

Systematic Studies on Syllidae (Annelida, Polychaeta) from the South Sea and the East Sea in Korea.

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ABSTRACT

The following accounts of the family Syllidae are based upon the materials which have been collected from 39 localities in the coast of South Sea and the East Sea in Korea during the period from July, 1980 to November, 1991. As a result of systematic examination, four species are known to be new to Korean fauna which are described and illustrated: *Haplosyllis spongicola*, *Parasphaerosyllis ezoensis*, *Opisthosyllis brunea*, *O. viridis*.

Key words: Systematics. Syllidae. Polychaeta. Annelida. Korea.

INTRODUCTION

The present studies were carried out to clarify the systematic status of the species belonging to five genera (*Haplosyllis* Langerhans, 1879; *Opisthosyllis* Langerhans, 1879; *Trypanosyllis* Claparède, 1864; *Syllis* Savigny, 1818; *Parasphaerosyllis* Monro, 1937) of family Syllidae in the South Sea and in the East Sea in Korea. Until now, nine species of these genera in Korean waters have been recorded (Paik, 1975, 1976, 1979, 1982, 1984; Rho and Lee, 1987; 1988; Lee and Rho, 1992; 1994). In this paper, the authors confirmed eight species including four species which are newly reported from Korea: *Haplosyllis spongicola* (Grube, 1855); *Opisthosyllis brunea* Langerhans, 1879; *O. viridis*, Langerhans, 1879; *Parasphaerosyllis ezoensis* Imajima & Hartman, 1964). This paper deals with the description of the above four species. All the specimens are deposited in the Department of Biology, Ewha Womans University.

SYSTEMATIC ACCOUNT

Class Polychaeta Grube, 1850 다모강

Order Errantia Audouin & Milne-Edwards, 1832 유영목

Family Syllidae Grube, 1850 염주발갯지렁이과

Subfamily Syllinae Rioja, 1925 참염주발갯지렁이아과

1. Pharynx with chitinous trepan; anterior dorsum with two transverse stripes on each segment
 *Trypanosyllis ezoensis*
 — Pharynx without trepan but with one middorsal tooth 2
2. Pharynx with one middorsal tooth in posterior position 4 (*Opisthosyllis*)
 — Pharynx with one middorsal tooth in anterior position 3
3. Parapodia with simple seta only 5 (*Haplosyllis*)
 — Parapodia with compound seta and simple or pseudocompound seta 6 (*Syllis*)
 — Parapodia with compound seta and two additional simple seta posteriorly; dorsal cirri alternated
 by moniliform and bulbous form *Parasphaerosyllis ezoensis*
4. Middorsal tooth near posterior end of pharynx, dorsum covered with minute papillae
 *Opisthosyllis viridis*
 — Middorsal tooth in two thirds of pharynx; dorsum without papilla *Opisthosyllis brunea*
5. Seta of first parapodium distinctively bidentate; acicula in anterior parapodium numbering two
 *Haplosyllis spongicola*
 — Seta of first parapodium unidentate and with blunt tip; acicula in anterior parapodium
 numbering four to five *Haplosyllis tentaculata*
6. Median dorsal cirri with less than 10 annulations, spindle shape; simple seta Y-shaped
 *Syllis gracilis*
 — Median dorsal cirri with more than 10 annulations, slender; simple seta obliquely acute
 *Syllis amica*

Genus *Haplosyllis* Langerhans, 1879 제일염주발갯지렁이 속

1. *Haplosyllis spongicola* (Grube, 1855) 해면염주발갯지렁이(신칭) [Fig. 1]

Syllis spongicola: McIntosh, 1908, p. 197, pl. 51, fig. 4, pl. 70, fig. 21, pl. 79, fig. 15; Fauvel, 1923, p. 257, fig. 95a-d.

Syllis (*Haplosyllis*) *spongicola*: Monro, 1937, p. 273; Fauvel, 1923, p. 257, fig. 95: 1953, p. 147, fig. 75a-d; Knox, 1960, p. 103; Day, 1967, p. 240, fig. 12. 1e-i.

Haplosyllis spongicola: Hartman, 1945, p. 15; Imajima & Hartman, 1964, p. 120; Imajima, 1966, p. 220, fig. 38 a-h; Hartman, 1968, p. 433, figs. 1-4; Amoureux, *et al*, 1978, p. 98.

Haplosyllis spongicola spongicola: Banse & Hodson, 1968, p. 58, fig. 14m

Material Examined. One specimen, K'ünsŏm, 29 Jul. 1980 (J.I. Song); 2 specimens, Mip'ŏ, 27 Dec. 1986 (J.I. Song); 10 specimens, Sŏngsanp'ŏ, 16 Jun. 1987 (J.W. Lee); 1 specimen, Tŏsan, 3 m depth, 14 Aug. 1987 (B.J. Rho); 1 specimen, Kamp'ŏ, 25 Jun. 1988 (J.W. Lee); 1 specimen, Naejangdo, 24 Jul. 1988 (B.J. Rho); 35 specimens, Sŏdo, 29 Jul. 1988 (B.J. Rho & J.W. Lee); 11

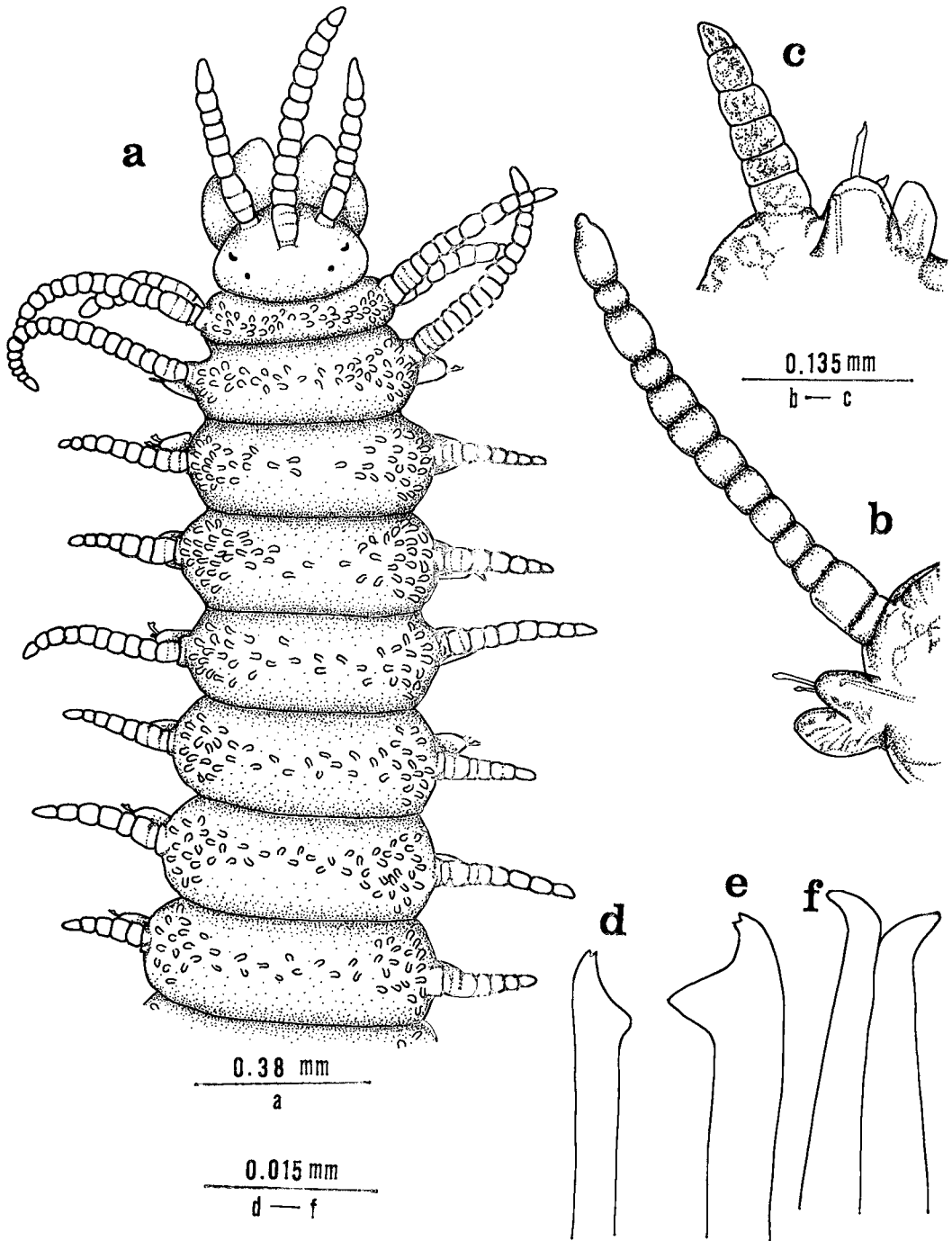


Fig. 1. *Haplosyllis spongicola* (Grube): a, anterior end, dorsal view; b, anterior parapodium; c, median parapodium; d, simple seta from first parapodium; e, simple seta from median parapodium; f, acicula from median parapodium (unit of scales: mm).

specimens, Wimiri, Chejudo, 9 Dec. 1988 (J.W. Lee); 4 specimens, Sangjuri, Namhaedo, 26 Apr. 1990 (B.J. Rho & J.W. Lee); one specimen, Mangwolto, 21 Jul. 1990 (J.W. Lee); 27 specimens, Jikkudo, 22 Jul. 1990 (J.W. Lee); 20 specimens, Hoenggando, 23 Jul. 1990 (J.W. Lee); 21 specimens, Hup'o, 24 Jul. 1990 (J.W. Lee); 1 specimen, Chikkudo, 2 Jul. 1991 (J.E. Seo); 1 specimen, Ch'agwido, Chejudo, 23 Oct. 1991 (J.I. Song); 1 specimen, Söngsanp'o, 24 Oct. 1991 (J.I. Song).

Description. Specimens preserved in formalin whitish yellow and surface of dorsum transversely papillated. Largest specimen 11.35 mm long, 0.73 mm wide (including parapodia) for 62 setigerous segments. Prostomium broader than long, about twice as wide as median length; anteromedian part forming rounded, obtuse angle; lateral side rounded; posterior edge slightly convex. Two pairs of eyes on posterior half of prostomium, in trapezoidal arrangement (Fig. 1a). Median antenna with 13-18 annulations, originating from center of prostomium. Lateral antenna with 9-13 annulations, arising from the anterior margin of prostomium. Palp subtriangular, basally fused, nearly equal to prostomium in length. Tentacular segment, approximately half length of following segment. Dorsal tentacular cirri with 11-16 annulations, slightly longer than lateral antenna. Ventral tentacular cirri with 7-10 annulations, approximately 1/2-1/3 longer than dorsal ones. Pharynx brick-red or light orange, with large anterior middorsal tooth. Proventriculus found in 4-5 consecutive segments, cylindrical. First dorsal cirrus with 13-25 annulations, second with 6-12, third with 9-15, fourth with 12-16 respectively. Dorsal cirri in median region alternately long and short, with 6-12 and 4-6 annulations. Each parapodium with two to three simply seta only; dorsal part of seta bifid, and subdistal part with triangular projection laterally (Fig. 1d, e). Acicula numbering two in all parapodia; tips slightly bent (Fig. 1f).

Remarks. Dorsal cirri of *Haplosyllis spongicola* has distinctive annulations, however some of specimens from Jikkudo, Hoenggando and Hup'o have indistinctive annulation at the base of dorsal cirri. Number of acicula on parapodium is two or three, positioned at anterior and median parts, however it is two at posterior part: one is straight and the other distally bent, while some specimens of Hoenggando have two acicula which are distally bent. Our specimens show the same dorsum with median papillae as described by McIntosh (1908, p. 197). However, specimens Yoondolsöm and Ch'agwido have no such papillae. Day (1967, p. 240), Imajima & Hartman (1964, p. 120), Imajima (1966, p. 220), and Fauvel (1923, p. 257) did not state papilla on dorsum.

Habitat. Surface of Ascidiace, in Porifera, among seaweeds, shell of *Mytilus*.

Distribution. Mediterranean Sea, Red Sed, Atlantic Ocean, Indian Ocean, southern California to Panama, southern Japan, Korea.

2. *Haplosyllis tentaculata* (Marion, 1879) 축수염주발갯지렁이

Haplosyllis spongicola tentaculata: Imajima, 1966, p. 221, text-fig. 38i-n; 1982, p. 460, fig. 29h-l.

Haplosyllis tentaculata: Rho & Lee, 1987, p. 78, fig. 3; 1988, p. 129.

Material examined. Five specimens, Taeyon, 28 Jan. 1988 (J.I. Song); 1 specimen, Jikkudo, 22 Jul. 1990 (J.W. Lee); 1 specimen, Pmsm, 22 Oct. 1991 (scuba).

Habitat. In Porifera, from intertidal zone to 30 m depth.

Distribution. France, Gulf of Naples, southern Japan, Korea.

Genus *Opisthosyllis* Langerhans, 1879 뒤이염주발갯지렁이 속

3. *Opisthosyllis brunea* Langerhans, 1879 갈색뒤이염주발갯지렁이 (신칭) [Fig. 2]

Opisthosyllis brunea Langerhans, 1879, p. 541, fig. 7 (cited from Imajima, 1966); Imajima, 1966, p. 230, text-fig. 42; Imajima, 1983a p. 66, fig. 31a-n; Lamour, Rullier et Fishelson, 1978, p. 112.

Material examined. One specimen, Nukto, 22 Jul. 1988 (J.W. Lee).

Description. Specimens preserved in formalin whitish yellow, 23.98 mm long for 70 segments and 1.4 mm wide excluding parapodia. Prostomium (Fig. 2a) elliptic, wider than long. Median antenna with 17 annulations, originating from posterior part of prostomium. Lateral antenna with 14 annulations, originating on anterolateral margins of prostomium. Palp triangular, free from each other excepting base. Pharynx red, occupying length of setigerous segments 2-9, approximately 2.14 mm long, with middorsal tooth (Fig. 2e) located in setigerous segment 4 (anterior two thirds of pharynx). Proventriculus barrel-shaped, in setigerous segments 10-15. Dorsal tentacular cirri equal to length of median antenna, with 18 annulations. Ventral tentacular cirri 1/3 length of dorsal tentacular cirri, with 13 annulations. Dorsal cirri with 28 annulations on setigerous segment 1, with 19 on setigerous segment 2, with 27 on setigerous segment 3, with 31 on setigerous segment 4; dorsal cirri on setigerous segments 2, 5 (Fig. 2b), 7 and 8 short; dorsal cirri on setigerous segment 3, 4 and 6 long; thereafter alternately long and short to posterior end, with 27-32 annulations on long cirri (Fig. 2d) and 22-25 annulations on short cirri (Fig. 2c) of median parapodia. Blades of all compound seta (Fig. 2f, g) alike in shape and size, approximately 1.98 μ m long on anterior parapodia, falcigerous and unidentate; blades with fine serrations. Tip of acicula (Fig. 2h) round or bent, number of acicula 4-5 in anterior parapodium, reduced to 2 in posterior parapodium.

Remarks. This specimens are in agreement with Imajima's description (1966, p. 231) except for the simple seta in posterior parapodia and the number of acicula: in our specimens, its number is 4-5 in anterior parapodium instead of 4 of Imajima's specimens and 2 in posterior parapodium instead of one. Our specimen shows no simple seta in posterior parapodium.

Habitat. On Bryozoa.

Distribution. Madeira, northern Japan, Korea.

4. *Opisthosyllis viridis* Langerhans, 1879 뒤이염주발갯지렁이 (신칭) [Fig. 3]

Opisthosyllis viridis Langerhans, 1879, p. 543, fig. 9 (cited from Imajima, 1966); Imajima, 1966, p. 224, text-fig. 39a-c; 1982, p. 460, fig. 29m-v.

Material examined. One specimen, Söngsanp'o, 8 Oct. 1987 (B.J. Rho); 1 specimen, Namyang, Ulöngdo, 19 Jun. 1988 (B.J. Rho); 5 specimens, Chönbu, Ulöngdo, June 20, 1988 (B.J. Rho & J.I. Song); 3 specimens, Hyonp'o, 20 Jun. 1988 (B.J. Rho & J.I. Song); 5 specimens, Naejangdo, 24 Jun. 1988 (B.J. Rho & J.W. Lee); 4 specimens, Södo, 29 Jul. 1988 (B.J. Rho & J.W. Lee); 2 specimens, Wimiri, Chejudo, 9 Dec. 1988 (J.W. Lee); 1 specimen, Sangjuri, Namhaedo, 26 Apr. 1990 (B.J. Rho & J.W. Lee); 16 specimens, Jikkudo, 22 Jul. 1990 (J.W. Lee).

Description. Specimens preserved in formalin whitish yellow. Largest specimen with 99 setigerous segments, 13.89 mm long, 1.24 mm wide including parapodia. Prostomium (Fig. 3a) elliptic, broader than long; posterior side often covered by fold of tentacular segment. Two pairs of red eyes on

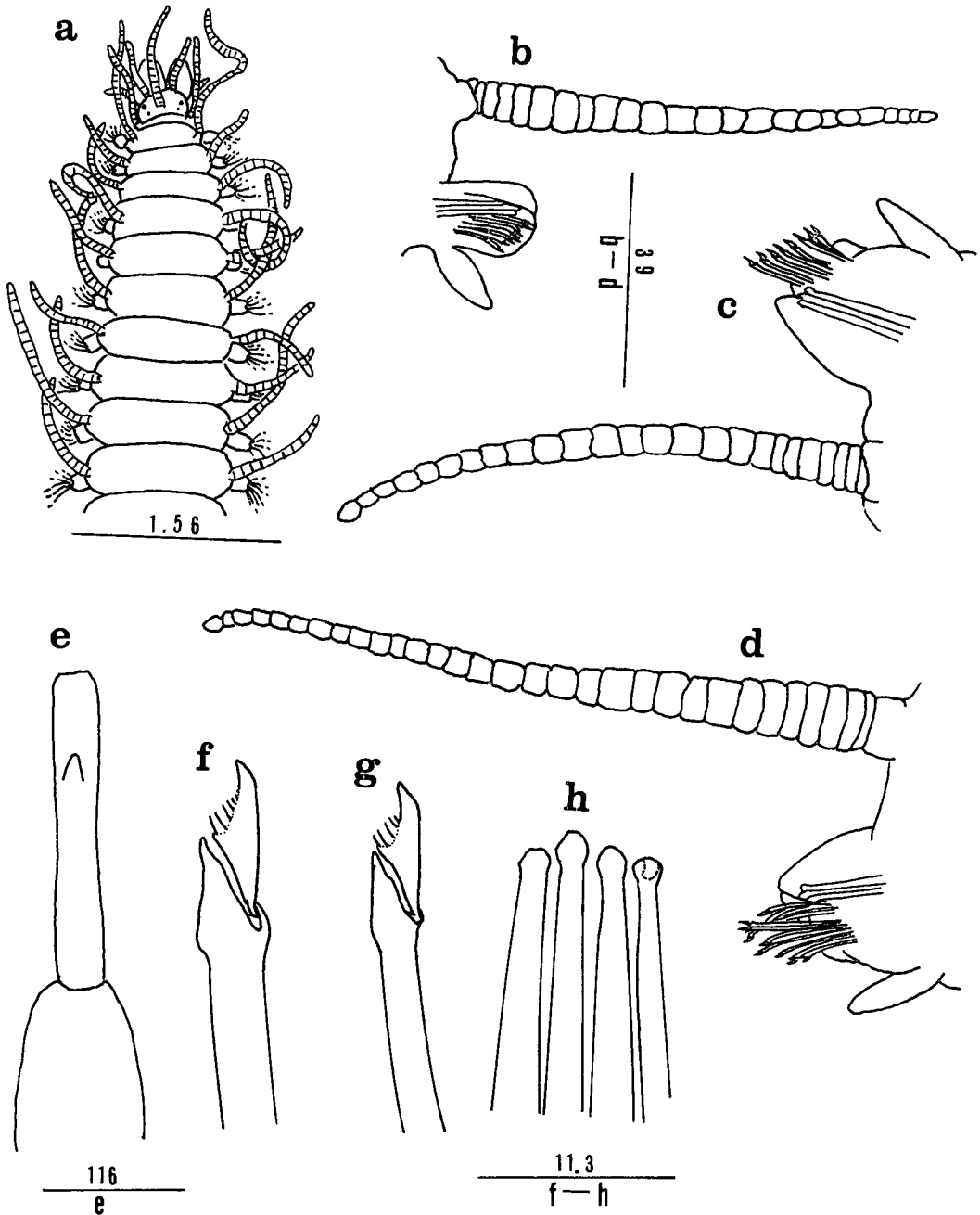


Fig. 2. *Opisthosyllis brunea* Langerhansia, 1879: a, anterior end, dorsal view; b, fifth parapodium with cirrus; c, median parapodium with short cirrus; d, median parapodium with long cirrus; e, pharynx with tooth; f, compound seta from median parapodium; g, compound seta from posterior parapodium; h, acicula (unit of scales: a, mm; b-h, μm).

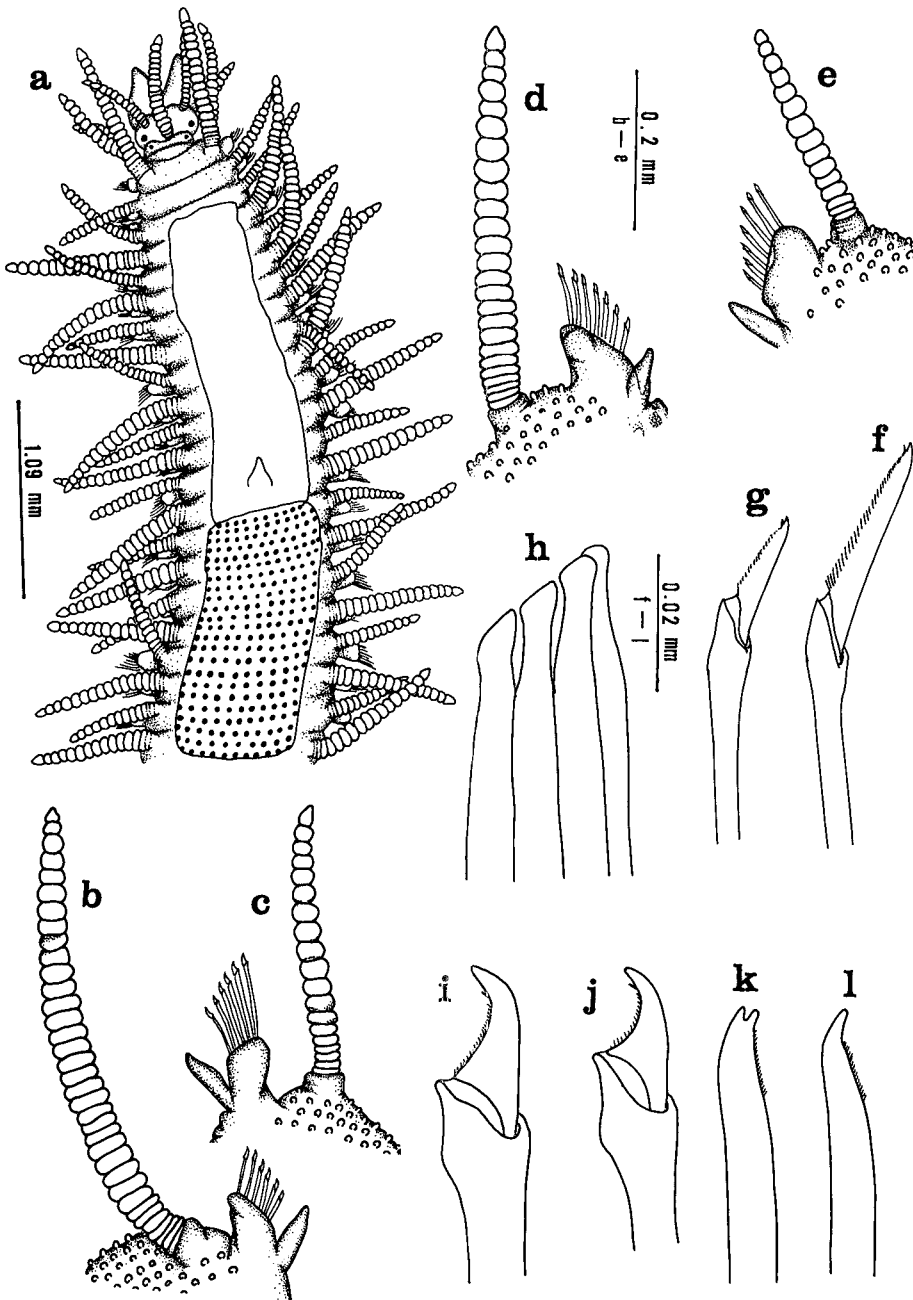


Fig. 3. *Opisthosyllis viridis* Langerhans, 1879: a, anterior end, dorsal view; b, fourth parapodium; c, first parapodium; d, median parapodium with long dorsal cirrus; e, median parapodium with short dorsal cirrus; f, superior compound seta from anterior parapodium; g, inferior compound seta from the same; h, acicula from first parapodium; i, compound seta from median parapodium; j, compound seta from posterior parapodium; k, superior simple seta from posterior parapodium; l, inferior simple seta from the same (unit of scale: mm).

posterior half of prostomium in trapezoidal arrangement; anterior pair larger than posterior one, and widely separated each other. Median antenna with 18-28 annulations, originating between posterior eyes. Lateral antennae about half as long as median one, originating near anterior margin of prostomium. Palps approximately 1.5 times longer than median prostomial length, only slightly fused at base. Dorsal tentacular cirri with 19-30 annulations, similar in length to median antenna. Pharynx (Fig. 3a) orange under stereomicroscope, thin walled, longer than proventriculus, located in setigerous segment 2-10 (middorsal tooth located in setigerous segment 9) or 3-11 (middorsal tooth located in setigerous segment 10). Proventriculus usually in setigerous segments 11-17 or 12-18. Dorsal cirri with 23-48 annulations on first parapodium (Fig. 3c), longer than median antenna, alternately long and short on median parapodia; long dorsal cirri (Fig. 3d) 16-41 annulations; short dorsal cirri (Fig. 3e) with 15-35 annulations; number of annulation depending on size of specimens. Seta compound; blades falcigerous and with short serrations on edge, with very small secondary tooth. In anterior parapodium blades of superior seta (Fig. 3f) longer than those of inferior one (Fig. 3g). (Length ratio of superior setal blade to inferior one 11.5 : 5). Blades of all compound seta in median (Fig. 3i) and posterior (Fig. 3j) parapodia similar in shape and size thicker than those in anterior. Superior simple seta (Fig. 3k) with distinctive bifid tips, beginning to be found from median parapodia. Inferior simple (Fig. 3l) seta on posterior parapodia terminating in acute tip. Number of acicula (Fig. 3h) is four in each parapodium of anterior segments; tips slightly enlarged and blunt; numbering two in median parapodium, one in posterior parapodium.

Remark. Specimens collected from Hoenggando larger than those of other locality in median antenna, and tentacular and dorsal cirri.

Habitat. Among seaweed, crevice of rock, in Porifera.

Distribution. Archipelago of Madeira, southern Japan, Korea.

Genus *Trypanosyllis* Claparède, 1864 톱니염주발갯지렁이 속

5. *Trypanosyllis taeniaformis* (Haswell, 1886) 짧은얼룩염주발갯지렁이

Trypanosyllis zebra: Okuda, 1937 (p. 272, figs. 13, 14).

Trypanosyllis (*Trypanedenta*) *taeniaformis*: Imajima & Hartman, 1964 (p. 127, pl. 30, figs. h-k); Imajima, 1966 (p. 239, text-fig. 45a-i); 1983b (p. 138, fig. 32p-r).

Trypanosyllis taeniaformis: Knox, 1960 (p. 105, fig. 112); Paik, 1982 (p. 778, pl. 9, fig. 1); 1984 (p. 150); Rho & Lee, 1987 (p. 77); 1988 (p. 129).

Material examined. One specimen, Udo, 8 Oct. 1987 (B.J. Rho);

Remarks. Our specimens are smaller than those described by Imajima & Hartman (1964, p. 127) from Japan. Our specimens are in well agreement with description of them except for length of cirri which is attributable to difference in body size.

Habitat. From seaweeds.

Distribution. Southeastern Australia, Red Sea, Persian Gulf, Palau Island, Japan, Korea.

Genus *Syllis* Savigny, 1818 큰염주발갯지렁이 속

6. *Syllis amica* Quatrefages, 1865 단강모염주발갯지렁이

Syllis amica Quatrefages 1865 (p. 20, pl. 5, figs. 16-22) (cited from Fauvel, 1923); Fauvel, 1923 (p. 258, fig. 95e-n); Imajima, 1966 (p. 246, text-fig. 48); 1983 (p. 218 fig. 34a-i); Lee & Rho, 1992

(p. 35, fig. 3).

Syllis (Syllis) amica: Day, 1967 (p. 243, fig. 12, 2a-e).

Material examined. One specimen, Pijindo, 18 Sep. 1983 (C.K. Jae); 1 specimen, Pijindo, 25 May 1987 (C.K. Jae); eleven specimens, Udo, 8 Oct. 1987 (B.J. Rho & J.W. Lee); 5 specimens, Tonggumi, Ulŕngdo, 19 Jun. 1988 (B.J. Rho & J.I. Song); 1 specimen, Taejin, 29 Jun. 1988 (J.W. Lee); 12 specimens, Naejangdo, 24 Jul. 1988 (B.J. Rho & J.W. Lee); 3 specimens, Sodo, 29 Jul. 1988 (B.J. Rho); 9 specimens, Kŕmodo, 31 Jul. 1988 (J.W. Lee); 1 specimen, Jindo, 28 Aug. 1988 (J.W. Lee); 13 specimens, Taep'o, 10 Dec. 1988 (J.W. Lee); 6 specimens, Piyangdo, 11 Dec. 1988 (J.W. Lee); 2 specimens, Changsŕngp'o, 19 Jul. 1989 (J.I. Song); 2 specimen, Haegŕmgang 20 Jul. 1989 (J.I. Song); 5 specimens, Sangjuri, 26 Apr. 1990 (B.J. Rho & J.W. Lee); 41 specimens, Hup'o, 24 Jul. 1990 (B.J. Rho & J.W. Lee); 2 specimens, Kŕgŕmdo, 31 Jun. 1991 (J.W. Lee); 2 specimens, Pongnam, 1 Jul. 1991 (J.E. Seo); 1 specimen, Tongnaedo, 1 Jul. 1991 (J.W. Lee); 2 specimens, Nakp'o, Yoch'on, 5 Nov. 1991 (E.K. Kim); 3 specimens, Yŕmhae, 5 Nov. 1991 (E.K. Kim).

Remarks. Superior simple seta are thicker posteriorly, usually appear from the 25th-33th parapodia, however, one of specimens from Hup'o, Sangch'ujado appears on the first parapodium. Specimens preserved in formalin is generally whitish yellow. However, specimens collected from Bongnam, Namhaedo show brick red. Cirri on median region are cirri alternately long and short ; long cirri have 16 to 22 annulations and short ones 13 to 18 annulations, however, specimens of Annorusŕm, Gŕmundo are 22 to 25 and 16 to 20 annulations, respectively.

Habitat. On ourface of Ascidiacea, among seaweeds and tubes of Polychaeta, shell of oyster, on Bryozoa, in Porifera, crevice of rock, between moss, in sandy silt.

Distribution. Ireland, England Channel, Madeira, Atlantic Ocean, Mediterranean Sea, France, Japan, Korea.

7. *Syllis gracilis* Grube, 1840 출염주발갯지렁이

Syllis gracilis: McIntosh, 1908 (p. 203, pl. 51, fig. 3, pl. 70, fig. 25, pl. 79, fig. 17); Fauvel, 1923 (p. 259, fig. 96f-i); Treadwell, 1939 (p. 211, fig. 39a, b); Reish, 1959 (p. 80); Pettibon, 1963 (p. 116, fig. 32); Imajima, 1966 (p. 248, text-fig. 49a-k); 1983c (p. 218, fig. 34j-r); Banse & Hodson, 1968 (p. 61, fig. 16h); Hartman-Schröder, 1971 (p. 146); Amourex et al., 1978 (p. 99); Paik, 1982 (p. 778, pl. 9m-o).

Syllis (Syllis) gracilis: Fauvel, 1953 (p. 147, fig. 73f-i); Day, 1967 (p. 241, fig. 12, 1m-p).

Material examined. One specimen, Samch'ŕk, 5 Aug. 1983 (B.J. Rho); 1 specimen, Sŕrido, 6 Aug. 1983 (J.I. Song); 8 specimens, P'ohang, 10 m depth, 27 Oct. 1985 (scuba); 3 specimens, Mip'o, 27 Dec. 1986 (J.I. Song); 1 specimen, Ch'ŕnbu, Ulŕngdo, 20 Jun. 1988 (B.J. Rho); 1 specimen, Samch'ŕk, 2 Jun. 1990 (J.W. Lee); 2 specimens, Mangwolto, 21 Jul. 1990 (J.W. Lee); 4 specimens, Jikkudo, 5-6 m depth, 22 Jul. 1990 (scuba); 1 specimen, Pŕmsŕm, 22 Oct. 1991 (scuba).

Habitat. Surface of Ascidiacea, among tubes of Polychaeta, crevice of rock, in Porifera, among seaweeds.

Distribution. Southern California to southern Panama, western and southern Africa, north-east of U.S.A., Indian Ocean, Red Sea, Mediterranean Sea, France, England, southern Japan, Korea.

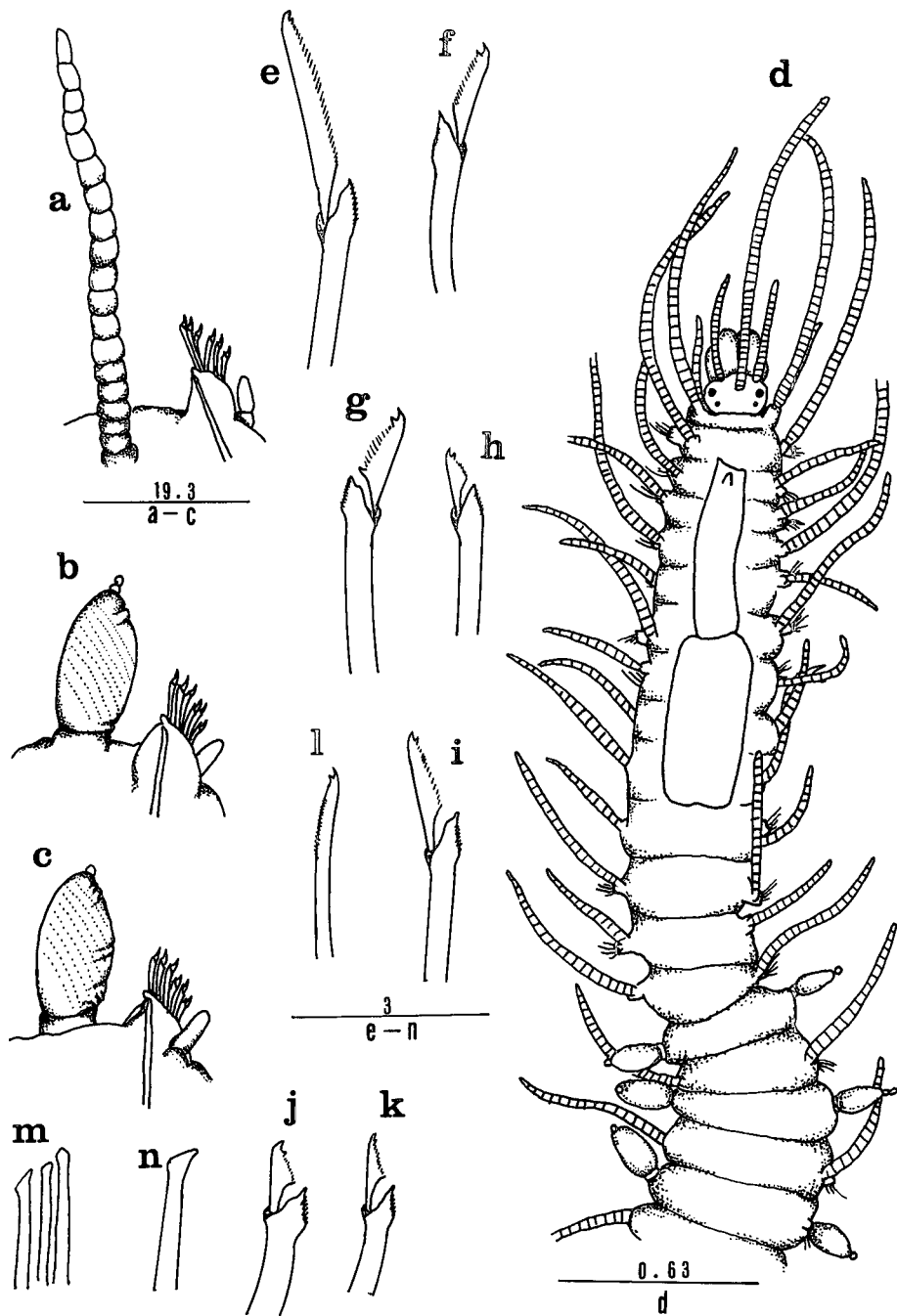


Fig. 4. *Parasphaerosyllis ezoensis* Imajima & Hartman, 1964: a, median parapodium with long, slender moniliform dorsal cirrus; b, c, median parapodium with bulbous cirrus; d, anterior end, dorsal view; e, superior bidentate compound seta from 13th parapodium; f, inferior bidentate compound seta from the same; g, superior bidentate compound seta from median parapodium; h, inferior bidentate compound seta from the same; i, superior bidentate compound seta from posterior parapodium; j, k, inferior bidentate compound seta from the same; l, superior simple seta; m, acicula from the second parapodium; n, acicula from the posterior parapodium (unit of scales: a, mm; b-n, μm).

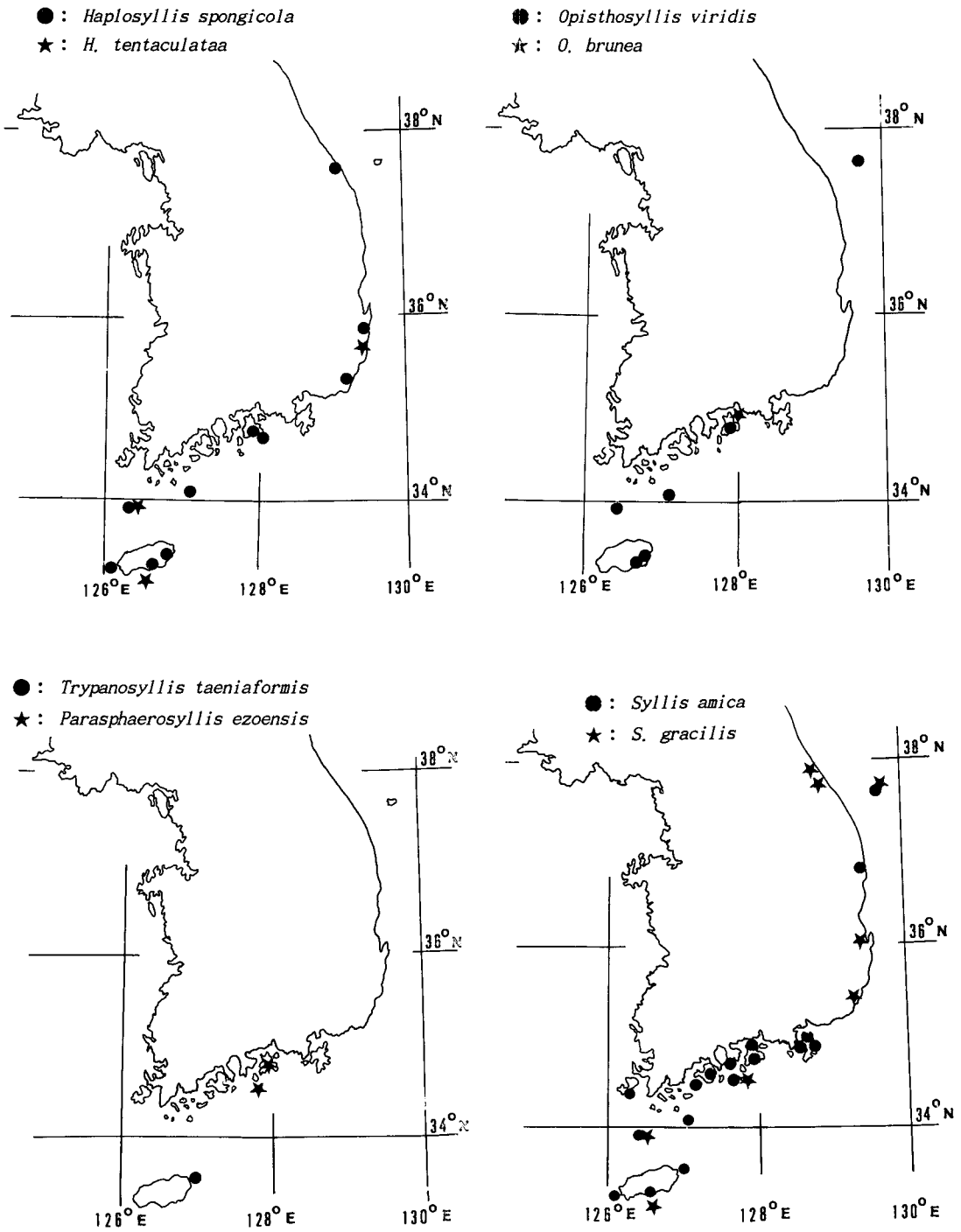


Fig. 5. Map of showing the stations where syllids were collected.

Genus *Parasphaerosyllis* Monro, 1937 측구염주발갯지렁이 속

8. *Parasphaerosyllis ezoensis* Imajima & Hartman, 1964 측구염주발갯지렁이 (신칭)

[Fig. 4]

Parasphaerosyllis ezoensis Imajima & Hartman, 1964 (p. 120, pl. 28, figs. a-h); Imajima, 1966 (p. 253); 1983c (p. 220, fig. 35i-o).

Material examined. Two specimens, Sorido, August 6, 1983 (J.I. Song); 2 specimens, Sangjuri, Namhaedo, 26 Apr. 1990 (J.W. Lee).

Description. Large specimen with 95 annulations, 15.6 mm long, 0.44 mm wide. Prostomium rectangular, broader than long (Fig. 4d). Median antenna with 30 annulations, arising from middle of prostomium. Lateral antennae with 21 annulations, arising from anterior margin of prostomial lobe. Two pairs of red eyes trapezoidal arrangement; anterior pair larger than posterior pair. Palps fused only at base, slightly longer than prostomium (5 : 4). Pharynx light brown, in 5 segments, with middorsal tooth at 2 μ m distance from rim of it. Proventriculus in 3-4 consecutive segments. Dorsal tentacular cirrus with 37 annulations, ventral tentacular cirrus with 15 annulations. Dorsal cirri of anterior parapodia slender and annulated. At setigerous segment 10 to 16 dorsal cirri beginning to appear as large bulbous shape (Fig. 4b, c) terminating in one or two small knob. Bulbous cirrus and slender, moniliform cirrus (Fig. 4a) alternating regularly to end of body. Dorsal cirrus with 37 annulations on setigerous segment 1, approximately equal in length to pharynx; 18 annulations on setigerous segment 2; 25 on setigerous segment 3; 29-35 on setigerous segment 4; 16-19 on setigerous segments 5, 7 and 8; 23-29 on setigerous segments 6 and 9, 17-18 on setigerous segments in median. Approximately 8-10 compound seta in anterior parapodium, 6 in median parapodium. In anterior region, blades in superior setae (Fig. 4e) approximately 2 times as long as those in inferior setae (Fig. 4f); these with short serrations along edge; setal blades in anterior parapodium longer than ones in median (Fig. 4g, h) and posterior (Fig. 4i, j, k) parapodium. In addition, approximately 10 segments from posterior end with two simple seta; one in superior (Fig. 4l) and the other in inferior. In anterior parapodium the number of acicula 3 (Fig. 4m), in posterior parapodium reduce to 1 (Fig. 4n); much stouter in posterior parapodium.

Remarks. These specimens are in agreement with the original descriptions from Japan. But it differs in the following characters; 1) In our specimens number of setae on each parapodium are six to ten but in original description five to six. 2) In our specimens number of acicula is three at anterior parapodium and one at posterior parapodium, but one in original description without clarifying whether it is layed at anterior or posterior parapodium.

Habitat. Among tubes of Polychaeta, among seaweeds.

Distribution. Northern Japan, Korea.

REFERENCES

- Amourex, L., F. Rullier et L. Fishelson, 1978. Systematique et ecologie d'Annelides polychaetes de la Presqu'il du Sinai. *Isr. J. Zool.* **27**d: 57-163.
- Banse, K. and K. D. Hodson, 1968. Benthic Polychaetes from Puget Sound, Washington, with

- remarks on four species. Proc. U.S. Nat. Mus. **125**(3367): 51-65.
- Day, J.H., 1967. A monograph on the Polychaeta of Southern Africa. British Museum Nat. Hist. Publ. **656**: 1-458.
- Fauvel, P., 1923. Polychaetes errantes, Faune de France, 5: 1-488, 181 figs.
- Hartman, O., 1945. The marine annelids of North Carolina, Bull. Duke Univ. Mar. Sta., **2**: 1-54, 10 pls.
- Hartman, O., 1964. Polychaeta errantia of Antarctica. Antarctic Research ser., **3**: 1-131.
- Hartman, O., 1968. Atlas of Errantiate Polychaetous Annelids from California. Univ. Southern Calif., Los Angeles, pp.1-812.
- Imajima, M., 1966a. The Syllidae (polychaetous annelids from Japan (5). Syllinae (1). Publ. Seto Mar. Biol. Lab., **14**(3): 219-252.
- Imajima, M., 1966b. The Syllidae (polychaetous annelids) from Japan (5). Syllinae (2). Publ. Seto Mar. Biol. Lab., **14**(4): 253-294.
- Imajima, M., 1982. Systematics and ecology of the Japanese polychaetes (15): 3. Systematics of the family Syllidae-9. Aquabiology 23, **4**(6): 458-461.
- Imajima, M., 1983a. Systematics and ecology of the Japanese Polychaetes (16): 3. Systematics of the family Syllidae-10. Aquabiology 24, **5**(1): 64-67.
- Imajima, M., 1983b. Systematics and ecology of the Japanese polychaetes (17): 3. Systematics of the family Syllidae-11, Aquabiology 25, **5**(2): 138-141.
- Imajima, M., 1983c. Systematics and ecology of the Japanese polychaetes (18): 3. Systematics of the family Syllidae-12, Aquabiology 26, **5**(3): 218-221.
- Imajima, M. & Hartman, O., 1964. The polychaetous annelids of Japan. Part 1. Allan Hancock Found. Occas. pap., **26**: 1-237.
- Knox, G. A., 1960. Polychaeta Errantia of the Chatham Islands 1954 Expedition. N. Z., Dept. of Sci. and Indus. Resea. Bull., 139, Part 3, pp.77-140.
- Langerhans, P., 1879. Die Wurm fauna Von Madeira. Zeitschr. Wiss. Zool., **32**: 513-592 (cited from Imajima, 1966).
- Lee, J.W. & Rho, B.J., 1992. A systematic study on Syllidae (Annelida, Polychaeta) from the Yellow Sea of Korea. Korean J. Syst. Zool., Special Issue, **3**: 29-38.
- Lee, J.W. & Rho, B.J., 1994. Two new species of Syllidae (Annelida, Polychaeta) from Korea. Korean J. Syst. Zool. **10**(1): 55-60.
- McIntosh, W. C., 1908. A monograph of the British annelids. 2(2) Polychaeta. Amphinomidae to Sigalionidae. Ray Soc. Pul. London, pp. 215-442, pls. 24-26a, 27-42.
- Monro, c., 1937. Polychaeta. In Sci. Rpts. of the John Murray Expedition 1933-34, **4**(8): 273-275.
- Okuda, S., 1937. Polychaetous annelids from the Palau Islands and adjacent Waters, the South Sea Islands. Bull. Biogeographical Soci. of Japan, **7**(12): 257-315.
- Paik, E. I., 1975. The polychaetous annelids in Korea (III), Res. Bull. Hyosung Women,s Coll., **17**: 409-438.
- Paik, E. I., 1976. The polychaetous annelids in Korea (IV). Bull. Father Jeon's 60th anniversary. pp. 231-242.
- Paik, E. I., 1979. Benthic Polychaetous Annelids from Geomun-do and Baeg-do Isl. Korea, Bull. Korean Fish. Soc., **12**(1): 41-63 (in Korea).

- Paik, E. I., 1982. Taxonomic studies on polychaetous annelid species in Korea. Res. Bull. Hyosung Women's Univ., **24**: 45-913 (in Korean).
- Paik, E.I., 1984. New records of four benthic polychaetous annelid species in Korea. Res. Bull. Hyosung Women's Univ., **28**: 193-199.
- Quatrefages, A. De., 1865. Coup d'oeil sur la Famille des Syllidiens. Ann. Soc. Linne. dep. Maine-et-loire, 7e annee (cited from Fauvel, 1923).
- Rho, B. J. & Lee, J.W., 1982. A systematic study on the errantiate Polychaeta in Korea. Korean J. Syst. Zool., **3**(1): 74-90.
- Rho, B. J. & Lee, J. W., 1988. A systematic study on the errantiate Polychaeta in Cheju Island. Korean J. Syst. Zool., **4**(2): 121-136.

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한국의 동해 및 남해산 염주발갯지렁이류 (다모강, 환형동물문)의 분류학적 연구

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요 약

이 연구는 1980년 7월부터 1991년 11월까지 한국의 동해연안과 남해연안 및 도서지방의 39 개 지역에서 채집된 염주발갯지렁이류를 동정 분류한 것이다. 그 결과 5속 8종의 염주발갯지렁이가 밝혀졌으며, 이 중 4종(*Haplosyllis spongicola*, *Opisthosyllis brunea*, *O. viridis*, *Parasphaerosyllis ezoensis*)은 한국에서 처음으로 보고되는 종으로서, 이들 미기록종에 대하여 상세한 기재를 하고 그림을 그렸다. 표본들은 이화여자대학교 생물학과에 보관중이다.