A NEW COMMENSAL SPECIES OF THE GENUS *LEUCOTHOE* LEACH, 1814 (AMPHIPODA: LEUCOTHOIDAE) FROM THE CUBAN ARCHIPELAGO

MANUEL ORTIZ, IGNACIO WINFIELD

Abstract. The description of a new species of amphipod crustacean (Gammaridea) of the genus *Leucothoe* found in a sponge, collected during the 3rd Joint Cuban-Spanish Expedition to the waters of Guanahacabibes Peninsula, at the Western Cuban Platform, in July 2008, is given. The main differences among *L. luquei* n. sp., and the other species known in the region, are also presented.

Résumé. On présente la description d'une nouvelle espèce de crustacé amphipode (Gammaridea) du genre *Leucothoe*, trouvé dans une éponge recueillies au cours de la 3^{ème} expédition mixte cubaine-espagnol dans les eaux de Guanahacabibes péninsule, à la plateforme occidentale de Cuba, en Juillet 2008. Les principales différences entre *L. luquei* n. sp., et les autres espèces déjà connues dans la région, sont également présentés.

Key words: Western Cuba, Amphipoda, Leucothoidae, new species.

INTRODUCTION

A revision of the family Leucothoidae to include Anamixidae was proposed eleven years ago (Lowry et al., 2000). Since then, all the papers dealing with both families agree with this concept (Thomas & Klebba, 2006, 2007; White & Thomas, 2009; LeCroy, 2011; LeCroy et al., 2009). The family Leucothoidae is represented by two species of *Anamixis* and four of *Leucothoe* (LeCroy, et al., 2009) in the Gulf of Mexico. In the Caribbean Sea there are three described species of *Anamixis* and ten of *Leucothoe* (Bellan-Santini, 1997; Ortiz, et al., 2007; White, 2011 a, b).

On the other hand, two previous papers were published on the amphipods of the Peninsula de Guanahacabibes, Western Cuba (Shoemaker, 1948; Varela et al., 2003).

In Cuba, up today there are two species of *Anamixis* and three of *Leucothoe* (Ortiz & Lalana, 2010).

Present paper deals with the description of a new species of *Leucothoe* from the Westernmost part of the Cuban Archipelago.

MATERIAL AND METHODS

The material was collected during the Third Joint Expedition of the University of Havana and the Autónoma University of Madrid, at Península de Guanahacabibes, Provincia de Pinar del Río, Cuba.

The sponge *Calyx* cf. *podatypa* de Laubenfels was collected by SCUBA diving, placed in sealed plastic bag while underwater. Once on shore, an alcohol solution was added to the sponge to drive out the crustaceans. Amphipods were selected, and transferred to a slide with glycerin, for study. The arrangement of the row of setae on facial face of article 6 on gnathopod 2 follows Thomas and Klebba (2007). The figures were made with the aid of a *camera lucida* and a microscope Motic 102M.

RESULTS

Genus *Leucothoe* Leach, 1814***Leucothoe luquei* n. sp.**

(Figs 1-5)

Material: holotype, female with oosteguites, 4 mm, Colección Nacional de Crustáceos, Universidad Nacional Autónoma de México, no. CNCR 26527. *Type locality*: Península de Guanahacabibes, Provincia de Pinar del Río, Cuba, Los Morros Station (21°54'0468" N, 84°54'4047" W), 13 m deep, 30.7.2008; *paratype*: 1 male, collected and deposited in addition to the holotype, no. CNCR 26528.

Etymology: species dedicated in honor of the distinguished colleague and friend Angel Luque del Villar, specialist in Mollusca from Facultad de Ciencias, Biológicas, Universidad Autónoma de Madrid.

Diagnosis.

A blind species, devoid of ommatidia; anteroventral corner unproduced, mid-ventral keel pronounced, anterior margin oblique, projecting anteroventrally; mandibles lacking molars; left mandible with a bigger *lacinia mobilis* than in right, palp article 3 with two distal setae; upper lip asymmetrically lobate; coxae 1-3 serrate; gnathopod 1 with a long article 7; gnathopod 2 article 7 articulated on an

Fig. 1 - *Leucothoe luquei* n. sp. Female holotype, A, lateral view of body; B, facial view of articles 1-2 of antenna 1.

extension of article 6; telson with two tiny apical setae; epimeron 3 posterior margin bearing one small lobe.

Description of female (holotype)

Body (Fig. 1 A), length: 7 mm.

Head (Figs 1 A, 2 A), shorter than segment 1 of pereon, rostrum short, anterodistal margin of head rounded, without cusp, mid-ventral keel anteroventral margin with anteriorly projecting cusp.

Pereon (Fig. 1 A), segment one longer than two, from two, increasing its length, posteriorly.

Antenna 1 (Figs 1 A, B, 2 B), without accessory flagellum, longer than 2, 1/4 of body length; article 1 distoventral corner armed with a big and a short teeth and two small setae, with a deep constriction between articles 1 and 2 in facial view, article 2 longer than 1, article 3 shorter than 1, flagellum of 10 articles.

Antenna 2 (Fig. 2 A), 1/10 length of antenna 1, article 4 longer than 5, flagellum with 8 articles.

Mandibles (Fig. 2 C, D), lacking molar; palp with 3 articles, article 2 with 6 long and 7 short setae, article 3 with 2 long distal setae; left mandible strongly dentate, *lacinia mobilis* with two sets of teeth, with 15 raker spines; right mandible with 7 teeth on incisor, *lacinia mobilis* with single set of teeth, with 10 raker spines.

Lower lip (Fig. 2 E), inner lobes fused, outer lobes separated by a wide gape, anterior margins setose.

Maxilliped (Fig. 2 F), inner and outer plates reduced, inner fused and armed with 5 teeth, outer ones bearing two on each side; palp 4 articulate, article 1 armed with 5 inner, 4 outer simple setae and 8 simple and 6 plumose setae, article 2 with 15 simple setae on inner border, outer naked, with 7 on distal border and 4 subdistally, article 3 bearing 7-17 setae on distal half of inner border and 3 long distal setae, facial setae on inner distal half, article 4 curved armed with series of short setules.

Upper lip (Fig. 3 A), asymmetrically lobate, anterior margin setose.

Maxilla 1 (Fig. 3 B), inner lobe short and rounded with an apical seta, outer lobe with five bifid setae and 3 simple setae on distal half, palp with two articles, article 2 armed with 3 long and one short setae.

Maxilla 2 (Fig. 3 C), inner lobe wider than outer, with one robust seta on tip followed by a set of 9 marginal setae, outer lobe bearing 3 robust distal setae directed inward and 13 setae covering outer margin.

Coxa 1 (Fig. 3 D), anterodistally produced, rounded, serrate, setose.

Gnathopod 1 (Fig. 3 D), article 2 proximally thickened, anterior margin with 6 setae, posterior naked, lobe of article 5 long and narrow covered with setules on anterior margin, article 6 long and stout with 6 long setae on distal half of posterior margin, posterior margin finely serrated, article 7 half way along length of article 6, slender curved and surpassing tip of article 5.

Coxa 2 (Fig. 4 A), quadrangular, anterior and ventral margins serrated.

Gnathopod 2 (Figs 3 E, 4 A), article 2 almost right, anterior margin armed with 16 setae, posterior with 3 subdistally, article 5 covering posterior margin of article 6 halfway, medial surface lined with setae, tip of article 5 truncate, article 6 with mediodistal setal row above midline, reaching more than 0.7 x propodus length, consisting in a line of tufts bearing each 3 setules, article 7 articulated on an extension of article 6 covering almost halfway of article 6. Oostegite longer than gill with long setules.

Coxa 3 (Fig. 4 B), rounded and serrate.

Fig. 2 - *Leucothoe luquei* n. sp. Female holotype, A, distal articles of antenna 2; B, head; C, right mandible; D, left mandible; E, lower lip; F, maxilliped.

Fig. 3 - *Leucothoe luquei* n. sp. Female holotype, A, upper lip; B, maxilla 1; C, maxilla 2; D, gnathopod 1; E, facial view of gnathopod 2; F, epimera.

Fig. 4 - *Leucothoe luquei* n. sp. Female holotype, A, gnathopod 2; B, pereopod 3; C, pereopod 4.

Pereopod 3 (Fig. 4 B), article 2 short almost covered by coxa 3, article 4 shorter than 5, article 5 as long as 6; article 6 with two robust setae distally and 6 setules posteriorly on posterior margin, article 7 curved and longer than half of 6.

Coxa 4 (Fig. 4 C), bearing a tooth on anteroventral angle, ventral border slightly crenulate.

Pereopod 4 (Fig. 4 C), anterior margin on article 4 covering basal part of article 5, as long as 5 and 6, article 4 basal posterior margin striated. Article 6 posterior margin armed with one robust seta and 7 setae, article 7 short, curved and less than half way of 6.

Coxa 5 (Fig. 1 A), forming a ventral margin of two lobes, anterior lobe higher than posterior, devoid of setae.

Pereopods 5-7 with length/width ratios of the bases 1:1.3, 1:1.2, 1:1.2.

Pereopod 5 (Fig. 5 A), article 2 ovoidal, anterior lobe with 5 robust setae, posterior aserrate, article 4 forming small posterior lobe, rest articles missing.

Coxa 6 (Fig. 5 C), with two small lobes, long and shallow, posteroventral corner serrated.

Pereopod 6 (Fig. 5 C), similar than 5 but articles 2 and 4 more longer.

Coxa 7 (Fig. 5 B), small, slightly elongate, with posteroventral angle serrate.

Pereopod 7 (Fig. 5 B), article 2 rounded, armed with 5 robust setae on anterior margin and posterior crenulate, article 4 forming small posterior lobe, rest articles missing.

Uropod 1 (Fig. 5 D), peduncle as long as rami, with one distal seta, outer ramus with 4 robust setae, inner with 3.

Uropod 2 (Fig. 5 E), peduncle as long as outer ramus and shorter than inner, with one seta on each side half way along length and another distally, outer ramus with 4 robust setae, inner with 5.

Epimera (Fig. 3 F), epimera 1 and 3 rounded, epimerum 2 with posteroventral right angle, epimerum 3 with a small lobe on posterior margin.

Telson (Fig. 5 F), elongate, with bifid tip and armed with one seta on each side.

Description of male (paratype)

Male are very similar to the female, but smaller (length: 4 mm).

Remarks

Previously, the only blind species of *Leucothoe* in the region (Gulf of Mexico and Caribbean Sea) was *L. ayrtonia* Bellan-Santini, 1997, which was documented from Barbados deep waters (1947 m), and exhibits extremely long pereopods. The new blind species *L. luquei* was collected from a sponge at 13 m depth, has shorter pereopods. Blind species from another regions are *L. atosi* Bellan-Santini, 2007; *L. pacifica* Nagata, 1963; *L. rostrata* Chevreux, 1935; and *L. ushakovi* Gurjanova, 1951. Other *Leucothoe* species easily separated from *L. luquei* n. sp., include *L. laurensi* Thomas & Ortiz, 1995, that has the anterodistal corner of article 6 on gnathopod 2 extended as a terminal blade like process in *L. laurensi* (lacking in *L. luquei* n. sp.). *L. luquei* also has an acutely produced, oblique mid-ventral keel, but the rounded anteroventral corner of head, in *L. luquei* n. sp., resemble that of *L. ashleyae* Thomas & Klebba, 2006 and *L. saron* Thomas & Klebba, 2007. The new species, *L. luquei* differs from these two species by bearing a naked epimerum 1 instead of 3 or 4 setae, mandible palp article 2 with 13 setae instead of 2 in *L. ashleyae* and 9 in *L. saron*, but by bearing at the facial face of article 6 on gnathopod 2, mediofacial

Fig. 5 - *Leucothoe luquei* n. sp. Female holotype, A, pereopod 5; B, pereopod 7; C, pereopod 6; D, uropod 1; E, uropod 2; F, telson.

and midventral row of setae in *L. luquei* n. sp., instead of mediofacial, secondary mediofacial and mid-ventral row of setae in *L. ashleyae*, and mediofacial setae in *L. saron*, as well.

More material may provide more details about this species.

O NOUĂ SPECIE COMENSALĂ A GENULUI *LEUCOTHOE* LEACH, 1814
(AMPHIPODA: LEUCOTHOIDAE), DIN ARHIPELAGUL CUBANEZ

REZUMAT

În lucrare se descrie o nouă specie de amfipode (Gammaridea) aparținând genului *Leucothoe* care a fost găsită într-un spongier din Peninsula Guanahacabibes, din apele platformei cubaneză de vest, în timpul celei de a 3-a Expediție spaniolo-cubaneză, din iulie 2008. În plus, sunt prezentate diferențele mai importante dintre *L. luquei* n. sp. și speciile deja cunoscute din Golful Mexic și Marea Caraibilor.

LITERATURE CITED

- BELLAN-SANTINI, D., 1997 - Amphipods of the Cold Seep community on the South Barbados accretionary prism. *Crustaceana*, 70 (1): 1-30.
- LECROY, S. E., 2011 - An illustrated identification guide to the nearshore marine and estuarine gammaridean amphipoda of Florida. 5, Families Leucothoidae, Liljeborgiidae, Neomegamphopidae, Ochlesidae, Phliantidae, Phoxocephalidae, Platyschmopidae, Pleustidae, Podoceridae, Pontoporeiidae, Sebidae, Stenothoidae, Synopiidae and Talitridae. Florida Department of Environmental Protection, Division of Environmental Assessment and Restoration Bureau of Laboratories, Tallahassee, Florida, USA: 615-816.
- LECROY, S. E., R. GASCA, I. WINFIELD, M. ORTIZ, E. ESCOBAR-BRIONES, 2009 - 54. Amphipoda (Crustacea) of the Gulf of Mexico. In: D. L. Felder, D. R. Camp (eds), *Gulf of Mexico, origin, waters, and Biota*, Vol. 1, Biodiversity: 941-972.
- LOWRY, J. P., P. B. BERENTS, R. T. SPRINGTHORPE, 2000 - Australian Amphipoda: Leucothoidae. Version 1: 2 October 2000. <http://www.crustacea.net/>.
- ORTIZ, M., R. LALANA, 2010 - Distribución de los anfipodos (Crustacea, Malacostraca, Peracarida) de los subordenes Gammaridea, Caprellidea e Hyperiidea presentes en el Archipiélago cubano. *Revista de investigaciones Marinas* 31 (2): 107-123.
- ORTIZ, M., A. MARTIN, Y. J. DIAZ, 2007 - Lista y referencias de los crustáceos anfipodos (Amphipoda: Gammaridea) del Atlántico occidental tropical. *Revista de Biología Tropical*, 55 (2): 479-498.
- SHOEMAKER, C. R., 1948 - The amphipods of the Smithsonian-Roebbing Expedition to Cuba. *Smithsonian Miscellaneous Collection*, 110 (3): 1-15.
- THOMAS, J. D., K. N. KLEBBA, 2006 - Studies of commensal leucothoid amphipods: two new sponge-inhabiting species from South Florida and the Western Caribbean. *Journal of Crustacean Biology*, 26 (1): 13-22.
- THOMAS, J. D., K. N. KLEBBA, 2007 - New species and host associations of commensal leucothoid amphipods from coral reefs in Florida and Belize (Crustacea: Amphipoda). *Zootaxa*, 1494: 1-44.
- THOMAS, J. D., M. ORTIZ, 1995 - *Leucothoe laurensi*, a new species of leucothoid amphipod from Cuban waters (Crustacea: Amphipoda, Leucothoidae). *Proceeding Biological Society of Washington*, 108 (4): 613-616.
- VARELA, C., M. ORTIZ, R. LALANA, 2003 - Crustáceos (Crustacea), de la costa Sur de la península de Guanahacabibes, Cuba. *Revista de Investigaciones Marinas*, 24 (1): 73-76.
- WHITE, K. N., 2011 a - Caribbean *Leucothoe* (Crustacea: Amphipoda) of Panama. *Gulf and Caribbean Research*, 3: 23-35.
- WHITE, K. N., 2011 b - A Taxonomic review of the Leucothoidae (Crustacea, Amphipoda) *Zootaxa* 3078:1-113.
- WHITE, K. N., J. D. THOMAS, 2009 - Leucothoidae. Pp. 494-555. In: J. K. Lowry, A. A. Myers (eds), *Benthic Amphipoda (Crustacea: Peracarida) of the Great Barrier Reef*. *Zootaxa*, 2260, 930 pp.

Received: October 7, 2011

Accepted: July 31, 2012

*Laboratorio de Crustáceos, Edificio L-4,
Facultad de Estudios Superiores Iztacala,
Universidad Nacional Autónoma de México,
Ave. De los Barrios no. 1, Tlalnepantla,
Estado de Mexico, C.P.
e-mails: ortiztouzet@yahoo.com
ignacioc@unam.mx*