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**NEW DATA OF GENUS *NIPHARGUS* SCHIÖDTE, 1849
(FAM. NIPHARGIDAE) FROM GREECE
(CONTRIBUTION TO THE KNOWLEDGE OF THE AMPHIPODA 284)**

SUMMARY

One new subterranean species of the family Niphargidae (Crustacea, Amphipoda) from the cave on Tasos Island near the seaside of Aegean Sea is described and figured, *Niphargus spasenijae*, sp. n., and some relations of this species to other taxa of genus *Niphargus* are discussed, especially to the *Niphargus aquilex* group of taxa.

Key words: Amphipoda, Niphargidae, *Niphargus spasenijae*, new species, Tasos Island, Greece, taxonomy.

INTRODUCTION

The fauna of Amphipoda in Greece has been studied by various authors [Karaman, S., Karaman, G., Ntakis et al., Bou, C., Ruffo, S., Schiecke, U., Pinkster, S. etc.] mainly regarding the family Bogidiellidae, Ingolfiellidae and Gammaridae (sensu auct.), describing numerous new taxa of various genera. The subterranean fauna of family Niphargidae from Greece is relatively poorly known and only several taxa of this genus were described by various authors.

Stanko Karaman described (1934) new species *Niphargus adei* from Samothrake Island and *N. graecus* from Akrokorinth. Later (1950) he described new species *Niphargus rhodi* from Rhodos Island and *Niphargus versluysi* (as *N. longicaudatus versluysi*) from Skophos spring on Zante Island. In 1956 S. Karaman described a new species *N. lindbergi* from Draconera Cave in Attica, and he mentioned *N. versluysi* from Delphes.

Later (1958) he mentioned *Niphargus skopljensis* S. Karaman, 1929 (as *Niphargopsis skopljensis*) (one juv. specimen) from Kaligoni on Levkas Island (Aegean Sea). Fišer et al. (2006) described a new species *Niphargus lourensis* from Spring of Louros River, Vouliasta, Ioannina. Ntakis et al. (2015) described 3 new species from Greece: *N. aitulosi* from Lake Lysimachia, Padanassa, *N. karkabounasi* from Agioi Theodoroi, Korinthos, Peloponnese, and *N. koukourasi* from Springs of Louros River, Vouliasta, Ioannina.

During speleological investigations on Tasos Island (Aegean Sea) provided by Dr. Ivo Karaman from Novi Sad (Serbia), he collected some specimens of genus *Niphargus* sent me kindly at disposition for study. The results of this study are presented here.

MATERIAL AND METHODS

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Note: The authors declare that they have no conflicts of interest. Authorship Form signed online.

The specimens were collected by hand-net, preserved in 70% ethanol. Later were dissected using a WILD M20 microscope and drawn using a camera lucida attachment. The body-length of examined specimens was measured by tracing the individual's mid-trunk length (from the tip of the head to the end of the telson). All appendages were temporarily submersed in a mixture of glycerin and water for study and drawing. Later all dissected appendages were transferred to Liquid of Faure on permanent slides. All illustrations were inked manually.

Some morphological terminology and setal formulae follow G. KARAMAN's terminology (G. Karaman, 1969, 1993) for the last mandibular palpus [A= setae on outer face; B= setae on inner face; C= additional setae on outer face; D= lateral marginal setae; E= distal long setae] and for propodus of gnathopods 1 and 2 (G. Karaman, 2012b) [S= corner spine; L= lateral slender serrate spines; M= facial setae; R= subcorner spine on inner face]. Terms "setae" and "spines" are used based on shape, not origin.

Our studies were based on the external morphology, ecology and zoogeography.

TAXONOMICAL PART

Family NIPHARGIDAE

NIPHARGUS SPASENIJAE sp. n.

Figures 1-8

MATERIAL EXAMINED:

S-7381= anchialine cave in Atspas near seashore, Skala Marion, Island Tasos, Aegean Sea, Greece, 3 exp., 24.8.2015 (leg. Ivo Karaman).

DIAGNOSIS: Body very slender and elongated, coxae short. Epimeral plates 1-3 subrounded. Head with short rostrum and short lateral cephalic lobes. Antenna 1 accessory flagellum short, antenna 2 flagellum longer than last peduncular article. Maxilla 1 inner plate with 1 seta, outer plate with 7 spines (most of them with 1 lateral tooth). Gnathopods 1-2 with trapezoid moderately large propodus bearing one median seta at outer margin of dactylus. Dactylus of pereopods 3-7 moderately slender, with 1 spine at inner margin near basis of the nail. Basipodit of pereopods 5-7 dilated but without distinct ventroposterior lobe. Pleopods with elevated number of retinacula (3-5). Uropods 1-2 with inner ramus poorly longer than outer one.

Peduncle of uropod 1 with dorsointernal row of setae (except distal spine) and dorsoexternal row of spines. Uropod 3 in males very long, peduncle slightly elongated, inner ramus scale-like, outer ramus with long both articles, scarcely setose and without plumose setae. Distal article of uropod 3 outer ramus in female is elongated also. Telson short, deeply incised, each lobe with distal and outer marginal slender spines.

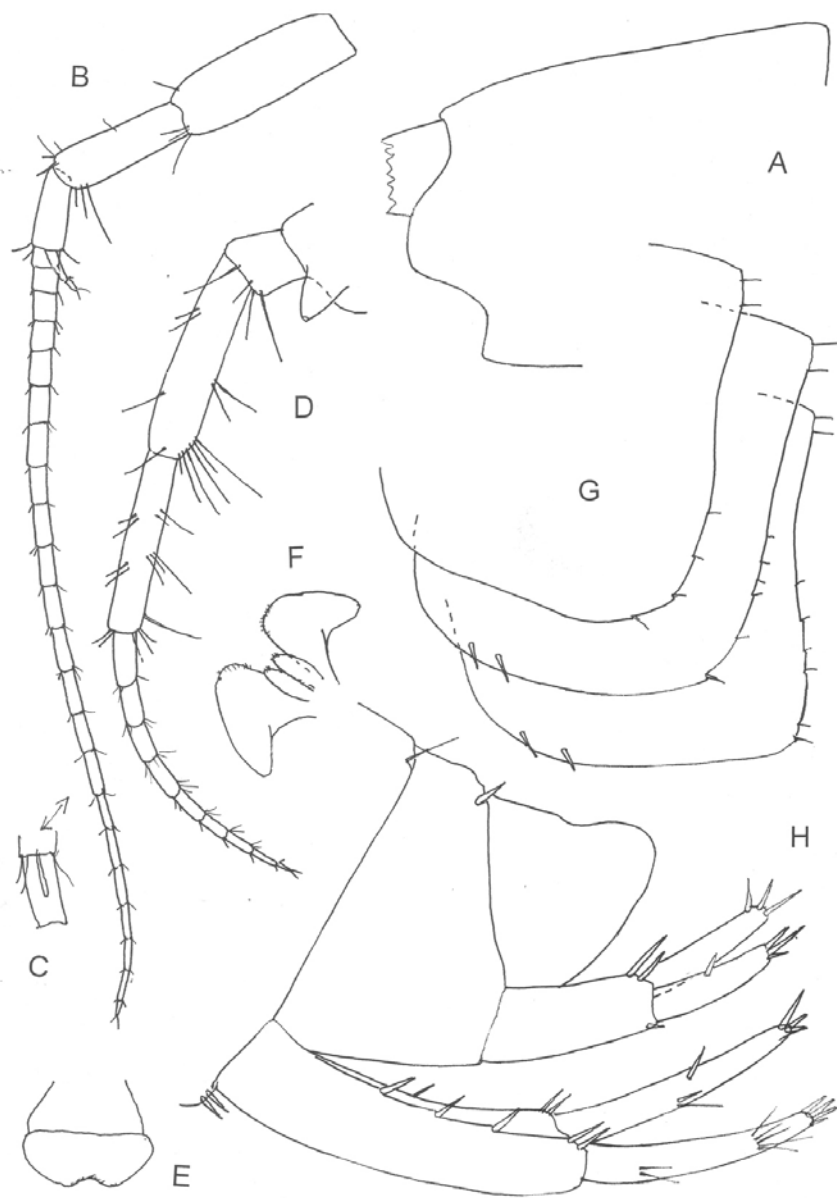


Fig. 1. *Niphargus spasenijae*, sp. n., Skala Marion, Tasos island, female 7.0 mm: A= head; B= antenna 1; C= aesthetasc; D= antenna 2; E= labrum; F= labium; G= epimeral plates 1-3; H= urosome with uropods 1-2.

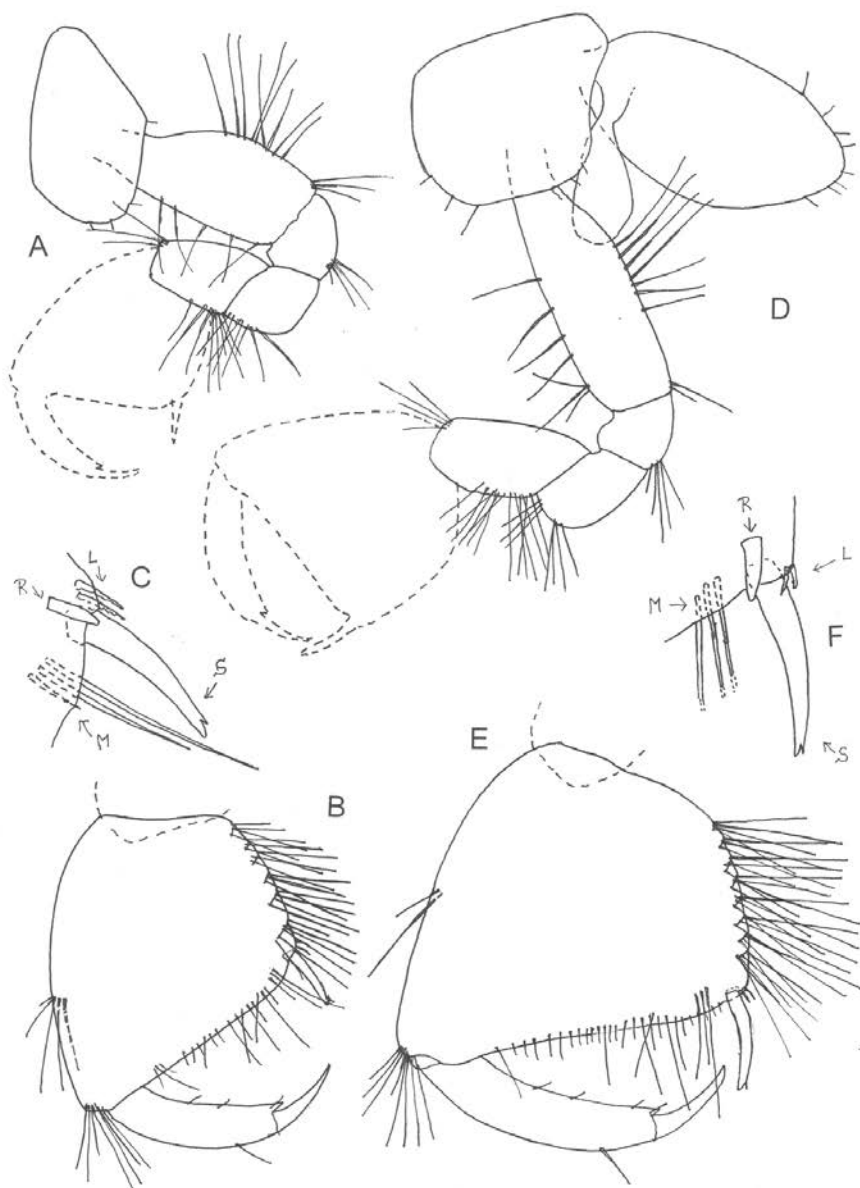


Fig. 2. *Niphargus spasenijae*, sp. n., Skala Marion, Tasos island, female 7.0 mm: A-B= gnathopod 1, outer face; C= distal corner of gnathopod 1 propodus, inner face [S= corner spine; L= lateral spines; M= facial M-setae; R= subcorner spine]; D-E= gnathopod 2, outer face; F= distal corner of gnathopod 2 propodus, inner face [S= corner spine; L= lateral spines; M= facial M-setae; R= subcorner spine].

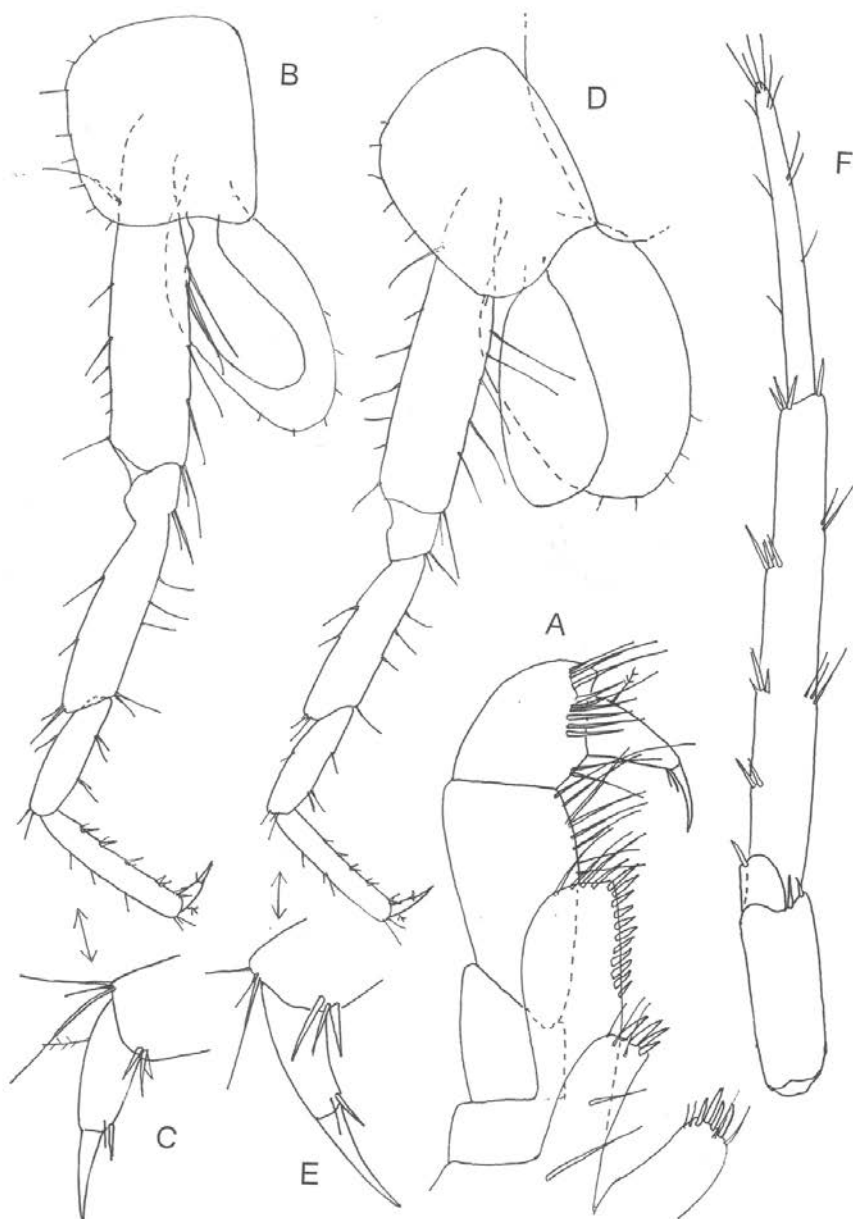


Fig. 3. *Niphargus spasenijae*, sp. n., Skala Marion, Tasos island, female 7.0 mm: A= maxilliped; B-C= pereopod 3; D-E= pereopod 4; F= uropod 3.

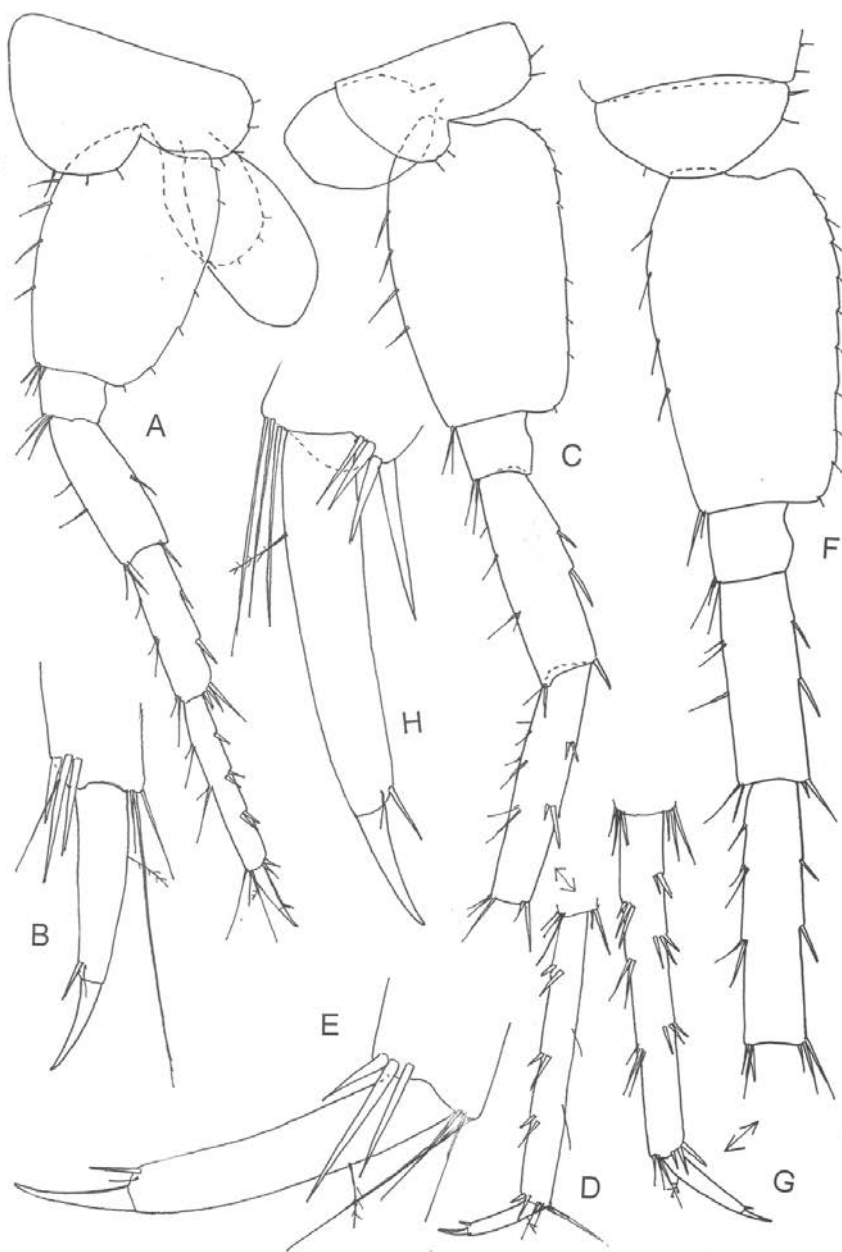


Fig. 4. *Niphargus spasenijae*, sp. n., Skala Marion, Tasos island, female 7.0 mm: A-B= pereopod 5; C-D-E= pereopod 6; F-G-H= pereopod 7.

DESCRIPTION

FEMALE 7.0 mm ovig. (holotype): Body very slender and elongated, metasomal segments 1-3 with 4 short dorsoposterior setae (fig. 1G). Epimeral plates 1-2 strongly subrounded, with convex posterior margin bearing 4 and 6 short setae respectively (fig. 1G). Epimeral plate 3 less subrounded, with slightly convex posterior margin bearing 6-7 short setae. Epimeral plates 2 and 3 with 2 subventral spines each.

Urosomal segment 1 on each dorsolateral side with 1 seta; urosomal segment 2 on each dorsolateral side with 1 spine; urosomal segment 3 naked (fig. 1H). Urosomal segment 1 at each ventroposterior corner with 1-2 short spines (fig. 1H).

Head with short rostrum and short subrounded lateral cephalic lobes, eyes absent (fig. 1A).

Antenna 1 much shorter than body (ratio: 29:71); peduncular articles 1-3 progressively shorter (ratio: 91:39:23), scarcely setose (fig. 1B). Main flagellum consisting of 22 articles bearing very short setae; most of the articles with one aesthetasc shorter than article itself (fig. 1C). Accessory flagellum 2-articulated, shorter than last peduncular article (fig. 1B), last article much shorter than first one.

Antenna 2 shorter than antenna 1, peduncular article 3 short, with 4-5 distal setae slightly longer than article itself. Peduncular article 4 slightly longer than article 5 (ratio: 62:53), along ventral margin with one median and one distal bunch of setae (some of distal setae are longer than diameter of article itself), along dorsal margin with 3 groups of setae. Article 5 along ventral margin with 3 groups of setae (the longest setae are remarkably longer than diameter of article itself), along dorsal margin with 3 groups of short setae (fig. 1D); flagellum slender, longer than last peduncular article, consisting of 9 scarcely setose articles (fig. 1D). Antennal gland cone short (fig. 1D).

MOUTHPARTS. Labrum short, broader than long, bilobed distally (fig. 1E).

Labium broader than long, inner lobes narrow, outer lobes subrounded distally (fig. 1F).

Mandible: molar triturative, incisor toothed. Left mandible: incisor with 5 teeth, lacinia mobilis with 4 teeth. Right mandible: incisor with 4 teeth, lacinia mobilis bifurcate, with several teeth. Palpus 3-articulate: first article naked, short; second article with 7-9 setae (fig. 5A); third article subfalciform, as long as second article, with 12-13 marginal D-setae and 6 distal E-setae (fig. 5A), on outer face appears one bunch of 3 A-setae (fig. 5A), on inner face are attaches 3 single B-setae (fig. 5B).

Maxilla 1 short, inner plate with 1 distal seta (fig. 5D); outer plate with 7 distal spines [5 spines with 1 lateral tooth, 1 spine with 2-3 lateral teeth, inner spine with 3-5 very short lateral teeth]; palpus 2-articulated, not reaching distal tip of outer plate spines and provided with 5 distal setae (fig. 5D)

Maxilla 2: inner plate poorly shorter than outer one, both plates with marginal setae only (fig. 5C).

Maxilliped: inner plate short, not reaching outer tip of first palpus article and provided with 4 distal acute spines and several setae (fig. 3A); outer plate reaching nearly half of palpus article 2, bearing a row of distolateral pointed spines; palpus article 3 along outer margin with 1 distal bunch of setae; palpus article 4 (dactylus) along outer margin with 1 median seta, along inner margin with 2 setae near basis of the nail (fig. 3A).

Coxae 1-4 short. Coxa 1 much broader than long (high) (ratio: 50:32), with subrounded ventroanterior corner and bearing 4-5 short marginal setae (fig. 2A). Coxa 2 broader than long (ratio: 58:47), with subrounded corners bearing 6 short marginal setae (fig. 2D). Coxa 3 remarkably shorter than broad (ratio: 58:50), bearing 6 marginal setae (fig. 3B). Coxa 4 slightly shorter than 3, broader than long (ratio: 65:49), without posterior lobe and bearing 7-8 marginal short setae (fig. 3D).

Coxa 5 bilobed, subrounded, with 5-6 marginal setae, anterior lobe larger than posterior one (fig. 4A). Coxa 6 remarkably smaller than coxa 5, bilobed, both lobes subrounded, with 5-6 short marginal setae, anterior lobe larger than posterior one (fig. 4C).

Coxa 7 relatively large, entire, with convex ventral margin and bearing 2-3 marginal short setae and 1 spine (fig. 4F).

Gnathopods 1-2 moderately large, gnathopod 2 is larger than gnathopod 1. Gnathopod 1 larger than corresponding coxa, article 2 short and stout, along anterior margin with 4 long single setae, along posterior margin with medial bunch of long setae; article 3 at posterior margin with distal bunch of setae; article 5 much shorter than 6 (ratio: 32:57), along anterior margin with distal bunch of setae (fig. 2A). Propodus (article 6) subtrapezoid, poorly longer than broad (ratio: 84:70), along posterior margin with 6 transverse rows of setae (fig. 2B); palm straight, inclined nearly half of propodus-length, defined on outer face by 1 corner S-spine accompanied laterally by 2 serrate L-spines, and 3 facial M-setae (fig. 2C) (M-setae are attached closely to the palm), on inner face by one strong R-spine (fig. 2C). Dactylus reaching posterior margin of propodus, along outer margin with one median seta, along inner margin with 3-4 marginal setae (fig. 2B).

Gnathopod 2: article 2 moderately slender and long, along anterior margin with 6 long setae, along posterior margin with row of 9-10 single setae; article 3 at posterior margin with one distal bunch of setae; article 5 remarkably shorter than article 6 (ratio: 42:65), along anterior margin with one distal bunch of setae (fig. 2D). Propodus subtrapezoid, nearly as long as broad, along posterior margin with 8 transverse rows of setae (fig. 2E). Palm straight, inclined nearly half of propodus-length, defined on outer face by 1 corner S-spine accompanied laterally by 2 small serrate L-spines and 3 long facial M-setae (fig. 2F), on inner face by 1 strong R-spine (fig. 2F). Dactylus hardly reaching posterior margin of propodus,

along outer margin with 1 median seta, along inner margin with 4 short marginal setae (fig. 2E).

Pereopods 3-4 moderately long. Pereopod 3 is poorly longer than pereopod 4, with article 2 bearing along anterior margin row of shorter setae, along posterior margin with row of long setae. Articles 4-6 are of different length (ratio: 55:35:47), articles 4 and 5 along both margins with several setae not exceeding the diameter of the articles themselves; article 6 at posterior margin with 5 groups of short spines, at anterior margin with single setae (fig. 3B); dactylus much shorter than article 6 (ratio: 18:47), at inner (posterior) margin with one spine and seta near basis of the nail, at outer (anterior) margin with one median plumose seta; nail is shorter than pedestal (ratio: 25:36) (fig. 3C).

Pereopod 4 similar to pereopod 3, article 2 along anterior margin with row of 7 shorter setae (fig. 3D), along posterior margin with row of 7 long setae; articles 4-6 of unequal size (ratio: 47:33:42), with setae and spines like these in pereopod 3. Dactylus much shorter than article 6 (ratio: 11:42), at posterior (inner) margin with one spine and seta near the basis of the nail (fig. 3E), nail is shorter than pedestal (ratio: 32:42).

Pereopods 5-7 progressively longer. Pereopod 5 remarkably shorter than pereopods 6 and 7, with article 2 dilated, longer than broad (ratio: 70:47), along anterior margin with 4 longer median and 2 distal setae, along posterior convex margin with 7-8 short setae; ventroposterior part dilated, but not forming a lobe (fig. 4A). Articles 4-6 of unequal length (ratio: 47:45:50), article 4 along anterior margin with setae, along posterior margin with spines; articles 5-6 with spines along anterior margin and with setae along posterior margin. Article 6 distinctly shorter than article 2 (ratio: 50:70). Dactylus moderately slender, much shorter than article 6 (ratio: 19:50), along inner margin with 1 spine and seta near basis of the nail, along outer margin with one median plumose seta (fig. 4B), nail much shorter than pedestal (ratio: 27:57).

Pereopod 6: article 2 much longer than broad (ratio: 87:48), along anterior margin with 4-5 longer median setae and distal 2 setae, along posterior almost straight margin with 8 short setae; ventroposterior dilatation without lobe (fig. 4C). Articles 4-6 of unequal length (ratio: 60:70:83), along margins with short spines and setae (fig. 4D). Article 2 is hardly longer than article 6 (ratio: 87:83). Dactylus much longer than article 6 (ratio: 30:83), slender, at inner margin with 1 spine and seta near basis of the nail, along outer margin with one median plumose seta (fig. 4E); nail is remarkably shorter than pedestal (ratio: 33:90).

Pereopod 7: article 2 narrow, much longer than broad (ratio: 96:52), along anterior margin with 4 median and 2 distal longer strong setae (fig. 4F), along posterior almost straight margin with 10 short setae, ventroposterior dilatation not forming the lobe. Articles 4-6 of unequal length (ratio: 58:74:96), along margins with short spines and setae. Article 2 is nearly as long as article 6 (fig. 4G). Dactylus slender, much longer than article 6 (ratio: 35:96), along inner margin with one spine and one seta, near basis of the nail, along outer margin

with one median plumose seta (fig. 4H); nail much shorter than pedestal (ratio: 34:108).

Pleopods 1-3 with elevated number of retinacula. Pleopod 1 with 3 retinacula, peduncle along anterior margin with 3 setae (fig. 5E). Pleopod 2 with 5 retinacula, peduncle with 1 median seta at posterior margin (fig. 5F). Pleopod 3 with 5 retinacula, peduncle along posterior margin with 2 median setae (fig. 5G).

Uropods 1-2 stout. Uropod 1: peduncle with dorsoexternal row of spines and dorsointernal row of setae (fig. 1H); rami shorter than peduncle, outer ramus slightly shorter than inner ramus bearing 2 median bunches of short setae and with 3-4 distal short spines; inner ramus with one median spine and seta and 3-4 distal short spines (fig. 1H).

Uropod 2: outer ramus slightly shorter than inner ramus bearing one median and 3-4 distal short spines (fig. 1H); inner ramus with short distal spines.

Uropod 3 long and slender (fig. 3F). Peduncle much longer than broad (ratio: 52:20), bearing 2 distal spines (fig. 3F); inner ramus very short, scale-like, with one distal spine (fig. 3F). Outer ramus long, first article longer than second one (ratio: 138:89), along outer margin with 2 median bunches of short simple setae and distal spine, along inner margin with 4 bunches of short spines (fig. 3F); second article more narrow than first article, bearing several short setae along both margins and tip.

Telson relatively short, nearly as long as broad, deeply incised, slightly gaping, each lobe with 3 moderately long spines as well as with one median spine at outer lobe (fig. 5H); a pair of short unequally long plumose setae are sitting near the middle of outer margin (fig. 5H).

Coxal gills relatively short, ovoid, not reaching ventral margin of corresponding article 2 (figs. 2D, 3B, 3D, 4A, 4C).

Oostegites broad, with marginal setae (figs. 2D, 3B, 3D, 4A).

MALE 6.1 mm (paratype). Body similar to the females, very slender, metasomal segments 1-3 with 4-5 dorsoposterior marginal setae (fig. 8C); Epimeral plates 1-3 subrounded, with marked ventroposterior spine and convex posterior margin bearing 3 setae. Epimeral plates 2 and 3 with 2 subventral spines each.

Urosomal segment 1 on each dorsolateral side with 1 seta; urosomal segment 2 on each dorsolateral side with 1 seta; urosomal segment 3 naked. Urosomal segment 1 on each ventroposterior corner with 1 slender spine near basis of uropod 1.

Head like that in female. Antenna 1 much shorter than half of body (ratio: 23:61), peduncle and flagellum like these in female. Antenna 2 like that in female.

Mandible palpus article 2 with 7 setae; palpus article 3 subfalciform, longer than article 2 (ratio: 70:55), bearing 8-9 D-setae and 5 distal E-setae; on outer face appear 2 A-setae (fig. 5 I)), on inner face are attached 2 single B-setae (fig. 5J).

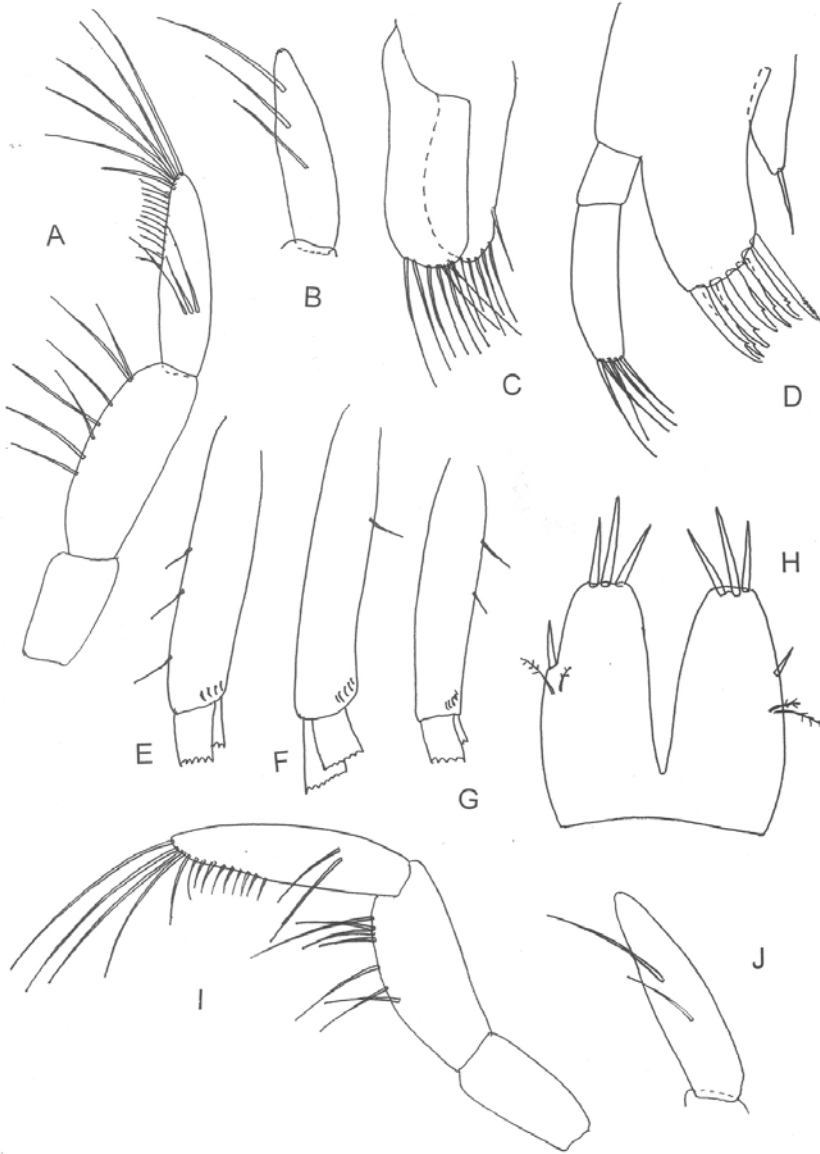


Fig. 5. *Niphargus spasenijae*, sp. n., Skala Marion, Tasos island, female 7.0 mm: A= mandible palpus, outer face; B= distal mandible palpus article, inner face; C= maxilla 2; D= maxilla 1; E= peduncle of pleopod 1; F= peduncle of pleopod 2; G= peduncle of pleopod 3; H= telson.

MALE 6.1 mm: I= mandible palpus, outer face; J= distal mandible palpus article, inner face.

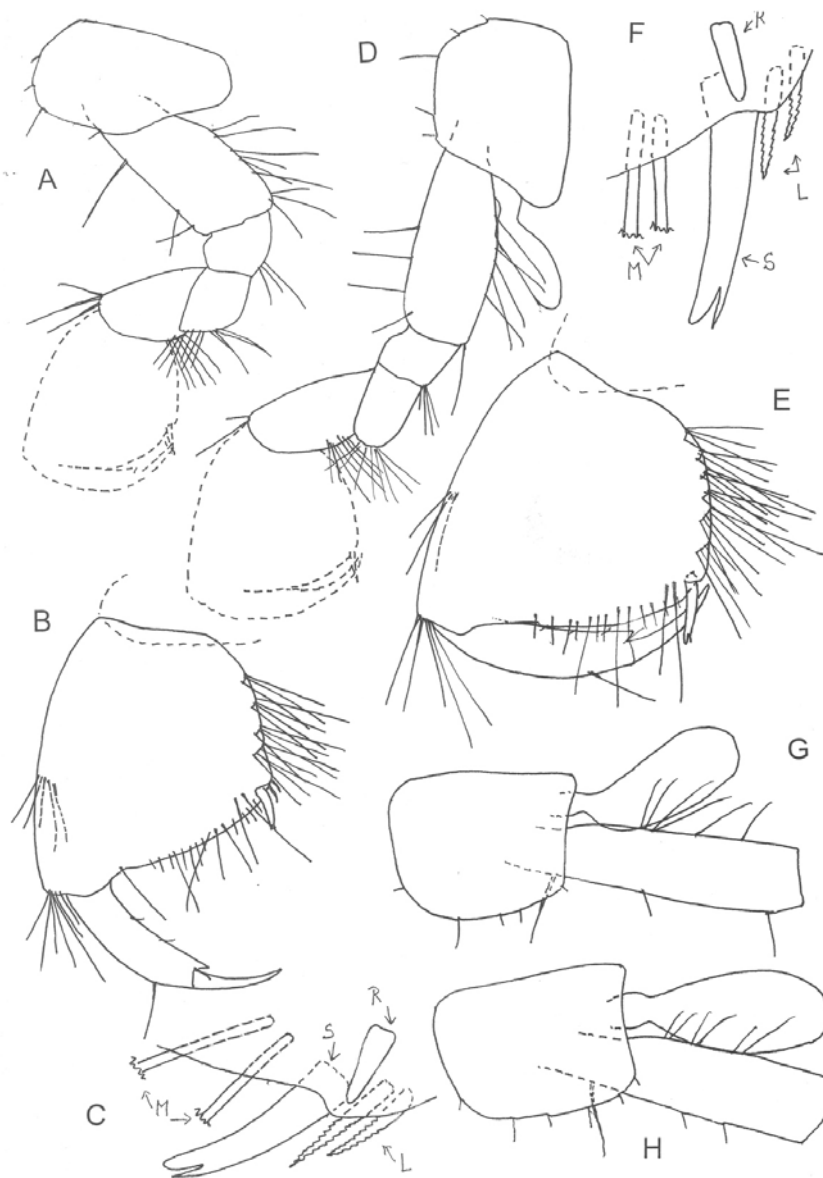


Fig. 6. *Niphargus spasenijae*, sp. n., Skala Marion, Tasos island, male 6.1 mm: A-B= gnathopod 1, outer face; C= distal corner of gnathopod 1 propodus, inner face [S= corner spine; L= lateral spines; M= facial M-setae; R= subcorner spine]; D-E= gnathopod 2, outer face; F= distal corner of gnathopod 2 propodus [S= corner spine; L= lateral spines; M= facial M-setae; R= subcorner spine]; G= coxa 3 and basipodit of pereopod 3; H= coxa 4 and basipodit of pereopod 4.

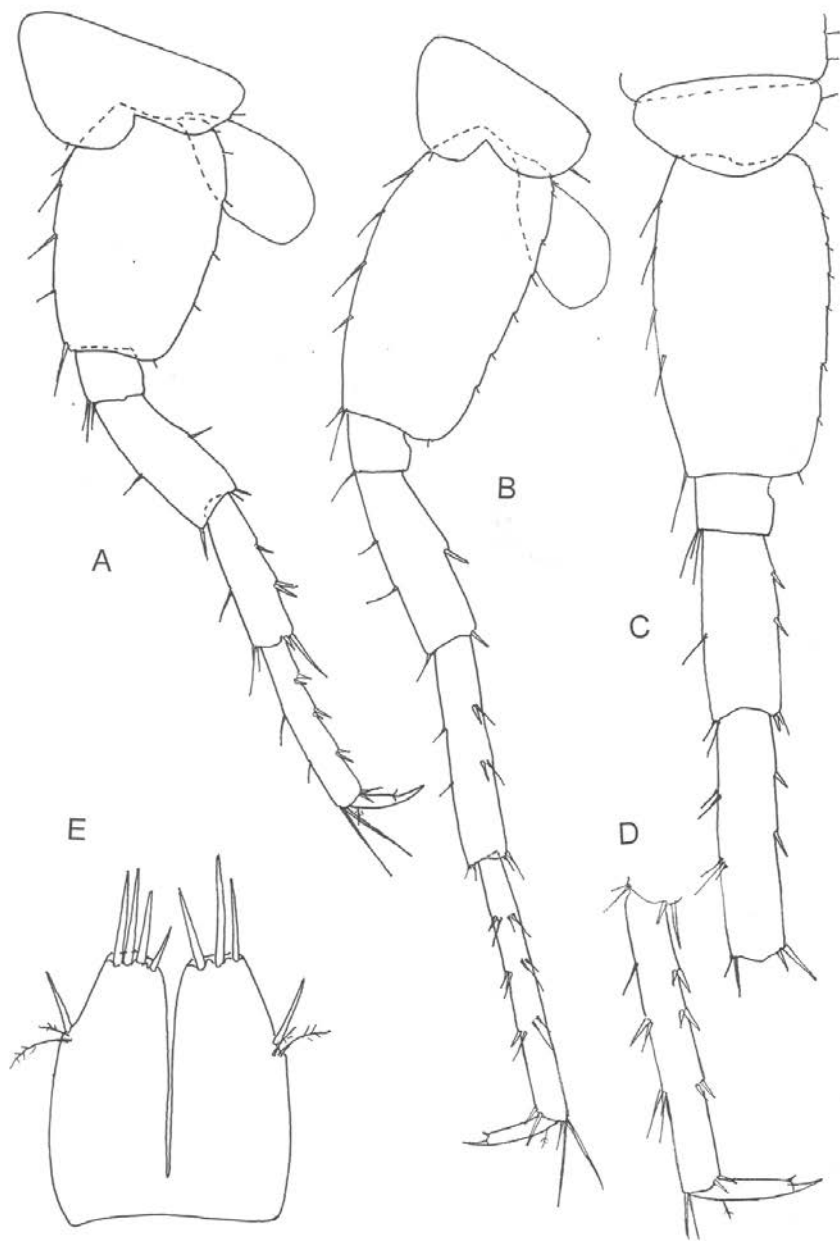


Fig. 7. *Niphargus spasenijae*, sp. n., Skala Marion, Tasos island, male 6.1 mm: A= pereopod 5; B= pereopod 6; C-D= pereopod 7; E= telson.

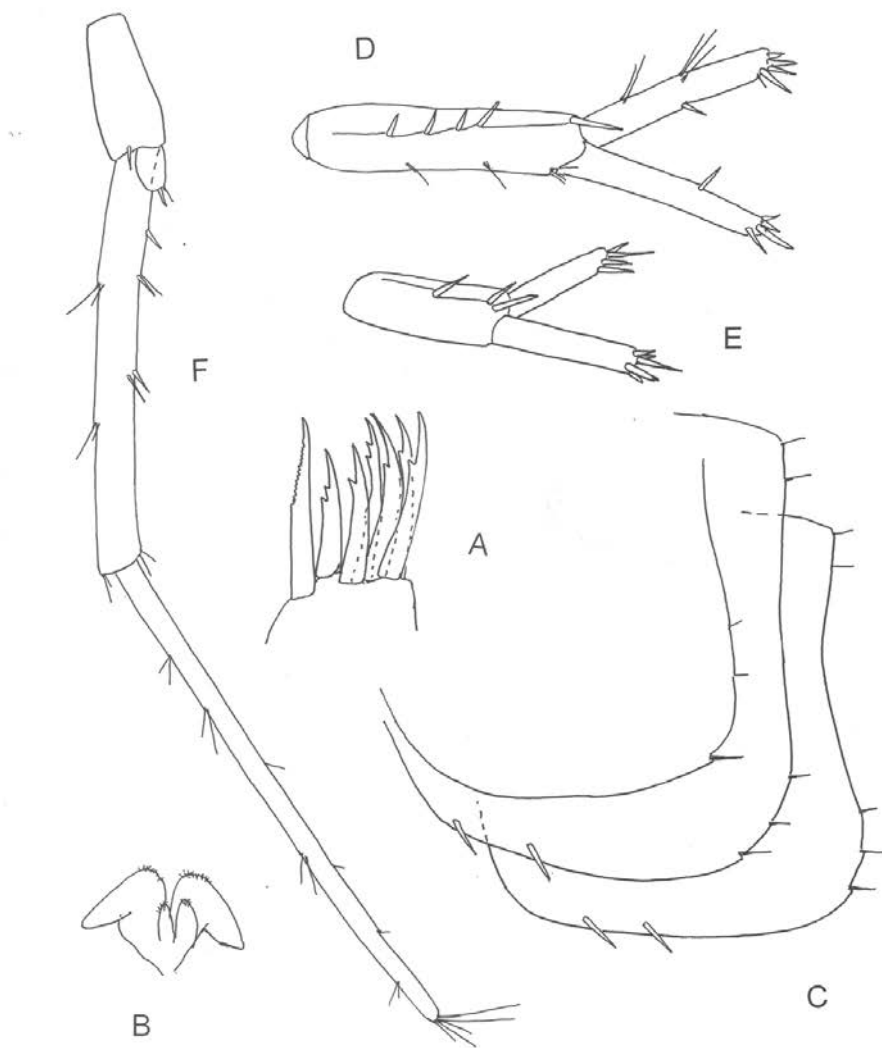


Fig. 8. *Niphargus spasenijae*, sp. n., Skala Marion, Tasos island, male 6.1 mm:
A= distal spines on maxilla 1 outer plate; B= labium; C= epimeral plates 1-3; D=
uropod 1; E= uropod 2; F= uropod 3.

Maxilla 1: inner plate with 1 seta, outer plate with 7 spines [4 spines with 1 lateral tooth, 2 spine with 2 teeth, 1 spine with finely serrate lateral margin] (fig. 8A), palpus 2-articulate, with 6 setae.

Maxilliped like that in female, but inner plate with 3 spines and several setae, palpus article 4 at inner margin with 2 distal setae near the basis of the nail.

Coxae are rather more shallow than these in female. Coxa 1 much broader than long (ratio: 56:31), bearing 4 marginal setae, ventroanterior corner subrounded (fig. 6A).

Coxa 2 broader than long (ratio: 54:39), bearing 5 marginal setae (fig. 6D). Coxa 3 broader than long (ratio: 53:43), bearing 5 unequal setae (fig. 6G). Coxa 4 shallow, much broader than long (ratio: 57:41), with posterior margin concave but without lobe, and bearing 6 marginal setae (fig. 6H).

Coxa 5 broader than long (ratio: 65:33), anterior and posterior lobe subrounded (fig. 7A). Coxa 6 smaller than 5, broader than long (ratio: 53:31), anterior lobe subrounded, posterior lobe with strong spine-like posterior seta (fig. 7B). Coxa 7 almost as large as coxa 6, entire, broader than long (ratio: 52:27), with convex ventral margin and with 2 setae at posterior margin (fig. 7C).

Gnathopods 1-2 moderately large. Gnathopod 1 is slightly smaller than gnathopod 2, with article 2 stout, bearing 3 setae at anterior margin and bunches of setae at posterior margin (fig. 6A); article 3 at posterior margin with one distal bunch of setae; Article 5 rather shorter than propodus (ratio: 33:48), along anterior margin with distal bunch of setae (fig. 6A). Propodus trapezoid, poorly longer than broad (ratio: 82:67), along posterior margin with 4 transverse rows of setae (fig. 6B). Palm poorly convex, inclined nearly half of propodus-length, defined on outer face by one S-spine accompanied laterally by 2 slender serrate L-spines and 2 long facial M-setae (fig. 6C), on inner face by one R-spine (fig. 6C). Dactylus reaching posterior margin of propodus, along outer margin with 1 median seta, at inner margin with 3-4 marginal setae only (fig. 6B).

Gnathopod 2: article 2 moderately stout, along anterior margin with 3 long setae, along posterior margin with row of setae; article 3 at posterior margin with one distal bunch of setae; article 5 is rather shorter than propodus (ratio: 38:54), at anterior margin with one distal bunch of setae (fig. 6D). Propodus trapezoid, slightly longer than broad (ratio: 87:78), along posterior margin with 6 transverse rows of setae (fig. 6E). Palm slightly convex, inclined nearly half of propodus-length, defined on outer face by 1 corner S-spine accompanied laterally by 2 serrate L-spines and by 3 facial long M-setae (fig. 6F), on inner face by 1 R-spine (fig. 6F). Dactylus reaching posterior margin of propodus, along outer margin with one median seta, along inner margin with 3-4 marginal setae (fig. 6E).

Pereopods 3-4 like these in female (figs. 6G, 6H).

Pereopods 5-7 progressively longer. Pereopod 5: article 2 longer than broad (ratio: 70:45), along anterior margin with 4 longer strong setae, along posterior margin with 5-6 short setae, ventroposterior lobe absent (fig. 7A). Articles 4-6 of different length (ratio: 45:45:50), bearing scarce number of spines and setae. Article 2 is longer than article 6 (ratio: 70:50). Dactylus is remarkably

shorter than article 6 (ratio: 22:50), at inner margin with one spine and seta near basis of the nail, along outer margin with 1 median plumose seta (fig. 7A).

Pereopod 6: article 2 dilated but narrow, much longer than broad (ratio: 87:45), along anterior convex margin with 4 median strong spine-like setae (fig. 7B), along posterior almost straight margin, with 7 short setae, ventroposterior lobe absent. Articles 4-6 of different length (ratio: 54:63:77), bearing scarce number of short spines and setae. Article 2 is longer than article 6 (ratio: 87:77). Dactylus moderately slender, much shorter than article 6 (ratio: 29:77), at inner margin with one spine and seta near basis of the nail, along outer margin with 1 median plumose seta.

Pereopod 7: article 2 much longer than broad (ratio: 89:49), along anterior margin with 4 median and 1-2 distal longer spine-like setae, along posterior poorly convex margin, with 8 short setae, ventroposterior lobe absent (fig. 7C). Articles 4-7 of different length (ratio: 53:70:88), scarcely provided with short spines and setae. Article 2 nearly as long as article 6 (figs. 7C, 7D). Dactylus relatively slender, much shorter than article 6 (ratio: 35:88), at inner margin with one spine and seta near basis of the nail, at outer margin with one median plumose seta.

Pleopod 1: peduncle with 1 distoanterior strong seta and with 3 retinacula; pleopod 2 peduncle with 1 median seta at posterior margin and with 4-5 retinacula; pleopod 3 with 5 retinacula, peduncle naked.

Uropod 1: peduncle with dorsoexternal row of spines and dorsointernal row of setae (except distal spine); outer ramus is poorly shorter than inner ramus, bearing 2 median bunches of simple setae and 1 spine, as well as 4-5 distal short spines (fig. 8D); inner ramus with one median and 4 distal short spines (fig. 8D).

Uropod 2: outer ramus is slightly shorter than inner one, bearing 4-5 distal short spines (fig. 8E); inner ramus with 5 distal short spines.

Uropod 3 very long regarding the body-length (ratio: 23:61). Peduncle remarkably longer than broad (ratio: 40:18), with 1-2 distal spines (fig. 8F). Inner ramus very short, scale-like, with distal spines; outer ramus very long, 2-articulated: first article broader but shorter than second article (ratio: 115:152), bearing along outer margin 2 median and 1 distal bunch of short simple setae, along inner margin with 4 groups of slender short spines (fig. 8F); second article along both margins and tip with short simple setae (fig. 8F).

Telson relatively short, slightly longer than broad (ratio: 75:67), deeply incised; each lobe with 3-4 distal and one outer lateral spine (fig. 7E); a pair of short unequal setae is attached slightly over half of telson-length (fig. 7E).

Coxal gills relatively short, ovoid (figs. 6B, 6G, 6H, 7A, 7B).

VARIABILITY. The stable characters are the number of setae on maxilla 1 inner plate, shallow coxal plates, elongated second article of uropod 3 in males and females, unlobed article 2 of pereopods 5-7, slender dactylus of pereopods 6 and 7, presence of 1 spine at inner margin of dactylus in pereopods 3-7, outer

ramus of uropods 1 and 2 slightly shorter than inner one, elevated number of retinacula.

The male of 6.7 mm (uropod 3 missing) agree completely with that of 6.1 mm, but propodus of gnathopods 1-2 is rather stronger, like that in figured female.

As we have only 3 specimens in hands, one real variability of taxonomic characters was not possible to establish.

HOLOTYPE: female 7.0 mm. Holotype and paratypes are deposited in KARAMAN's Collection in Podgorica, Crna Gora (Montenegro).

REMARKS AND AFFINITIES

Niphargus spasenijae belongs to the *Niphargus aquilex* complex of species (sensu lato) consisting of various taxa on Balkan Peninsula also (*N. dohati* Sket, 1999, *N. jurinaci* S. Karaman, 1950, *N. osogovensis* S. Karaman, 1959, *N. cvetkovi* Kenderov & Andreev, 2015, *N. pecarensis* S. Karaman & G. Karaman, 1959, etc.). Species of this group (selected by the morphological characters only, and consequently probably of various origins) show conservative taxonomical characters, and probably genetically distant species have very similar morphological characters.

Niphargus aquilex Schiödte, 1855 [loc. typ.: Crowborough, Great Britain] differs from *N. spasenijae* by uropod 1 outer ramus slightly longer than inner one in males, less inclined palm of gnathopods 1-2 propodus, etc.

N. cvetkovi, described and known from Bulgaria, is very similar to *N. spasenijae* by epimeral plates, elevated number of retinacula, shape of gnathopods, uropod 3, but differs from *N. spasenijae* by different uropods 1-2, telson, higher number of L-spines on gnathopods 1-2, etc.

From Greece was described recently *Niphargus karkabounasi* Ntakos et al. (2015) from Agioi Theodoroi, Korinthos, Peloponnese. This species is also rather similar to *N. spasenijae* (epimeral plates, gnathopods 1-2, pereopods, etc.) but it differs from our species by presence of only 2 retinacula on pereopods 1-3, by 2 setae on inner plate of maxilla 1, etc.

Niphargus adei S. Karaman, 1934 differs from our species by very elongated inner ramus of U1 in males, 2 setae on Mx1 inner plate, etc.

Many of known *Niphargus* species from Greece are very poorly described and figured, and by this way more detailed differences among these species and *N. spasenijae* were not possible to establish.

DERIVATIO NOMINIS: This species is dedicated to deceased scientist Prof. Dr. Spasenija Karaman from Novi Sad (Serbia) for her excellent studies of Oligochaeta from Balkan Peninsula.

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CONCLUSIONS

Fauna of the family Niphargidae (Amphipoda) is still poorly known and only several taxa of this family are known. The new species, *Niphargus spasenijae*, sp. n. is described from cave spring in Tasos Island (Greece) and belongs to the *Niphargus aquilex* Complex of taxa based on numerous characters (epimeral plates, gnathopods, uropods, telson, mouthparts, etc.), but differs from other known taxa of this group by combination of characters.

The real taxonomical relations between *N. spasenijae* and other members of genus *Niphargus* in Greece were not possible now to establish because many of known taxa of this genus from Greece are poorly described and figured. Based on present knowledge, we suppose that various other new taxa of this genus will be discovered in the future.

REFERENCES

- Fišer, C., Trontelj, P. & Sket, B. 2006. Phylogenetic analysis of the *Niphargus orcinus* species-aggregate (Crustacea: Amphipoda: Niphargidae) with description of new taxa.- *Journal of Natural History* 40 (41-43): 2265-2315, 23 figs, 1 pl.
- Karaman, G. 1969. XXVII. Beitrag zur Kenntnis der Amphipoden. Arten der Genera *Echinogammarus* Stebb. und *Chaetogammarus* Mart. an der jugoslawischer Adriaküste. - *Glasnik Republičkog zavoda za zaštitu prirode i Prirodnjačke zbirke u Titogradu*, 2: 59-84.
- Karaman, G. 1993. Crustacea Amphipoda di acqua dolce. - *Fauna d'Italia*, vol. XXXI: 1-337, Edizione Calderini Bologna, Italia.
- Karaman, G. 2012. Further investigations of the subterranean genus *Niphargus* Schiödde, 1849 (fam. Niphargidae) in Serbia. (Contribution to the Knowledge of the Amphipoda 264). - *Agriculture and Forestry, Podgorica*, 58 (2): 45-64.
- Karaman, S. 1929. II. Beitrag zur Kenntnis der Amphipoden Jugoslaviens.- *Glasnik Zemaljskog muzeja u Bosni i Hercegovini, Sarajevo*, 41 (1): 83-100, figs. 1-9.
- Karaman, S. 1934. Weitere Beiträge zur Kenntnis griechischer Süßwasser-Amphipoden.- *Zoologischer Anzeiger, Leipzig*, 105 (7/8): 215-219, figs. 1-2.
- Karaman, S. 1950J. Novi amfipodi podzemne faune Grčke [Neue Amphipoden der unterirdischen Fauna Griechenlands].- *Rad Jugoslavenska Akademija znanosti i umjetnosti, Zagreb*, 280 (Odjel za prirodne i medicinske nauke), 3: 106-114, figs. 1-20 (pp. 43-50, figs. 1-20).
- Karaman, S. 1956. III Beitrag zur Kenntnis griechischer Niphargiden.- *Folia Balcanica, Zavod za Ribarstvo na N. R. Makedonija, Skopje*, 1(1): 1-8, figs. 1-9.
- Karaman, S. 1958. Weitere Beiträge zur Kenntnis der Amphipoden und Isopoden Jugoslawiens und Griechenlands.- *Biološki Glasnik, Hrvatsko prirodoslovno društvo, Zagreb*, 11 (1-4): 11-22, figs. 1-27.
- Kenderov, Lj. & Andreev, S. 2015. *Niphargus cvetkovi* sp. n., a new species of the genus *Niphargus* Schiödde, 1847 (Amphipoda, Niphargidae) from Bulgaria.- *Acta zoologica bulgarica*, 67 (2): 179-185.
- Ntakias, A., Anastasiadou, C., Zakšek, V. & Fišer, C. 2015. Phylogeny and biogeography of three new species of *Niphargus* (Crustacea: Amphipoda) from Greece.- *Zoologischer Anzeiger*, 255: 32-46.
- Schiödde, J.C. 1855. Om den i England opdagede Art af Hulekrebe-Slaegten *Niphargus*. - *Overrsigt over det Kgl. danske Videnskabernes Selskabs Forhandling og dets Medlemmers Arbejder, Kjobenhavn*, pp. 349-351.