillogidiella)* Stock 1981 (type species: *Bogidiella martini* Stock 1978 from Lesser Antilles and Bermuda) is rather similar to the genus *Hebraegidiella,* including ab-

sence of thumb-like lateral process on nontriturative molar of mandible, but pleopod 2 in males is modified and with inner ramus, and unmodified and without inner ramus in females; uropod 1 unmodified in males, bearing distal spines; uropod 1 is modified in females, pointed distally, without distal spines.

The recent discovery of numerous new taxa of the family *Bogidiellidae* over the World by various scientists, requests one new revision on the generic and subgeneric level within this family. Within present taxonomy of this family (G. Karaman 1981, 1982; Stock 1981) the diagnoses of genera and subgenera are not satisfactorily limited and distinct, causing often very strange distribution of single subgenera over the World (f. example subgenus *Stygogidiella* in the Mediterranean Sea Bassin and West Indian archipelago, etc.).

For the moment, we could'nt fit our new species within any of known genera and subgenera (based on literature only), and we created a distinct new genus for it, genus *Hebraegidiella,* n. gen. But, some type-species of subgenera and genera of family *Bogidiellidae* are not described in detail, and we can not exclude the possibility that, after the further revisions of the family *Bogidiellidae,* this genus can be removed to some of already known, but poorly described genera or subgenera.

HEBRAEGIDIELLA BROMLEYANA, N. SP.

figs.: 1-4

Material examined: NEAR EAST: Western coast of Dead Sea: subterranean brackish (salt) stream in Enot Qane, 19 km N. of En Gedi, April 15, 1987, 4 spec. accompanied by *Metacrangonyx ortali* G. Karaman 1988 and *Bogidiella (?Bogidiella) copia,* n. sp. (leg. R. Ortal and G. Müller).

Description: Male (?) 2.5 mm: Body smooth, metasom-segments 1-3 on each side with 1-2 dorsolateral posterior setae (fig. 3 F); urosomites 1-3 smooth (fig. 2 E).

Head with short rostrum, lateral cephalic lobes subrounded, eyes obsent, ventroanterior excavation well developed (fig. 1 A).

Antenna 1 short, peduncular segments 1-3 progressively shorter (fig. 1 A); peduncular segment 1 with 1 ventrodistal spine (fig. 1 A), peduncular segment 3 reaching nearly half of peduncular segment 2; main flagellum stout, shorter than peduncle, consisting of 7 articles (most of them with one aesthetasc exceeding the length of article itself) (fig. 1 A); accessory flagellum long, 3-segmented, exceeding the length of third peduncular segment (fig. 1 B).

Antenna 2 almost as long as antenna 1 (fig. 1 A), peduncular segment 3 short; peduncular segment 5 slightly shorter than 4

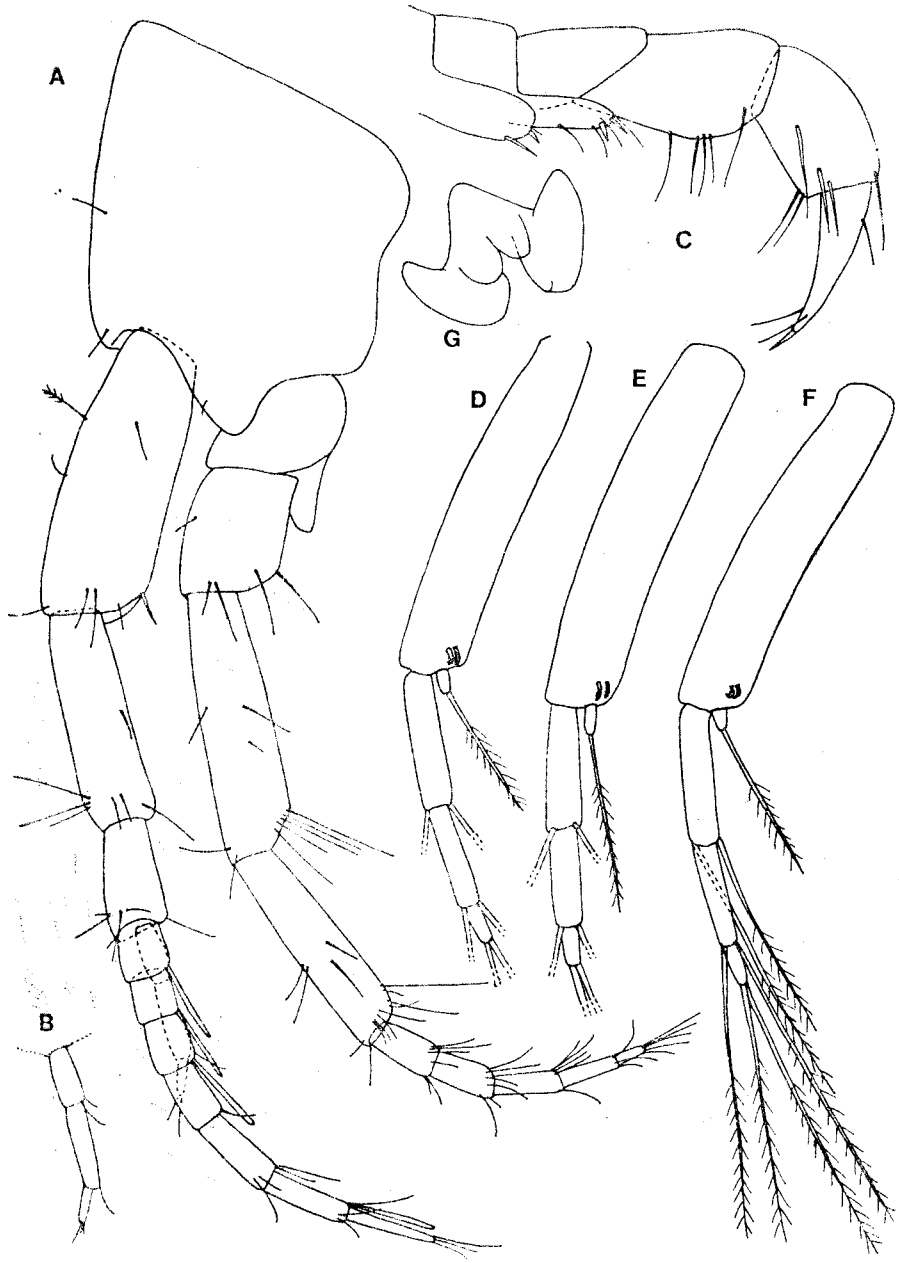

Fig. 1. *Hebraegidiella bromleyana*, n. gen., n. sp., Enot Qane, male (?) 2.5 mm: A = head with antennae 1-2; B = accessory flagellum; C = maxilliped; D-F = pleopods 1-3; G = labium.

Fig. 2. *Hebraegidiella bromleyana*, n. gen., n. sp., Enot Qane, male (?) 2.5 mm: A = gnathopod 1; B = gnathopod 2; C = labrum; D = maxilla 1; E = urosome with uropods 1-2.

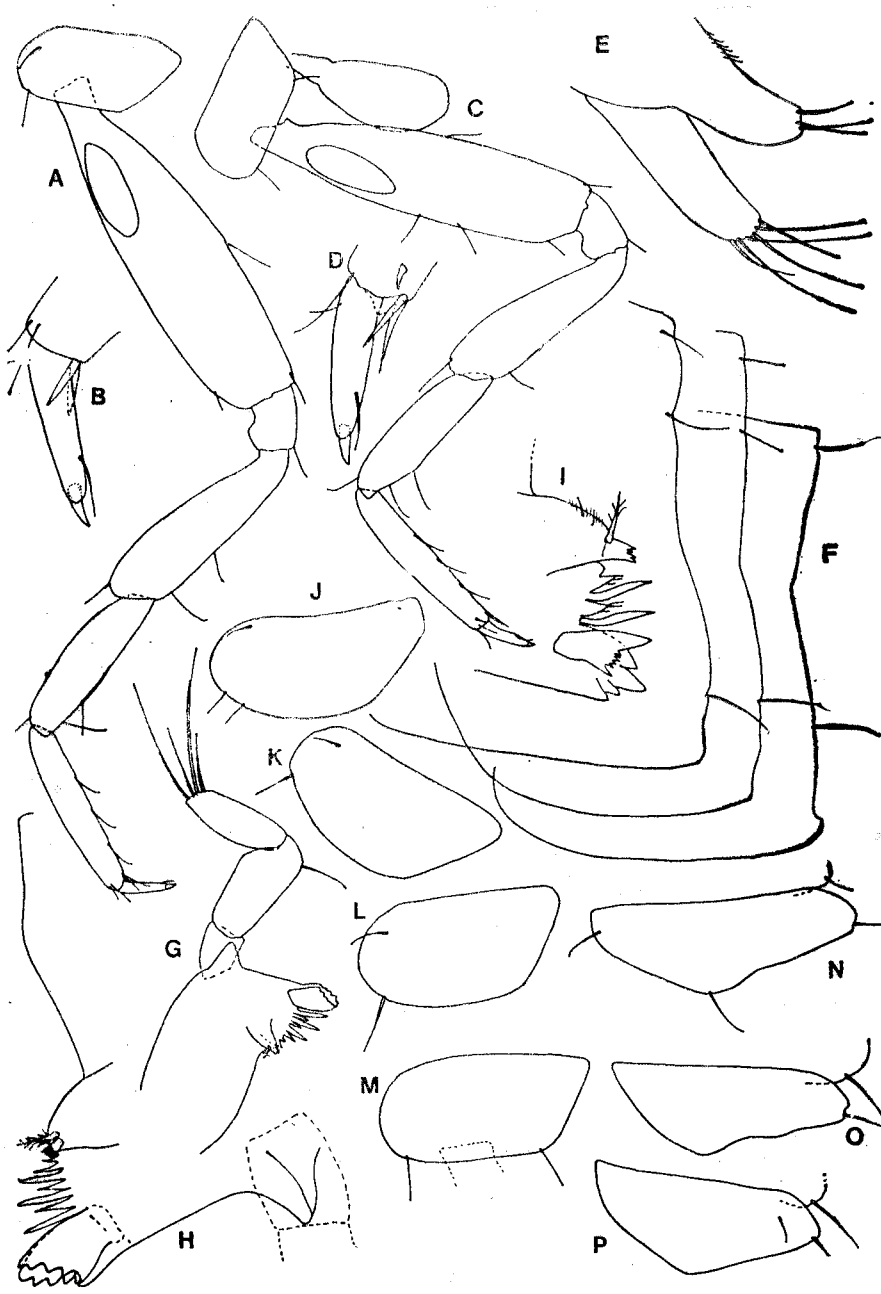

Fig. 3. *Hebraegidiella bromleyana*, n. gen., n. sp., Enot Qane, male (?) 2.5 mm: A-B = pereopod 3; C-D = pereopod 4; E = maxilla 2; F = epimeral plates 1-3; G-H = left mandible; I = tip of right mandible; J-P = coxae 1-7.

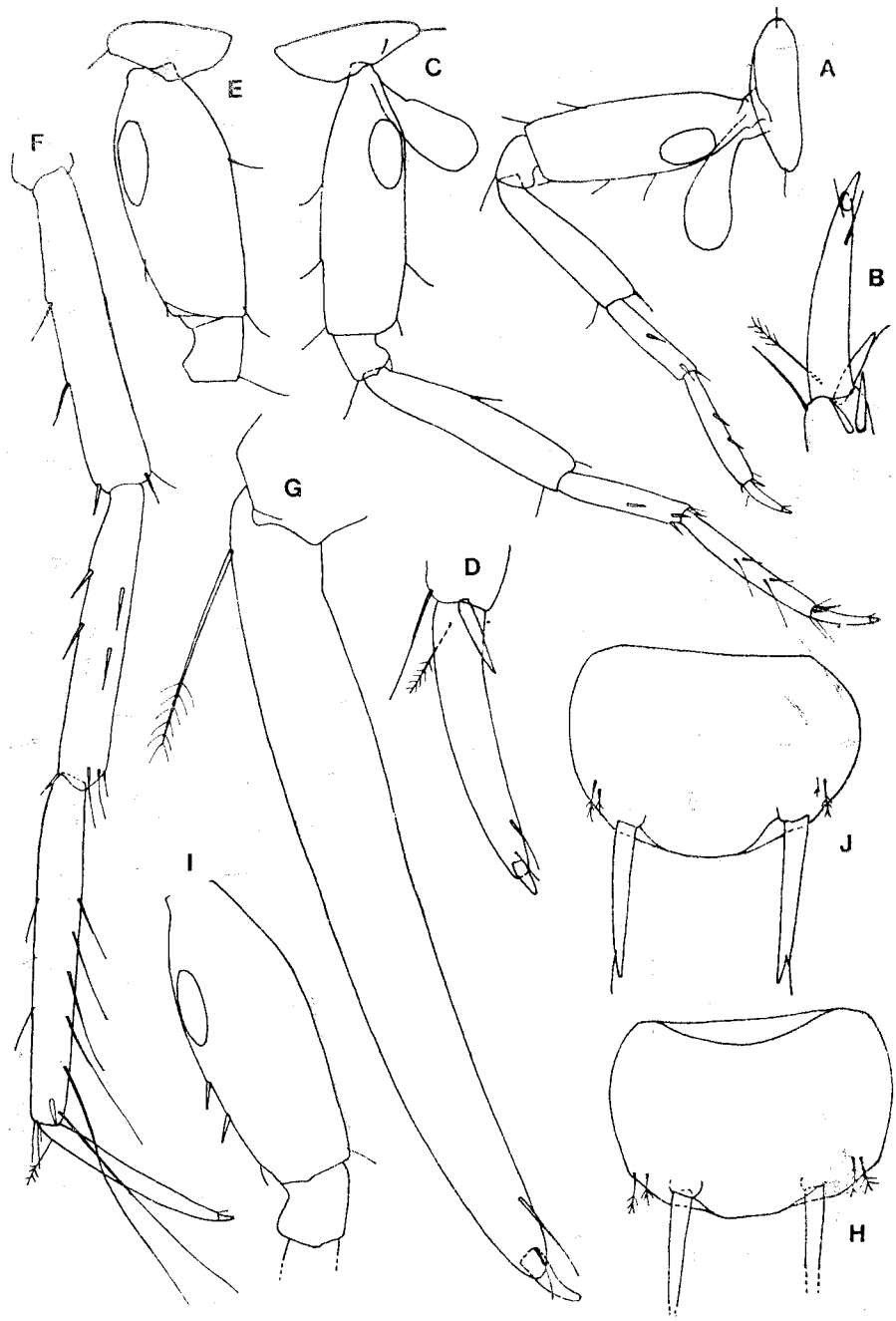

Fig. 4. *Hebraegidiella bromleyana*, n. gen., n. sp., Enot Qane, male (?) 2.5 mm: A-B = pereopod 5; C-D = pereopod 6; E-G = pereopod 7; H = telson; I = pereopod 7, male 2.4 mm; J = telson, male 2.4 mm.

(fig. 1 A); flagellum consisting of 5 articles, flagellum is longer than last peduncular segment of antenna 2; antennal gland cone short, not reaching tip of peduncular segment 3 (fig. 1 A).

Labrum much broader than long, concave distally (fig. 2 C), epistome poorly developed. Labium with small inner lobes (fig. 1 G).

Mandibles with 3-segmented palp: first segment short, second segment with 1 distal seta, third segment nearly as long as second one, with 4 distal setae (fig. 3 G); molar nontriturative, laterally compressed, ridged, toothed distally with 1 distolateral short plumose seta (fig. 3 G, H, I). Left mandible with 5-toothed incisor and 5-toothed lacinia mobilis accompanied laterally by several rakers (fig. 3 G, H). Right mandible with 4-toothed incisor, lacinia mobilis is pluritoothed, (2 marginal strong spines, between tham 5-6 small teeth) (fig. 3 I); finger on basis of palp strong (fig. 3 G).

Maxilla 1: inner plate with 2 distal setae, outer plate with 7 toothed spines bearing 1-4 lateral teeth each (fig. 2 D), palp 2-segmented, narrow, with 1 strong and 2 weak distal setae (fig. 2 D).

Maxilla 2: both plates narrow, inner plate with 3 distal setae, outer plate with 6 distal setae (fig. 3 E). Maxilliped: inner plate short, with 1 distal spine and 2 setae (fig. 1 C), outer plate short, with 2 distal spines and single setae, palp strong, 4-segmented, segment 3 unlobed, segment 4 with 2 inferior setae at tip of pedestal (fig. 1 C), nail short.

Coxae 1-7 shallow, much broader than long, entire, with single marginal setae, coxa 5 is not longer (higher) than coxa 4 (fig. 3 J-P).

Gnathopods 1-2 strong, gnathopod 1 is slightly larger than 2. Gnathopod 1: segment 2 with 1 seta at anterior and posterior margin (fig. 2 A), segment 3 with 1 posterior seta; segment 4 with 2 posterior setae; segment 5 short, with strong posterior lobe (fig. 2 A); segment 6 large, much longer than broad, tapering slightly distally, palm reaching over 3/4 of posterior margin of segment 6, finely serrate and bearing 2 medial cusps and several single setae and 4 spines (fig. 2 A); dactyl recurved, with 4 inferior setae near tip of pedestal and with one seta at outer margin (fig. 2 A).

Gnathopod 2: segment 2 longer and narrower than that of gnathopod 1, with 1 seta at anterior and posterior margin (fig. 2 B); segments 3-4 like these of gnathopod 1; segment 5 short, with short undistinct lobe; segment 6 ovoid, tapering distally, palp similar to that of gnathopod 1, finelly serrate, with 2 medial cusps and several single setae as well as with 2 spines (fig. 2 B); dactyl like that of gnathopod 1.

Pereopods 3-4 similar to each other, but pereopod 3 slightly longer (fig. 3 4, C); segment 2 of both pereopods with small ovoid Hertzog's organ in proximoanterior part (fig. 3 A, C); segments 3-6

poorly setose, dactyl short, reaching nearly 1/3 of segment 6, bearing 1 strong seta at inner margin and 1 short seta at outer margin (fig. 3 B), nail short and stout (fig. 3 B, D).

Pereopods 5-7 progressively longer so that pereopod 7 is more than twice longer than pereopod 5 (fig. 4 A, C, E, F). Segment 2 of pereopods 5-7 with small ovoid Hertzog's organ along posterior margin (fig. 4 A, C, E, I); segment 2 narrow, linear (pereopods 5-6) or slightly dilated medially (pereopod 7), but always unlobed posteriorly; posterior margin of segment 2 of pereopods 5-6 with 2-3 setae (fig. 4 A, C), that of pereopod 7 with 1-2 setae or 1-2 spines (fig. 4 E, I). Segments 4-6 of pereopods 5-7 linear; segment 6 of pereopods 5-6 with single setae only, that of pereopod 7 with row of 6 long marginal simple setae (fig. 4 F). Dactyl of pereopods 5-6 nearly reaching half of segment 6 (fig. 4 A, C), dactyl of pereopod 7 long and slightly exceeding half of segment 6 (fig. 4 E, F, G), all with 2 distal setae at inner margin and 1 plumose seta at outer margin (fig. 4 B, D, G), nail short and stout.

Pleopods 1-3 normal, similar to each other, unmodified (fig. 1 D, E, F); peduncle smooth, with 2 retinacula each, outer ramus consisting of 3 articles bearing 2 plumose setae each (fig. 1 D-F); inner ramus short, with 1 long distal plumose seta (fig. 1 D-F).

Epimeral plates 1-3 angular, ventrally smooth, but with 1 seta at posterior ventral margin (fig. 3 F).

Urosomite 1 near basis of peduncle of uropod 1 without spine (fig. 2 E). Uropod 1 slender, peduncle with 1 ventrofacial spine and with 1 distoexternal and 1 distointernal spine (fig. 2 E), dorsal spines absent; rami slender, normal, each with 3 unequal distal spines: the longest spine slightly exceeding half of rami-length; outer ramus is slightly longer than inner ramus, both rami unmodified (fig. 2 E).

Uropod 2: peduncle with distal spine; rami subequal, each ramus with 3 unequal distal spines: the longest spine exceeding 2/3 of rami-length, rami unmodified. One of the short distal spines on outer ramus of uropods 1-2 with 1 lateral seta (fig. 2 E).

Uropod 3 missing in all specimens.

Telson short, entire, much broader than long, with convex distal margin (fig. 4 H, J) and provided with 2 long distal spines, accompanied distolaterally by one pair of short plumose setae on each side (fig. 4 H, J).

Coxal gills short, ovoid, occur on pereonites 4-6 (fig. 3 C; 4 A, C).

F e m a l e s: unknown.

Variability: All 4 specimens in hands were without oostegyts and without any kinds of modifications on pleopods and uropods 1-2.

Holotype: male (?) 2.5 mm.

Distribution: known only from type-locality.

Remarks and Affinities. *H. bromleyana,* n. sp. belongs to the *Bogidiella*- Complex of species by numerous characteristics (see sub remarks under genus *Hebraegidiella),* and differs from genus *Bogidiella* by nontriturative molar of mandible.

Bogidiella hebraea Ruffo 1963, known from Sodoma region S. of Dead Sea, differs clearly from *H. bromleyana* by presence of 4 spines on telson, by absence of Hertzog's organ, by absence of inner ramus on pleopod 3, etc.

Bogidiella (Mexigidiella) hamatula Stock 1985 known from Haiti has also small, probably nontriturative mandibular molar, but molar is provided with finger-shaped, bent proximal projection bearing 1 seta, inner plate of maxilla 1 with 3 setae, Hertzog's organ absent, etc.

BOGIDIELLA (? BOGIDIELLA) COPIA, N. SP.

figs.: 5-8

Material examined: NEAR EAST: Western coast of Dead Sea, subterranean salt (brackish) stream in Enot Qane, 19 km. N. of En Gedi; one specimen, intermixed with the specimens of *Hebraegidiella bromleyana,* n. sp. and *Metacrangonyx ortali,* G. Karaman 1988, April 15, 1987 (leg. R. Ortal and G. Müller).

Description: Male (?) 2.5 mm (holotype): Metasom-segments 1-3 on each side with 0-1 posterior dorsolateral marginal seta (fig. 7 F); urosome smooth (fig. 7 G).

Head with short rostrum, lateral cephalic lobes narrow, subrounded distally (fig. 6 C), ventroanterior sinus developed, eyes absent (fig. 6 C).

Antenna 1 almost reaching half of body, peduncular segments 1-3 progressively shorter (fig. 6 C), peduncular segment 1 with 1 ventrodistal spine (fig. 6 C); peduncular segment 3 exceeding half of peduncular segment 2; main flagellum shorter than peduncle and consisting of 7 articles (most of them with one aesthetasc slightly longer than articles themselves) (fig. 6 C); accessory flagellum 3--segmented, longer than third peduncular segment (fig. 6 C, D).

Antenna 2 missing except short third peduncular segment and short antennal gland cone not reaching tip of peduncular segment 3 (fig. 6 C).

Labrum broader than long, concave distally (fig. 5 C, D), epistome non prominent. Labium with short inner lobes, outer lobes entire (fig. 7 D).

Mandibles with small, but well developed conical triturative molar (fig. 6 F, G), bearing one short plumose seta on both mandibles; palp 3-segmented, segment 2 with 1 distal seta (fig. 6 E), segment 3 slightly shorter than 2, with 4 distal setae (fig. 6 E). Left mandible with 5-toothed incisor and 4-toothed entire lacinia mobilis accompanied by 3 rakers and 3 setae (fig. 6 G). Right mandible with 5-toothed incisor and lacinia mobilis is consisting of two pluritoothed plates, accompanied laterally by 4 rakers (fig. 6 E, F).

Maxilla 1: inner plate with 3 distal setae (fig. 6 B), outer plate with 7 spines bearing 3-5 lateral teeth each (fig. 6 B), palp 2-segmented, with 3 distal setae; palps of left and right maxilla 1 are symmetric to each other.

Maxilla 2 narrow, inner plate with 6 distal setae (3 anterior setae are plumose), outer plate with 8 distal setae (fig. 7 C).

Maxilliped: inner plate short, with 2 distal spines and 3 setae (fig. 5 E), outer plate short, palp strong, palp segment 4 with 2 distoinferior setae on pedestal, nail short (fig. 5 E).

Coxae 1-4 only slightly broader than long (high), with 1-2 marginal setae (fig. 8 A-D); coxa 5 with anterior lobe broad, posterior lobe narrow (fig. 8 E), coxae 6-7 more narrow (fig. 8 F, G).

Gnathopods 1-2 strong. Gnathopod 1: segment 2 inflated, with one long posterior medial seta and 1 short distal seta (fig. 5 A), Hertzog's organ absent (fig. 5 A); segment 5 short but strongly produced posteriorly (fig. 5 A); segment 6 ovoid, longer than broad, palm entire, finely serrate and oblique over 2/3 of posterior margin of segment 6, bearing 3 spies; dactyl recurved, with 2 distoinferior marginal incisions bearing 1 seta in each of them, as well as with 1 lateral short seta near basis of the nail (fig. 5 A).

Gnathopod 2: segment 2 longer then that of gnathopod 1 but with similar number of setae on it (fig. 5 B); Hertzog's organ absent; segment 5 shorter than 6, unlobed posteriorly (fig. 5 B); segment 6 narrow, almost twice longer than broad, with parallel lateral margins; palm oblique to the half of posterior margin of segment 6, finely serrate, bearing 2 spines and several setae (fig. 5 B), dactyl like that of gnathopod 1.

Pereopod 3: segment 2 dilated, without any trace of Hertzog's organ (fig. 7 A); segments 4-6 linear, dactyl short, with one inferior and 1 lateral seta near basis of nail, nail short (fig. 7 B); along outer margin of dactyl with 1 seta (fig. 7 B). Pereopod 4 missing.

Pereopods 5-6 missing. Pereopod 7: segment 2 ovoid, less than two times longer than broad, with unlobed ventroposterior lobe

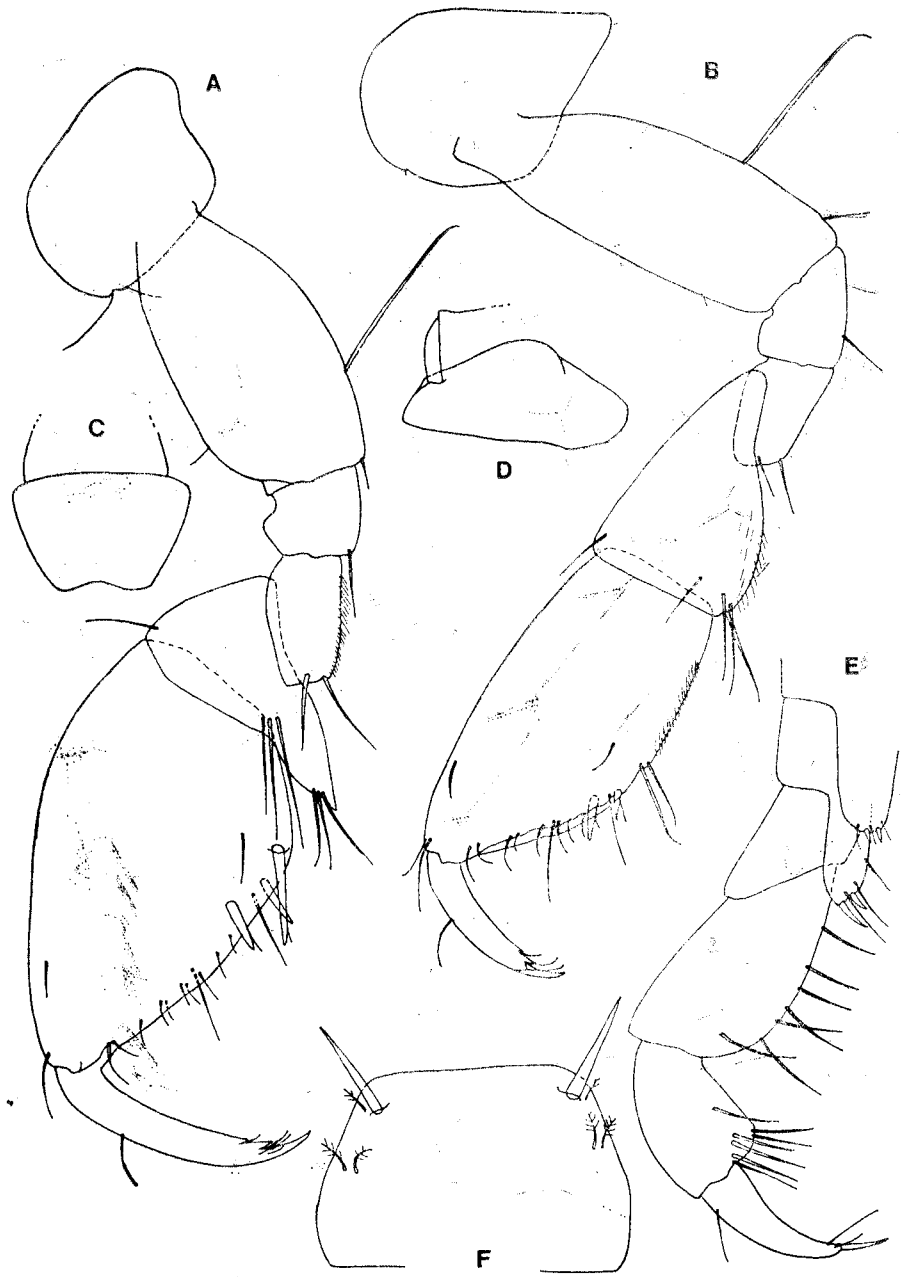

Fig. 5. *Bogidiella (?Bogidiella) copia*, n. sp., Enot Qane, male (?) 2.5 mm: A = gnathopod 1; B = gnathopod 2; C-D = labrum, dorsal and lateral projection; E = maxilliped; F = telson.

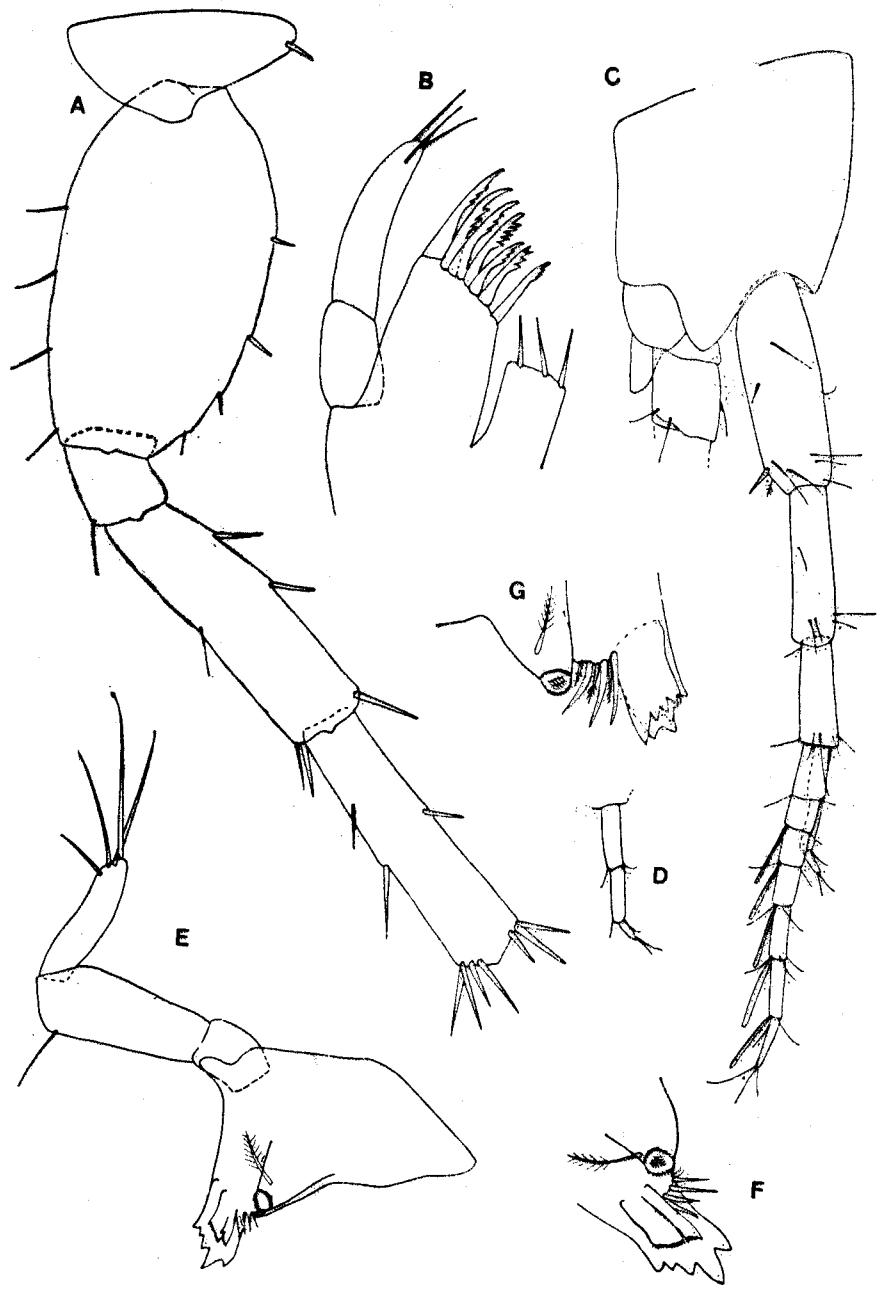

Fig. 6. *Bogidiella (?Bogidiella) copia*, n. sp., Enot Qane, male (?) 2.5 mm: A = pereopod 7; B = maxilla 1; C = head with antenna 1; D = accessory flagellum; E-F = right mandible; G = tip of left mandible.

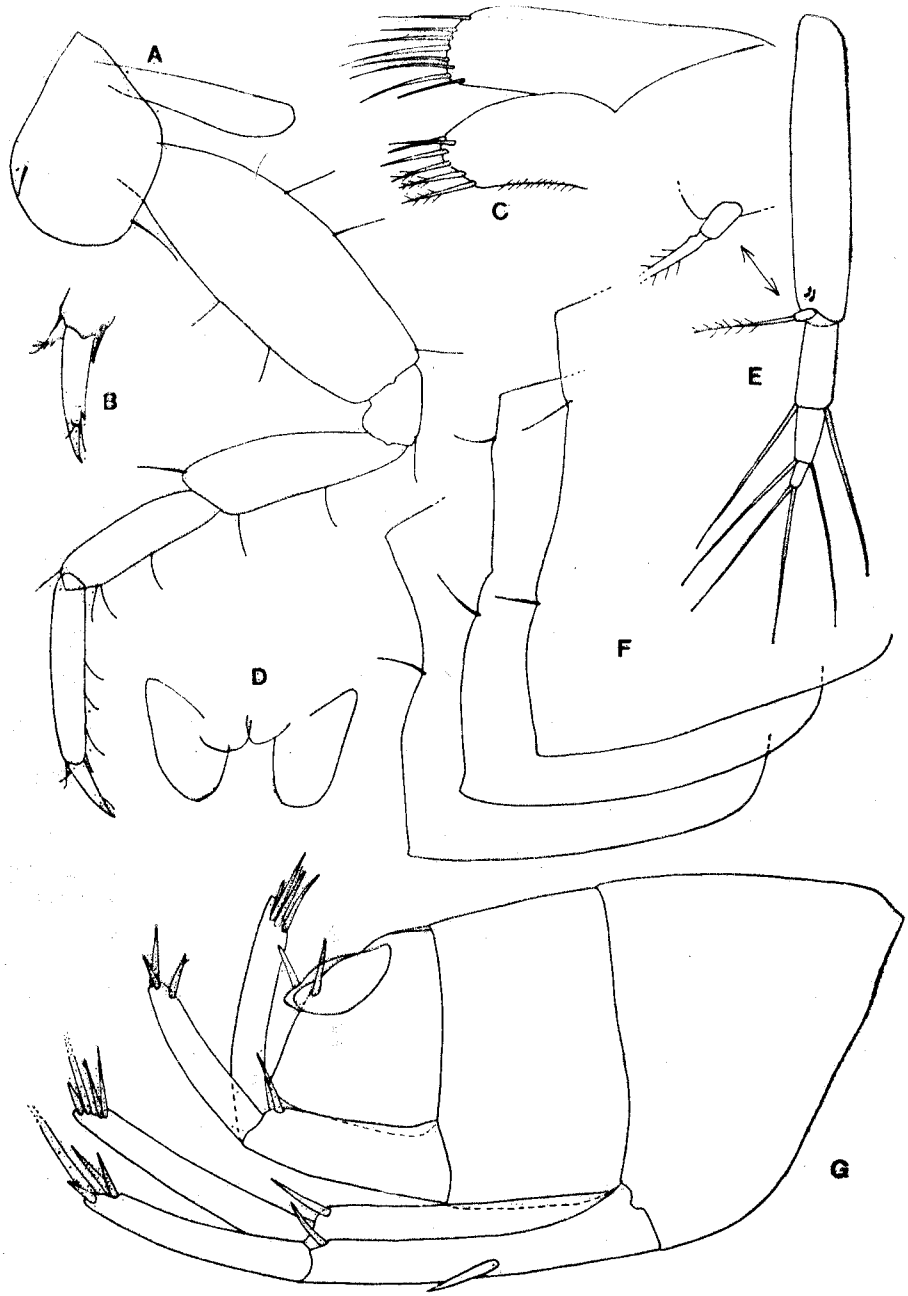

Fig. 7. *Bogidiella (?Bogidiella) copia*, n. sp., Enot Qane, male (?) 2.5 mm: A-B = pereopod 3; C = maxilla 2; D = labium; E = pleopod 3; F = epimeral plates 1-3; G = urosome with uropods 1-2.

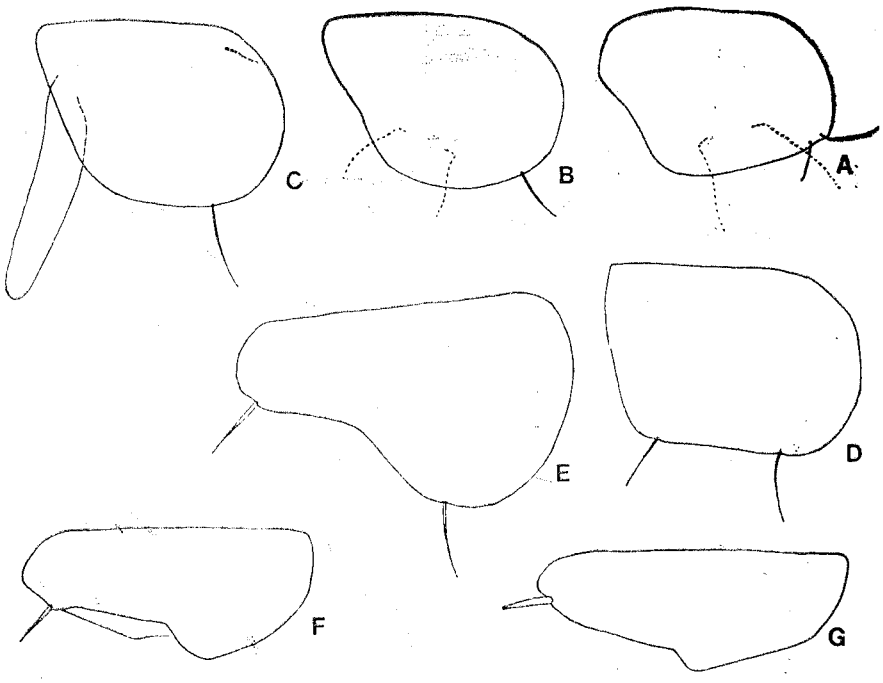

Fig. 8. *Bogidiella (?Bogidiella) copia*, n. sp., Enot Qane, male (?) 2.5 mm: A = coxa 1; B = coxa 2; C = coxa 3; D = coxa 4; E = coxa 5; F = coxa 6; G = coxa 7.

and along posterior convex margin with 3 spines and 1 seta (fig. 6 A), along anterior margin with 4 setae; segments 4-5 linear, with marginal spines, segments 6-7 missing (fig. 6 A).

Epimeral plates 1-3 slightly pointed, with convex posterior margin bearing 1 medial posterior seta (fig. 7 F), ventral margin smooth.

Pleopods 1-3 similar to each other, consisting of peduncle bearing 2 retinacula, 3 segmented outer ramus (each article with 2 plumose setae); inner ramus short, with 1 distal plumose seta (fig. 7 E).

Urosomite 1 near basis of peduncle of uropod 1 without spine (fig. 7 G). Uropod 1: peduncle with 1 strong ventrofacial spine, as well as with 1 distoexternal and 1 distointernal spine (fig. 7 G); inner ramus distinctly longer than outer one, both rami with 4 distal spines, lateral spines absent (fig. 7 G).

Uropod 2: peduncle with 1 distodorsal spine (fig. 7 G); outer ramus with 3 short spines, inner ramus remarkably longer than

outer one, bearing 4 distal spines (fig. 7 G). Pleopods and uropods are not modified (? male).

Uropod 3 missing. Telson fleshy, much broader than long, with 2 subdistal spines accompanied by 1 short plumose seta, and with 2 mediofacial short plumose setae on each side of telson (fig. 5 F).

Coxal gills ovoid, occur on pereonites 4-6.

Female: unknown.

Variability: unknown.

Holotype: male (?) 2.5 mm.

Distribution: known only from type-locality.

Remarks and Affinities: As a sex of the single specimen in hand is not quite clear (probably male), and the female is unknown, the taxonomic position of *B. copia* remains rather uncertain; but, distinctly it belongs to the *Bogidiella* Complex of genera and subgenera, because of well developed triturative mandibular molar and other taxonomic characters.

Provisorily, based on the existing keys to the genera and subgenera of the family *Bogidiellidae,* given by G. Karaman (1981, 1982), this species seems to be very close to the subgenus *Bogidiella (Bogidiella)* Hertzog 1933. But, exact position of this new species within the family *Bogidiellidae* will be determinated only after the discovery of other specimens, males and females of this species.

Among all other known species of the subgenus *Bogidiella (Bogidiella), B. copia* is very allied to the species *Bogidiella (Bogidiella) longiflagellum* S. Karaman 1959, know from Macedonia (Yugoslavia). (S. Karaman 1959, G. Karaman 1973) and Greece (Bou and Ruffo 1979) by numerous taxonomic characters (shape of coxae, long 3-segmented accessory flagellum, presence of 3 setae on inner plate of maxilla 1, telson bearing 2 distal spines, absence of Hertzog's Organ on segment 2 of gnathopods and pereopods, by shape of pleopods 1-3.

But, *B. (B.) longiflagellum* differs from *B. copia* by rather longer accessory flagellum, rather longer coxae 2-4, by narrower segment 2 of pereopod 7, by subequal rami of uropods 1 and 2, by different shape of palm of gnathopod 1.

Bogidiella glacialis S. Karaman 1959, known from Macedonia (Yugoslavia) has also 3 setae on inner plate of maxilla 1, but this species differs from *B. copia* by short accessory flagellum, by absence of inner ramus on pleopods 1-3, by anterior dilatation of segment 2 of pereopods 3-4, by undistinct, poorly visible Hertzog's Organ. (see G. Karaman 1973).

Bogidiella hebraea Ruffo 1963, known from the region S. of Dead Sea (Sodoma), differs clearly from *B. copia* by presence of 4 spines on telson, by absence of inner ramus on pleopod 3, etc.

Genus NUBIGIDIELLA n. genus

Type species: *Bogidiella nubica* Ruffo 1984.

Diagnosis: (female): Body *Bogidiella*- like, coxae shallow, much broader than long. Antennae 1-2 normal, accessory flagellum present. Mandible with toothed incisor, molar coniform, nontriturative, bearing distally one long plumose seta; mandibular palp normal, 3-segmented, palp segment 1 short, segment 3 shorter than 2.

Maxilla 1: inner plate without setae, outer plate with 7 spines, palp 2-segmented. Maxilla 2, maxilliped, gnathopods 1-2 and pereopods 3-7 like these in genus *Bogidiella*. Pleopods 1-3 unmodified, with 3-segmented normal outer ramus and without inner ramus. Uropods 1-2 normal, biramous, unmodified, rami with distal spines. Uropod 3 biramous, rami linear, nearly subequal, 1-segmented. Telson entire, broader than long.

Coxal gills occur on pereonites 4-6. Oostegyts occur on pereonites 2-5. Males unknown.

Taxa: *nubica* (Ruffo 1984).

Remarks and Affinities: Genus *Nubigidiella*, n. gen. is rather close to the genus *Maghrebidiella* Diviacco and Ruffo 1985 (type species: *Maghrebidiella maroccana* Diviacco and Ruffo 1985) by shallow coxae, absence of setae on inner plate of maxilla 1, by shape of uropods 1-3, by nontriturative molar of mandible, maxilliped, gnathopods and pereopods.

But, genus *Maghrebidiella* differs from genus *Nubigidiella* by plurisegmented outer ramus of pleopods 1-3 fused together into 3 articles only (the setae of fused articles are still well developed), inner ramus of pleopods is vestigal, without distal seta, by epistome with subcircolar sclerified field, etc.

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Rezime

NOVI RODOVI I VRSTE PODZEMNE FAMILIJE BOGIDIELLIDAE IZ BLISKOG ISTOKA (179. PRILOG POZNAVANJU AMPHIPODA)

Gordan S. KARAMAN

Predstavnici iz familije *Bogidiellidae (Amphipoda Gammaridea)* na području Bliskog Istoka i Afrike su otkriveni tek u posljednjih 25 godina.

Na teritoriji Afrike, prvu vrstu je otkrio Ruffo (1970) u podzemnim vodama Somalije, *Bogidiella somala* Ruffo 1970; Karaman, G. i Barnard, J. L. su ovu vrstu (1979) prebacili u novi rod *Afridiella* Kar. G. & Barnard, J. L. 1979.

Ruffo je kasnije (1974) otkrio novi rod i vrstu, *Bollegidia capensis*, n. gen. n. sp. iz južne Afrike (Kejp Taun).

Karaman, G. i Pesce (1980) su opisali novu podvrstu, *Bogidiella ichnusae africana*, n. ssp. iz Biskre u Alžiru.

Ruffo je (1982) otkrio vrstu *Afridiella somala* u još nekim lokalitetima Somalije, i opisao je drugu novu vrstu, *Afridiella pectinicauda*, n. sp. također iz Somalije (Bud Bud). On je otkrio (1984) novu vrstu *Bogidiella nubica*, n. sp. iz podzemnih voda u Sudanu.

Diviacco i Ruffo su (1985) opisali i treću vrstu ovog roda, *Afridiella messanai*, n. sp. iz Somalije (Uebhao) kao i novi rod i vrstu *Maghrebidiella maroccana*, n. gen. n. sp. iz Marakeša u Maroku.

Na teritoriji Bliskog Istoka, Ruffo je opisao još 1963. godine novu vrstu *Bogidiella hebraea* iz podzemnih voda južno od Mrtvog mora.

Proučavajući materijal amfipoda sakupljen od strane izraelskih naučnika u području Mrtvog mora, utvrdili smo postojanje još dvije nove vrste iz familije *Bogidiellidae* koje pripadaju dvjema različitim rodovima, od kojih je jedan nov: *Bogidiella (?Bogidiella) copia*, n. sp. i *Hebraegidiella bromleyana*, n. gen. n. sp., obje sakupljene u podzemnim slanim vodama kod Enot Kane na zapadnoj obali Mrtvog mora.

Vrsta *Bogidiella (?Bogidiella) copia*, n. sp. nizom taksonomskih karakteristika pripada rodu i podrodu *Bogidiella* (građa usnog aparata, gnatopoda, pereopoda, pleopoda i uropoda); međutim, kako nisu poznata oba pola ove vrste, to se njen tačan taksonomski položaj u pogledu roda i podroda može utvrditi tek kad se budu otkrile i ženke ovog roda.

Među vrstama podroda *Bogidiella (Bogidiella),* najbliže vrsti *B. copia* stoji vrsta *Bogidiella longiflagellum* S. Karaman 1959. poznata iz Makedonije i Grčke. Međutim, *B. longiflagellum* se razlikuje od vrste *B. copia* nešto dužim bičem prve antene, nešto dužim koksama, užim drugim segmentom sedmog pereopoda, podjednakom dužinom obje grane kod prvog i drugog uropoda, kao i drugačijim oblikom palmi prvog gnatoopoda.

Novi rod *Hebraegidiella,* n. gen. stoji dosta blisko sa rodom *Bogidiella* Hertzog 1933 nizom karaktera, ali se od njega jasno razlikuje drugačijom građom usnog aparata. Postoji nekoliko drugih rodova i podrodova iz familije *Bogidiellidae* koji imaju sličnu građu usnog aparata kao i rod *Hebraegidiella,* ali na osnovu svih karaktera nove vrste *H. bromleyana,* istu nismo mogli uvrstiti ni u jedan poznati rod i podrod, barem na osnovu postojećih i datih podataka iz literature. Medutim, familija *Bogidiellidae* koja je sastavljena od većeg broja rodova, nije još dobro taksonomski proučena, posebno su nedovoljno detaljno opisane neke vrste koje su tipovi pojedinih rodova i podrodova,, što otežava ili čak nemogućava tačno odredivanje taksonomskog položaja pojedinih vrsta i povećava mogućnost greške.

Analizirajući taksonomske karakteristike pojedinih rodova i vrsta iz familije *Bogidiellidae,* utvrdili smo da vrsta *Bogidiella nubica* Ruffo 1984 iz Sudana, na osnovu svojih taksonomskih odlika ne pripada rodu *Bogidiela,* i izdvojili smo je u novi rod *Nubigidiella,* n. gen. kao tip roda.