

Systematic Study on the Marine Hydroids (Cnidaria: Hydrozoa) in Korea II. The Families Sphaerocorynidae, Eudendriidae, Haleciidae and Lafoëidae

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Some Korean marine hydroids of the families Sphaerocorynidae, Eudendriidae, Haleciidae and Lafoëidae were observed based on the external features. They were collected from the coasts and islands of Korea during the years 1971-1990 by the author and others. As a result 12 species and subspecies are identified, of which 6 species: *Sphaerocoryne bedoti*, *Eudendrium insigne*, *Eudendrium carneum*, *Hydrodendron gardineri*, *Acryptolaria conferta australis* and *Grammaria abietina* turned out to be new to the Korean fauna, which are redescribed briefly. For already known species in Korean fauna, the materials examined for this work and previous records are given, and not examined but already known species in Korean waters the only previous records are given for definition of the hydroid taxa. So that the Korean hydroids of four families identified so far consist of ten genera and 19 species.

KEY WORDS: Hydroida, Sphaerocorynidae, Eudendriidae, Haleciidae, Lafoëidae, Korea

The families Sphaerocorynidae, Eudendriidae, Haleciidae and Lafoëidae are small taxa among the Korean hydroid fauna. The family Sphaerocorynidae is the first record in Korean waters and includes only one species. The eudendriid hydroids: *Eudendrium tenellum* Allman, 1877 and *Eudendrium capillare* Alder, 1856 have been reported by Rho and Park (1979, 1983). On the Korean Haleciidae and Lafoëidae, 11 species have been reported by Rho and Chang (1974), Rho and Park (1980, 1983) and Park (1988, 1990). As a part of systematic study on the marine hydroids in Korea, the materials collected from 13 localities (Fig. 1) during years 1971-1990 were examined. Twelve species and subspecies belonging to the above families are identified, of which 6 species: *Sphaerocoryne bedoti*, *Eudendrium insigne*, *Eudendrium carneum*, *Hydrodendron gardineri*, *Acryptolaria conferta australis* and *Grammaria abietina* turned out to be new to the Ko-

rean fauna. Above 6 new species in Korean waters are redescribed briefly. For already known species in Korean waters, the materials examined during this work and previous records of the above families are given for definition of the hydroid taxa. So that the Korean hydroids of four families identified so far consist of ten genera and 19 species. Systematic schemes of Stechow (1913), Ralph (1958) and Naumov (1960, translated on 1969) were referred for this work.

Systematic Account

Phylum Cnidaria 자포동물 문

Class Hydrozoa 히드라충 강

Order Hydroida 히드라충 목

Suborder Athecata 민컵히드라충 아목

Family Sphaerocorynidae 둥근곤봉히드라 과(신칭)

1. *Sphaerocoryne bedoti* Pictet, 1893 베로트곤봉히드라(신칭) (Fig. 2A-D)

Sphaerocoryne bedoti: Mammen, 1963 (pp. 48-49, figs. 16-18); Millard and Bouillon, 1974

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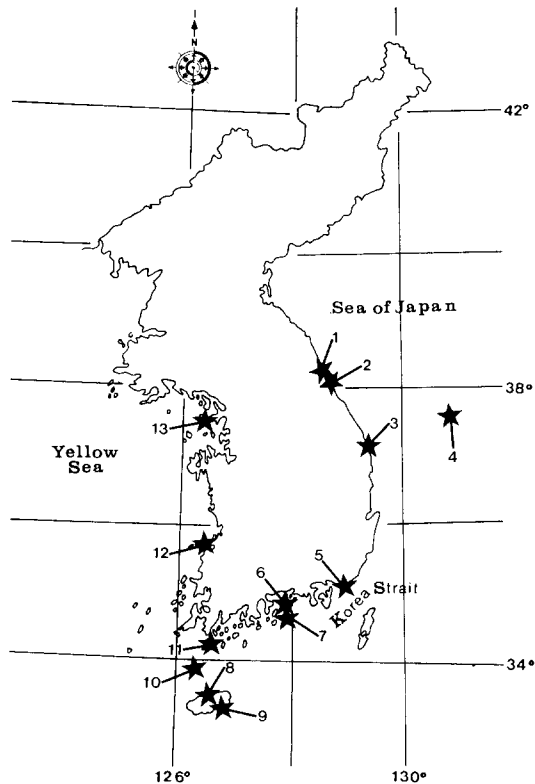


Fig. 1. A diagrammatic map of Korea showing the sampling sites.

1. Sokch'o(속초); 2. Naksan(낙산); 3. Imwon(임원); 4. Ullungdo(울릉도); 5. Mip'o(미포); 6. Mijodo(미진도); 7. Mokto(목포); 8. Cheju harbour(제주항); 9. Sŏgwip'o(서귀포); 10. Sangch'ujado(상주작도); 11. Pogildo(포길도); 12. Kyŏkp'o-ri(거포리); 13. Chakyakto(작야도)

(p. 13, fig. 1A); Millard, 1975 (pp. 54-55, fig. 20E); Mergner and Wedler, 1977 (p. 11, Taf. 1, figs. 1a, b); Wedler and Larson, 1986 (p. 89, fig. 3: C, a, b).

Material Examined: Mokto, Jun. 7, 1974 (B. J. Rho); Mijodo, Jun. 8, 1974 (B. J. Rho).

Description: Hydorrhiza embedded in sponge, brown color, giving rise to long hydrocaulus which about 10 mm in height, with solitary hydranth. Pedicel more or less smooth, with undistinct annuli on the pedicel wall in irregular interval, basally narrow, perisarc terminating just below hydranth. Hydranth pear-shaped, with capitate tentacles arranged in two closely whorls on proximal half of hydranth, without oral tentacles, hypostome conic-

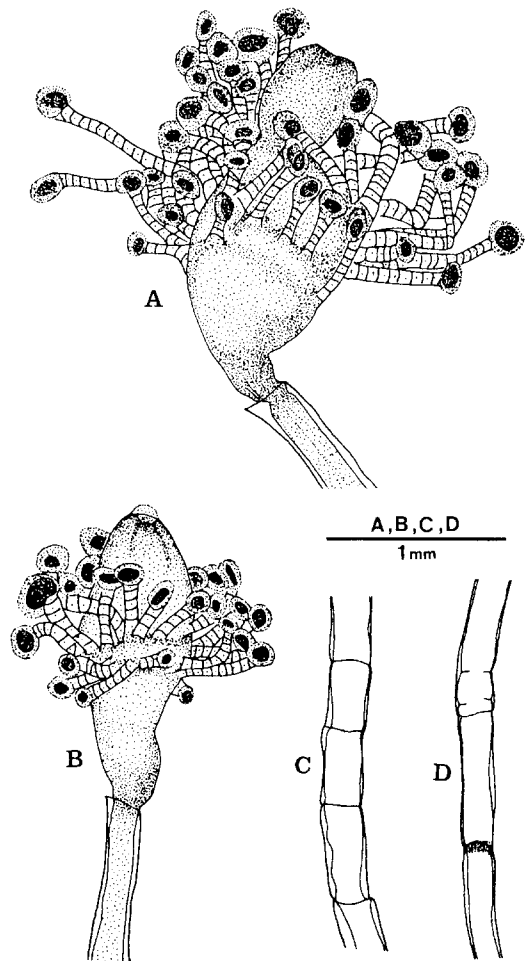


Fig. 2. A-D, *Sphaerocoryne bedoti*. A, B, hydranths; C, middle portion of pedicel; D, basal portion of pedicel and hydorrhiza.

al. No gonophores observed.

Remarks: There are no gonosomes in our specimens. According to Millard (1975), gonophores are born in clusters on hydranth body immediately above tentacles, in the form of medusa-buds.

Distribution: India (type locality), Red Sea, Queensland, Madagascar, South Africa (Natal and Moçambique), Puerto-Rico, Caribbean Sea, Japan, Korea.

Family Eudendriidae 꽃히드라 과

2. *Eudendrium tenellum* Allman, 1877 살꽃히드라

Previous records in Korea: Gõmunodo (Rho and Park, 1979).

Material examined: Naksan, Aug. 14, 1973 (B. J. Rho); Mip'o, Jul. 15, 1974 (B. J. Rho); Kyõk-p'o-ri, Aug. 7, 1975 (B. J. Rho).

3. *Eudendrium capillare* Alder, 1856 털꽃히드라

Previous records in Korea: Chakyakto (Rho and Park, 1983), Sõgwip'o (Park, 1990).

Material examined: Chakyakto, Sept. 25, 1976 (J. H. Park); Sept. 30, 1989 (J. H. Park).

4. *Eudendrium insigne* Hincks, 1868 꽃히드라 (신칭) (Fig. 3A)

Eudendrium insigne Hincks, 1868 (pp. 86-87); Yamada, 1954 (pp. 4-5, figs. 3a, b); Fraser, 1944 (pp. 70-71, pl. 10, fig. 45).

Material Examined: Imwon, Jun. 30, 1989 (J. H. Park).

Description: Colony small, reaching 15 mm in height. Stem not fasciculated, branched irregularly. Perisarc of stem and branch more or less annulated throughout, however incomplete, so that as to be a wrinkled appearance. But proximal portion of branches usually annulated distinctly.

Remarks: Our specimens have no hydranth and gonophore. However the colony form and the indistinct annulated perisarc of branches are the unique characteristics of this species of *Eudendrium*.

Distribution: Widly distributed in the North Pacific and Atlantic Ocean, Mediterranean, Antarctic, Indonesia, Japan, Korea.

5. *Eudendrium carneum* Clarke, 1882 연붉은꽃히드라(신칭) (Fig. 3B-C)

Eudendrium carneum: Fraser, 1944 (p. 64, pl. 8, fig. 36); Vervoort, 1968 (pp. 8-9); Millard, 1975 (pp. 82-84, fig. 28A-H).

Material Examined: Mip'o, Apr. 25, 1975 (B. J. Rho).

Description: Colony tall, about 60 mm in height (fragment), much branched irregularly and shrub-like, stem and larger branch fasciculated, dark brown colored, becoming lighter distally. Pedicel of hydranth with scattered groups of annulations in irregular intervals, distinctly annulated at base. Hydranth with 26-33 tentacles (Millard, 1975). No gonophores observed.

Remarks: Unfortunately the gonophores have not been observed. According to the Millard (1975), the gonophores are born on blastostyles in which the tentacles are completely atrophied. Three or four chambered female gonophores are born on hydranths in which the tentacles are reduced in size, with bifurcating spadix, containing one egg. In older stages the tentacles are completely atrophied. The spadix are shed and the developing embryos are contained in basket-shaped capsules distributed irregularly along the pedicel.

Distribution: Virginia (Fort Wool)(type locality), Atlantic and Pacific coasts of North America, Brazil, St. Helena, east tropic Pacific, South Africa (Durban and Inhambane).

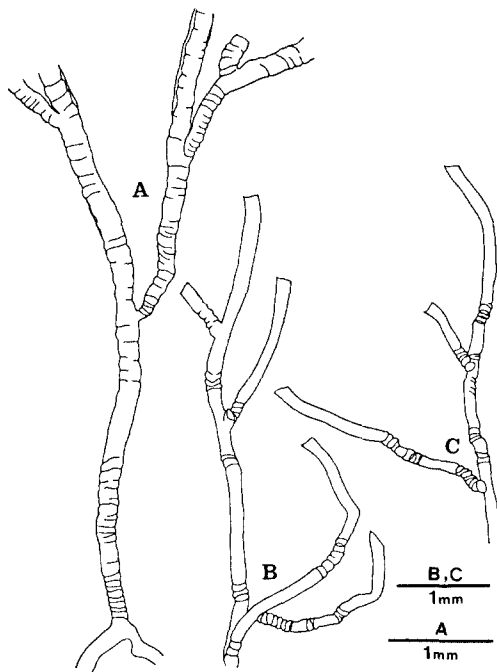


Fig. 3. A, *Eudendrium insigne*, main stem and branches. B-C, *Eudendrium carneum*, main stem and branches.

Suborder Thecata 컵히드라충 아목
Family Haleciidae 무늬히드라 과

6. *Halecium tenellum* Hincks, 1861 연한무늬히드라

Previous records in Korea: Sögwip'o, Anmyöndo (Rho and Chang, 1974).

7. *Halecium jaederholmi* Vervoort, 1972 자델홀름무늬히드라

Previous records in Korea: Haeundae, Sögwip'o (Rho and Chang, 1974).

8. *Halecium beani* (Johnston, 1838) 둥근무늬히드라

Previous records in Korea: Hoenggando, Mip'o, Sögwip'o (Park, 1990).

9. *Halecium pusillum* (M. Sars, 1857) 작은무늬히드라

Previous records in Korea: Sögwip'o (Park, 1990).

Material Examined: Sögwip'o, Oct. 9, 1973 (B. J. Rho).

10. *Halceium delicatulum* Coughtrey, 1876 매혹무늬히드라

Previous records in Korea: Sögwip'o (Rho and Park, 1983).

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

Previous records in Korea: Sögwip'o (Rho and Park, 1983); Ch'öngsande (Park, 1990).

12. *Hydrodendron caciniiformis* (Ritchie, 1907) 작은무늬히드라

Previous records in Korea: Gömundo (Rho and park, 1980).

Material Examined: Pogildo, Jul. 23, 1981 (J. I. Song); Sögwip'o, Nov. 30, 1978 (B. J. Rho).

13. *Hydrodendron gardineri* (Jarvis, 1922) 가드너무늬히드라(신칭) (Fig. 4A-D)

Hydrodendron gardineri: Millard and Bouillon, 1974 (p. 23, fig. 4); Millard, 1975 (pp. 162-163, fig. 53A-D).

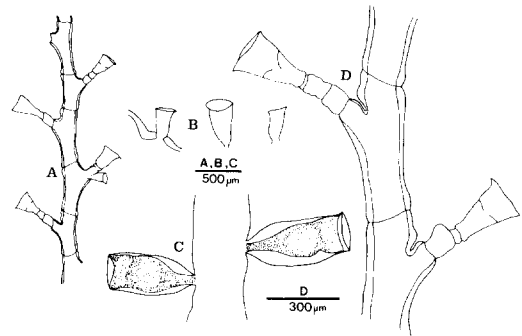


Fig. 4. A-D, *Hydrodendron gardineri*. A, branch with hydrothecae and nematothecae; B, nematothecae; C, gonothecae on the polysiphonic stem; D, enlarged branch with hydrothecae.

Material Examined: Sögwip'o, Dec. 4, 1975 (B. J. Rho).

Description: Colony stiff, shrub-shaped, reaching below 100 mm in height. Stem and main branch fasciculated, giving off branches irregularly at nearly right angle, each branches tending to fuse with other adjacent branches. Monosiphonic branch divided into regular internodes, each internode bearing a hydrotheca from an apophysis at about two-third of length, two rows of hydrothecae in one plane. Hydrotheca also arising from polysiphonic stem and branch, pedicellate, usually regenerated between apophysis and hydrothecal pedicel resulting in additional nodes or corrugations, pedicel longer than hydrotheca. Hydrotheca widening to margin which usually everted. Intrathecal diaphragm oblique, sloping downward to adcauline edge. Nematotheca usually irregular in occurrence, sessile, goblet-shaped, margin everted. Gonosomes born on polysiphonic stem and branch, cylindrical, with truncated distal end and short pedicel, much larger than hydrotheca.

Remarks: Specimens of Millard (1975) from South Africa are little in height (4 mm) and monosiphonic stem. But our specimens are tall (about 50 mm in fragment) and shrub-shaped. However the hydrotheca, nematotheca and other appearance are identical with those of South Africa.

Didistribution: Chagos (Salomon) Archipelago (type locality), South Africa (Moçambique, Inhaca to Inhambane), Korea.

Family Lafoëidae 바위붙이히드라 과

14. *Lafoëa fruticosa* (M. Sars, 1851) 덩불바위
붙이히드라

Previous records in Korea: Supto, Sögwip'o, Yösu, Wimi-ri (Rho and Chang, 1974); Mip'o, Sögwip'o, Chöngsando, Piyangdo, Kap'ado (Park, 1990).

Material Examined: Sögwip'o, Dec. 25, 1971 (B. J. Rho); Oct. 19, 1973 (B. J. Rho); Cheju harbour, Jun. 21, 1985 (B. J. Rho); Ullüngdo, Jul. 10, 1984 (J. I. Song).

15. *Filellum serratum* (Clarke, 1879) 툽니살히드
라

Previous records in Korea: Yösu, Anmyöndo, Chakyakto (Rho and Chang, 1974); Mip'o, Kyökp'o-ri (Park, 1990).

Material Examined: Sögwip'o, Feb. 6, 1971 (B. J. Rho); Sangch'ujado, Jul. 22, 1990 (J. H. Park).

16. *Acryptolaria conferta australis* (Ritchie, 1911) 호주다발히드라 (신칭) (Fig. 5A-D)

Acryptolaria conferta australis: Jaderholm, 1919

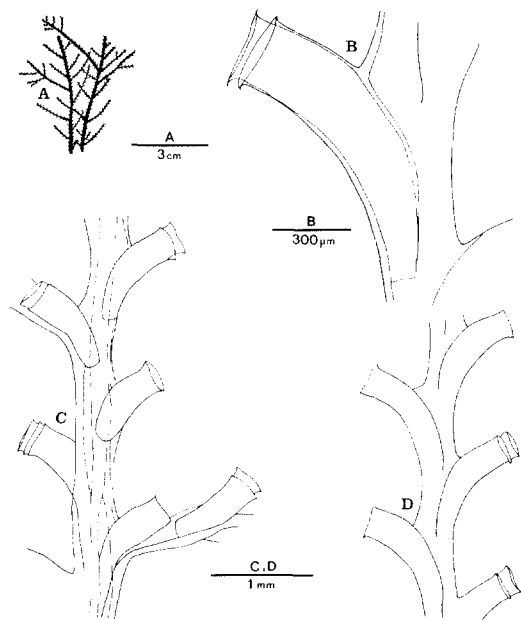


Fig. 5. A-D, *Acryptolaria conferta australis*. A, colony; B, enlarged hydrotheca; C, polysiphonic branch with hydrothecae; D, hydrocladia with hydrothecae.

(pp. 7-8, Taf. 2, fig. 1); Totton, 1930 (pp. 163-164, text-fig. 19c-e); Ralph, 1958 (pp. 315-317, figs. 4a-g); Yamada, 1959 (p. 49).

Material Examined: Sögwip'o, Dec. 27, 1971 (B. J. Rho).

Description: Erect stem of colony about 50 mm in height, fasciculated, giving rise to branches, hydrocladia and hydrothecae irregularly. Branch also fasciculated, distal portion monosiphonic, giving rise to hydrocladia and hydrothecae. Stem, branch and hydrocladia not divided into internodes. Hydrotheca tube-shaped, curved smoothly outward, intersection of adcauline wall of hydrotheca commonly extending below level of emergence of free portion of previous hydrotheca, about half to two-third of adcauline wall adnated, more or less narrowing toward base, margin smooth and round, and slightly everted. No gonothecae observed.

Remarks: This subspecies is similar to *Acryptolaria conferta* (Allman, 1877) reported by Millard (1975) and Totton (1930) in the features of hydrotheca, fascicled stem and branch. But the arrangement of the hydrothecae of *A. c. australis* is overlapped with each other, whereas those of *A. conferta* is alternate, not overlapped.

Distribution: Australia, New Zealand, Japan (Sagami, Misaki), Korea.

17. *Cryptolaria pectinata* (Allman, 1888) 숨은빛
살히드라

Previous records in Korea.—Ullüngdo (Park, 1989).

18. *Zygophylax biarmata* Billard, 1905 두관절히
드라

Previous records in Korea: Sögwip'o (Rho and Chang, 1974); Sögwip'o (Park, 1990).

19. *Grammaria abietina* M. Sars, 1851 전나무
히드라 (신칭) (Fig. 6A-C)

Grammaria abietina: Fraser, 1944 (pp. 217-218, pl. 44, fig. 200); Yamada, 1955 (p. 124, fig. 1D); Naumov, 1960 (pp. 306-307, fig. 174); Calder, 1970 (p. 1523, pl. 5, fig. 1); Cornelius, 1975 (pp. 382-385, fig. 3).

Material Examined: Sokch'o, Oct. 3, 1990 (J. I. Song).

Description: Colony more or less large, 155 mm

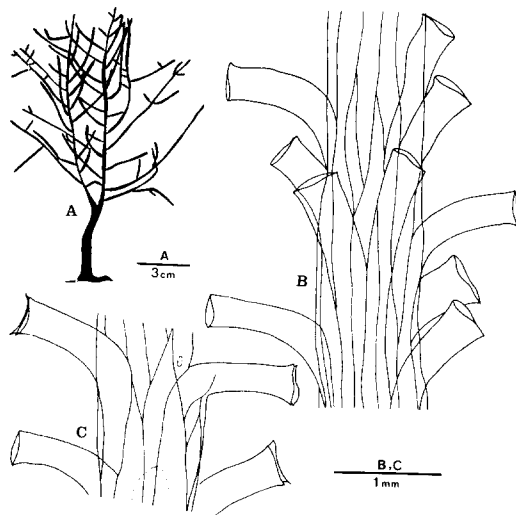


Fig. 6. A-C. *Grammaria abietina*. A, colony; B, C, polysiphonic branch with hydrothecae.

in height, very stout, stem and branch polysiphonic throughout, branched irregularly. Branches constricted at base and tapering near base, resembling main stem in all features. Hydrotheca tube-shaped, arranged in 6 longitudinal rows on branches, a large portion of hydrotheca free, free portion being directed outward, margin circular, vertical with axis in some specimens, flaring slightly, often renovated. No gonothecae observed.

Remarks: The degree of outward-curving and the length of hydrothecae are variable in this species.

Distribution: Great Britain to northern France, northern Atlantic, west, east Greenland, Iceland, Faeroes, Jan Mayen Island, all Russian northern seas (except Chuchi Sea), Bering Sea to Vancouver region, Okhotsk, Japan, Sea of Japan, Korea.

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한국 해산 히드라충류(자포동물문 : 히드라충강)의 계통분류학적 연구
 II. 등근곤봉히드라과, 꽃히드라과, 무늬히드라과, 바위붙이히드라과
 박경희(수원대학교 이과대학 생물학과)

1971년부터 1990년까지 우리나라의 제주도 연안과 도서지방 13개 지역에서 채집된 등근곤봉히드라과(진정), 꽃히드라과, 무늬히드라과 그리고 바위붙이히드라과의 표본들을 형태적 형질에 근거하여 동정하였다. 그 결과 12종 및 아종이 밝혀졌고 이 중에서 6종 : *Sphaerocoryne bedoti*, *Eudendrium insigne*, *Eudendrium carneum*, *Hydrodendron gardineri*, *Acryptolaria conferta australis*, *Grammaria abietina*는 한국 미기록종이다. 한국 미기록 6종에 대하여 간단히 세 기재하고 관찰된 기지종에 대하여서는 기지 채집지를 인용하였으며 아울러 새로운 채집지를 추가하였다. 관찰되지 않은 기지종도 분류관을 밝히기 위하여 인용하였다. 따라서 현재까지 밝혀진 4과의 히드라충류는 10속 19종이다.