

A New Species of the Genus *Diastylis* (Cumacea, Diastylidae) from Korea

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ABSTRACT

A new species of the Diastylidae, *Diastylis paratricinta*, collected from the coasts of the Yellow Sea and Korea Strait, is described and illustrated. The new species resembles closely to *Diastylis tricinta* (Zimmer), 1903 from Japan, but is easily distinguished by bearing a horizontal ridge on each postero-lateral surface of the carapace.

Key words: *Diastylis*, new species, Diastylidae, Cumacea, Korea.

INTRODUCTION

The Korean cumacean was first studied by Calman (1911) who reported two new species, *Campylaspis orientalis* and *Diastylis koreana*, from "Korea, 35 fathoms, 22/1/82, Suenson Coll." (assumed to be adjacent sea in Korea). Recently, we reported 5 species belonging to two families (Diastylidae and Bodotriidae): these are *Dimorphostylis asiatica*, *D. valida*, *D. acroplicata*, *Bodotria similis* and *Vaunthompsonia cristata* (Kang and Lee, 1995a, b). A new species of the genus *Diastylis*, belonging to family Diastylidae, was collected from 6 localities (Fig. 1) in the coasts of the Yellow Sea and Korea Strait from June 1992 to December 1993. We describe the new species with illustrations in this paper. The type specimens are deposited in the Department of Biology, Dankook University.

The taxonomic terminology are based on Gamo (1965, 1968), Jones (1969) and Zimmer (1980).

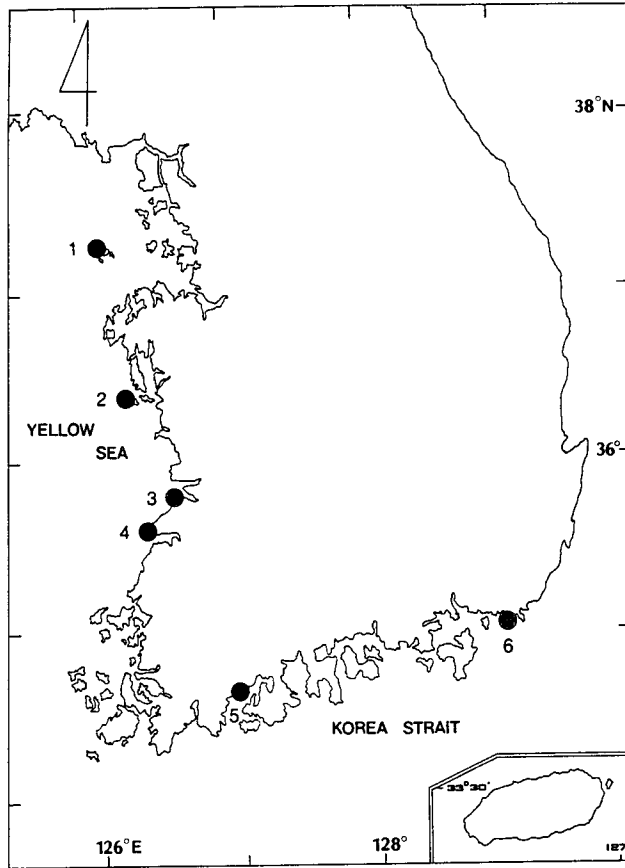


Fig. 1. Sampling localities. 1 Tökjök Is.; 2 Sapsi Is.; 3. Kyehwa; 4. Kyökp'o; 5. Yulp'o; 6. Tadaep'o.

DESCRIPTIONS

Family Diastylidae Bate, 1856 긴꼬리올챙이새우과

Genus Diastylis Zimmer, 1920 긴꼬리올챙이새우屬

***Diastylis paratricinta* n. sp.** 가슴줄긴꼬리올챙이새우(신칭) (Figs. 2-6)

Type specimens. Holotype: male, Tadaep'o, 28 June 1992, C.M. Lee. Allotype: female, same data as holotype. **Paratypes:** 3 males, 36 females, same data as holotype. **Additional material examined:** 2 males, 2 females, Sapsi Is., 9 May 1993, B.J. Kang; 5 males, Kyökp'o, 23 May 1993, B.J. Kang; 11 males, 13 females, Kyehwa 24 May 1993, B.J. Kang; 4 males, 5 females, Tökjök Is., 23 September 1993, K.S. Lee; 1 male, Yulp'o, 20 December 1993, B.J. Kang.

Description. Adult male: Body about 3.4 mm long, excluding pseudorostrum, telson and uropod. Carapace encircled by 3 oblique ridges (frontal, anterior, and posterior), foremost ridge curving round frontal lobe. Second and third oblique ridges almost parallel with one another on side of carapace, and connected with each other in dorsal midway. Each postero-lateral surface of carapace with a horizontal ridge which forward from hind marginal edge to third ridge. Frontal ridges connected with

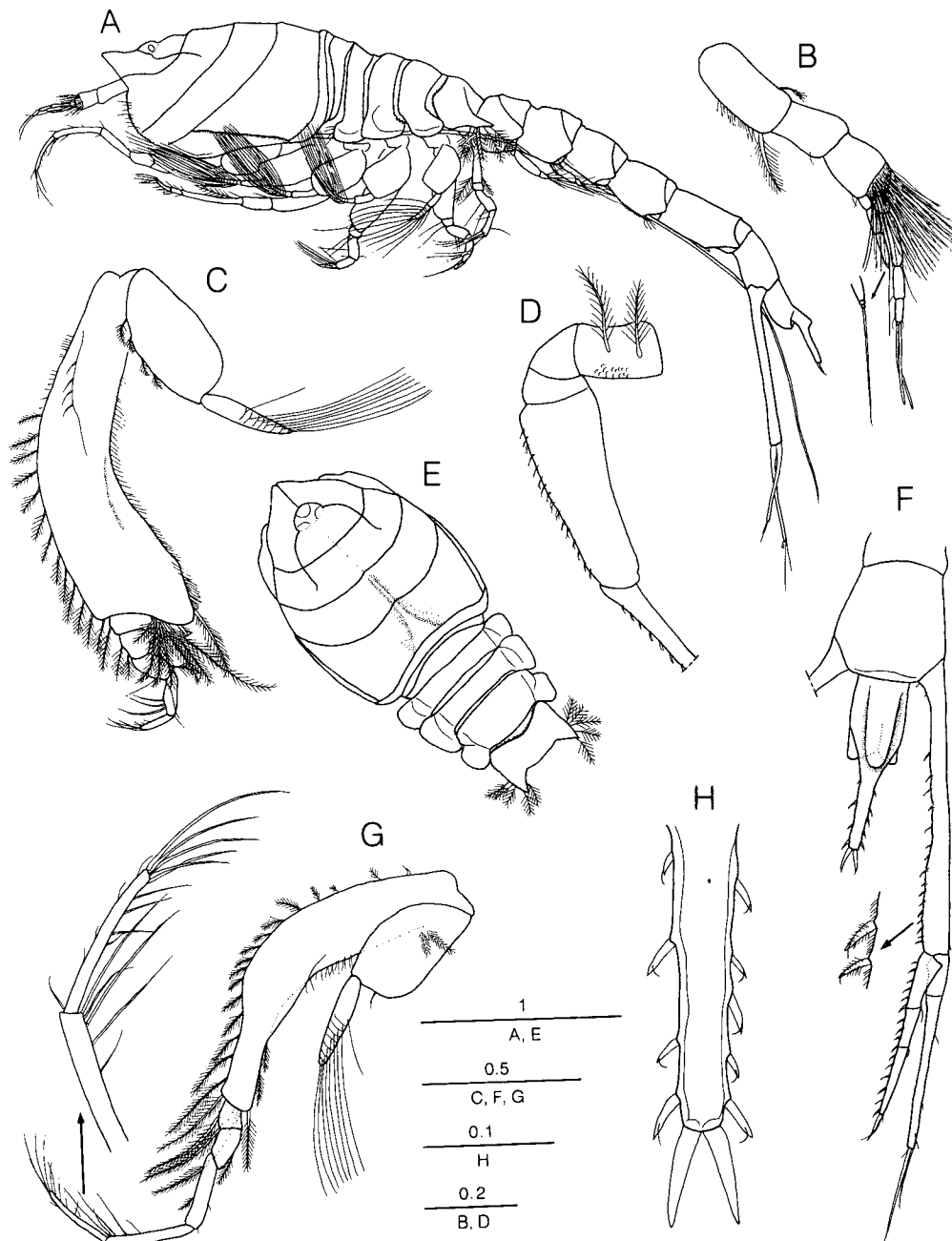


Fig. 2. *Diastylis paratricinta*, new species, holotype male: A, lateral view of body; B, antennule; C, third maxilliped; D, antenna; E, cephalothorax, dorsal; F, uropods, telson and last abdominal somite; G, first pereopod; H, telson, terminal. (unit of scales in mm).

each other intermediately by transeverse ridge in dorsal midway of frontal lobe. Anterior ridge running downward obliquely and reaching to lateral margin of carapace. Dorso-median carina faintly marked on frontal lobe. Dorsal groove formed on postero-median surface of carapace. Antero-lateral angle of carapace serrated with several long hairs. Carapace somewhat inflated. Length of carapace

about 1/3.5 of body length, slightly longer than its width, and about 1.5 times as long as its depth. Round ocular lobe with three corneal ocelli (Figs. 2A, E).

Free thoracic somites about 1/4.5 of body length. Length of pseudorostral lobes about 1/5.8 of carapace length. Pleural plate of second to fourth somites a little expand. Postero-lateral process of fifth somite prominent, with 5 plumose setae, and antero-dorsal border somewhat serrated. Abdomen rather slender and nearly 1/2 of body length. First and second abdominal somites bearing pleopods (Figs. 2A, E).

Peduncle of antennule 3-segmented; first segment about 1.75 times as long as second one, second segment slightly longer than third one, third segment with a main flagellum and an accessory flagellum. Main flagellum 5-segmented, longer than first peduncle and with 2 long aesthetascs which shorter than length of main flagellum. Basal segment of main lash semicircular, with numerous sensory hairs. Third segment long and fifth segment with a small protuberance like a segment at distal end. Accessory flagellum 3-segmented, longer than 1/2 of main flagellum, and last segment with 2 small protuberances like a segment at distal end (Fig. 2B).

Antenna long, extending beyond telson (Figs. 2A, D).

Labium with numerous setule on inner margin and 2 denticulations at apex (Fig. 3G). Mandible normally boat-shaped; right one with 11 spines, left one with a lacinia mobilis and 10 spines (Figs. 3C, D). Palp of first maxilla with several spiniform setae and a plumose seta on outer distal margin, 2 filaments at basal part (Fig. 3B). Second maxilla subtriangle, with a row of spiniform and plumose setae (Fig. 3E). Branchial apparatus of first maxilliped with 9 lobules and 8 accessory lobules (Fig. 3A). Second maxilliped with long plumose setae on each segments (Fig. 3F). Basis of third maxilliped about 2.3 times as long as remaining distal segments, outer distal angle rather inflated and with 8 long plumose setae. Merus with a long plumose seta on outer proximal margin and carpus with 1 rather shorter seta on outer distal margin (Fig. 2C).

Basis of first pereopod a little longer than remaining distal segments, with numerous plumose setae on distal lateral border. Ischium very short. Merus about 1/2 as long as carpus. Carpus a little shorter than length of propodus. Dactylus subequal to length of carpus, with long distal setae, one of which exceeding length of segment (Fig. 2G). Second pereopod a little longer than length of first one. Basis slightly longer than length of remaining distal segments. Ischium very short. Merus about 6.3 times as long as ischium. Carpus about 2.7 times as long as merus. Propodus and dactylus taken together a little longer than half of carpus length. Dactylus about 1.7 times of propodus and with long distal setae, one of which much longer than segment (Fig. 4A). Third pereopod a little shorter than length of second one. Basis about 1.4 times as long as remaining distal segments and dactylus with a terminal spine (Fig. 4B). Fourth pereopod a little shorter than length of third one. Basis about 1.3 times as long as remaining distal segments and dactylus with a terminal spine (Fig. 4C). Fifth pereopod about 0.85 times as long as fourth pereopod. Dactylus with a terminal spine (Fig. 4D).

Outer ramus of first pleopod 2-segmented, with 4 plumose setae, and a little longer than single-segmented inner ramus. Inner ramus with 6 plumose setae (Fig. 4E).

Telson about 1.4 times last abdominal somite, with irregularly 4-5 pairs of lateral spines and 2 terminal spines on post-anal portion (Figs. 2F, H).

Peduncle of uropod nearly 1.65 times of telson in length, with 16 spines and several very minute spines between each spines on inner border. Endopod of uropod about 2/3 as long as peduncular

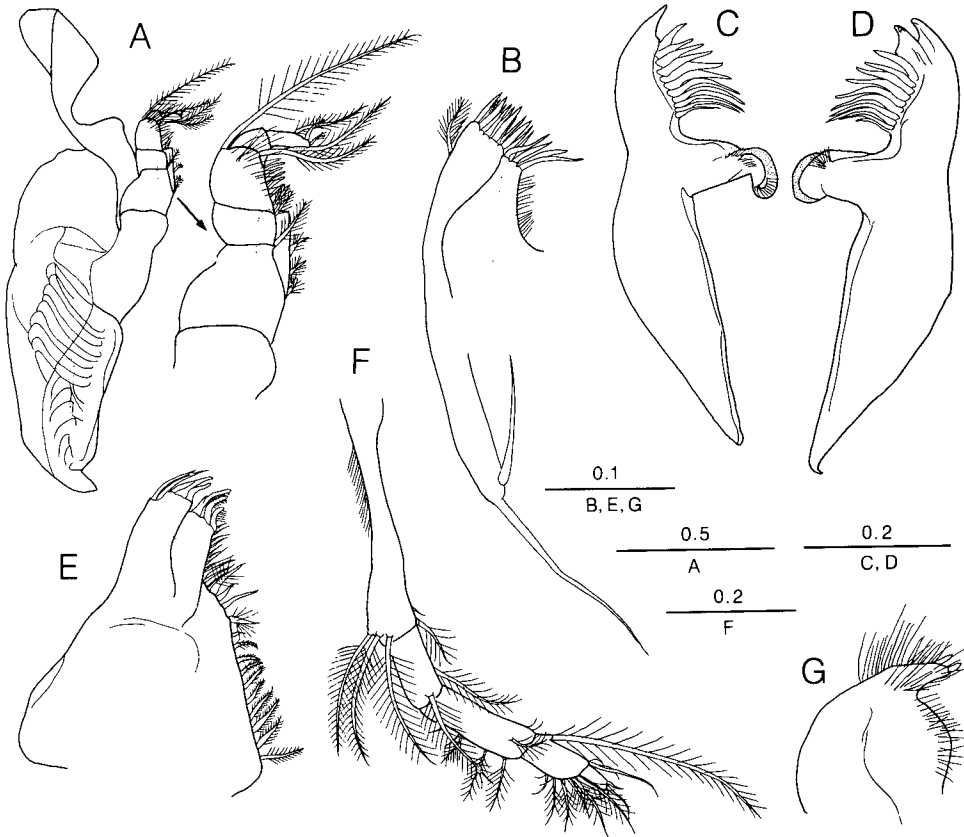


Fig. 3. *Diastylis paratricinta*, new species, holotype male: A, first maxilliped; B, first maxilla; C, right mandible; D, left mandible; E, second maxilla; F, second maxilliped; G, left labium. (unit of scales in mm).

segment of uropod and 3-segmented; first segment a little longer than second segment, third segment a little shorter than length of first and second segment combined, with 6, 4, and 6 spines on inner borders respectively, third segment with a long terminal spine. Exopod of uropod 2-segmented, a little longer than endopod and with unequal spines at distal end (Fig. 2F).

Adult female: Body about 3.4 mm long, with well-developed marsupium. Carapace rather round and smooth. Ridges almost same as in male, but each postero-lateral surface of carapace without a horizontal ridge. Formost ridge curving round frontal lobe. Second and third oblique ridges almost parallel with one another on the side of the carapace. These oblique ridges connected with each other in dorsal midway. Frontal ridges connected with each other intermediately by transverse ridge in dorsal midway of frontal lobe. Antero-lateral angle of carapace broadly rounded and with several long hairs. Carapace somewhat inflated. Length of carapace about $1/3.7$ of body length, slightly less than its width, and about 1.35 times as long as its depth. Round ocular lobe with three corneal ocelli (Figs. 5A, C).

Free thoracic somites about $3/4$ of carapace length. Length of pseudorostral lobes about $1/4.3$ of carapace length. Fourth thoracic somite furnished with a row of hairs on postero-dorsal side. Postero-lateral process of last somite rather blunt. Abdomen slender and a little longer than $1/2$ of body

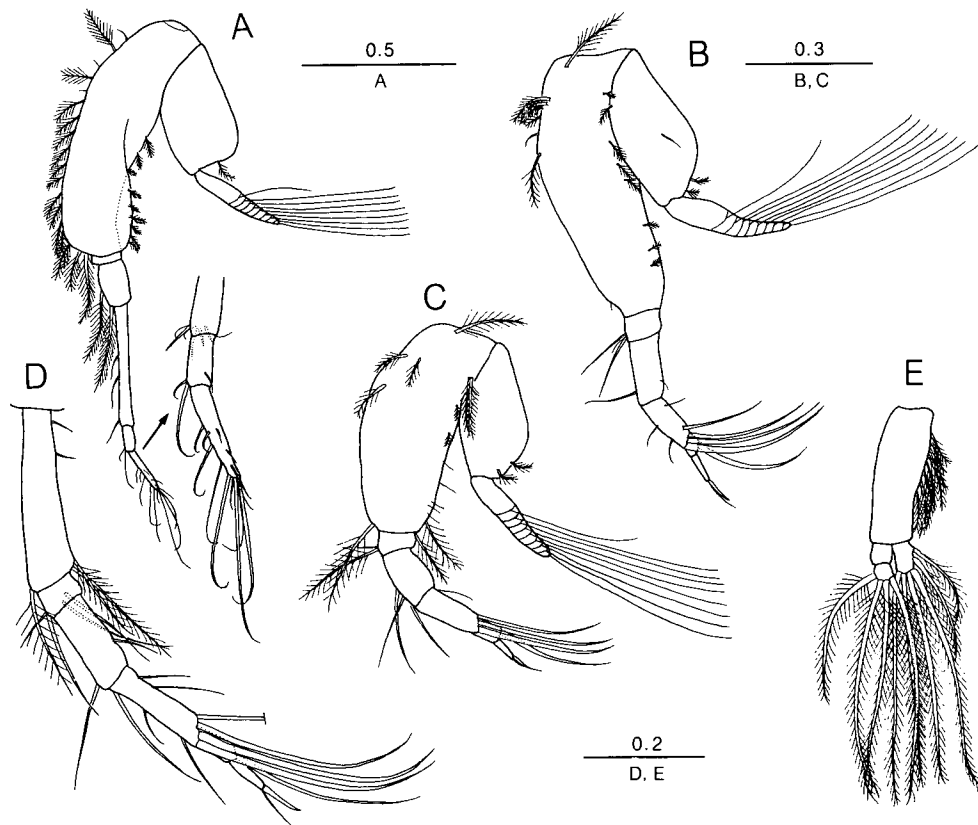


Fig. 4. *Diastylis paratricinta*, new species, holotype male: A, second pereopod; B, third pereopod; C, fourth pereopod; D, fifth pereopod; E, first pleopod. (unit of scales in mm).

length. Fifth somite longer than others. (Figs. 5A, C)

Peduncle of antennule 3-segmented; first segment about 1.9 times as long as second one, second segment a little longer than 1/2 of third one, third segment a little shorter than first one. Main flagellum slender, slightly longer than third peduncle, and 4-segmented. Distal segment of main lash with a small protuberance like a segment and rather 2 long aesthetascs. Accessory flagellum 3-segmented, slightly longer than 1/3 of main flagellum. Second segment of accessory lash very long and last segment very small (Fig. 5B). Antenna 4-segmented, first segment with 2 plumose setae, and remaining segment with a plumose seta respectively (Fig. 5G).

Basis of third maxilliped about 2.15 times as long as remaining distal segments; outer distal angle rather inflated, with 8 long plumose setae and 3 spiniform teeth, and inner margin with 14 plumose setae and 5 spiniform teeth (Fig. 5E).

Basis of first pereopod a little shorter than remaining distal segments, furnished with plumose setae on both lateral borders and also at distal end, and with 4 spiniform teeth on inner margin. Ischium and merus taken together slightly shorter than length of carpus. Carpus subequal to length of propodus. Dactylus a little shorter than length of carpus, with long distal setae, one of which exceeding length of segment (Fig. 5H). Second pereopod about a little longer than half of length of first one. Basis furnished with long plumose setae on both lateral borders and also at distal end, and with 6 spiniform teeth on outer margin. Dactylus about 2 times as long as the propodus and with 4

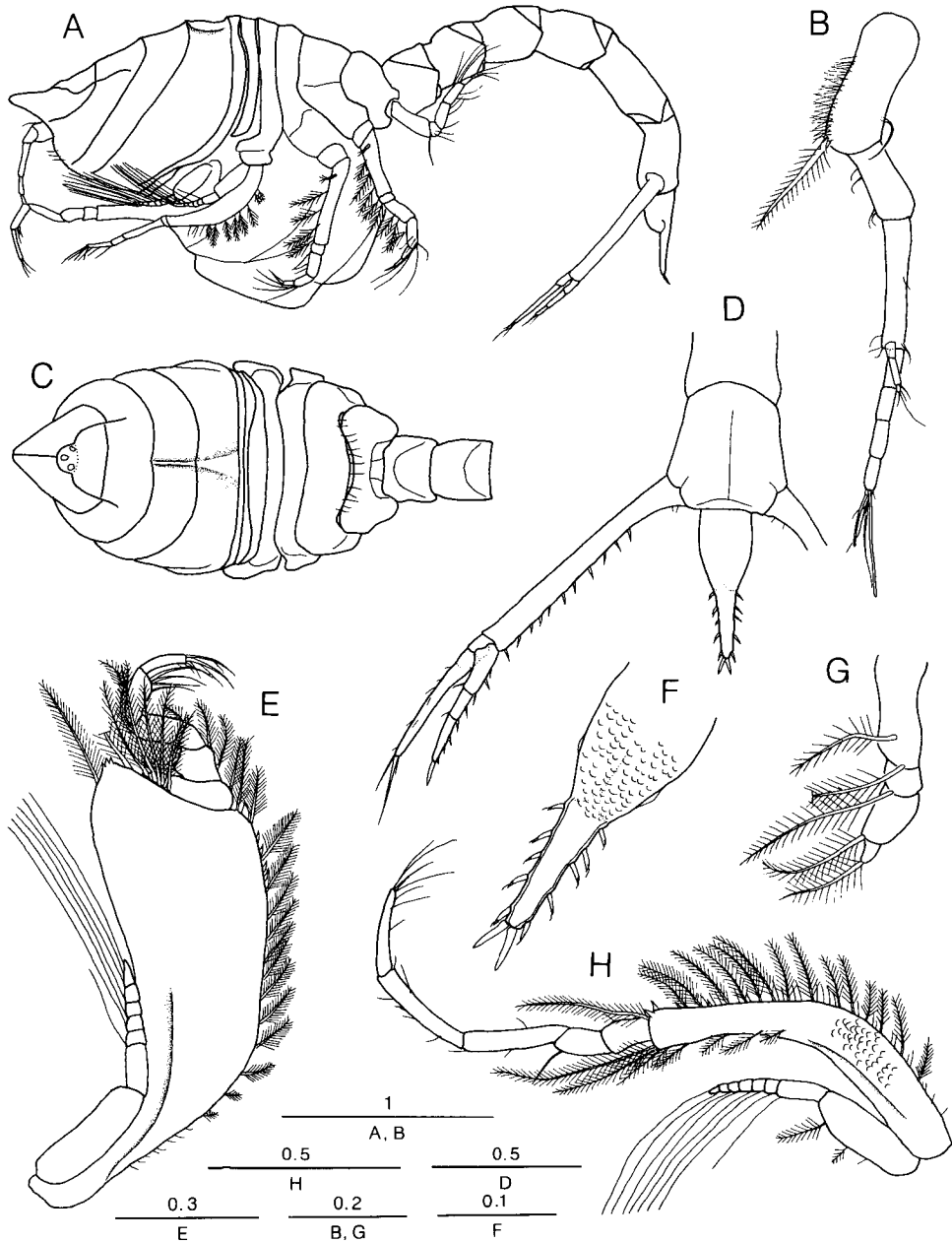


Fig. 5. *Diastylis paratricinta*, new species, allotype female: A, lateral view of body; B, antennule; C, cephalothorax, dorsal; D, uropods, telson and last abdominal somite; E, third maxilliped; F, telson, terminal; G, antenna; H, first pereopod. (unit of scales in mm).

long distal setae which exceed the length of the segment (Fig. 6B). Third pereopod about $3/4$ of second one in length and with a 2-segmented rudimentary exopod. Basis about $5/6$ times as long as remaining distal segments and dactylus with a terminal spine (Fig. 6C). Fourth pereopod a little shorter than length of third one and with a 2-segmented rudimentary exopod. Basis of fourth pereopod about $3/4$ times as long as remaining distal segments and dactylus with a terminal spine

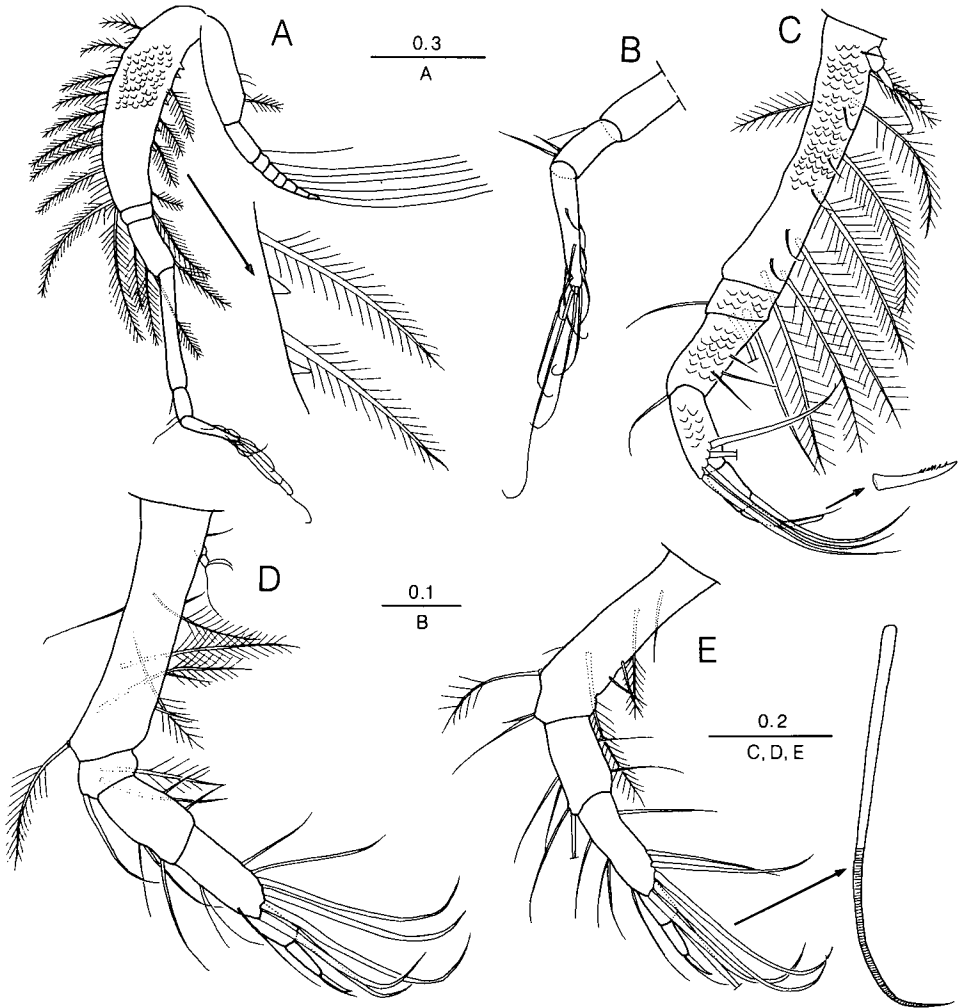


Fig. 6. *Diastylis paratricinta*, new species, allotype female: A, second pereopod; B, second pereopod, terminal; C, third pereopod; D, fourth pereopod; E, fifth pereopod. (unit of scales in mm).

(Fig. 6D). Fifth pereopod about 0.85 times as long as fourth one and dactylus with a terminal spine (Fig. 6E).

Telson about 1.2 times last abdominal somite, furnished with 5 pairs of lateral spines and 2 terminal spines on post-anal portion (Figs. 5D, F).

Peduncle of uropod about 1.6 times of telson in length, furnished with 11 spines. Endopod of uropod about 2/3 as long as peduncular segment of uropod and 3-segmented; first segment a little longer than second segment, third segment a little shorter than length of first segment, with 3, 2, and 3 spines on inner borders respectively, third segment with a long terminal spine. Exopod of uropod 2-segmented, a little longer than endopod, and with unequal spines at distal end (Fig. 5D).

Etymology. The specific name, "*paratricinta*" (par, in Latin means "like") is derived from its close resemblance to *D. tricinta*.

Remark. *Diastylis paratricinta* n. sp. is most similar to *D. tricinta* (Zimmer, 1903) which was redescribed by Gamo (1965, 1967) from Tokyo Bay in Japan. Both species have main features in

common such as the similar carapace bearing three oblique ridges and the similar telson furnished with 5 pairs of lateral spines and a pair of longer terminal spines. Moreover, type localities of these two species lie adjacent (Korea and Japan). The new species is, however, easily distinguished from *D. tricinta*, as *D. paratricinta* has a horizontal ridge on each postero-lateral surface of the carapace. It seems important character of this species. Also, the following characters allowed us to separate the new species from *D. tricinta*: 1) Body of *D. paratricinta* (3.4 mm in length) is shorter than that of *D. tricinta* (6 mm) redescribed by Gamo. 2) Telson of *D. tricinta* is about 2/3 times as long as last pleonite, while *D. paratricinta* is about 3/5 times. 3) Telson of *D. tricinta* have 5 pairs of lateral spines, while in *D. paratricinta* telson is furnished with irregularly 4-5 of lateral spines on both sides. 4) Uropodal exopod of *D. tricinta* is shorter than the length of telson but, in *D. paratricinta* uropodal exopod is longer than the length of telson. 5) Uropodal endopod of *D. tricinta* is subequal to 1/2 of peduncle in length, 3-segmented, and provided with 7, 6, and 13 spines on the inner borders of the segments respectively, while that of *D. paratricinta* is much longer than 1/2 of peduncular segment of uropod and provided with 6, 4, and 6 spines. 6) In *D. paratricinta* third segment of uropodal endopod is the longest one, while in *D. tricinta* first segment of uropodal endopod is the longest.

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한국산 긴꼬리올챙이새우屬(올챙이새우목, 긴꼬리올챙이새우과)의 1신종

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요 약

1992년 6월부터 1993년 12월 사이에 서해와 남해 연안의 6개 지소에서 채집된 올챙이새우類를 동정한 결과 *Diastylis*(긴꼬리올챙이새우)屬에 속하는 1신종이 확인되어 *Diastylis paratricinta* n. sp., 가슴줄긴꼬리올챙이새우로 명명하여 기재한다. 이 신종은 일본산 *D. tricinta*(Zimmer, 1903)와 매우 유사하나 갑각의 뒤쪽 양측면에 horizontal ridge가 있어 쉽게 구별된다.