

Redescription of Four Recent Freshwater Ostracod (Crustacea: Ostracoda) Species from Korea

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The systematic study of recent freshwater ostracods was conducted on the materials collected from 44 localities in South Korea. Four species of ostracods were identified, all of which were new to South Korea: *Stenocypris hislopi* Ferguson, 1969, *Cyprretta seurati* Gautier, 1929, *Potamocypris producta* (Sars, 1924), and *Ilyocypris dentifera* Sars, 1903.

KEY WORDS: Systematic study, Recent, Freshwater, Ostracoda, Korea.

As the results of systematic studies conducted by McKenzie (1972) and Kim and Min (1991), seven species (five species, two subspecies) have been known to Korea so far: *Candona morimotoi* McKenzie, 1972, *Cypridopsis coreana coreana* McKenzie, 1972, *Cypridopsis coreana elongata* McKenzie, 1972, *Cyprinotus uenoi* Brehm, 1936, *Heterocypris incongruens* (Ramdohr, 1808), *Dolerocypris fasciata* (O. F. Müller, 1776) and *Dolerocypris sinensis* Sars, 1903.

Materials were collected from 44 localities in South Korea (Fig. 1), most of which occurred in ricefields, ponds, and bogs. Collections were made with handnet or hand-made zooplankton net (mesh size: 120 μ m). Collected samples were narcotized by adding about 10 ml of concentrated chloreton (Sigma cat. no. lot. T-5138) dissolved in 95 percent ethanol per one liter sample solution. After 1-2 hours of narcotization, 95 percent ethanol was added as preservative. The isolated specimens were mounted in glycerol on wooden slides and dissected using a pair of dissection needles (made by a fret saw or tungsten wire) under a stereoscopic dissecting microscope. Drawing and measuring were made with the aid of a camera lucida.

All specimens reported here are deposited in

the Department of Molecular Biology, Seoul National University.

Body length, height, and width of all specimens shown in this paper are given by measuring the large valves.

Systematic Accounts and Descriptions

Class Ostracoda Latreille, 1806
Subclass Podocopa G. W. Müller, 1894
Order Podocopida Sars, 1866
Suborder Podocopina Sars, 1866
Superfamily Cypridoidea Baird, 1845
Family Cyprididae Barid, 1845
Subfamily Herpetocypridinae Kaufmann, 1900
Genus *Stenocypris* Sars, 1899
Stenocypris hislopi Ferguson, 1969
(Figs. 2-3)

Stenocypris hislopi Ferguson, 1969, pp. 68-71, Fig. 1.

Material Examined.-3 ♀♀, Chinsang-myön, Kwang-yang-gun, Sep. 16, 1989; 2 ♀♀, Tong-jong-dong, Ch'ang-wön-shi, Sep. 16, 1989 (H. B. Gong); 3 ♀♀, Maep'o-üp, Tanyang-gun, Sep. 10, 1988; 4 ♀♀, Sa-dong, Ullüng Is., Jul. 11, 1989.

Description of female.-Male unknown, Carapace

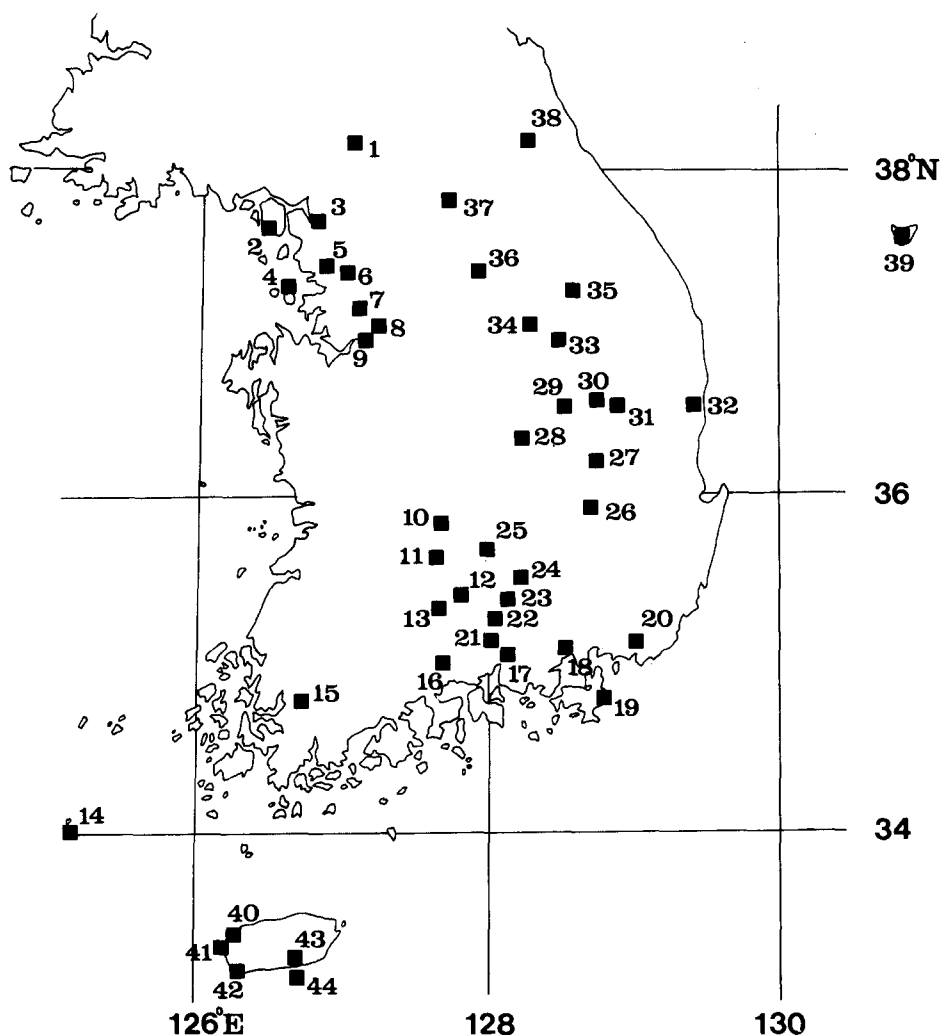


Fig. 1. A map showing the localities where the materials were collected. 1. Yönc'h'ön-üp; 2. Naeri, Ganghwa-gun; 3. Ilsan, Koyang-gun; 4. Yöngjong Is.; 5. Soho-dong, Kwangmyöng-shi; 6. Koch'ön, Shinüng-gun; 7. Kol-dong, Osan-shi; 8. Ilchik-ri, Chinsan (Ansöng-gun); 9. Sojöng-dong, Songt'an-shi; 10. Dökyü Mountain; 11. Changsu-üp; 12. Chirisan resting place; 13. Namwön toll-gate; 14. Sohüksan Is.; 15. Wölch'ül Mountain, Yöng-am-gun; 16. Chinsang-myön, Kwang-yang-gun; 17. Sach'ön-üp; 18. Tongjöng-dong, Ch'ang-wön-shi; 19. Kujora, Kuch'ön Valley (Köje-gun); 20. Myöngji-dong, Pusan-shi; 21. Yugok-dong, P'yönggö-dong (Chinju-shi); 22. Myöngsök-myön, Chinyang-gun; 23. Obu-myön, Sanch'öng-gun; 24. Kaya-üp, Samga-myön (Hapch'ön-gun); 25. Kimch'ön-dong, Köch'ang-üp; 26. a pond of Kyongbuk Nat'l Univ.; 27. Toriwön; 28. Sangju-shi bus terminal; 29. Chörmch'on-shi bus terminal; 30. Yech'ön-üp; 31. Andong Lake; 32. Byönggok, Yöngdök-gun; 33. Maep'o-üp; 34. Komyöng-dong, Chech'ön-shi; 35. Yönhwa, Yöng-wöl-üp; 36. Saemal resting place, Wönsöng-gun; 37. Onsu Reservoir, Ch'unch'ön-shi; 38. Paikdamsa temple, Inje-gun; 39. Sa-dong, Namyang (Ullüng Is.); 40. Tumo, Namcheju-gun; 41. Kosan, Namcheju-gun; 42. Shindo, Taejöng-üp, (Namcheju-gun); 43. Sögwip'o-shi; 44. Sae Is., Namcheju-gun.

length 1.49-1.55 mm, maximum height 0.66-0.71 mm at just behind middle, maximum width 0.65-0.70 mm.

Carapace (Fig. 2A) spindle shaped in dorsal view; posterior end broader and more rounded than anterior end. Surface of carapace smooth, covered with small pits and long hairs evenly. Left valve larger than right valve. Light brown in color.

Left valve elongated subreniform in exterior lateral view; dorsal margin almost straight; anterior and posterior margins symmetrically rounded; ventral margin almost straight, but slightly concave at middle; selvage well developed in lateral interior view (Fig. 2B), forming whole free margin; without flange; with list anteriorly; septa well developed at anterior and ventral margins; infold broad at anterior margin; infold regular in shape and narrow at ventral and posterior margins.

Right valve (Fig. 2C) very similar to left valve in shape and structure.

First antenna (Fig. 2D) with seven podomeres. Length ratio of second to seventh podomeres along dorsal margin, 22: 26: 15: 13: 12: 12. Fourth to seventh podomeres bearing long natatory bristles; each of fourth, fifth and seventh with two bristles and sixth with four bristles. All natatory bristles 1.3 times as long as first antenna.

Second antenna (Fig. 2E) with two podomeres of protopodite, three podomeres of endopodite and one small podomere of exopodite. Exopodite bearing two short and one long bristles; long bristle reaching to distal end of first podomere of endopodite, short bristles less than 1/4 of long bristle length. Length ratio of podomeres 1-3 of endopodite along dorsal margin, 49: 43: 8. Ventral margin of first podomere of endopodite bearing one four-segmented sense club (Fig. 2F), situated at about 3/4 distance from distal end of this podomere. First podomere of endopodite bearing five long plumose and one short spinose bristles on distal end; plumose bristles slightly overreaching terminal claws and short spinose bristle 1/3 of plumose bristle length. Second podomere of endopodite bearing three stout terminal claws. Third podomere of endopodite bearing one stout and one slender terminal claws.

Mandible (Fig. 2G) with two podomeres of protopodite, three podomeres of endopodite, and one platelike podomere of exopodite. First podomere of protopodite bearing one row of seven teeth (Fig. 2H). Third podomere of endopodite bearing three long stout and two short slender terminal claws.

Maxilla (Fig. 3A) with one branchial plate, three masticatory processes, one two-segmented palp. Second podomere of masticatory palp bearing four bare stout bristles. Outer masticatory process bearing two stout bare bristles on distal end. Inner masticatory process bearing two pectinated bristles.

First thoracic leg with one protopodite, one endopodite, and one exopodite plate. endopodite (Fig. 3B) with non-segmented palp bearing three spinose bristles distally. Protopodite (Fig. 3C) bearing ten spinose bristles on distal end.

Second thoracic leg (Fig. 3D) with two fused podomeres of protopodite and four podomeres of endopodite. Fourth podomere of endopodite bearing two spinose bristles and one long stout claw which slightly shorter than total length of 2-4 podomeres.

Third thoracic leg (Fig. 3E) with two fused podomeres of protopodite and three podomeres of endopodite. Third podomere of endopodite bearing one long backward-pointed spinose bristle and one denticulated stival claw.

Furcal rami conspicuously asymmetrical. Right ramus (Fig. 3F) wide and convex dorsally; dorsal margin denticulated. Left ramus (Fig. 3G) slender and almost straight; dorsal margin smooth.

Furcal attachment (Fig. 3H) Y-shaped; median stick two times as long as ventral branch.

Remarks.—The present specimens accord well with the original description of Ferguson (1969). *S. hislopi* is distinguished from the similar species *Stenocypris cylindrica major* (see Ferguson, 1969) in the following characteristics. (1) *S. cylindrica major* has mostly a greater length of carapace than *S. hislopi*. The smallest specimen of *S. cylindrica major* recorded is 2.00 mm in carapace length (Ferguson, 1969), but the largest specimen of *S. hislopi* recorded so far is less than 1.7 mm. (2) Infold of *S. cylindrica major* is wide and irregular in shape while that of *S. hislopi* is narrow and regular. (3) The distal podomere of third thoracic leg of *S. hislopi* has one small denticulated claw while that of *S. cylindrica major* has one smooth claw.

Distribution.—Ceylon and Korea.

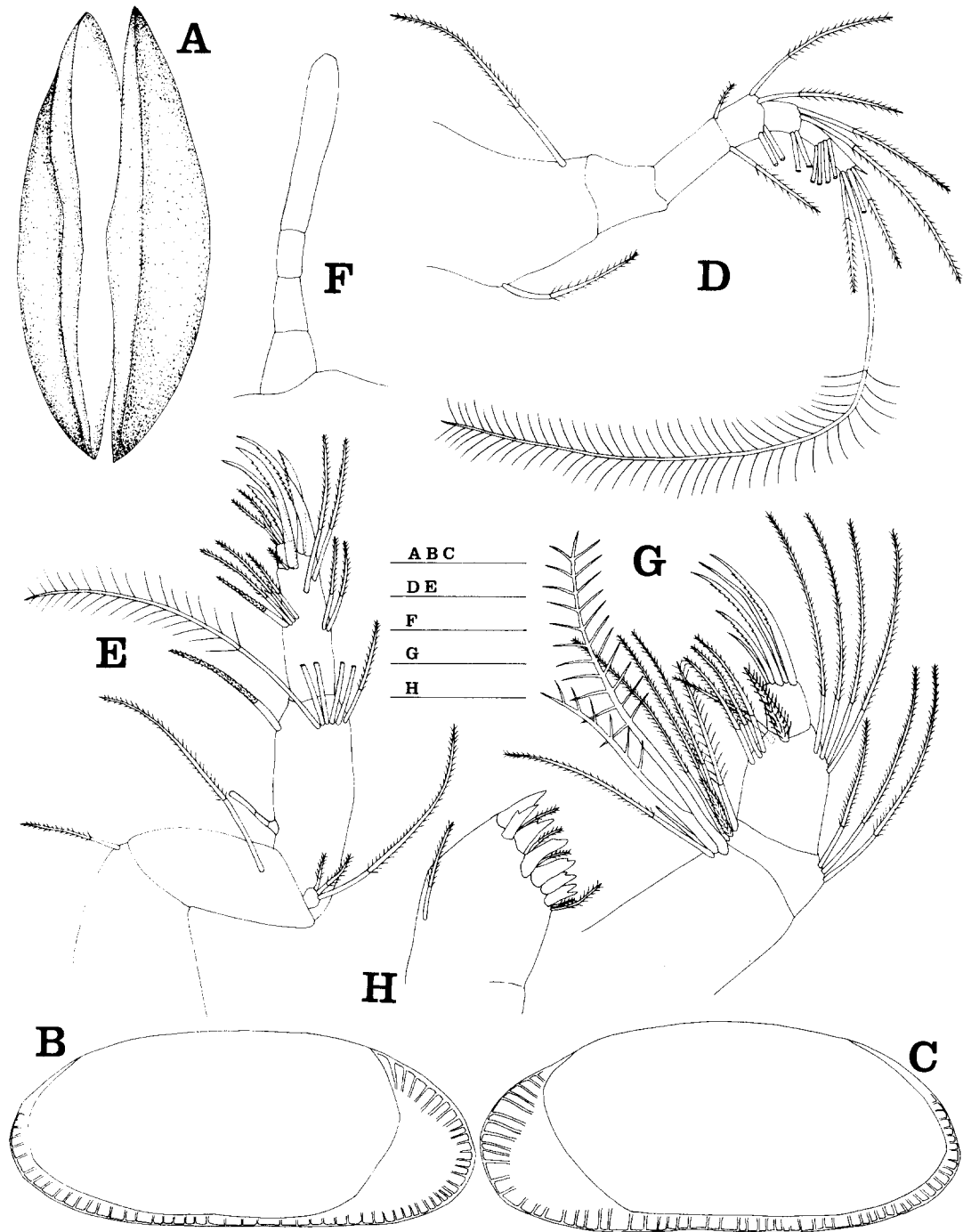


Fig. 2. *Stenocypris hislopi* Ferguson, 1969. Female: A, ventral view of carapace; B-C, lateral exterior views of left and right valves; D, first antenna; E, second antenna; F, sense club; G, mandible; H, teeth of mandible. (Scale; A, B, C = 430 μ m; D, E = 130 μ m; F = 30 μ m; G = 70 μ m; H = 50 μ m).

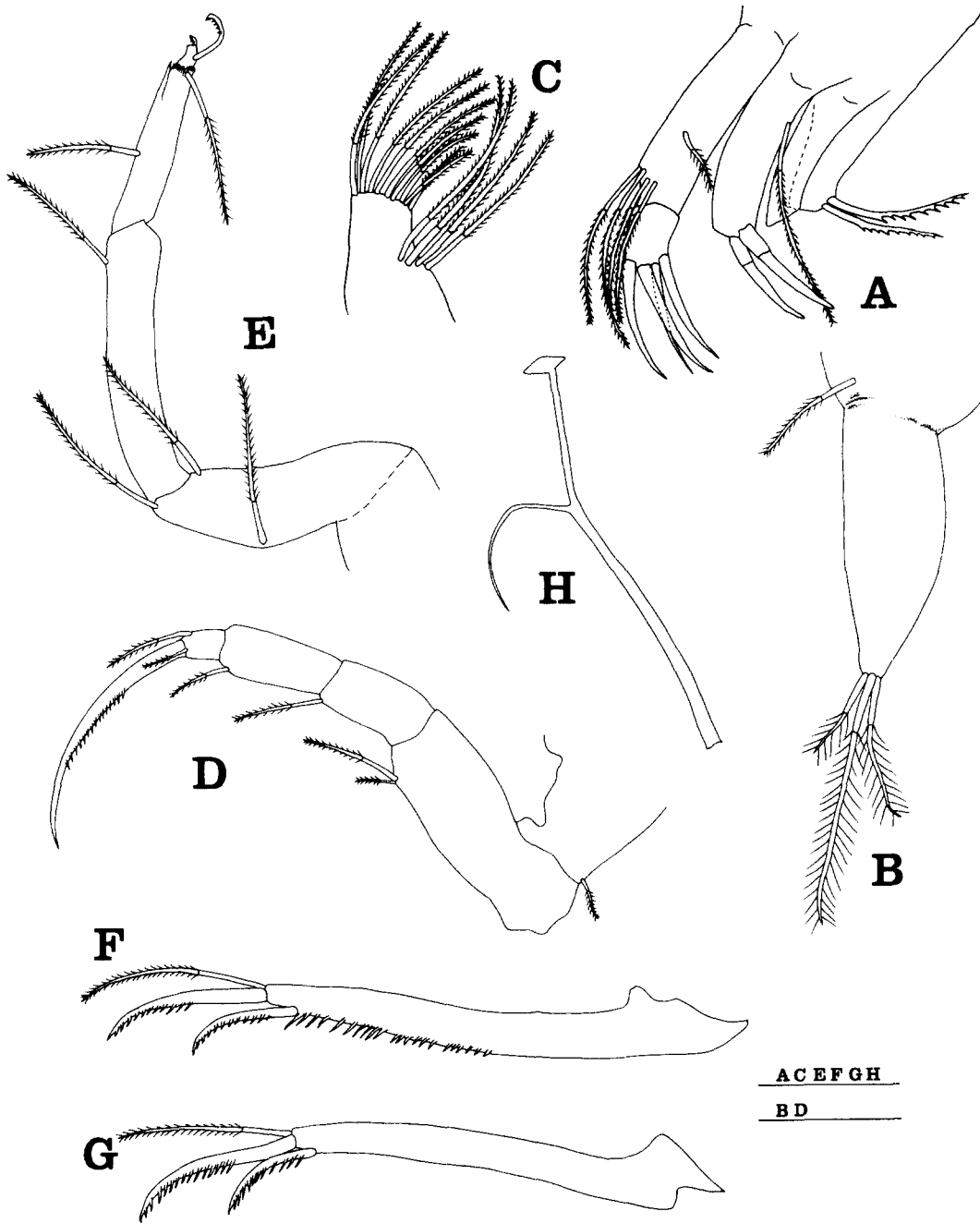


Fig. 3. *Stenocypris hislopi* Ferguson, 1969. Female: A, maxilla B, endopodite of first thoracic leg; C, protopodite of first thoracic leg; D, second thoracic leg; E, third thoracic leg; F, furca (right); G, furca (left); H, furcal attachment. (Scale; A, C, E, F, G, H = 60 μ m; B, D = 90 μ m).

Family Cypridopsidae Kaufmann, 1910
Subfamily Cypretinae Hartmann, 1963
Genus *Cyprætta* Vávra, 1895

***Cyprætta surati* Gautier, 1929**
(Figs. 4-5)

Cyprætta seurati Gautier, 1929, pp. 159-160, pl. 12, fig. 11; Gautier, 1931, p. 387; Gautier, 1939, pp. 231-233, fig. 21; Petkovski, 1957, pp. 53-55, Abbs. 7, 8; Okubo, 1973, pp. 1-6, figs. 1-3; Victor and Fernando, 1981c, p. 429, figs. 9-14; Meishch, 1987, pp. 110-112, fig. 8.

Material Examined.-5 ♀♀, Ilsan, Koyang-gun, Jun. 14, 1989; 1 ♀♀, Dókyü Mountain, Jul. 4, 1986 (N. K. Paik); 1 ♀, Namwón toll-gate, Sep. 16, 1989; 2 ♀♀, Chirisan resting place, Sep. 16, 1989; 3 ♀♀, Chinsang-myón, Kwang-yang-gun, Sep. 16, 1989; 5 ♀♀, Changsu-úp, Nov. 1, 1989; 15 ♀♀, Sohüksan Is., Aug. 26, 1987; 1 ♀, a pond of Kyongbuk Nat'l Univ., Jul. 5, 1986 (C. B. Kim); 2 ♀♀, Kujora, Kóje-gun, May 5, 1989; Myóngji-dong, Pusan-shi, Jun. 6, 1986; 1 ♀, Chómch'on-shi bus terminal, Sep. 12, 1989; 3 ♀♀, Andong Lake, Jul. 4, 1986; 2 ♀♀, Paikdamsa temple, Inje-gun, Sep. 19, 1984 (C. Y. Chang); 1 ♀, Onsu Reservoir, Ch'unch'ón-shi, Jul. 25, 1984 (C. Y. Chang); 5 ♀♀, Sa-dong, Ullüng Is., Jul. 11, 1989; 2 ♀♀, Sae Is., Namcheju-gun, Feb. 11, 1986 (I. H. Kim); 3 ♀♀, Kosan, Namcheju-gun, Jul. 9, 1986; 5 ♀♀, Taejóng-úp, Namcheju-gun, Nov. 1, 1986 (I. H. Kim).

Description.-Male unknown. Carapace length 0.67-0.74 mm, maximum height 0.45-0.50 mm situated at just behind middle, maximum width 0.54-0.59 mm situated at 7/10 distance from anterior end.

Surface of carapace with shallow pits evenly; brown in color.

Carapace (Fig. 4A) tumid and suboval in dorsal view; posterior end broader and more rounded than anterior end; right valve larger than left valve and overlap left anteriorly; ventral lips well developed at both valves.

Left valve subreniform in exterior lateral view; dorsal margin convex; anterior margin wide and rounded symmetrically; posterior margin asymmetrically rounded and narrower than anterior margin; ventral margin conspicuously concave at middle;

selvage forming whole free margin (Fig. 4B) in lateral interior view; postero-ventral margin scalloped; list present from ventral to posterior margins; anterior end with septa in adult; anterior infold wider than posterior infold.

Shape of right valve very similar to left valve in exterior lateral view; selvage forming whole free margin (Fig. 4C) in interior lateral view; anterior and antero-ventral margins with one list; posterior end with two lists, one of which with nodes; anterior end with septa in adult; anterior infold wider than posterior infold.

First antenna (Fig. 4D) with seven podomeres. Length ratio of first to seventh podomeres along dorsal margin, 38:13:9:7:6:8. Fourth to seventh podomeres bearing long natatory bristles; each of fourth, fifth with two and sixth with four bristles. All natatory bristles 3 times as long as whole length of first antenna.

Second antenna (Fig. 4E) with two podomeres of protopodite, three podomeres of endopodite, and one small podomere of exopodite. First podomere of protopodite bearing three short spinose bristles. Second podomere of protopodite bearing one long spinose bristle overreaching distal end of third endopod podomere. Exopodite bearing two short and one long bristles; long bristle reaching to middle of second podomere of endopodite and short bristles less than 1/3 of long bristle length. Length ratio of podomeres 1-3 of endopodite along dorsal margin, 61:31:8. Ventral margin of first podomere of endopodite bearing one four-segmented sense club (Fig. 4F). Near dorsal margin of first podomere of endopodite bearing five long natatory and one short spinose bristles on distal end; natatory bristles far overreaching terminal claws and spinose bristle as long as 1/3 of natatory bristle. Second and third podomeres of endopodite bearing three and two long stout terminal claws, respectively.

Mandible (Fig. 5A) with two podomeres of protopodite, three podomeres of endopodite, and one platelike podomere of exopodite. First podomere of protopodite bearing one row of seven teeth (Fig. 5B). Third podomere of endopodite bearing three stout terminal claws.

Maxilla (Fig. 6C) with one branchial plate, three masticatory processes, one two-segmented palp. Second podomere of masticatory palp bearing

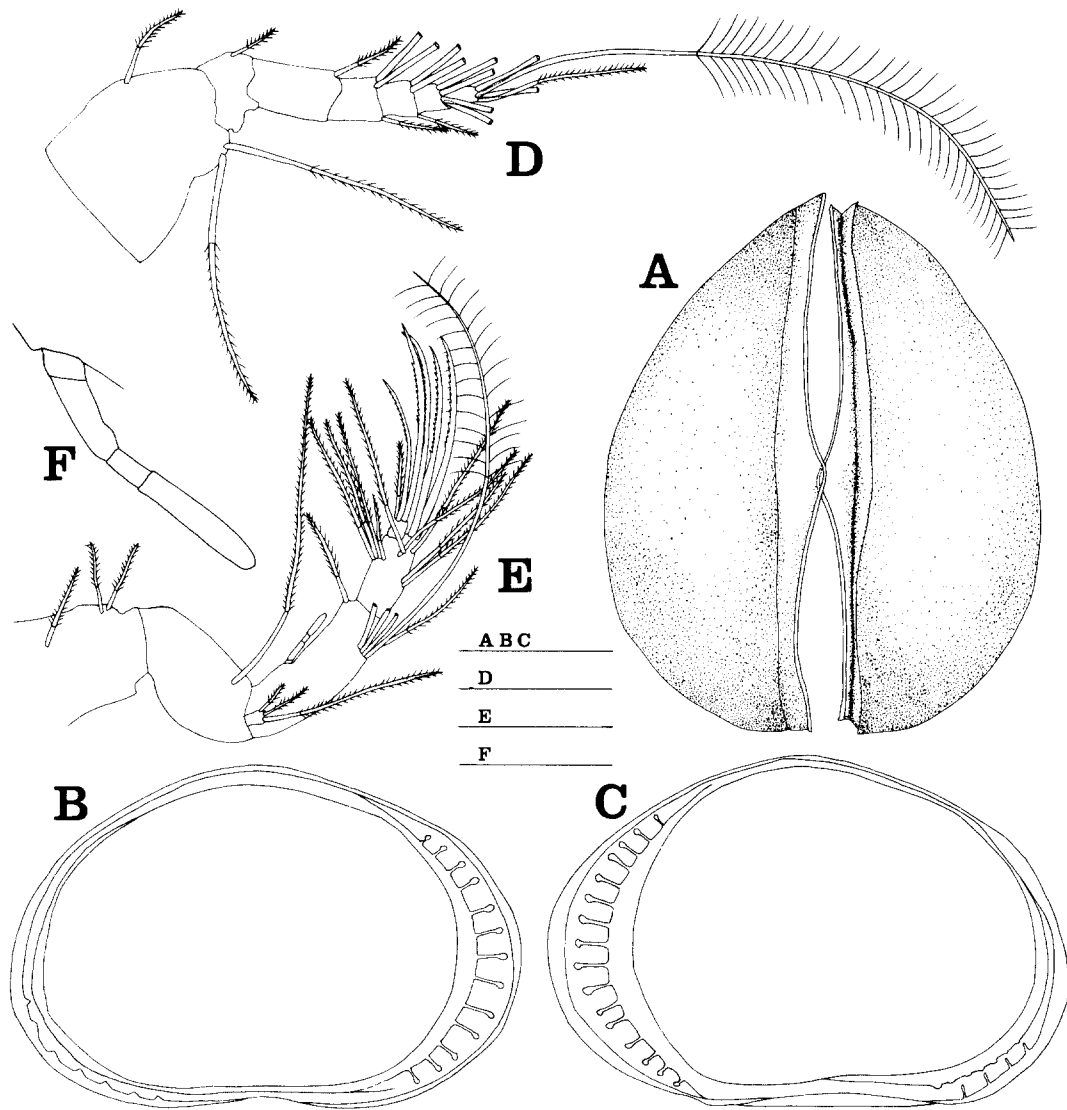


Fig. 4. *Cypretta seurati* Gautier, 1929. Female: A, ventral view of carapace; B-C, lateral exterior views of left and right valves; D, first antenna; E, second antenna; F, sense club. (Scale: A, B, C = 200 μm ; D = 90 μm ; E = 130 μm ; F = 25 μm).

three stout bare and three slender spinose bristles. Outer masticatory process bearing one spinose, two stout tuberculated, one L-shaped hairy, and five bare bristles on distal end. Middle masticatory process bearing five bare bristles. Inner masticatory

process bearing numerous bare bristles and two long pectinated bristles.

First thoracic leg with one protopodite, one endopodite, and one exopodite plate. Protopodite (Fig. 6E) bearing nine spinose bristles on distal

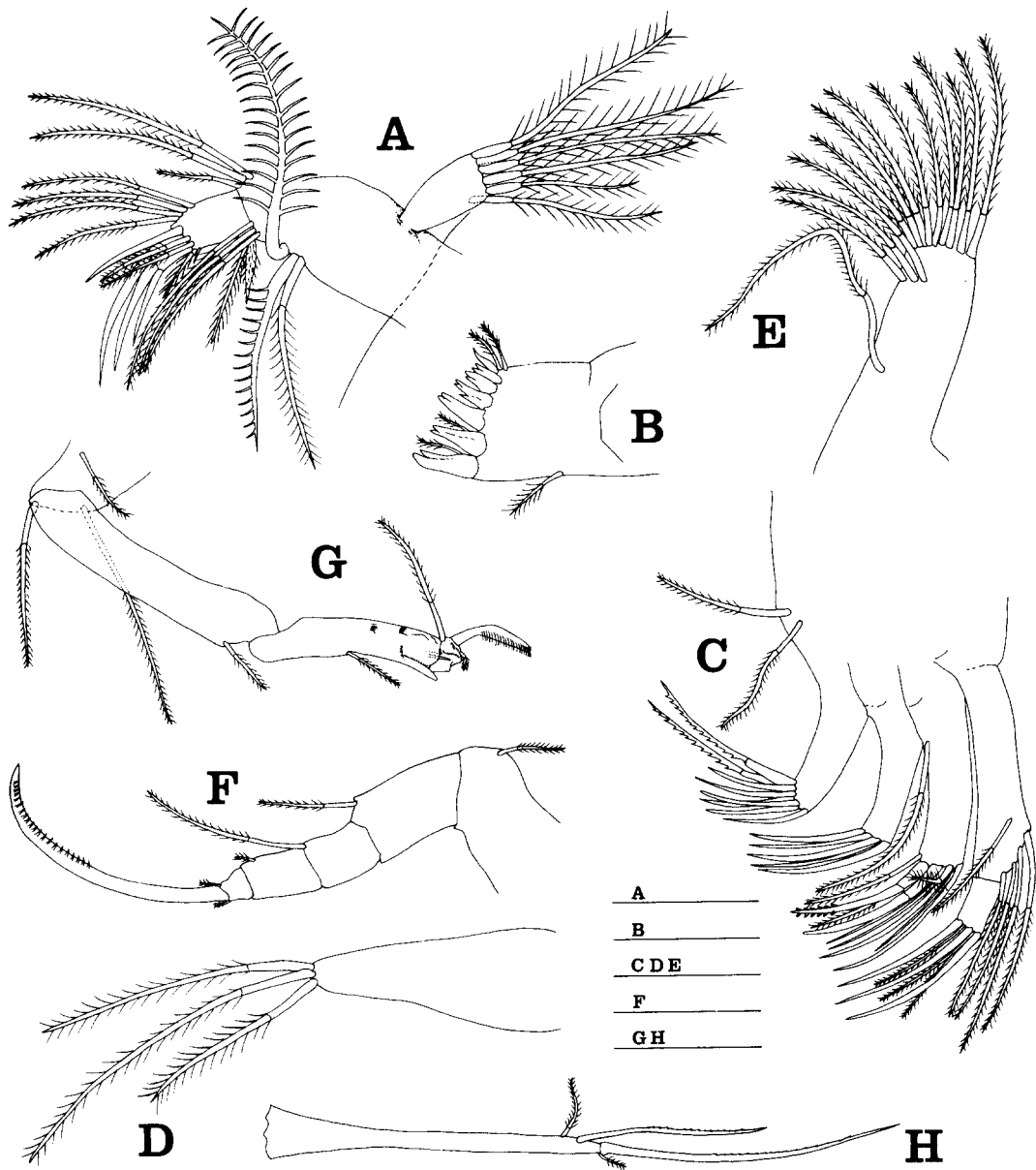


Fig. 5. *Cypretta seurati* Gautier, 1929. Female: A, mandible; B, teeth of mandible; C, maxilla; D, endopodite of first thoracic leg; E, protopodite of first thoracic leg; F, second thoracic leg; G, third thoracic leg; H, furca. (Scale: A = 70 μ m; B, C, D, E = 50 μ m; F = 85 μ m; G, H = 60 μ m).

end. Endopodite (Fig. 6D) with non-segmented palp bearing three spinose bristles distally.

Second thoracic leg (Fig. 6F) with two fused podomeres of protopodite and four podomeres of

endopodite. Second podomere of protopodite bearing one short spinose bristle. Second podomere of endopodite bearing one spinose bristle on distal end of ventral margin, this bristle reaching to

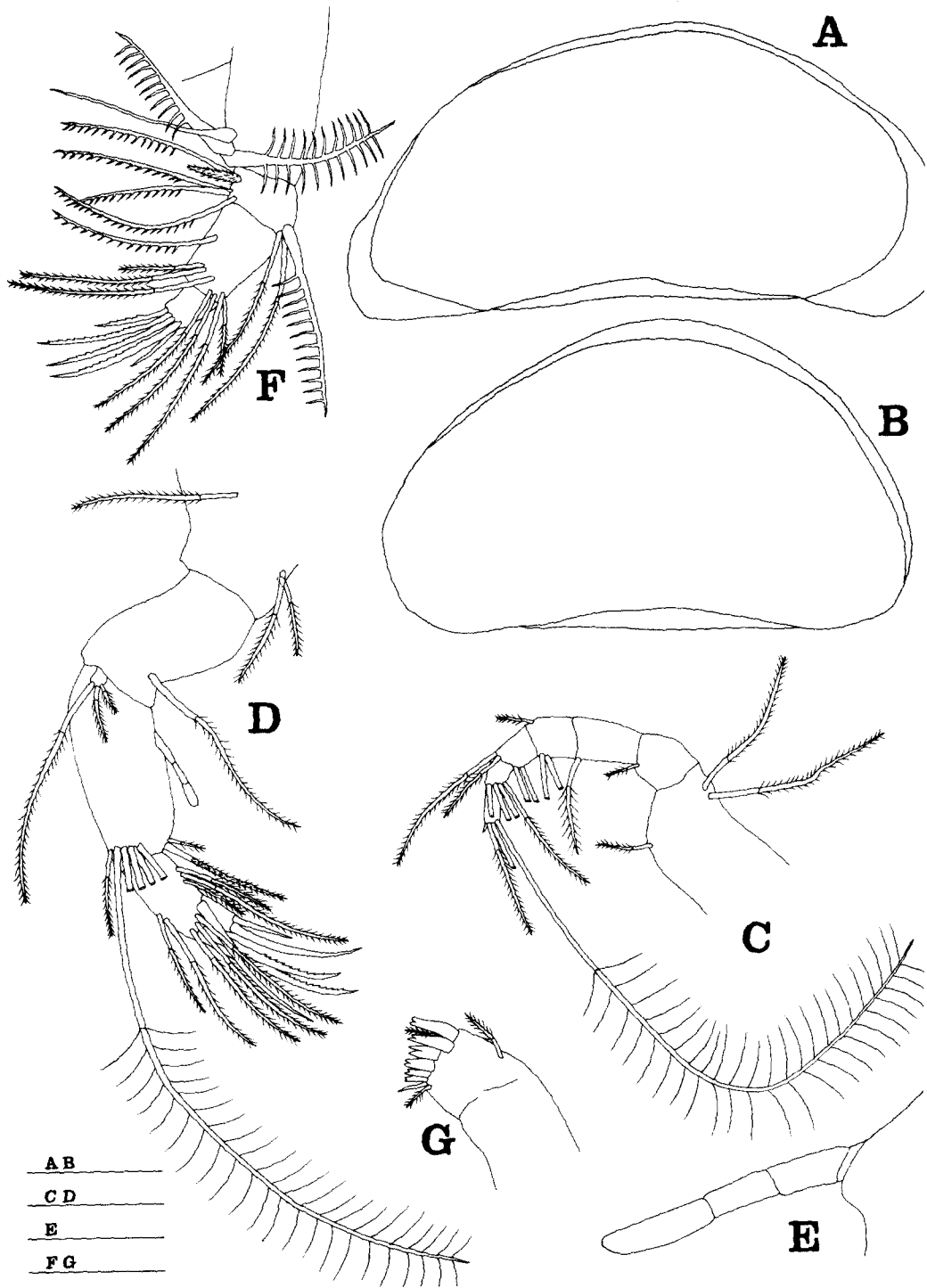


Fig. 6. *Potamocypris producta* (Sars, 1924), Female: A-B, lateral exterior views of left and right valves; C, first antenna; D, second antenna; E, sense club; F, Mandible; G, teeth of mandible. (Scale: A, B = 130 μm ; C, D = 60 μm ; E = 15 μm ; F, G = 50 μm).

1/3 of distal claw.

Third thoracic leg (Fig. 6G) with two fused podomeres of protopodite and three podomeres of endopodite. Third podomere of endopodite bearing one long backward-pointed spinose bristle, this bristle 4/5 of second podomere length.

Furcal rami (Fig. 6H) very slender and straight. Length ratio of stick, terminal claw, subterminal claw, dorsal bristle and distal bristle, 36: 33: 21: 7: 3.

Distribution.—Korea, Japan, Indonesia, Sahara Desert and Italy.

Subfamily Cypridopsinae Kaufmann, 1900

Genus *Potamocypris* Brady, 1870

***Potamocypris producta* (Sars, 1924)**

(Figs. 6-7)

Potamocypris producta: Gautier, 1939, p. 230, Fig. 15; Okubo, 1976, pp. 52-56, Fig. 1; Meisch, 1985, pp. 67-72, Figs. 22-24.

Materials Examined.—11 ♀♀, Sögwip'o, Feb. 17, 1987 (C. Y. Chang and S. M. Yoon).

Description of female.—Carapace length 0.52-0.60 mm, maximum height of left valve 0.31-0.36 mm at middle.

Left valve 1.1 times as long as right; anterior and posterior ends of left valve far overreaching those of right valve. Surface of carapace with shallow pits; covered with long hairs; whitish in color.

Left valve (Fig. 6A) elongated crescent reniform in lateral view; height 1/2 times as long as length; dorsal margin convex; ventral margin concave at middle; anterior and posterior ends with well developed flanges; flanges forming lobes at both ends.

Right valve (Fig. 6B) semicircular in lateral view; without flange; dorsal margin conspicuously convex with hump; ventral margin more concave than that of left.

First antenna (Fig. 6C) with seven podomeres. Length ratio of first to seventh podomeres along dorsal margin, 33: 14: 16: 11: 9: 8: 9. Fourth to seven podomeres bearing long natatory bristles; Fourth bearing two, fifth two, sixth four and seventh two bristles. All natatory bristles 1.3 times as long as whole length of first antenna.

Second antenna (Fig. 6D) with two podomeres

of protopodite, three of endopodite, and one small exopodite. First podomere of protopodite bearing three spinose bristles. Second podomere of protopodite bearing one spinose bristle, this bristle not reaching to distal end of second podomere of endopodite. Exopodite bearing two short and one long bristles; long bristle reaching to middle of second podomere of endopodite and short bristles less than 1/4 of long bristle length. Length ratio of podomeres 1-3 of endopodite along dorsal margin, 60: 28: 12. Ventral margin of first podomere of endopodite bearing one four-segmented sense club (Fig. 6E). Dorsal margin of first podomere of endopodite bearing five long natatory and one short spinose bristles on distal end; natatory bristles far overreaching terminal claws and spinose bristle as long as 1/7 of natatory bristle length. Second and third podomeres of endopodite bearing three and two stout terminal claws, respectively.

Mandible (Fig. 6F) with two podomeres of protopodite, three of endopodite, and one platelike exopodite. First podomere of protopodite bearing one row of seven teeth (Fig. 6G). Third podomere of endopodite bearing five stout terminal claws.

Maxilla (Fig. 7A) with three masticatory processes and one two-segmented palp. Second podomere of masticatory palp bearing six stout bare bristles. Outer masticatory process bearing two stout bare bristles on distal end. Inner masticatory process bearing numerous spinose bristles; without pectinated bristles.

First thoracic leg with one protopodite, one endopodite, and one exopodite plate. Endopodite (Fig. 7B) bearing three spinose bristles distally.

Second thoracic leg (Fig. 7C) with two fused podomeres of protopodite and four podomeres of endopodite. Second podomere of endopodite bearing one spinose bristle on distal end of ventral margin; this bristle slightly overreaching distal end of third podomere of endopodite.

Third thoracic leg (Fig. 7D) with two fused podomeres of protopodite and three podomeres of endopodite. Third podomere of endopodite bearing one long backward-pointed spinose bristle; this bristle 7/10 of second podomere length.

Furcal rami (Fig. 7E) filamentous; without terminal claw.

Remarks.—Although Sars (1924) has described a

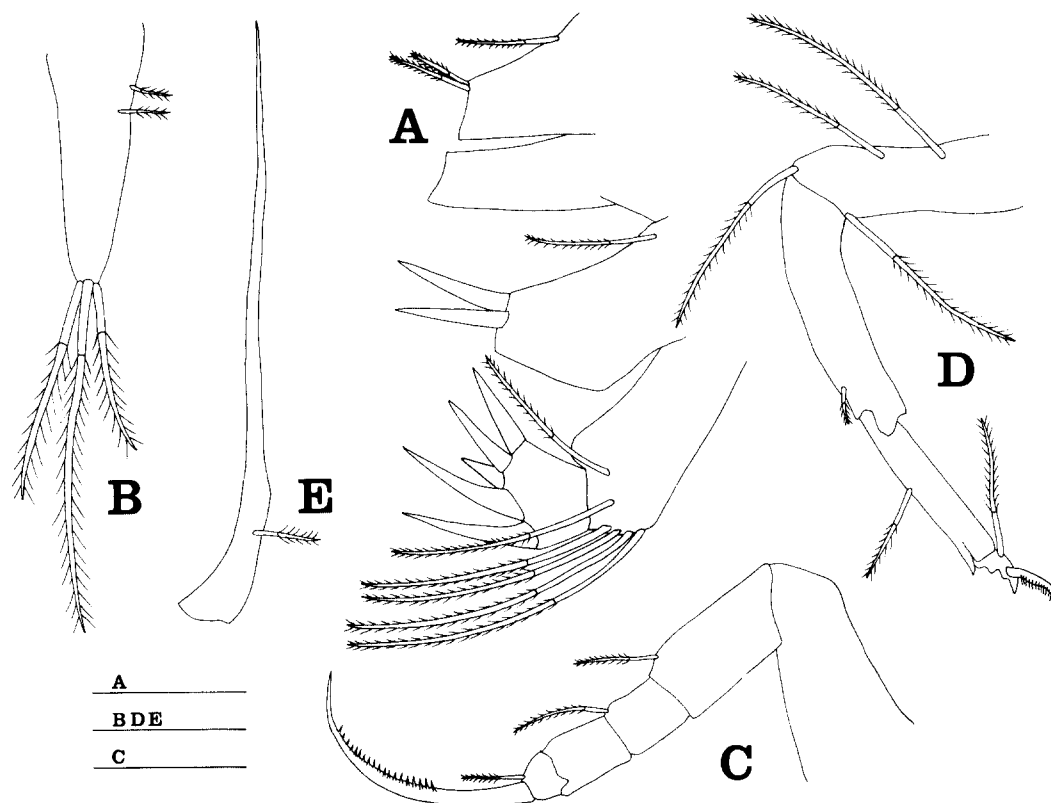


Fig. 7. *Potamocypris producta* (Sars, 1924). Female: A, maxilla; B, first thoracic leg; C, second thoracic leg; D, third thoracic leg; E, furca. (Scale: A = 30 μm ; B, D, E, F = 40 μm ; C = 60 μm).

male specimen of this species (cited from Okubo, 1976), there have been no mentions about males in most of the other reports (Gautier, 1939; Okubo, 1976; Meisch, 1985). Males also were not found in Korea.

As our specimens have stored in formalin for a long period and were severely damaged, we could not illustrated the characters of this species in detail. While, in spite of its incompleteness, our specimens were readily identified as *P. producta* by its conspicuous characteristics of carapace shape.

Distribution.—Korea, Japan and South Africa.

Family Ilyocyprididae Kaufmann, 1900

Genus *Ilyocypris* Brady and Norman, 1889

***Ilyocypris dentifera* Sars, 1903**

(Figs. 8-9)

Ilyocypris dentifera Sars, 1903, pp. 38-39, pl. 4, figs. 8a-8c; Victor and Fernando, 1981a, pp. 36, 38, figs. 149-170; Victor and Fernando, 1981b, pp. 1103-1110, figs. 1-38.

Material Examined.—2 ♂♂, 3 ♀♀, Yŏnch'ŏn-ŭp, Aug. 13, 1989; (H. B. Gong and G. J. Bae); 3 ♂♂, 2 ♀♀, Ilsan, Koyang-gun, Jun. 14, 1989; 1 ♀, Naeri, Ganghwa-gun, Jul. 10, 1990; 2 ♂♂, 3 ♀♀, Ilchik-ri, Ansŏng-gun, Sep. 3, 1989; 3 ♂♂, 5 ♀♀, Yŏngjŏng Is., Aug. 30, 1989; 1 ♂, Sŏjŏng-dong, Songt'an-shi, Sep. 3, 1989; 1 ♂, 2 ♀♀, Chinsan, Ansŏng-gun, Sep. 3, 1989; 1 ♂, 1 ♀, Soho-dong, Kwangmyŏng-shi, Sep. 3, 1989; 1 ♂, Kol-dong, Osan-shi, Sep. 3, 1989; 2 ♂♂, 1 ♀, Koch'ŏn, Shihŭng-gun, Sep. 3, 1989; 1 ♂, Wo'ch'ul Mountain, Yŏng-am-gun; 3 ♂♂, 5 ♀♀, Chinsang-myŏn, Kwang-yang-gun, Sep. 16, 1989; 3 ♂♂, 3 ♀♀, Tongjŏng-dong, Ch'ang-wŏn-shi, Sep. 16, 1989; 1 ♂, Sach'ŏn-ŭp, Sep.

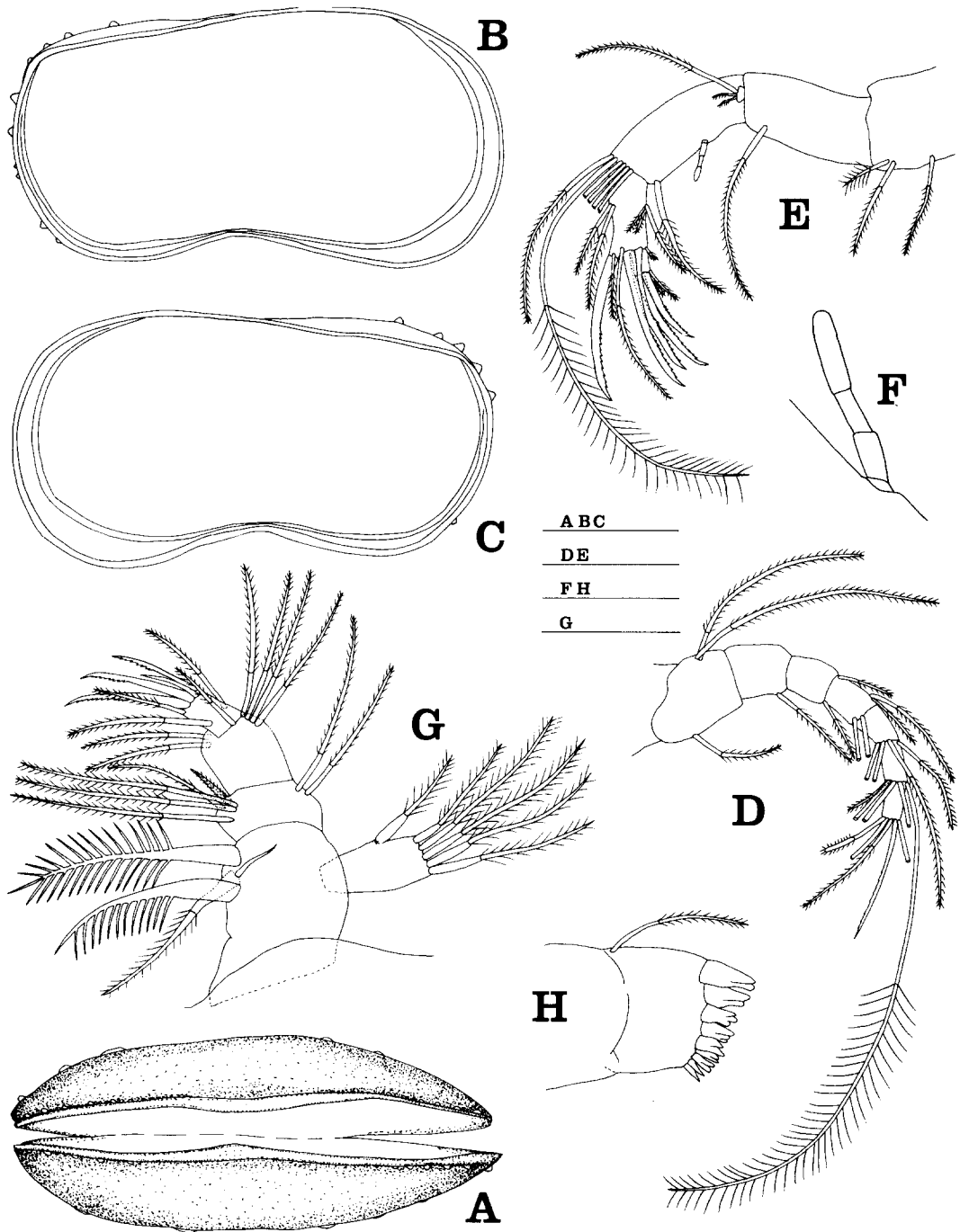


Fig. 8. *Ilyocypris dentifera* Sars, 1903. Female: A, ventral view of carapace; B-C, lateral exterior views of left and right valves; D, first antenna; E, second antenna; F, sense club; G, mandible; H, teeth of mandible. (Scale: A, B, C = 240 μ m; D, E = 100 μ m; F, H = 20 μ m; G = 60 μ m).

13, 1989; 3 ♂♂, 2 ♀♀, Kaya-ŭp, Hapch'ŏn-gun, Sep. 16, 1989; 2 ♂♂, 3 ♀♀, Kimch'ŏn-dong, Kŏch'ang-ŭp, May 14, 1989; 3 ♀♀, Kimch'ŏn-dong, Kŏch'ang-ŭp, Sep. 14, 1989; 2 ♂♂, 5 ♀♀, Kujora, Kŏje-gun, May 5, 1989; 4 ♂♂, 5 ♀♀, Kuch'ŏn Valley, Kŏje-gun, May 4, 1989; 1 ♂, 1 ♀, Yugok-dong, Chinju-shi, sep. 16, 1989; 2 ♂♀, Myŏngsok-myŏn, Chinyang-gun, Sep. 14, 1989; 5 ♀♂, 6 ♂♀, P'yŏnggŏ-dong, Chinju-shi, May 15, 1989; 2 ♀♀, Obu-myŏn, Sanch'ŏng-gun, Sep. 14, 1989; 1 ♀, Samga-myŏn, Hapch'ŏn-gun, Sep. 14, 1989; 1 ♂, Toriwŏn, Sep. 12, 1989; 3 ♀♀, Onsu Reservoir, Ch'unch'ŏn-shi, Jul. 25, 1984 (C. Y. Chang); 2 ♂♂, 1 ♀, Saemal resting place, Wŏnsŏng-gun, Sep. 28, 1989; 1 ♂, 1 ♀, Yŏnhwa, Yŏng-wŏl-ŭp, Jun. 24, 1986 (I. H. Kim); 4 ♂♂, Komyŏng-dong, Chech'ŏn-shi, Sep. 10, 1989; 1 ♂, 2 ♀♀, Maep'o-ŭp, Tanyang-gun, Sep. 10, 1989; 2 ♀♀, Sangju-shi bus terminal, Sep. 12, 1989; 2 ♂♂, 3 ♀♀, Yech'ŏn-ŭp, Sep. 16, 1989; 2 ♂♂, 4 ♀♀, Sa-dong, Ullŭng Is., Jul. 11, 1989; 1 ♂, Sa-dong, Ullŭng Is., Jul. 11, 1989; 1 ♂, 3 ♀♀, Chŏmch'on-shi bus terminal, Sep. 12, 1989; 1 ♀, Byŏnggok, Yŏngdŏk-gun, Jul. 19, 1985 (S. M. Yoon); 1 ♂, 1 ♀, Tumo, Namcheju-gun, Apr. 26, 1990; Kosan, Namcheju-gun, Jul. 9, 1986.

Description of female.—Carapace length 0.79–0.89 mm, maximum height 0.50–0.54 mm situated at 1/5 distance from anterior end, maximum width 0.45–0.48 mm situated at 2/5 distance from anterior end.

Carapace (Fig. 8A) spindle shaped in dorsal view; anterior and posterior ends pointed; anterior end narrower than posterior end; dorsal margin straight; sulci present just below dorsal margin at middle part; anterior and posterior margins with tubercles, while without protubules. Left valve overlapping right valve at anterior and posterior ends. Surface of carapace covered with hollows densely; dirty white to brown in color.

Left valve (Fig. 8B) subrectangular in lateral interior view; dorsal margin almost straight; anterior and posterior ends symmetrically rounded; anterior end wider than posterior end; ventral margin conspicuously concave; marginal ridge present at postero-dorsal margin; selvege forming whole free margin; with conspicuous list; selvege and list connected at antero-posterior margin and forming

V-shaped groove.

Right valve (Fig. 8C) similar to left in shape and structure.

First antenna (Fig. 8D) with seven podomeres. Length ratio of first to seventh podomeres along dorsal margin, 14:20:15:14:13:12:12. Fourth to seventh podomeres bearing long natatory bristles: each of fourth, fifth and seventh bearing two bristles and sixth bearing four bristles. All natatory bristles 1.5 times as long as first antenna.

Second antenna (Fig. 8E) with two podomeres of protopodite, three podomeres of endopodite and one small podomere of exopodite. First podomere of protopodite bearing two bristles on ventral margin; second podomere of protopodite bearing one long bristle on ventral margin. Exopodite bearing three bristles; long bristle reaching to distal end of first podomere of endopodite, short bristles less than 1/6 of long bristle length. Length ratio of podomeres 1–3 of endopodite along dorsal margin, 55: 35: 10. Ventral margin of first podomere of endopodite bearing one four-segmented sense club (Fig. 8F) situated at middle of this podomere. First podomere of endopodite bearing five long natatory and one short spinose bristles on distal margin; all natatory bristles 1.5 times as long as whole length of endopodites 1–3. Second podomere of endopodite bearing three stout terminal claws; all claws 1/2 times of whole length of endopodites. Third podomere of endopodite bearing one stout and one slender terminal claws; stout terminal claw slightly shorter than long terminal claw of second podomere and slender claw reaching to 7/10 of stout claw length of third podomere.

Mandible (Fig. 8G) with two podomeres of protopodite, three podomeres of endopodite, and one platelike podomere of exopodite. First podomere of protopodite bearing one row of nine teeth (Fig. 8H). Third podomere of endopodite bearing three stout long and one slender short terminal claws.

Maxilla (Fig. 9A) with one branchial plate, three masticatory processes, one two-segmented palp. Second podomere of masticatory palp bearing six bare stout bristles. Inner masticatory process bearing numerous bare short bristles; without pectinated bristles.

First thoracic leg with one protopodite, one en-

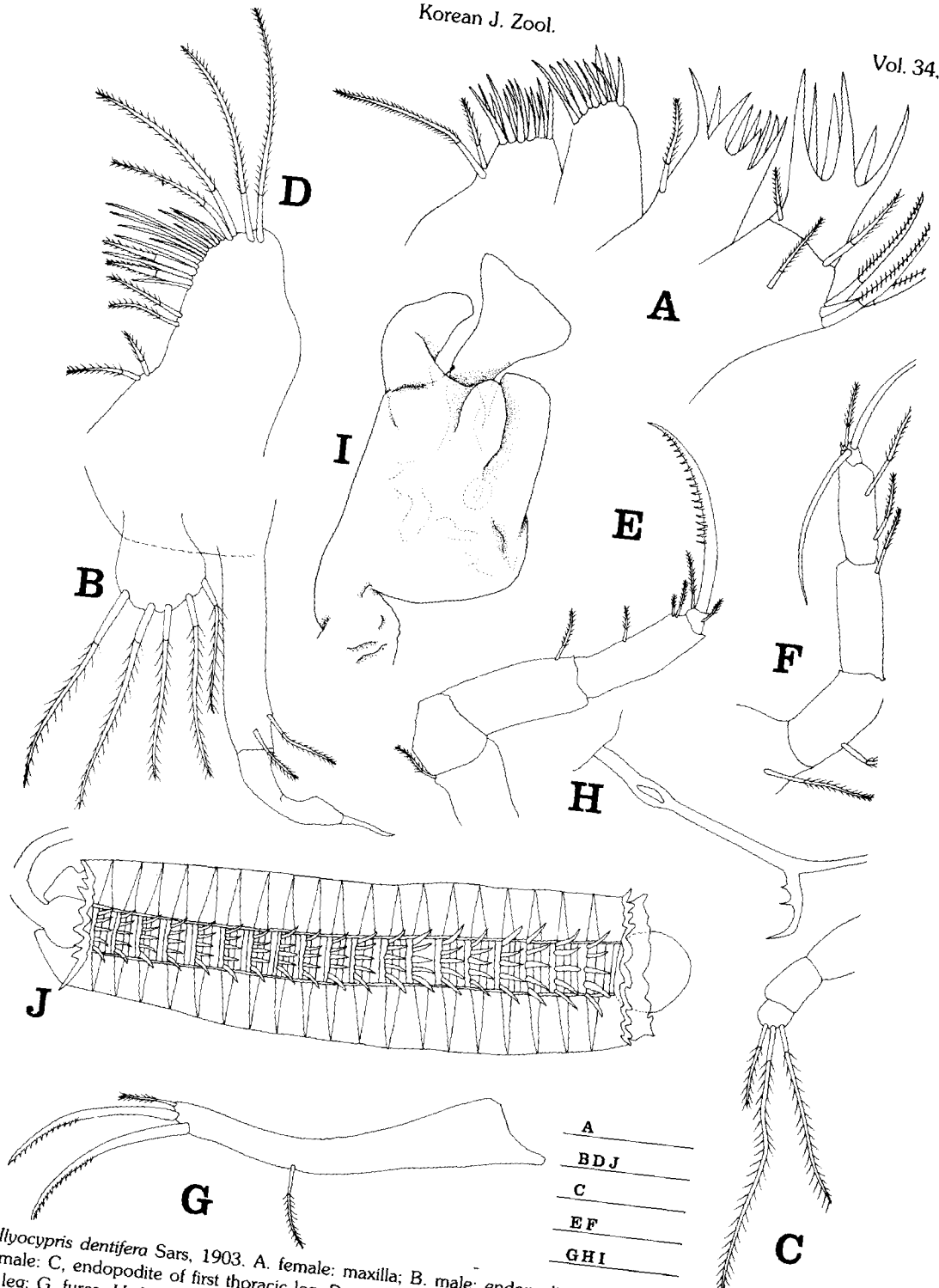


Fig. 9. *Ilyocypris dentifera* Sars, 1903. A. female: maxilla; B. male: endopodite and exopodite of first thoracic leg. C-H. female: C, endopodite of first thoracic leg; D, protopodite of first thoracic leg; E, second thoracic leg; F, third thoracic leg; G, furca; H, furcal attachment, I-J, male: I, hemipenis; J, Zenker's organ. (Scale; A = 30 μm ; B, D, J = 45 μm ; E, F = 90 μm ; G, H, I = 60 μm).

dopodite, and one exopodite plate. Endopodite (Fig. 9C) with three podomeres; third podomere of endopodite bearing three spinose bristles distally. Protopodite (Fig. 9D) bearing 21 bristles on distal margin.

Second thoracic leg (Fig. 9E) with two fused podomeres of protopodite and four podomeres of endopodite. Fourth podomere of endopodite bearing two spinose bristles and one long stout claw on distal end.

Third thoracic leg (Fig. 9F) with two fused podomeres of protopodite and four podomeres of endopodite. Fourth podomere of endopodite bearing two long bare and one short spinose bristles; without claw on distal end.

Left and right furcal rami (Fig. 9G) symmetrical and conspicuously convex at dorsal margin; length ratio of furcal ramus, terminal claw, subterminal claw, dorsal bristle and distal bristle, 42: 20: 21: 10: 7.

Furcal attachment (Fig. 9H) Y-shaped; median part with one chitin loop.

Description of male.—Similar to female in carapace and soft part.

Male smaller than female (length range: 0.72-0.76 mm). Left and right endopodites of first thoracic leg (Fig. 9B) symmetrical with two segments; transformed into prehensile organs. Penis 1/2 length of Zenker's organ. Zenker's organ bearing 19 spinose whorles with radiative spines.

Remarks.—This species is strongly similar to *I. angulata* Sars, 1903 in carapace and appendages except that *I. angulata* (see Sars, 1903) has conspicuous protubercles on both valves while *I. dentifera* has not.

Distribution.—Korea and China.

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한국 현생 담수 패충류(갑각상강 : 패충강) 4종의 재기재
김 원 · 민기식(서울대학교 자연과학대학 분자생물학과)

현생 담수산 패충류에 대한 분류학적 연구로 남한의 44개 지점에서 채집된 표본을 관찰한 결과 4종의 한국미기록종이 동정되었다: *Stenocypris hislopi* Ferguson, 1969, *Cypretta seurati* Gautier, 1929, *Potamocypris producta*(Sars, 1924), *Ilyocypris dentifera* Sars, 1903. 이로써 남한에서는 11종(9종, 2아종)의 현생 담수산 패충류가 알려지게 되었다.