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A New Species of the Genus *Leucothoe* (Amphipoda, Gammaridea, Leucothoidae) from Japan

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Synopsis

ISHIMARU, S. 1985—A new species of the genus *Leucothoe* (Amphipoda, Gammaridea, Leucothoidae) from Japan. *Proc. Jap. Soc. syst. Zool.*, No. 30: 46-52.

A new species of leucothoid amphipod, *Leucothoe nagatai*, is described from Japanese coastal waters. This new species was found in the branchial cavities of two solitary ascidians, *Styela plicata* and *Halocynthia roretzi*. Among several allied species, the new species is most similar to *L. brevidigitata* in the small and narrow incisor of mandible, but differs from it in several important features.

The amphipod family Leucothoidae is known as an inquiline commensal with ascidians, sponges and bivalves. The type genus *Leucothoe* is cosmopolitan, and involves more than 40 species at present. From Japanese coastal waters three species of the genus have been recorded, that is, *Leucothoe spinicarpa* (ABILDGAARD, 1789) from Ariake Sea (IRIE and NAGATA, 1962), *L. incisa* ROBERTSON, 1892 and *L. alata* J. L. BARNARD, 1959, both from the Seto Inland Sea (NAGATA, 1965).

Recently the author had an opportunity to examine some specimens of a so far undescribed species of this genus collected at Oshoro and Misaki. The present paper deals with the description of this new species.

The type series is deposited in the Zoological Museum, Faculty of Science, Hokkaido University.

Leucothoe nagatai sp. nov.

(Figs. 1-2)

Leucothoe alata: NAGATA, 1965a, p. 561, figs. 1-3; 1965b, p. 158, figs. 9-10 (not J. L. BARNARD, 1959).

Type series. Holotype: ♂, 9.3 mm, found in branchial cavity of solitary ascidian *Styela plicata*; Misaki, Kanagawa Prefecture (35°09'N, 139°38'E), 6-VIII-1974, K. KONISHI coll.—Allotype: ov ♀, 9.6 mm, found in branchial cavity of solitary ascidian *Halocynthia roretzi*; Oshoro, Hokkaido (43°01'N, 140°49'E), 4-VIII-1983, ISHIMARU coll.—Paratypes: 2 ov ♀♀, 7.4, 11.0 mm and 1♂, 9.3 mm, data same as the holotype.

Male (holotype). Body robust, broadly fusiform in dorsal view. Head as long as pereonite 1; rostrum obsolescent; midanterior keel slightly incised medially, round ventrally; lateral cephalic lobe round; cheek truncate behind; eye moderate, oblong, core-less, pale yellowish in alcohol. Epimeron 1 with lateral ridge, round behind, with indistinct notch; epimeron 2 subquadrate, sparsely setulose along the ventral margin, with quadrangular corner, slightly projecting backward; epimeron 3 much broader than epimeron 2, with round posteroventral corner.

Antenna 1 short, robust; peduncular article 1 as long as articles 2-3 combined, with obsolescent terminal cusp ventrally; article 3 half as long as article 2; primary flagellum 6-articulate, as long as article 3, bearing feeble aesthetascs; accessory flagellum absent. Antenna 2 exceeding apex of antenna 1 *in situ*, about half as thick as article 1 of antenna 1; gland cone triangular, reaching 30% length of article 3; flagellum 6-articulate, about 60% as long as article 5.

Prebuccal complex (Fig. 1B) distinctively separate from mid-anterior keel of head. Epistome with small cusp in center of anterior face. Labrum asymmetrical; right lateral margin beveled, extending into small subacuminate cusp. Mandible bearing long protrusion near base of palp; molar absent; incisor small, as long as broad, right incisor (Fig. 1H) 7-cuspidate and left (Fig. 1I) grossly 3-cuspidate; lacinia mobilis (Fig. 1I) on left mandible only, as broad as left incisor, finely multicuspidate; spine row consisting of 12 or more spines, distal ones of which are expanding and having oblique margin finely dentate; palp as long as body; article 2 lined with short setules along posterior margin; article 3 half as long as article 2, furnished apically with a long seta. Labium ordinary; inner lobe indistinct; outer lobe with distinct mandibular process. Maxilla 1 small, oval, in inner plate with an apical setule; outer plate apically armed with two rows of spines closely crowded; ventral row consisting of three bare spines, and dorsal one of 4 spines with a large middle tooth; small acute tooth present beside apical spines; palp biarticulate, tapering distally, armed with three broad teeth apically. Inner plate of maxilla 2 broader than outer one, furnished with a thick seta at apex, lined with a row of short setae along inner margin; outer plate with a few apical setae. Basal article 1 of maxilliped completely fused with each other, bearing facial setae; inner plate (Fig. 1N) not fused, not reaching base of palp, with three stumpy teeth at apex and a spine on dorsal face; basal article 2 weakly alate, outer plate (Fig. 1O) relatively large, reaching half length along inner margin of palp article 1, armed with a stout spine apically, with

irregularly serrulate inner margin. Palp setose along inner margin; palp article 3 not produced distally; article 4 slightly longer than article 3, articulate apically.

Coxa 1 adz-shaped, smaller than coxa 2, with round anterior corner; coxa 2 about 1.4 times broader than deep; coxa 3 subcircular; coxa 4 a little larger than coxa 3, not exceeding ventral margins of coxae 1-3; coxa 5 equilobate; coxa 6 slightly posterolobate; coxa 7 circular.

Coxal gills issued from coxae 2-6, sac-like, simple.

Article 2 of gnathopod 1 laterally flattened. Article 5 a little longer than article 2; apical process (chela) of article 5 about 1.3 times longer than base, gradually narrowing distally, slightly upcurved at distal half, with anterior margin weakly crenulate. Article 6 as long as chela, fitting anterior margin of chela, slender and weakly narrowing distally, with distal half of posterior margin lined with several small spines, bearing a stumpy spine at base of article 7. Article 7 about 10% as long as article 6, weakly articulate apically.

Posterior lobe of article 5 of gnathopod 2 exceeding palmar angle of article 6, fluted, with finely dentate outer margin and smooth inner margin, furnished with many setae on inner face. Article 6 sparsely setose on inner face; palmar margin (Fig. 2C) oblique, with low and wavy teeth along distal half, and with small round cusps in space along proximal half. Article 7 not exceeding palmar angle.

Article 2 of pereopod 3 1.2 times longer than that of pereopod 4. Article 4 bearing a minute spine at apex of anterior lobe, with or without minute spines along both anterior and posterior margins. Article 5 with or without minute spines along posterior margin. Article 6 lined with minute spines along posterior margin. Article 7 weakly articulate apically. Pereopods 5-7 succeedingly longer. Article 2 oval in pereopods 5-6 and beveled in pereopod 7, with spinose anterior margin. Posterior lobe of article 4 reaching 75% along anterior margin of article 5.

Pleopod 3 a little shorter than pleopods 1-2. Both rami subequal, as long as peduncle; inner rami 9- to 10-articulate and outer rami 12- to 14-articulate.

Peduncle of uropod 1 lined with minute spines along posterior half of both inner and outer dorsal ridges, bearing a few longer spines proximally on outer ridge; both rami lanceolate, equal in length, as long as peduncle; inner and outer ramus lined with minute spines along inner and outer margin respectively. Uropod 2 75% as long as uropod 1. Inner ramus 1.1 times longer than peduncle; outer ramus 75% as long as inner. Uropod 3 65% as long as uropod 1, scarcely reaching apex of uropod 3 *in situ*. Peduncle elongate, 80% as long as

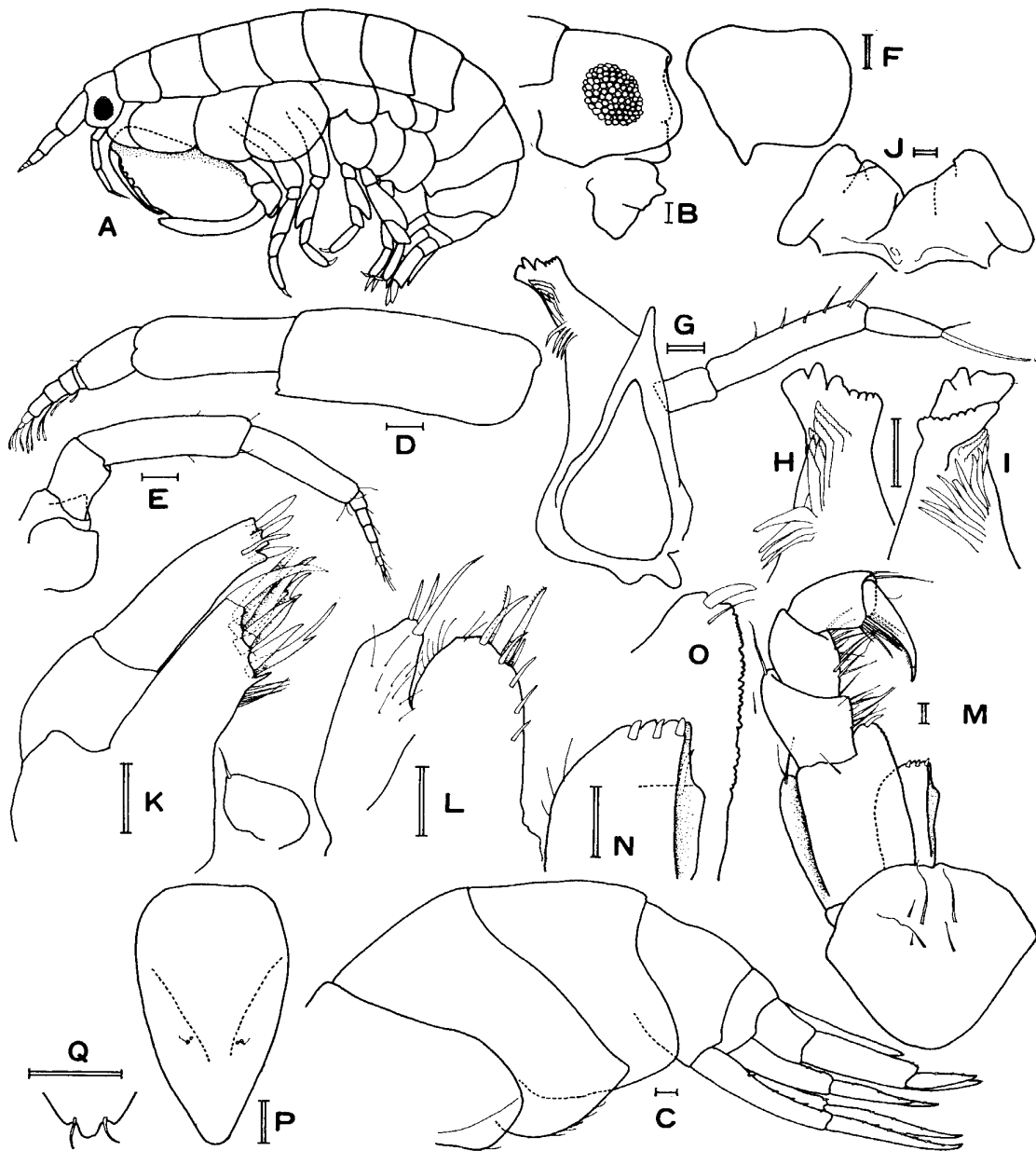


Fig. 1. *Leucothoe nagatai* sp. nov. Male, 9.3 mm (holotype). A, habitus; B, head; C, pleon; D, antenna 1 (R, inn); E, antenna 2 (R, out); F, labrum; G-H, mandible (R, inn); I, mandible (L, inn); J, labium; K-L, maxillae 1-2 (R, vt); M-O, maxilliped (vt); P, telson (ds). Male, 9.3 mm. Q, apex of telson (ds). Bar scales 0.1 mm, double bar scales 0.05 mm. at, anterior view; inn, inner view; out, outer view; vt, ventral view; ds, dorsal view; R, right part; L, left part.

that of uropod 1, with weakly ridged ventral face; outer dorsal ridge strongly developed, extending into acuminate tooth at distal corner. Inner ramus 65% as long as peduncle; outer ramus 80% as long as inner.

Telson 1.8 times longer than wide, reaching 80% length of peduncle of uropod 3 *in situ*, narrowing distally, with round apex.

Female (allotype). Gnathopod 2 as in Fig. 2O; coxa 2 deeper and less broader than that of male, 1.1 times broader than deep; posterior lobe of article 5 smooth along both inner and outer margins; proximal half of palm (Fig. 2P) finely undulatory, with minute spine on each cusp.

Oostegites issued from coxae 2-5, linear, fringed with many setae along both anterior and posterior margins.

Telson with two apical notches.

Variation. Telson of paratype male (Fig. 1Q) alike allotype's, with two apical notches.

Remarks. LEDOYER (1978) recognized eight species-groups under the genus *Leucothoe*. The present new species belongs to LEDOYER's "Groupe IVa" which has the following characteristics: article 7 of gnathopod 1 short; epimeron 3 with round or quadrangular corner; palm of gnathopod 2 dentate. Among the species of the group IVa, the new species is most allied to *L. brevidigitata* MIERS, 1884 in having similar incisor significantly smaller and narrower than those of the other members of the group. The new species, however, differs from *L. brevidigitata* in the following characteristics: lacinia mobilis is only on left mandible, while on both mandibles is the latter species; the palp article 2 of mandible is as thick as the article 1, while much thicker in the latter; the article 6 of gnathopod 1 is tapering in the former, dilated medially in the latter; accessory flagellum is absent in the former, present in the latter. Differences are also recognized in the length ratio of the peduncular articles of antennae 1-2, the shape of the inner plate of maxilliped, the length of the nail of maxilliped, setation of the article 2 of gnathopod 1, and the structure of the palm of gnathopod 2.

NAGATA (1965a, b) identified his *Leucothoe* specimens from southern Japan as *L. alata*, though he noticed several differences from the original description of *L. alata*. He did not refer to the structure of incisor, which is the important character to distinguish the present new species from *L. alata*, but his description and figures well agree with the present new species. From *L. alata*, the new species is distinguishable in the following characteristics (corresponding condition of *L. alata* in parenthesis if necessary): accessory flagellum is absent (present);

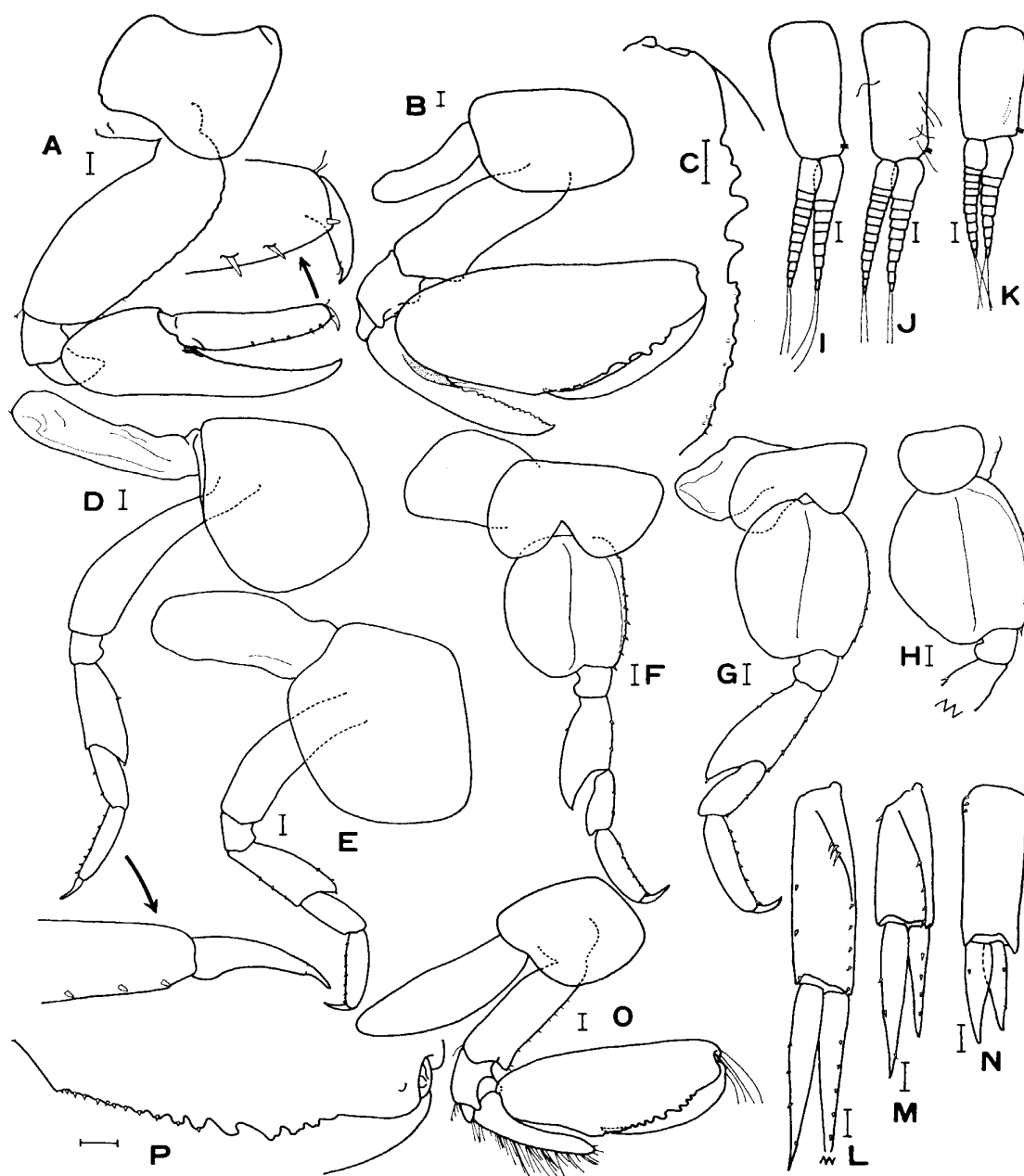


Fig. 2. *Leucothoe nagatai* sp. nov. Male, 9.3 mm (holotype). A-B, gnathopods 1-2 (R, out); C, palm of gnathopod 2; D-H, pereopods 3-7 (R, out); I-K, pleopods 1-3 (R, at); L-N, uropods 1-3 (R, ds). Female, 9.6 mm (allotype). O, gnathopod 2 (R, out); P, palm of gnathopod 2. Bar scales 0.1 mm.

incisor is smaller and narrower; lacinia mobilis is on left mandible only (on both); the setae along the palp article 2 of mandible are much shorter; the palp article 3 of maxilliped is not produced (produced);

the basal article 2 of maxilliped is weakly alate (strongly alate); coxa 2 is broader than deep (as broad as deep); the posterior lobe of gnathopod 2 is not bifid apically (bifid apically); the article 4 of pereopods 5-7 is broader; the inner ramus of uropod 2 is longer than the peduncle and 1.4 times longer than the outer ramus (shorter than the peduncle and 1.2 times longer than the outer ramus); the peduncle of uropod 3 is much longer; both rami of uropod 3 are much shorter.

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摘 要

石丸信一（北海道大学理学部動物学教室）——日本から得られた *Leucothoe* 属（端脚目，ヨコエビ亜目，マルハサミヨコエビ科）の1新種。

日本の沿岸域よりマルハサミヨコエビ科の1新種 *Leucothoe nagatai* を記載した。本種はシロボヤ *Styela plicata* とマボヤ *Halocynthia roretzi* の鰓腔中より見出されたもので、既知の同属種の中でも幅の狭い大顎門歯状部をもつ点で *L. brevidigitata* に類似している。

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