

New Record of *Sinocorophium sinensis* (Crustacea: Amphipoda: Corophiidae) in Korea

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ABSTRACT

A corophiine species, *Sinocorophium sinensis* (Zhang, 1974) collected from oyster beds of Sacheon, southern coast of Korea is described and illustrated. Specimens of present study look more similar to those of China than those of Japan.

Key words: *Sinocorophium sinensis*, Amphipoda, Corophiidae, Corophiinae, new record, Korea

INTRODUCTION

Corophiine amphipods are one of the most ecologically important species in the marine benthic environments. They are usually dominant species in diverse habitats and in addition play an important role in food chain of marine ecosystem as predator of algae and also food sources to other predatory animals such as crabs, prawns, fishes and birds (Crawford, 1937; Zhang, 1974). Therefore, corophiine amphipods have been dealt in many of literatures on marine ecological studies (Park and Yi, 2002). Taxonomic studies on this group in Korea are, however, insufficient in view of its ecological importance comparing that 22 species of corophiine amphipods were recorded in the East Asia region (Bousefield and Hoover, 1997). But only one species, *Mono-corophium acherusicum* was recorded in the subfamily Corophiinae from Korea (Hong, 1983). In the present study, we reported *Sinocorophium sinensis* with description and illustrations.

MATERIALS AND METHODS

Samples were collected by sieving the washings of oyster beds. After detaching, specimens were initially fixed and preserved in 5% formaldehyde solution, then they were preserved in 80% ethyl alcohol in the laboratory. Identification were facilitated by dissection of specimens under a stereomicroscope (Leica MZ8), and mounting the dissected parts on temporary or permanent slide. Dissection and measurement followed the methods of Barnard and Karaman (1991).

Temporary mounts were made using glycerine or lactic acid. Semi-permanent mounts were made using polyvinyl lactophenol solution after staining lignin pink dyes. Illustration was made with a compound microscope (Nikon OPTIPHOT) fitted with drawing tube.

SYSTEMATIC ACCOUNTS

Order Amphipoda Latreille, 1816

Suborder Gammaridea Dana, 1852

Family Corophiidae Dana, 1849

¹*Subfamily Corophiinae Bousefield and Hoover, 1997

²*Genus *Sinocorophium* Bousefield and Hoover, 1997

³**Sinocorophium sinensis* (Zhang, 1974)

Corophium sinense Zhang, 1974, p. 139, fig. 1; Hirayama, 1987, p. 175, figs. 3-5.

Sinocorophium sinensis: Bousefield and Hoover, 1997, p. 75.

Material examined. 2 ♀♀ and 2 ♂♂ (oyster beds at intertidal zone), Seopo (Sacheon) (N35° 1'53'' E127° 58'39''), 28 Jul. 1999 (J. Jung).

Female. Body depressed and slender, 5.00 mm long. Cephalon projected. Rostrum produced slight beyond superior antennal sinus (Fig. 1A). Eyes invisible. Urosome segmented, gradually narrowing (Fig. 2E).

Antenna 1 (Fig. 1A) slender and elongate, 3.32 mm long, relative length of peduncular segments 1-3 3:3:1, flagellum slightly shorter than peduncle, consisting of 15 plus one small segments. Antenna 2 (Fig. 1B) stout, as long as antenna 1, gland cone at peduncular segment 2 well developed, peduncular segment 3 with one ventrodorsal spine, peduncular segment 4 longer than peduncular segment 3, with two ven-

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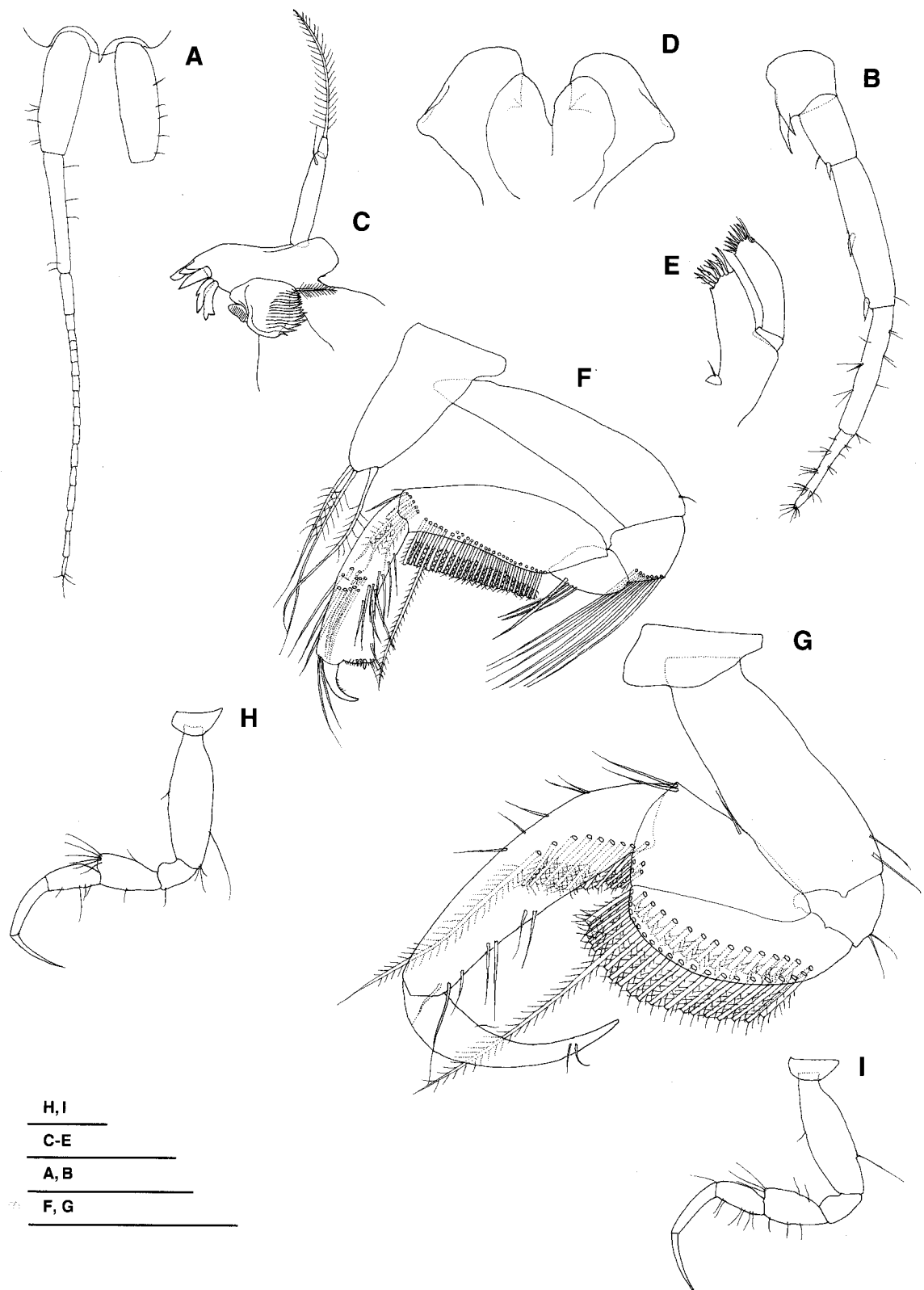


Fig. 1. *Sinocorophium sinensis* (Zhang, 1974), female. A, dorsal view of head and antenna 1; B, left antenna 2; C, right mandible; D, lower lip; E, maxilla 1; F, left gnathopod 1; G, left gnathopod 2; H, left pereopod 3; I, left pereopod 4. Scale bars=1 mm (A, B), 0.25 mm (C-E), 0.5 mm (F-I).

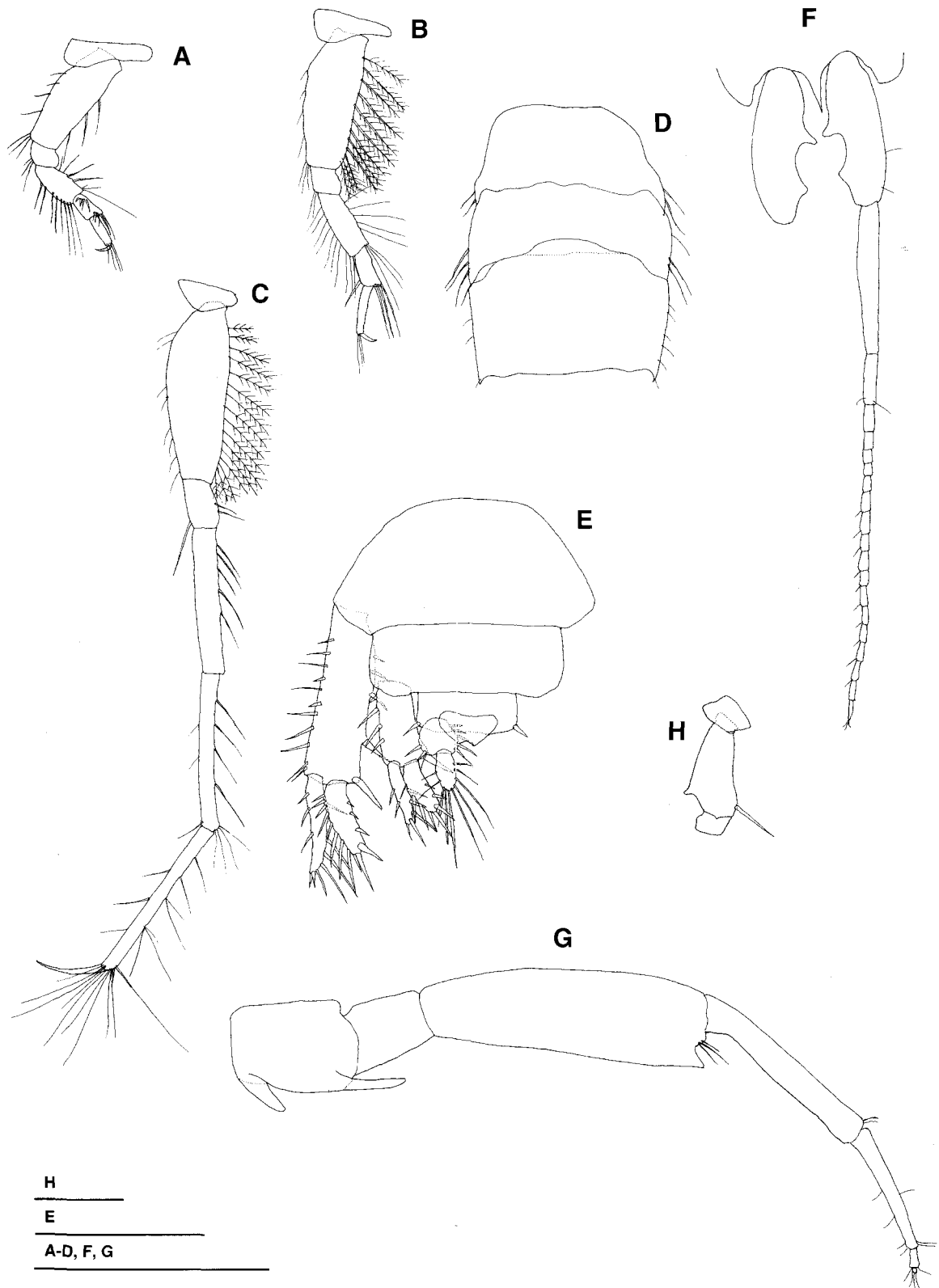


Fig. 2. *Sinocorophium sinensis* (Zhang, 1974), A-E, female, F-H, male. A, left pereopod 5; B, left pereopod 6; C, left pereopod 7; D, dorsal view of pleon; E, dorsal view of urosome, uropods and telson; F, dorsal view of head and antenna 1; G, left antenna 2; H, part (coxa to ischium) of left gnathopod 1. Scale bars=1 mm (A-D, F, G), 0.5 mm (E, H).

tral spines, peduncular segment 5 slightly shorter than and narrower than peduncular segment 4, flagellum unarticulate.

Mandible (Fig. 1C) well developed, incisor produced inward, with three acute teeth, lacinia mobilis with one tooth and two apically bifid accessory blades, molar well developed, palp composed of two segments, palpal segment 1 with short seta at distal end, palpal segment 2 very short, about one-fourth as long as segment 1, with long pinnate seta. Lower lip (Fig. 1D) mandibular lobe vestigial. Maxilla 1 (Fig. 1E), inner plate with 1 apical seta, outer plate with six tooth-like spines, palp narrow, extending outer plate, biarticulate, palpal proximal segment very short, palpal terminal segment with eight spines.

Gnathopod 1 (Fig. 1F) subchelate, coxa 1 triangular, with three long pinnate setae at anterior end, basis one third as long as gnathopod 1, increasing in width apically, posterior margin rounded, ischium short, stout, expanded anterodistally, posterodistal margin surrounded by twelve long setae, merus slightly shorter than ischium, posterodistal end with four simple setae, carpus slightly shorter than basis, narrowing in width distally, anterodistal margin with two simple and three plumose setae, posterior margin with two longitudinal rows of plumose setae, propodus slender and long but slightly shorter than carpus, expanded distally, anterior part with ten long simple setae, anterodistal end with two long setae, posterior margin with one, one, two, three, three and one setae in formula, palm transverse, gently rounded, with two opposite rows of spines, dactylus not extending beyond palm, falcate, grasping margin with many tiny setae.

Gnathopod 2 (Fig. 1G), coxa 2 small, trapezoid, posterodistal margin oblique, basis as long as propodus, slightly increasing in width, posterior distal margin with two simple setae, ischium short, stout, rounded posteriorly, with two setae at posterodistal margin, merus about five sixths as long as basis, rounded posteriorly, with many long plumose setae in two rows, carpus about six sevenths as long as propodus, increasing in width, middle of anterior region with one simple seta, anterodistal end with two simple setae, posterodistal end with four plumose setae, propodus uniform in width, gently rounded anteroproximally, anterior margin with several small setae, posterior margin with several small setae, inner proximal part with one oblique row of nine long plumose setae, dactylus falcate, shorter than propodus.

Pereopod 3 (Fig. 1H), coxa 3 small, anteriorly rounded, posteriorly tapered, basis about one third as long as total length of pereopod 3, anterior margin with one short seta, posterior margin with one long seta, posterodistal end with three small setae, ischium short, as long as wide, posterodistal margin with one small seta, merus about half as long as basis, gradually extending apically, anterior margin with

two small setae, anterodistal end with three setae, carpus slightly shorter than merus, anteriorly rounded, posterior margin with four setae, propodus longer than carpus, gradually decreasing in width, dactylus shorter than propodus, falcate.

Pereopod 4 (Fig. 1I), similar in size and shape with pereopod 3 except for numbers of setae.

Pereopod 5 (Fig. 2A), coxa 5 rectangular, dorsoventrally depressed, slightly narrowed posteriorly, anterior and posterior margin rounded, basis about half as long as pereopod 5, anterior margin with four short setae, posterior margin with three long setae, ischium one fifth as long as basis, anterodistal end with three short setae, merus two times as long as ischium, anterior margin with eight setae, posterior margin with four setae, posterodistal region with three setae, carpus half as long as merus, posteroproximal margin with one transverse row of four spines, posterodistal end surrounded by five spines, propodus longer than carpus, slender, distal margin with four short setae, dactylus small.

Pereopod 6 (Fig. 2B), coxa 6 similar to coxa 5, basis two fifths as long as pereopod 6, anterior margin with four short setae, anterodistal end with three short setae, posterior margin with 12 long plumose setae, ischium similar to that of pereopod 5, merus one fifth as long as pereopod 6, anterior margin with 10 short setae, posterior margin with short five setae, posterodistal end with three setae, carpus half as long as merus, anterodistal margin with one long tooth, posterodistal end with three long teeth, propodus two thirds as long as merus, anterodistal end with three short setae, dactylus small and short.

Pereopod 7 (Fig. 2C) elongate and slender, 4.65 mm long, coxa small, rounded, basis shorter than one fourth as long as pereopod 7, anterior and posterior margin weakly rounded, anterior margin with several short simple setae, posterior margin with 16 long plumose setae, ischium short, little longer than width, anterodistal end with one long seta, posterior margin with two short setae, merus little shorter than basis, uniform in width, posterior margin with five setae, carpus as long as merus, anterior margin with two tiny setae, anterodistal end with one seta, posterior margin with four setae, posterodistal end with four short setae, propodus as long as basis, narrower than carpus, uniform in width, anterior margin with three setae, posterior margin with seven setae, distal end with 10 setae, dactylus three eighths as long as propodus, little falcate.

Pleon (Fig. 2D), pleonal epimera 1, margin with two long setae, pleonal epimera 2, margin with three long setae, pleonal epimera 3, hind corner produced.

Uropods (Fig. 2E), uropod 1 extending beyond uropod 2, peduncle stout two times as long as rami, outer margin with 11 spines, inner margin with three small and two stout

spines, outer ramus with nine spines, inner ramus with nine spines on outer margin, three spines in inner margin and two stout spines on apex, uropod 2, length of uropod 2 subequal to that of peduncle of uropod 1, peduncle little longer than rami, with four spines on outer margin and one stout apical spine on inner margin, outer ramus with six spines, inner ramus with seven spines, uropod 3 half as long as uropod 2, uniramous, peduncle subequal to ramus in length, broader than ramus, with two spines on outer margin and five spines on inner margin, ramus oval, with six distal long setae and four proximal short setae.

Telson (Fig. 2E) fleshy, small, broad, subtriangular.

Male. Body, 5.50 mm long, similar to female except followings. Rostrum more produced than female (Fig. 2F). Antenna 1, inner margin of peduncular segment 1 with a large tooth (Fig. 2F). Antenna 2 considerably strong, nine tenths as long as body length of male (4.86 mm long), peduncular segment 4 one third as long as antenna 2, with one ventrodorsal stout tooth (Fig. 2G). Gnathopod 1, basis with one anteromedial process (Fig. 2H).

Distribution. China (Shantung Peninsula), Japan (Seto Inland Sea) and Korea (Sacheon).

Remarks. Our specimens show more similarity with *Sinocorophium sinensis* (Zhang, 1974) than with *S. heteroceratum* (Yu, 1938) in the shape of antenna. Female antenna 2 of our samples had two ventral spines on posterior margin of peduncular segment 4 as those of Zhang (1974) did, but *S. heteroceratum* did not. Sacheon from which specimens of present study were collected, is located geographically between Shantung and Seto Inland Sea where the specimens of Zhang (1974) and Hirayama (1987) had been collected, respectively. Our samples showed more similarity to those from China than Japanese specimens in the shape of antenna 1 and 2. This result may indicate that Japanese population of this species has been isolated from Korean and Chinese ones by ocean currents which usually play a role as genetic barriers on marine animals.

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