

Systematic Study on the Marine Hydroids (Cnidaria, Hydrozoa) in Korea I

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한국 해산 히드라충류(자포동물 문, 히드라충 강)의 계통분류학적 연구 I

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적 요

1969년 5월부터 1989년 6월까지 한국의 본토 연안과 도서지방, 28개 지역에서 채집되어 미동정 상태로 보관되어 있는 히드라충류의 포본들 가운데 일부를 관찰한 결과 13과에 속하는 50종 및 아종이 밝혀졌다. 이 중에서 5종, *Turritopsis nutricula*, *Halecium beanii*, *Halecium pusillum*, *Sertularella gigantea* and *Halopteris constricta*는 한국미기록종으로 판명되었다. 한국산 기지종에 대해서는 기지 채집지를 인용하였으며, 아울러 새로운 채집지를 추가하였다.

Key words: systematics, hydroids, Cnidaria, Korea.

INTRODUCTION

The hydroid species usually reflect the character of substratum, that is whether it is a hard bottom of rock and others or a soft bottom of sand or mud. And also they influenced by current.

Regarding the general environmental conditions, the Korean Peninsula is located in the North Pacific temperate region and in the area of 33°6'43'1"N in latitude and 124°11'131°52'E in longitude, being

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surrounded by three seas: the Sea of Japan, the East China Sea and the Yellow Sea, except for the northern side. A lesser western branch of Kuroshio Warm Current, called the Tsushima Current, runs through the Korea Strait and into the Sea of Japan. It reaches to off the Hamkyōngbuk-do in summer. In winter it usually meets with North Korean Cold Current in the west of Ullūngdo Island, and the mean surface water temperature off Ullūngdo Island is about 10°C in the February. The eastern continental shelf is narrow for its steep slope and covered with sand on the shallow basin. In the southern coast, the other branch of Kuroshio is mixed with the East China Sea, and Southern parts of the Yellow Sea intrudes into the west of the southern coast of Korea. The surface temperature of the open sea of Pusan, Kōjedo Island and Kōmundo Island maintains about 10°C in February, however the one off Chindo Island about 6°C. The southern coastal line is much indented, constitute an archipelago and covered with sand, mud, seaweeds and rocks. In the western coast of Korea, the continental shelf extends throughout the Yellow Sea, covered with almost silt and clay. The water temperature is highly changeable through a year. The surface temperature is 25°C-29°C in summer and the lowest temperature of northern region is 2°C-3°C, of middle region 4°C-5°C and of south-western region 7°C-8°C in winter. The sea floor temperature is nearly equal to the surface one and the cold water mass occupies the lower layer of the water body and remains there even in summer. The instrument of Warm Current is not enough strong and the current pattern is indistinct (지, 1985; Briggs, 1974). So that the Korean hydroid fauna consists of the temperate water forms, the tropical water forms and the boreal water forms. By the previous studies (Kamita and Sato, 1941; Rho, 1967; 1967; Rho and Chang, 1972; 1974; Rho and Park, 1979; 1980; 1983; 1984; 1986; Park and Rho, 1986; Park, 1988), 108 hydroid species or subspecies have been known from Korean waters. However many materials from Korean waters still remain as it is and the knowledge of marine hydroid fauna of Korea is incomplete.

This study is a part of systematic study on the marine hydroids in Korea.

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MATERIALS AND METHODS

The materials identified in this work were collected from various localities (Fig. 1) of Korean waters by the author and others during the period from May 1969 to June 1989. They were preserved in about 5% neutral formalin after narcotization with menthol and deposited in the Department of Biology, Suwŏn University and the Department Biology, Ewha Womans University. Examinations were conducted by stereo- and light microscope, and drawings were made with a drawing attachment. The author gives the figures and descriptions for species new to the Korean fauna and only materials examined during this work and previous records for already reporting species from Korea. The systematic schemes of Fraser (1944) and Millard (1975) were referred.

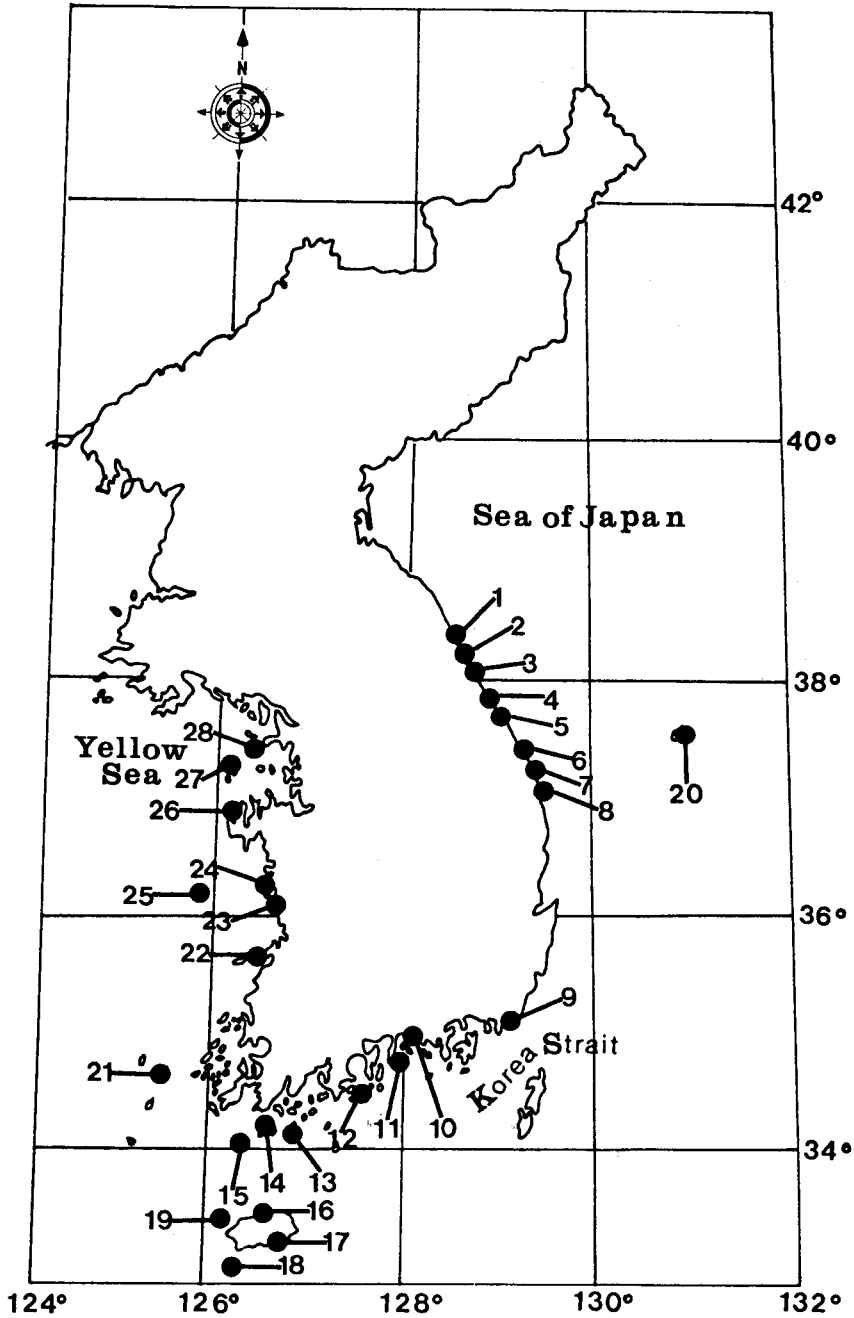


Fig. 1. A diagrammatic map of Korea showing the sampling sites.

- 1, Taejin(대진); 2, Sokchó(속초); 3, Naksan(낙산); 4, Chumunjin(주문진); 5, Samchók(삼척); 6, Changho(장호); 7, Imwón(임원); 8, Chukpyön(죽변); 9, Mipó(미포); 10, Samchönpó(삼천포); 11, Namhaedo Isl.(남해도); 12, Kūmodo Isl.(금오도); 13, Chǒngsando Isl.(청산도); 14, Nohwado Isl.(노화도); 15, Hoenggando Isl.(횡간도); 16, Cheju harbour(제주항); 17, Sǒgwipó(서귀포); 18, Kapado Isl.(가파도); 19, Piyangdo Isl.(비양도); 20, Ullungdo Isl.(울릉도); 21, Taehuksando Isl.(대흑산도); 22, Kyökpó-ri(격포리); 23, Piin(비인); 24, Söchón(서천); 25, Öchóngdo Isl.(어청도); 26, Chöllipó(천리포); 27, Töckhökto Isl.(덕적도); 28, Chakyakto Isl.(작약도).

SYSTEMATIC ACCOUNT

Phylum Cnidaria	자포동물 문
Class Hydrozoa	히드라충 강
Order Hydroida	히드라충 목
Suborder Athecata	민첩히드라 충 아목
Family 1. Tubulariidae	관히드라 과

1. *Tubularia mesenbryanthemum* Allman, 1872 관히드라

Taehüksando Isl. (Rho, 1969).

Material examined: Söch'ön, Nov. 9, 1984 (J. I. Song).

Family 2. Ptilocodiidae 날개히드라 과

2. *Hydrichthella epigorgia* Stechow, 1909 꽃총산호히드라

Sögwip'o (Rho and Park, 1979).

Material examined: Tökchökto Isl., Oct. 16, 1985 (J. I. Song).

Family 3. Clavidae 진곤봉히드라 과 (신칭)

3. *Turritopsis nutricula* (McCrary, 1856) 작은보호탑히드라 (신칭) (Fig. 2D-E)

Oceania (*Turritopsis*) *nutricula* McCrary, 1856 (p. 55, pls. 4-5).

Turritopsis nutricula: Agassiz, 1862 (p. 347); Stechow, 1919 (pp. 12-13).

Turritopsis nutricula: Fraser, 1944 (pp. 37-38, pl. 2, fig. 6); Vervoort, 1968 (p. 75, fig. 24F-G).

Material examined: Sögwip'o, Dec. 26, 1971 (B. J. Rho).

Description: Stem reaching below 10mm in height, branching irregularly, tube-shaped and increasing in diameter from base to distal end, covered with more or less thick periderm. Periderm composed of two distinct layers, the wrinkling inner layer and the smooth but incrusting with detritus outer layer, terminate below hydranth. Branches adnate and parallel to stem for a short distance, similar to stem in shape. Hydranth terminate, clavate-shaped, with filiform tentacles irregularly scattered over the hydranth, proximal ones shorter than distal. No gonophores have been observed.

Remarks: *Turritopsis nutricula* is quite characteristic in the wrinkling inner layer of periderm and increasing in diameter from base to distal end of stem and branch. This species is similar to *T. fascicularis* Fraser, 1943 reported by Fraser (1944) in the shape of hydranth and branching pattern, but the main stem of the latter is heavily fascicled and reached 6cm in height.

Distribution: Japan, New Zealand, South Africa (Mozambique, Inhaca to Santa Carolina), West India (Charlotte Amalia harbour, St. Thomas), Naushon, Buzzard Bay, Vineyard Sound, Beaufort, Hampton road, Morehead City, Bogue Sound, Cape Lookout, Panama, Curaçao, Charleston harbour (type locality), North Sea.

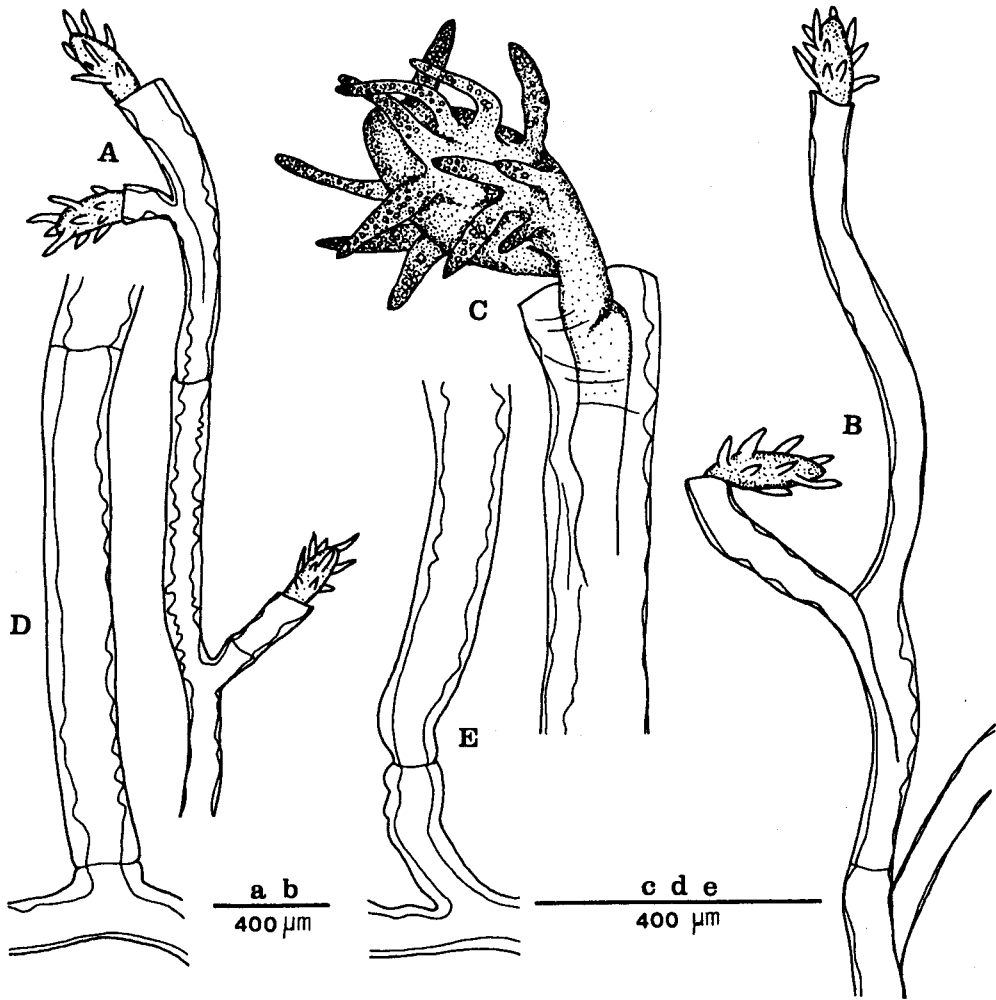


Fig. 2. *Turritopsis nutricula*. A, B, stem with branches; C, enlarged hydrotheca; D, E, basal portion of colony.

Family 4. Eudendriidae 꽃히드라 과

4. *Eudendrium capillare* Alder, 1856 털꽃히드라

Chakyakto Isl. (Rho and Park, 1983).

Material examined: Sŏgwip'o, Dec. 26, 1971 (B. J. Rho).

Family 5. Bougainvilliidae 보우겐빌히드라 과

5. *Bimeria vestita* Wright, 1859 덮개히드라

Chakyakto Isl. (Rho and Park, 1983).

Material examined: Chakyakto Isl., Oct. 15, 1975 (S. R. Chang).

Family 6. Campanulinidae 작은종히드라 과

6. *Calycella syringa* (Linne', 1767) 연통히드라

Mip'o (Rho and Park, 1980).

Material examined: Chumunjin, Jun. 26, 1989 (J. H. Park).

Family 7. Haleciidae 무늬히드라 과

7. *Halecium beanii* (Johnston, 1838) 둥근무늬히드라 (신칭)

(Fig. 3A-C)

Thoa beanii Johnston, 1938 (p. 120, pl. 7, figs. 1,2).*Halecium beanii*: Fraser, 1944 (pp. 186-187, pl. 33, fig. 160); Naumov, 1960 (translated in 1969) (p. 483-484, fig. 336A-D).*Halecium beanii*: Hincks, 1868 (pp. 224-225); Ralph, 1958 (pp. 332-334, fig. 10 and b, e-k); Vervoort, 1959 (pp. 224-225, fig. 6); 1964 (p. 103, fig. 3); 1972 (pp. 30-33, figs. 6,7); Millard, 1975 (pp. 144-145, fig. 47A-E).**Material examined:** Hoenggando Is1., Aug. 9, 1969 (B. J. Rho); Mip'o, Jul. 15, 1974 (B. J. Rho); Sögwip'o, Jul. 13, 1979 (B. J. Rho); Sögwip'o, Jul. 13, 1979 (B. J. Rho).**Description:** Colony shrub-shaped, attaining 5-25mm in height. Stem stiff and fascicled at the base, but distal part monosiphonic, branching irregularly or in roughly alternate manner, divided into internodes in variable size, each internode giving rise to a hydrotheca from an apophysis at the distal end. Branches arising from below or with in hydrothecae, similar with stem. Primary hydrotheca sessile and secondary hydrothecae pedicellate. Pedicel commonly with a constriction above the origin, gibbous above this, then narrowed and then widening gradually to distal end. Hydrothecae of third or fourth order of the same structure as the secondary ones. Hydrotheca shallow, widening to margin, which is not everted, diaphragm delicate, with a ring of nodules above it. Gonotheca arising from the branches, elongate. Female gonotheca with an aperture at the end of small tube, but male one without aperture and small tube.**Remarks:** *Halecium beanii* is not distinguished from *Halecium halecium* (Linnaeus, 1758) reported by Millard (1975) by trophosome structure. However the female gonotheca of *H. halecium* bears a terminal aperture on the adcauline side.**Distribution:** Cosmopolitan. Type locality: near Scarborough, England. But the species predominates in sub-Arctic, sub-Antarctic and temperate waters.**8. *Halecium pusillum*** (M. Sars, 1857) 작은무늬히드라 (신칭)

(Fig. 3D-F)

Eudendrium pusillum M. Sars, 1857 (p. 154, tab. 1, figs. 14-16).*Halecium pusillum*: Stechow, 1919 (pp. 36-37, fig. F); Gili *et al.*, 1984 (p. 413, fig. 113); Gili and Garcia, 1985 (p. 39, fig. 2H, D).**Material examined:** Sögwip'o, Apr. 15, 1975 (B. J. Rho).**Description:** Colony very small, below 10mm in height, arising from hydrorhiza creeping on a algae. Main stem monosiphonic, giving rise to the branches irregularly, divided into irregular internodes, each internode with several annulations at the base and with hydrotheca at distal end. Branches similar with the main stem. Hydrotheca shallow, margin flared. Primary hydrotheca sessile, secondary hydrotheca movable, pedicellate, diaphragm delicate, with commonly a row of nodules above it. Gonotheca very large compared with hydrotheca, elongate oval-shaped, with short pedicel, arising from the hydrothecal pedicel.**Remarks:** The small colony, large gonotheca and the distinct annulations of the proximal part of each internode are characteristics in this species.**Distribution:** Villefranche bei Nizza, Monaco harbour, Ajaccio, Corsica, d'Endoume bei Marseille, Ma-

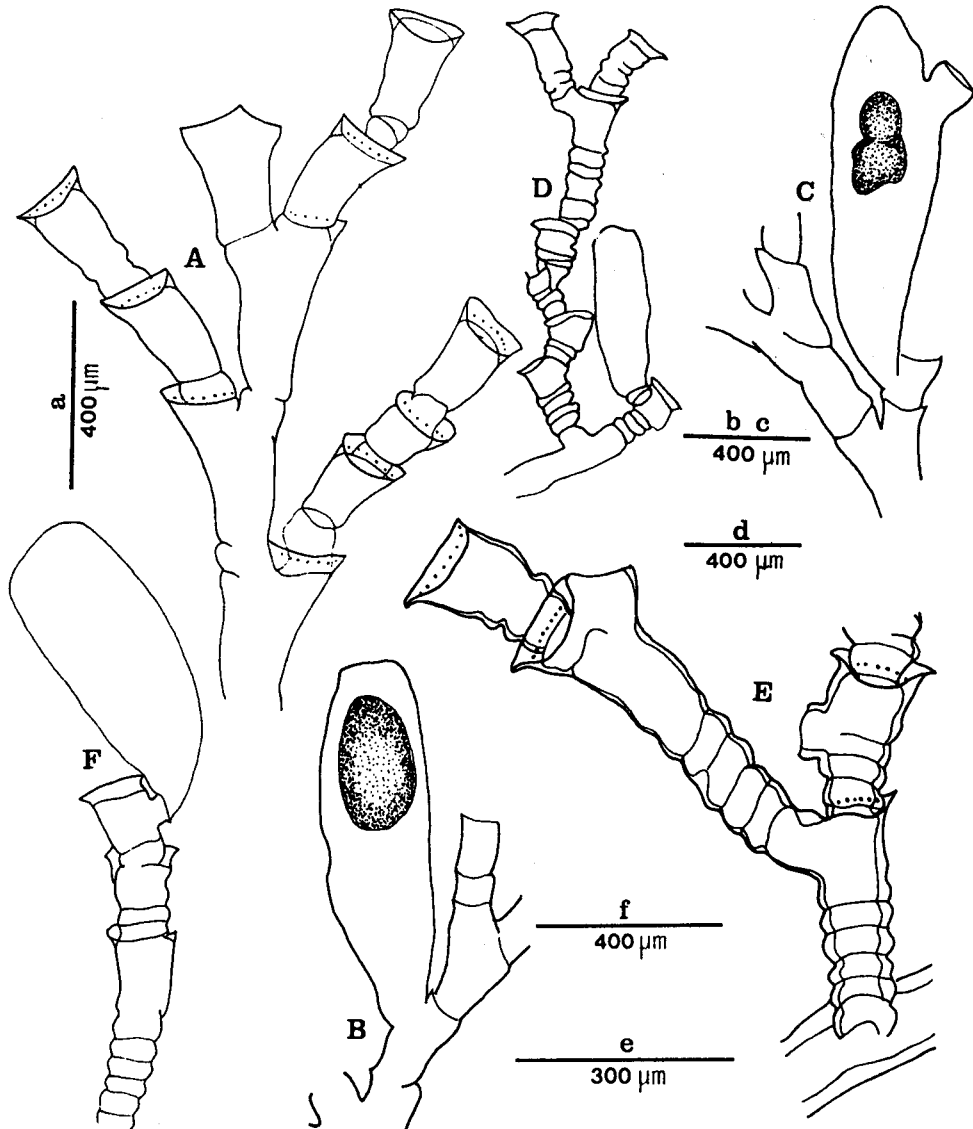


Fig. 3. A-C, *Halecium beanii*. A, stem with hydrothecae; B, male gonotheca; C, female gonotheca. D-F, *Halecium pusillum*. D, colony with gonotheca; E, enlarged stem with branch; F, gonotheca.

torque, Medes Islands.

9. *Hydrodendron armata* (Totton, 1930) 아르마타무늬히드라

Sŏgwip'o (Rho and Park, 1983).

Material examined: Ch'ŏngsando Isl., Jul. 25, 1981 (S. Shin).

Family 8 Hebellidae 털히드라 과

10. *Hebella scandens contorta* Marktanner-Turneretscher, 1890 꼬인털히드라

Sögwip'o (Rho and Chang, 1972); Anmyöndo Isl., Piin (Rho and Chang, 1974).

Material examined: Piin, Aug. 13, 1973 (S. R. Chang); Tökchökto Isl., Oct. 16, 1985 (J. I. Song).

11. *Scandia neglecta* (Stechow, 1913) 가는털히드라

Mip'o, Hongdo Isl. (Yellow Sea) (Rho and Park, 1979).

Material examined: Sögwip'o, Apr. 12, 1974 (B. J. Rho); Nohwado Isl., Aug. 20, 1981 (J. I. Song).

Family 9. Lafoeidae 바위불이히드라 과

12. *Lafoea fruticosa* (M. Sars, 1851) 덩불바위불이히드라

Supto Isl., Sögwip'o, Yösu, Wimi-ri (Rho and Chang, 1974).

Material examined: Mip'o, Jul. 16, 1974 (B. J. Rho); Sögwip'o, Apr. 13, 1975 (B. J. Rho); Sögwip'o, Jul. 13, 1979 (B. J. Rho); Ch'öngsando Isl., Jul. 25, 1981 (S. Shin); Sögwip'o, Jul. 13, 1979 (B. J. Rho); Ch'öngsando Isl., Jul. 25, 1981 (S. Shin); Nohwado Isl., Aug. 20, 1981 (J. I. Song); Piyangdo Isl., Jun. 20, 1985 (B. J. Rho); Kapado Isl., Jun. 15, 1986 (B. J. Rho).

13. *Zygophylax biarmata* Billard, 1905 두관절히드라

Sögwip'o (Rho and Park, 1974).

Material examined: Sögwip'o, Dec. 13, 1969 (B. J. Rho); Sögwip'o, Oct. 19, 1973 (B. J. Rho).

14. *Filellum serratum* (Clarke, 1879) 툽니실히드라

Yösu, Anmyöndo Isl., Chakyakto Isl. (Rho and Chang, 1974).

Material examined: Mip'o, May 11, 1974 (B. J. Rho); Kyökp'o-ri, Aug. 7, 1975 (B. J. Rho).

Family 10. Campanulariidae 종히드라 과

15. *Eucalix paradoxus* Stechow, 1923 컵히드라

Taehüksando Isl. (Rho, 1967); Piin (Rho and Chang, 1974).

Material examined: Kapado Isl., Jun. 15, 1986 (B. J. Rho).

16. *Rhizocaulus chinensis* Marktanner-Turneretscher, 1890 뿌리히드라

Ulluŋgdo Isl. (Todong), Mip'o, Chakyakto Isl. (Rho and Park, 1980).

Material examined. Öch'öngdo Isl., May 31, 1969 (B. J. Rho); Mip'o, Dec. 29, 1974 (B. J. Rho); Changho, Aug. 7, 1983 (J. H. Park); Samch'önp'o, Jul. 20, 1984 (J. H. Park).

17. *Clytia edwardsi* (Nutting, 1901) 에드워드빛히드라

Yösu (Rho and Park, 1980).

Material examined: Taehüksando Isl., Jul. 4, 1978 (J. H. Park).

18. *Eucopeella caliculata* (Hincks, 1853) 샷대히드라

Haeundae (Rho and Park, 1980).

Material examined: Mip'o, Jul. 14, 1974 (B. J. Rho); Kap'ado Isl., Jun. 15, 1985 (B. J. Rho); Imwön, Jun. 30, 1989 (J. H. Park).

19. *Eucopeella crenata* (Hartlaub, 1901) 주걱히드라

Sögwip'o, Kömundo Isl., Söngsanp'o (Rho and Park, 1980).

Material examined: Taehüksando Isl., Jul. 4, 1978 (J. H. Park); Sögwip'o, Jul. 13, 1979 (S. J. Yoon).

20. *Obelia geniculata* (Linnaeus, 1758) 흑히드라

Tolsan (Pangjukp'o) (Rho, 1967); Tolsan, Haeundae (Rho, 1969); Sasudo Isl., Sögwip'o (Rho and Chang, 1972); Yöngjongdo Isl., Köjedo Isl., Sögwip'o, Piin, Wimi-ri, Yösu (Rho and Chang, 1974).

Material examined: Ullüngdo Isl., Jul. 16, 1976 (J. I. Song); Kap'ado Isl., Jun. 15, 1986 (B. J. Rho); Chukpyöñ, Jun. 30, 1989 (J. H. Park).

21. *Obelia bicuspidata* (Clarke, 1875) 쌍뿔족흑히드라

Chakyakto Isl. (Rho and Park, 1980); Komso, Chakyakto Isl., Taehüksando Isl., (Rho and Park, 1983).

Material examined: Öch'öngdo, May 31, 1969 (B. J. Rho); Mip'o, Dec. 29, 1974 (B. J. Rho); Samch'önp'o, Jul. 20, 1984 (J. H. Park).

22. *Obelia dichotoma* (Linnaeus, 1758) 갈래흑히드라

Yösu, Mip'o, Taehüksando Isl. (Rho and Park, 1980).

Material examined: Namhaedo Isl., Jun. 7, 1974 (B. J. Rho); Samch'önp'o, Jul. 20, 1984 (J. H. Park).

23. *Obelia longissima* (Pallas, 1776) 긴흑히드라

Taehüksando Isl., Yösu (Rho and Park, 1980).

Material examined: Taejin, Jun. 26, 1989 (J. H. Park); Chumunjin, Jun. 27, 1989 (J. H. Park); Imwön, Jun. 30, 1989 (J. H. Park).

24. *Orthopyxis platycarpa* Bale, 1914 입넓은종히드라

Taehüksando Isl. (Rho, 1967); Haeundae, Sögwip'o, Anmyöndo Isl., Sokch'o (Rho and Chang, 1974).

Material examined: Naksan, Aug. 14, 1973 (B. J. Rho); Chumunjin, May 26, 1985 (J. I. Song); Imwön, Jun. 30, 1989 (J. H. Park); Chukpyöñ, Jun. 30, 1989 (J. H. Park).

Family 11. Syntheciidae 쌍뿔히드라 과

25. *Syntheicum tubithecum* (Allman, 1877) 나팔쌍뿔히드라

Sögwip'o, Odongdo Isl., Yösu (Rho and Chang, 1974)

Material examined: Mip'o, Jul. 16, 1974 (B. J. Rho); Ch'öngsando Isl., Jul. 25, 1981 (S. Shin); Nohwado Isl., Aug. 20, 1981 (J. I. Song); Mip'o, Dec. 9, 1981 (J. E. Soe); Samch'önp'o, Jul. 20, 1984 (J. H. Park).

Family 12. Sertulariidae 테히드라 과

26. *Diphasia palmata* Nutting, 1905 넓은입히드라

Sögwip'o (Rho and Chang, 1972); Saedo Isl., Supto Isl., Sögwip'o, Anmyöndo Isl. (Rho and Chang, 1974); Sögwip'o, Pomong-ri, Mip'o (Park and Rho, 1986).

Material examined: Mip'o, Dec. 12, 1969 (B. J. Rho); Sögwip'o, Feb. 8, 1971 (B. J. Rho).

27. *Dynamena crisioides* Lamouroux, 1824 민테히드라

Söngsanp'o (Rho, 1967); Haeundae, Mijo-ri, Kangnüng (Rho, 1969); Sasudo Isl., Hoenggando Isl. (Rho and Chang, 1972); Sögwip'o, Udo Isl., Yundoldo Isl., Changsüngp'o (Köjedo Isl.), Mijo-ri, Sangju-ri (Rho and Chang, 1974); Mokto Isl., Hoedong, Chöpto, Yönhwado Isl., Udo Isl., Wando Isl., Shinhüng-ri (Park and Rho, 1986).

Material examined: Kümmodo Isl., Jul. 31, 1988 (J. W. Lee).

28. *Symplectoscyphus hozawai* Stechow, 1931 호자와테히드라

Tolsando (Pangjukp'o) (Rho, 1967); Mijo-ri (Rho, 1969); Pohang, Sögwip'o, Piin (Rho and Chang, 1974); Mip'o, Hoedong, Chöpto, Supto Isl., Yönhwado Isl., Yejakto isl., Taedundo Isl. (Park and Rho, 1986).

Material examined: Taejin, Jun. 26, 1989 (J. H. Park); Chumunjin, Jun. 27, 1989 (J. H. Park); Imwön, Jun. 30, 1989 (J. H. Park).

29. *Sertularella distans* (Allman, 1877) 분리테히드라

Sögwip'o (Park and Rho, 1986).

Material examined: Sögwip'o, Oct. 19, 1973 (B. J. Rho).

30. *Sertularella gayi* Lamouroux, 1821 가이테히드라

Chakyakto Isl. (Park and Rho, 1986).

Material examined: Mip'o, Dec. 6, 1978 (B. J. Rho); Ch'öngsando, Jul. 25, 1981 (S. Shin).

31. *Sertularella gigantea* Mereschkowsky, 1878 큰테히드라 (신칭) (Fig. 4A-B)

Sertularella gigantea: Fraser, 1944 (p. 264, pl. 56, fig. 250); Yamada, 1950 (p. 11, pl. 1, fig. 10); 1955 (pp. 18-19, fig. 2); Naumov, 1960 (translated in 1969) (pp. 365-366, fig. 227, pl. VI, fig. 1).

Material examined: Imwön, Jun. 30, 1989 (J. H. Park).

Description: Colony reaching about 30mm in height. Stem not fascicled, straight, irregularly branched, divided into regular internodes and internode length variable, however in the older colonies, the septum between internodes indistinct, each internode with one hydrotheca at the distal end. Hydrothecae lie almost in one plane, arranged alternately, very large cylinder-shaped, but slightly tapering toward the margin, with 4 marginal teeth and 4 flaps, margin renovated several times, less one-third of adcauline wall adnated. No gonothecae have been observed.

Remarks: The large cylinder-shaped hydrotheca is a characteristic in this species, which similar to *Sertularella cylindritheca* (Allman, 1888) reported by Fraser (1944) in the feature of hgdthrotheca. But this species is distinguished from *S. cylindritheca* by irregular branching pattern and gonotheca structure.

Distribution: Widely distribution over circumboreal regions of the Pacific and Atlantic.

32. *Sertularella gotoi* Stechow, 1913 고평테히드라

Yösu, Sögwip'o, Anmyöndo Isl. (Rho and Chang, 1974); Anmyöndo Isl., Mip'o, Toch'öng-ri, Todong (Park and Rho, 1986).

Material examined: Mip'o, Dec. 6, 1978 (B. J. Rho); Ch'öngsando Isl., Jul. 25, 1981 (S. Shin); Chumunjin, Jun. 26, 1989 (J. H. Park).

33. *Sertularella levigata* Stechow, 1931 테히드라

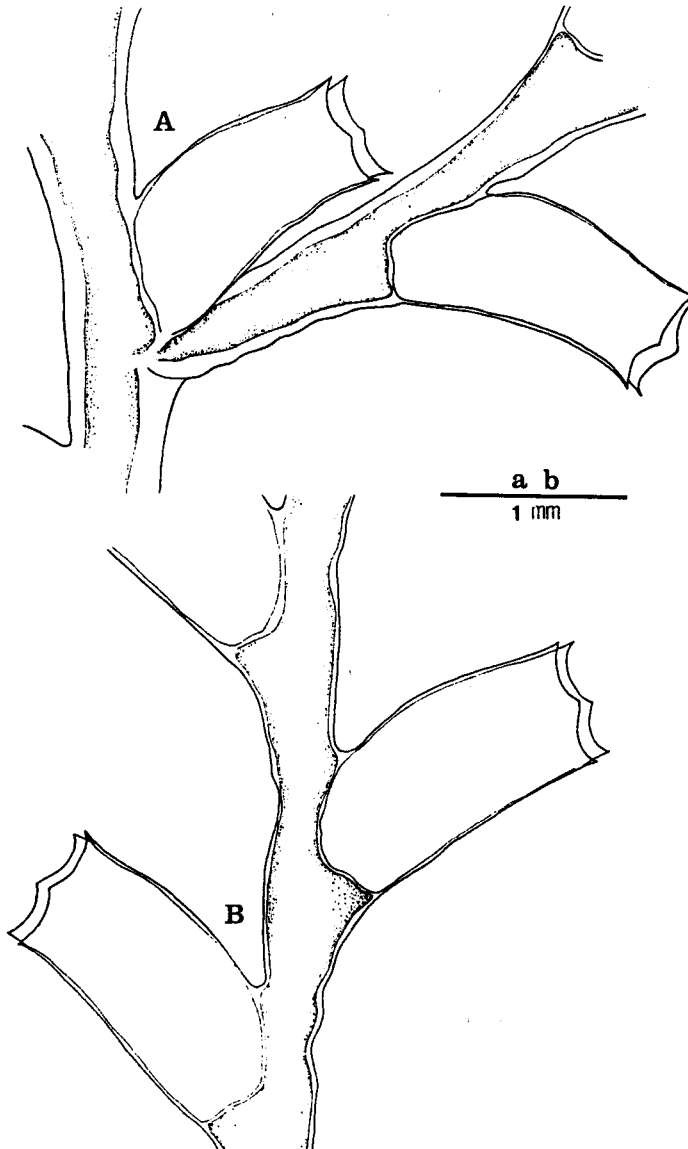


Fig. 4. *Sertularella gigantea*. A, branching portion; B, stem with hydrothecae.

Söngsanp'o, Sögwip'o, Kömundo Isl., Tolsando Isl., (Pangjukp'o) (Rho, 1967); Imp'o (Tolsando Isl.), Haeundae, Namhaedo Isl., Kangnüng, Chindo (Rho, 1969); Supto Isl. (Rho and Chang, 1972); Mijodo Isl., Mip'o, Hoedong, Nokchin, Sögwip'o, Öch'öngdo Isl., Söngsanp'o, Yesong-ri, Sangju-ri, P'ohang, Samch'önp'o (Park and Rho, 1986).

Material examined: Kap'ado Isl., Jun. 16, 1985 (B. J. Rho); Chumunjin, Jun. 27, 1989 (J. H. Park).

34. *Sertularella miurensis* Stechow, 1921 가로테히드라

Sögwip'o, Tolsan (Pangjukp'o), Taehüksando Isl. (Rho, 1967); Tolsan (Pangjukp'o), Imp'o (Tolsan), Haeundae, Mijo-ri, Nodo Isl., Kuryongp'o (Rho, 1969); Sögwip'o, Piin, Öch'öngdo, Wimi-ri, Kamp'o, Odongdo Isl., Yösu, Anmyöndo Isl., Sokch'o (Rho and Chang, 1974); Sögwip'o, Kujora, Anmyöndo Isl., Haeundae, Mijodo Isl., Sangju-ri, Mokto, Hoedong,

Chöpto, Söngsanp'o, Kyökp'o-ri, Komso, Pömdo Isl., Yösödo Isl., Mip'o, Taech'ön, Pijindo Isl., Kündök (Park and Rho, 1986).

Material examined: Öch'öngdo Isl., Jul. 9, 1986 (S. J. Yoon); Ullüngdo Isl., Jun. 20, 1988 (B. J. Rho); Taejin, Jun. 28, 1989 (J. H. Park); Chumunjin, Jun. 26, 1989 (J. H. Park); Samch'ök, Jun. 30, 1989 (J. H. Park); Imwön, Jun. 30, 1989 (J. H. Park); Sokch'o, Jun. 28, 1989 (J. H. Park).

35. *Sertularella obtusa* Stechow, 1931 무던테히드로

Anmyöndo Isl., Hoedong, Taehüksando Isl., Söwip'o (Park and Rho, 1986).

Material examined: Naksan, Jun. 28, 1989 (J. H. Park); Chukpyön, Jun. 30, 1989 (J. H. Park).

36. *Sertularella quinquellaminata* Stechow, 1931 오컵테히드라

Kömundo Isl. (Rho, 1967); Pangjukp'o, Mijo-ri, Sögwip'o, Shinsudo Isl. (Park and Rho, 1986).

Material examined: Chakyakto Isl., Oct. 15, 1988 (J. H. Park); Chumunjin, Jun. 26, 1989 (J. H. Park).

37. *Sertulaella robusta* Coughtrey, 1876 붉은테히드라

Kömundo Isl. (Rho and Park, 1980); Chakyakto Isl., Söngsanp'o, Shinhüng-ri (Park and Rho, 1986).

Material examined: Chakyakto Isl., Oct. 15, 1988 (J. H. Park); Chumunjin, Jun. 26, 1989 (J. H. Park).

38. *Sertularella sinensis* Jäderholm, 1896 그물테히드라

Sögwip'o, Yösu (Rho and Chang, 1974); Cheju harbour, Mip'o, Sögwip'o, Supto Isl., Pusan harbour, Toch'öng-ri, Pömdo Isl. (Park and Rho, 1986).

Material examined: Mip'o, Dec. 6, 1978 (B. J. Rho); Chumunjin, Jun. 26, 1989 (J. H. Park).

39. *Sertularella tenella* (Alder, 1856) 연테히드라

Chakyakto Isl. Yöndo Isl., Mip'o, Pömdo Isl. (Park and Rho, 1986).

Material examined: Chakyakto Isl., Oct. 27, 1984 (J. H. Park).

40. *Sertularella tongensis* Stechow, 1919 통가테히드라

Ch'öngsa, Mundo Isl. (Park and Rho, 1986).

Material examined: Sögwip'o, Feb. 9, 1971 (B. J. Rho).

41. *Amphisbetia pacifica* Stechow, 1931 태평양테히드라

Inch'ön (Kamita and Sato, 1941); Sögwip'o, Kömundo Isl. (Rho, 1967); Mijo-ri, Pangjukp'o (Tolsan), Mop'o (Kuryongp'o) (Rho, 1969); Supto (Rho and Chang, 1972); Sögwip'o, Wim-ri, Yösu, Anmyöndo Isl., Piin (Rho and Chang, 1974); Sögwip'o, Hoedong, Chöpto, Kyökp'o-ri, Mokto Isl., Yejakto, Taech'ön (Park and Rho, 1986).

Material examined: Chumunjin, Jun. 27, 1989 (J. H. Park); Imwön, Jun. 30, 1989 (J. H. Park).

42. *Thuiaria suenisoni* (Levinsen, 1912) 수엔손테히드라

Aninjin, Ch'uksan (Park and Rho, 1986).

Material examined: Imwön, Jun. 30, 1989 (J. H. Park).

43. *Halopterus constricta* Totton, 1930 수축깃히드라 (신칭)

(Fig. 5A-E)

Halopterus constricta Totton, 1930 (p. 217, text-fig. 56); Ralph, 1961 (p. 43, fig. 6a-e); Vervoort and Vasseur, 1977 (pp. 68-72, figs. 29, 30a, b).

Material examined: Sŏgwip'o, Jul. 14, 1973 (B. J. Rho); Sokch'o, Jun. 28, 1989 (J. H. Park).

Description: Colony samll, less than 10mm in height. Stem not fascicled, branched plumulately, divided into regular internodes, which consist of athecate internodes and thecate internodes, arranged in alternate each other. Thecate internode with one hydrotheca, one hydrocladia and one pair lateral nematothecae and one median nematotheca. Athecate internode with only one median nematotheca. The oblique nodes between internodes always very distinct. Hydrocladia arising from the front of the stem at the side of hydrotheca, arranged in alternate except for the basal pair of hydrocladia which are frequently opposite and on the same internode. Hydrotheca cup-shaped, margin slightly but distinctly everted, abcauline wall more or less straight, free part of adcauline wall distinct concaved. Gonothecae born on hydrocaulus or

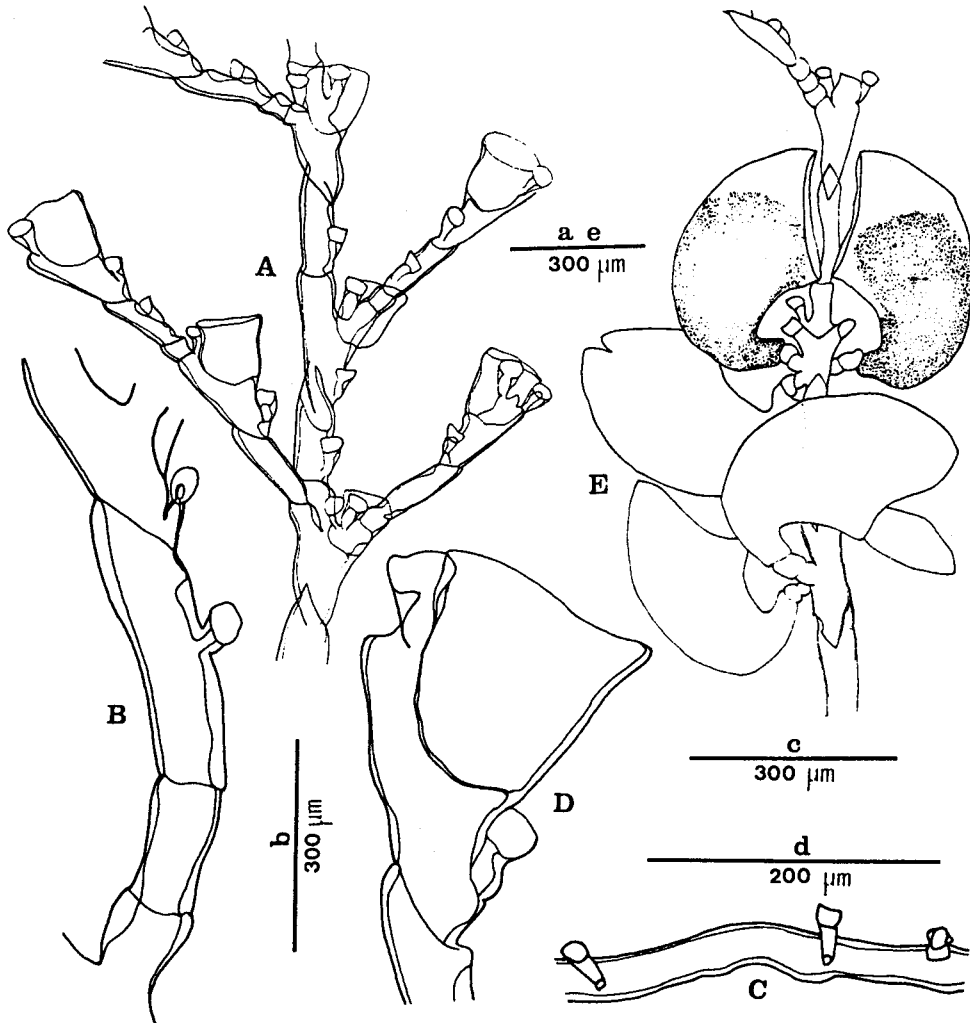


Fig. 5. *Halopterus constricta*. A, stem with branches and hydrothecae; B, basal portion; C, hydrocladia with nematothecae; D, enlarged hydrotheca; E., paired gonothecae.

hydrocladia immediately below hydrothecae in pair commonly, with short annulated pedicels, curved toward stem or branch, with broad distal aperture facing inward and one flap.

Remarks: Millard (1975) named the materials with the paired gonothecae faced inward from South Africa to *H. pseudoconstricta* and then distinguished this species from *H. constricta*, first described by Totton (1930) from infertile material from New Zealand. Ralph (1961) described the female gonothecae from New Zealand. These are curved in a sigmoid manner and have their aperture directed away from the stem. However the specimens from Korea have a female gonothecae agreed with the one of *H. pseudoconstricta*. But the author assigned the materials from Korea to *H. constricta* because the distinction based on only the orientation of gonothecae is not reasonable.

Distribution: Glendowie, Auckland, Island Bay, Cook Strait, off Cape Maria van Diemen (type locality), Moorea, South Africa (Table Bay to Transkei coast, False Bay), Madagascar area, Angola and Vema Seamount.

44. *Antennella diaphana siliquosa* (Hincks, 1877) 꼬투리깃히드라

Sögwip'o (Rho and Park, 1980); Mundo Isl., Sögwip'o (Rho and Park, 1986).

Material examined: Kap'ado Isl., Jun. 16, 1985 (B. J. Rho).

45. *Antennella secundaria* Gmelin, 1789 둘째깃히드라

Sögwip'o (Rho, 1967); Sögwip'o, Supto Isl., Mundo Isl. (Rho and Chang, 1972); Sögwip'o, Chakyakto Isl., Anmyöndo Isl. (Rho and Chang, 1974); Sögwip'o, Hoedong, Chöpto, Kuryongp'o, Chakyakto Isl., Yochido Isl., Hongdo Isl. (southern coast), Yejakto Isl. (Rho and Park, 1986).

Material examined: Ch'öllip'o, Jul. 26, 1974 (B. J. Rho); Sögwip'o, Apr. 15, 1975 (B. J. Rho).

46. *Pycnotheca mirabilis* (Allman, 1883) 질긴킵히드라

Sögwip'o, Sönyudo Isl. (Rho, 1967); Sögwip'o (Rho and Chang, 1972); Sögwip'o, Supto Isl., Wimi-ri (Rho and Chang, 1974); Wimi-ri, Mip'o, Chöpto, Kuryongp'o, Sögwip'o, Samch'önp'o (Rho and Park, 1986).

Material examined: Kap'ado Isl., Jun. 16, 1985 (B. J. Rho); Chumunjin, May 26, 1985 (J. I. Song).

47. *Plumularia filicaulis* Kirchenpauer, 1826 고비깃히드라

Sögwip'o (Rho and Park, 1986).

Material examined: Kap'ado Isl., Jun. 17, 1985 (B. J. Rho); Sokch'o, Jun. 28, 1989 (J. H. Park).

48. *Plumularia pennycuikai* Millard et Bouillon, 1973 페니깃히드라

Chakyakto Isl. (Rho and Park, 1980); Yöngjongdo Isl., Sögwip'o, Chakyakto Isl., Chönbu (Ullungdo Isl.), Taech'ön (Rho and Park, 1986).

Material examined: Tökchötkto. Isl., Oct. 16, 1985 (J. I. Song).

49. *Macrorhynchia phoenicea* (Busk, 1852) 자색깃히드라

Sögwip'o (Rho, 1967); Sögwip'o, Supto Isl., Mundo Isl., Pömdo Isl. (Rho and Chang, 1972); Chigwido, Sögwip'o, Wimi-ri (Rho and Chang, 1974); Sögwip'o, Supto Isl., Mundo Isl., Mip'o, Udo Isl., P'yosön, Mosülp'o, Taep'o (Rho and Park, 1986).

Material examined: Cheju harbour, Jun. 21, 1985 (B. J. Rho); Sögwip'o, Jan. 19, 1985 (J. E. Soe).

50. *Aglaophenia whiteleggei* Bale, 1888 흰깃히드라

Inch'on (Kamita and Sato, 1941); Mijo-ri, Yokchido isl. (Rho, 1969); Hoenggando Isl., Sögwip'o (Rho and Chang, 1972); Piin, Yösu (Rho and Chang, 1974); Supto Isl., Sögwip'o, Mip'o, Ch'öllip'o, Chöpto, Yöng-ilman, Hongdo Isl. (Yellow Sea), Nohwado Isl., Taedundo Isl., Samch'önp'o, P'ohang, Mosülp'o, Tökchökto Isl. (Rho and Park, 1986).

Material examined: Mip'o, Jul. 16, 1974 (B. J. Rho).

ABSTRACT

Some materials collected from the coasts and islands of Korea during the period from May 1969 to June 1989 were examined. As a result 50 species or subspecies of 13 families are identified. Of these, 5 species: *Turritopsis nutricula*, *Halecium beanii*, *Halecium pusillum*, *Sertularella gigantea* and *Halopteris constricta* turned out to be new to the Korean fauna. For already known species from Korea, the materials examined during this work and previous records are given.

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