

Marine Hydroids (Cnidaria: Hydrozoa: Hydroida) from Cheju Island, Korea

Park, Jung Hee

(Department of Biology, College of Sciences, Suwon University, Ky ŏnggi-do 445-743, Republic of Korea)

제주도 해산 히드라충류(자포동물 문: 히드라충 강: 히드라충 목)

박 정 희

(수원대학교 이과대학 생물학과)

적 요

1993년 6월 28일부터 7월 3일까지 문섬, 범섬 및 숲섬에서 채집된 히드라충류는 10과 25속 46종/아종으로 동정, 분류되었다. 이 중 뿌리히드라(*Rhizocaulus chinensis*), 쌍뿔족혹히드라(*Obelia bicuspidata*), 사슬화관히드라(*Sertularia desmoides*), 가시깃히드라(*Plumularia spinulosa*)의 4종은 제주 미기록종이고, 기생털히드라(*Hebella parastica*), 그린란드종히드라(*Campanularia groelandica*), 나팔종히드라(*Campanularia everta*), 나탈테히드라(*Sertularella natalensis*)의 4종은 한국미기록종으로 밝혀졌다. 문헌기록에 의하면 제주도 해산 히드라충류는 12과 41속 83종/아종이다. 여기에 위의 8종을 추가하면 제주도 해산 히드라충류는 12과 41속 91종/아종이 된다. 제주해역의 우점종은 자색깃히드라(*Macrorhynchia phoenicea*)로서 10개 지점에서 채집되었고 그 다음이 8개 지점에서 채집된 주발깃히드라(*Aglaophenia suensonii*)이다. 채집지별 종의 분포를 보면 서귀포에 71종(78%)이 분포하여 가장 높은 분포를 나타냈고 그 다음이 문섬 43종(47%), 숲섬 26종(29%), 위미리 13종(14%), 범섬 11종(12%)의 순으로 나타났다. 제주해역에만 분포하는 종은 30종(33%)으로 밝혀졌다.

Key words: Systematics, hydroids, Cnidaria, Cheju Island, Korea.

INTRODUCTION

The Cheju Island is located in the southernmost of Korea, between the 126°09"-127°00" of east longitude and the 33°10"-34°05" of north latitude. The Kuroshio showing high temperature and salinity is driven from the North Equatorial Current proceed northward. Its main stream continues turning until it flows in a northeasterly direction. Proceeding northward at the southwest of Kyushu Island, a main split, called the Tsushima Current run through the Korea Strait and remains run into the Yellow Sea along the southwest of Cheju Island. So that the Cheju sea area is highly influenced by under warm water.

The hydroid fauna of Cheju Island, which has so far been reported in the previous works (Rho, 1967, 1969; Rho and Chang, 1972, 1974; Rho and Park, 1979, 1980, 1983, 1984, 1986; Park and Rho, 1986; Park, 1990, 1991) is composed of 83 species and/or subspecies of 41 genera in 12 families. Adding eight species which are new records in Cheju Island and/or Korean waters to Cheju hydroid fauna, the hydroid fauna of Cheju Island which identified up to date consists of 91 species and/or subspecies of 41 genera in 12 families.

MATERIALS AND METHODS

The specimens for this study were collected in three points (Supsom, Munsom, Pomsom) during from June 28 to July 3, 1993 by SCUBA diving. Previous records are also investigated for the hydroid fauna of Cheju Island. By this and previous studies, the hydroids of Cheju Island were sampled in 20 points (Fig. 1). The author redescribed briefly for species turned out to be new to Korean fauna with figures, and cited the sampling sites and the related references from previous works.

RESULTS AND DISCUSSIONS

The asterisks (*, **, ***) indicate the species examined in this work: *, species recorded in the previous works; **, new records in Cheju Island; ***, new records in Korean waters. The remains indicate only the previous records.

Phylum Cnidaria	자포동물 門
Class Hydrozoa	히드라충 綱
Order Hydroida	히드라충 目
Suborder Athecata	민컵히드라충 亞目
Family 1. Corynidae	곤봉히드라 科

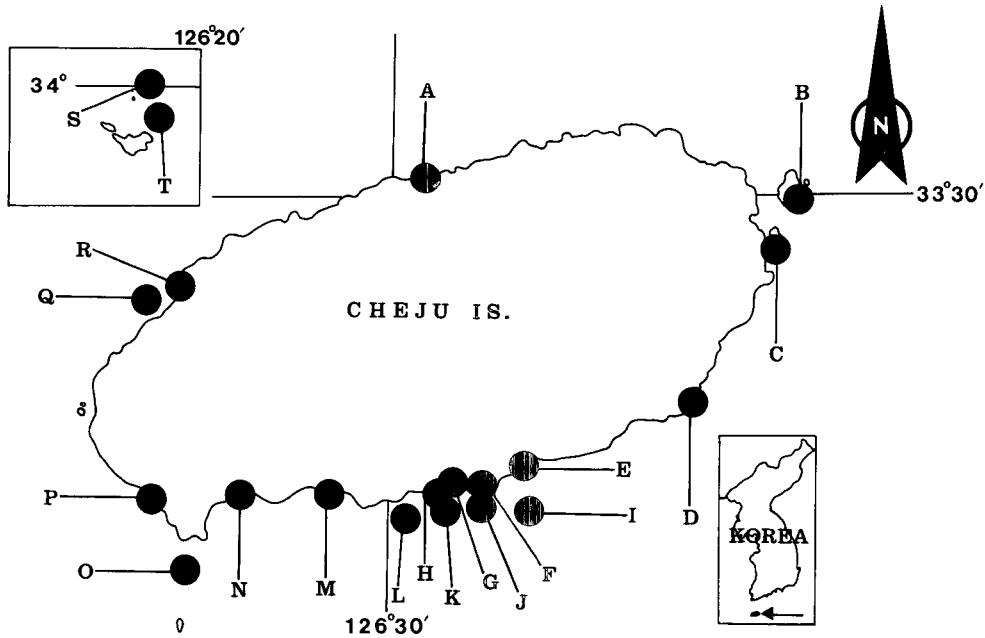


Fig. 1. Cheju Island showing the sampling sites. A, Cheju harbour (제주항); B, Udo (우도); C, Songsanp'o (성산포); D, P'yoson (표선); E, Wimi-ri (위미리); F, Pomong-ri (보목리); G, Sogwip'o (서귀포); H, Chodo (조도); I, Chigwido (지귀도); J, Supsom (순섬); K, Munsom (문섬); L, Pomsom (범섬); M, Taep'o (대포); N, Hwasunp'o (화순포); O, Kap'ado (가파포); P, Mosulp'o (모슬포); Q, Piyangdo (비양도); R, Hallim (한림); S, Hoeg-gando (횡간도); T, Sasudo (사수도).

***1. *Coryne pusilla* Gaertner, 1774** 곤봉히드라

Previous record. Sasudo (Rho and Chang, 1972).

Material examined.: Munsom, Jul. 1, 1993.

Family 2. Ptilocodiidae 날개히드라 科

***2. *Hydrichthella epigorgia* Stechow, 1909** 꽃총산호히드라

Previous record. Sogwip'o (Rho and Park, 1979).

Family 3. Solanderiidae 산호불이히드라 科

***3. *Solanderia secunda* (Inaba, 1892)** 산호불이히드라

Previous record. Cheju harbour (Rho and Chang, 1972).

Material examined. Munsom, Jul. 1, 1993; Pomsom, Jul. 2, 1993; Supsom, Jul. 2, 1993.

Family 4. Clavidae 진곤봉히드라 科

4. *Turritopsis nutricula* (McCrary, 1856) 작은보호탑히드라

Previous record. Sogwip'o (Park, 1990).

Family 5. Eudendriidae 꽃히드라 科

***5. *Eudendrium capillare* Alder, 1856** 털꽃히드라

Previous record. Sogwip'o (Park, 1990).

Material examined. Supsom, Jul. 1, 1993.

Family 6. Hebellidae 털히드라 科

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

Previous record. Sogwip'o (Rho and Chang, 1972).

Material examined. Supsom, Jul. 2, 1993.

*****7. *Hebella parastica* (Ciamician, 1880)** 기생털히드라(신칭)(Fig. 2A-D)

Lafoëa parastica Ciamician, 1880 (p. 673, fig. 39)(cited from Gibbons and Ryland, 1989).

Hebella parastica: Stechow, 1913 (pp. 103-105, figs. 75-78); 1919 (p. 76); Yamada, 1958 (p.

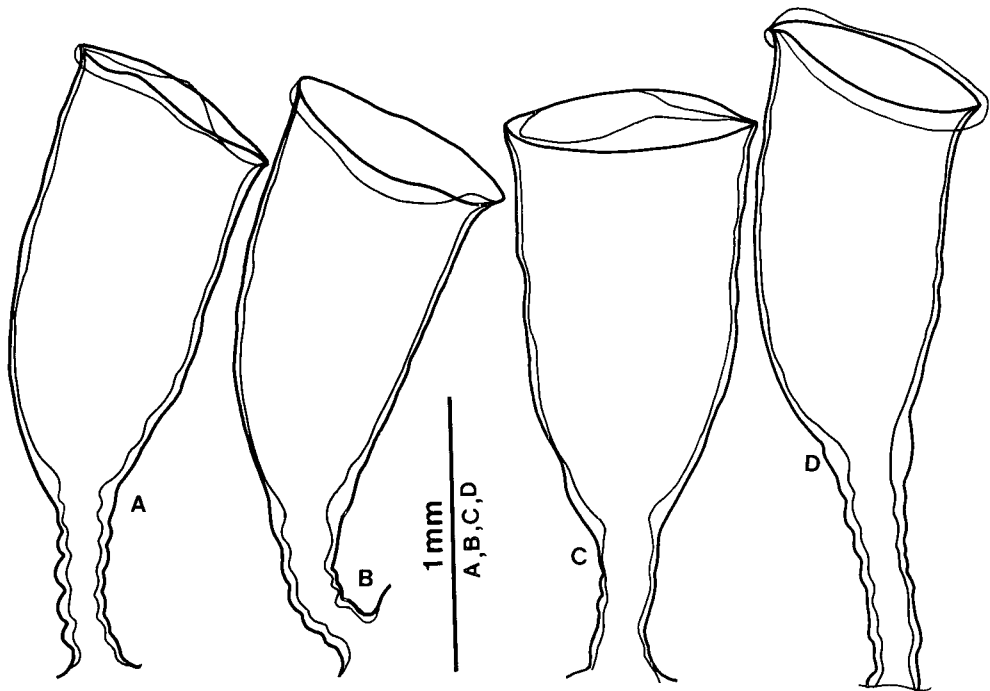


Fig. 2. A-D. *Hebella parastica*. A-D, parts of colony.

56); 1959 (p. 45); Vervoort and Vasseur, 1977 (pp. 12-13, fig. 3); Gibbons and Ryland, 1989 (pp. 394-395, fig. 13).

Material examined. Munsom, Jul. 1, 1993 (J.H. Park).

Description. Colonies arising from stolon creeping on body of *Lytocarpus philippinus*. Pedicel short and waved throughout, variable in length, widening to hydrothecal base; 0.38-0.77mm in length and 0.17-0.20mm in width. Hydrothecae large, deeply campanulate, hydrothecal wall more or less slightly waved, widening toward marginal aperture which circular and distinctly everted; 0.8-1.0mm in marginal width and 1.28-1.45mm in length. Gonothecae absent.

Remarks. The size of this species is known to be variable.

Distribution. Mediterranean and eastern Atlantic, Indo-West Pacific to French Polynesia, Japan (Sagami Bay, Matsuyama); Korea (Munsom).

8. *Scandia neglecta* (Stechow, 1913) 가넬히드라

Previous record. Sogwip'o (Park, 1990).

Family 7. Haleciidae 무늬히드라 科

***9. *Halecium tenellum* Hincks, 1861 연한무늬히드라**

Previous record. Sogwip'o (Rho and Chang, 1974).

Material examined. Munsom, Jul. 1, 1993.

10. *Halecium jaederholmi* Vervoort, 1972 자델홀무늬히드라

Previous record. Sogwip'o (Rho and Chang, 1974).

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

Previous record. Sogwip'o (Park, 1990).

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

Previous records. Sogwip'o (Park, 1990); Sogwip'o (Park, 1991).

Material examined. Munsom, Jun. 30, 1993; Munsom, Jul. 1, 1993; Sopsom, Jul. 2, 1993.

***13. *Halecium delicatulum* Coughtrey, 1876 매혹무늬히드라**

Previous record. Sogwip'o (Rho and Park, 1983).

Material examined. Sopsom, Jul. 2, 1993.

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

Previous record. Sogwip'o (Rho and Park, 1983).

15. *Hydrodendron caciniiformis* (Ritchie, 1907) 작은나무무늬히드라

Previous record. Sogwip'o (Park, 1991).

16. *Hydrodendron gardineri* (Jarvis, 1922) 가드너무늬히드라**Previous record.** Sogwip'ŏ (Park, 1991).

Family 8. Lafoëidae 바위불이히드라 科

17. *Lafoea fruticosa* (M. Sars, 1851)** 덩불바위불이히드라**Previous records.** Supsom, Sogwip'ŏ, Wimi-ri (Rho and Chang, 1974); Sogwip'ŏ, Kap'ado, Piyangdo (Park, 1990); Sogwip'ŏ, Cheju harbour (Park, 1991).**Material examined.** Munsom, Jul. 1, 1993.18. *Filellum serratum* (Clarke, 1879)** 톱니살히드라**Previous record.** Sogwip'ŏ (Park, 1991).**Material examined.** Munsom, Jun. 30, 1993.**19. *Acryptolaria conferta australis* (Ritchie, 1911)** 호주다발히드라**Previous record.** Sogwip'ŏ (Park, 1991).**20. *Zygophylax biarmata* Billard, 1905** 두관절히드라**Previous records.** Sogwip'ŏ (Rho and Park, 1984); Sogwip'ŏ (Park, 1990).

Family 9. Campanulariidae 종히드라 科

21. *Eucalix paradoxus* Stechow, 1923** 컵히드라**Previous record.** Kap'ado (Park, 1990).**Material examined.** Munsom, Jul. 1, 1993.**22. *Campanularia groenlandica* Levinsen, 1893** 그린란드종히드라(신칭)(Fig. 3A-D)*Campanularia groenlandica*: Stechow, 1913 (pp. 76-77, figs. 37-41); 1923 (p. 6, no. 54; Nutting, 1915 (p. 38, pl. 3, figs. 1,2); Fraser, 1944 (pp. 120-121, pl. 21, fig. 91); Yamada, 1958 (p. 54); 1959 (p. 37); Naumov, 1960 (p. 253, fig. 139).**Material examined.** Munsom, Jul. 1, 1993 (J.H. Park).**Description.** Small colony growing on stolon wending the surface other hydroids. Pedicels growing from stolon, reaching 0.7-1.6mm in height and 0.05-0.06mm in width, wavy in irregular on their upper part but not distinctly annulated and even smooth on their basal part, however a distinct annulation immediately above pedicel origin. Hydrothecae large, variable in shape, campanula- or cylinder-shaped, with longitudinal rib on wall and rounded marginal teeth; 0.55-0.74mm in height (including teeth), 0.26-0.37mm in marginal width and 0.24-0.34mm in width of middle portion. Gonothecae absent.**Remarks.** The hydrothecae are variable in shape and the wave patterns of pedicels. The pedicels of Nutting (1915), Fraser (1944) and Naumov (1960) were waved distinctly throughout.**Distribution.** White, Barents, Kara, Laptev and Bering Seas, seas of Okhotsk and Japan, coasts of

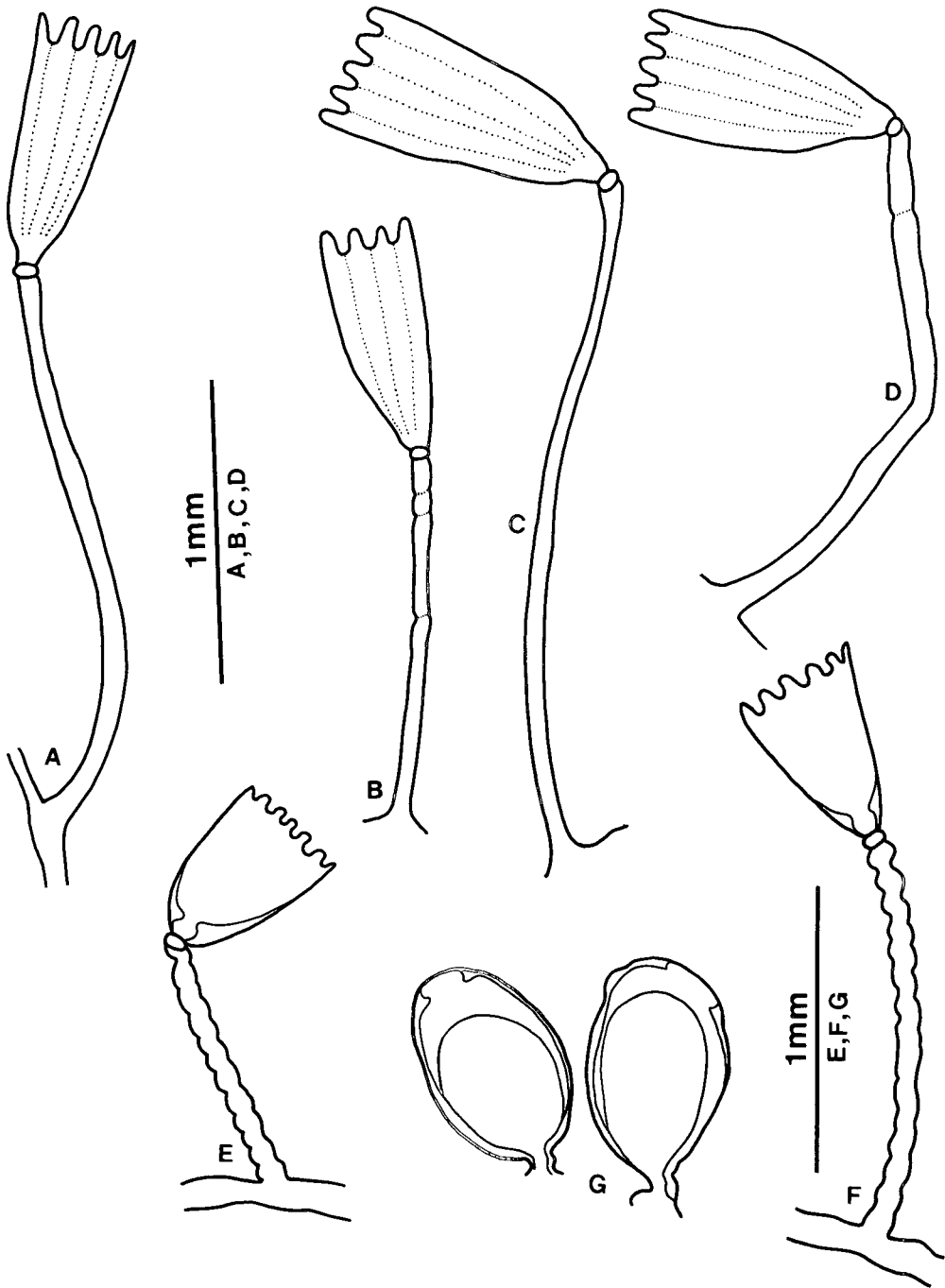


Fig. 3. A-D. *Campanularia groenlandica*. A-D, parts of cology; E-G. *Campanularia everta*. E-F, parts of cology; G, gonothecae.

Norway to Trondheim Flord, northern coast of Iceland, western coast of Greenland, coasts of Alaska, Pacific and Atlantic coasts of North America, Korea (Munson).

*****23. *Campanularia everta* Clark, 1876** 나팔종히드라(신칭) (Fig. 3E-G)

Orthophyxis everta: Nutting, 1915 (pp. 67-68, pl. 16, figs. 6-8).

Campanularia everta: Naumov, 1960 (p. 256, fig. 142).

Material examined. Munson, Jun. 30, 1993.

Description. Colony small, arising from stolon creeping on algae. Pedicel unbranched, waved throughout, with a distinct annulation above pedicel origin, reaching 0.95-1.95mm in height and 0.04-0.06mm in width. Hydrothecae campanula-shaped, with more or less rounded marginal teeth, 0.37-0.49mm in marginal width and 0.57-0.66 in height. Gonothecae arising on stolon, with short pedicel, oval-shaped, 0.80-1.09mm in height (except pedicel), 0.45-0.51mm in maximum width; pedicel waved, 0.05-0.13mm in height and 0.05-0.06mm in width.

Remarks. This species is very similar to *Eucopeella caliculata* (Park, 1980) in colony shape. But it is distinguished from that by the shape of hydrothecal teeth. *C. everta* reported by Rho and Chang (1974) is other campanulariid species.

Distribution. California (San Diego, Pacific Grove), McMurdo Bay, Sea of Japan, Korea (Munson).

24. *Orthophyxis platycarpa* Bale, 1914 입넓은종히드라

Previous record. Sogwip'o (Rho and Chang, 1974).

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

Material examined. Munson, Jul. 1, 1993.

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

Previous record. Sogwip'o (Rho and Park, 1980); Sogwip'o (Park, 1990).

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

Previous record. Kap'ado (Park, 1990).

Material examined. Munson, Jun. 30, 1993; Munson, Jul. 1, 1993; Supsom, Jul. 2, 1993.

***28. *Obelia geniculata* (Linnaeus, 1758)** 혹히드라

Previous record. Sogwip'o (Rho and Chang, 1972); Sogwip'o, Wimi-ri (Rho and Chang, 1974); Kap'ado (Park, 1990).

Material examined. Munson, Jun. 30, 1993.

****29. *Obelia bicuspidata* (Clarke, 1875)** 쌍뿔족혹히드라

Material examined. Munson, Jul. 1, 1993.

Family 10. Syntheciidae 쌍컵히드라과

***30. *Synthecium tubithecum* (Allman, 1877)** 나팔쌍컵히드라**Previous record.** Sogwip'o (Rho and Chang, 1974).**Material examined.** Munsom, Jun. 30, 1993; Munsom, Jul. 1, 1993.

Family 11. Sertulariidae 테히드라과

31. *Diphasia palmata* Nutting, 1905** 넓은입히드라**Previous record.** Sogwip'o (Rho and Chang, 1972); Sogwip'o, Supsom, Chodo (Rho and Chang, 1974); Sogwip'o, Pomong-ri, (Rho and Park, 1986); Sogwip'o (Park, 1990).**Material examined.** Munsom, Jul. 1, 1993.**32. *Dynamena crisioides* Lamouroux, 1824** 민테히드라**Material examined.** Songsanp'o (Rho, 1967); Sogwip'o, Udo (Rho and Chang, 1974); Udo(Park, 1986).**33. *Symplectoscyphus hozawai* Stechow, 1931** 호자와테히드라**Previous record.** Sogwip'o (Rho and Chang, 1974).**34. *Abietinaria traski* (Torrey, 1902)** 나무테히드라**Previous record.** Sogwip'o (Park and Rho, 1986).35. *Amphisbetia pacifica* Stechow, 1931** 태평양테히드라**Previous record.** Sogwip'o (Rho, 1967); Supsom (Rho and Chang, 1972); Sogwip'o, Wimi-ri (Rho and Chang, 1974); Sogwip'o (Park and Rho, 1986).**Material examined.** Supsom, Jul. 2, 1993.***36. *Pasythea nodosa* Hargitt, 1908** 층쌍컵히드라**Previous record.** Sogwip'o (Rho, 1967); Sogwip'o (Rho and Chang, 1972); Sogwip'o, Munsom (Park and Rho, 1986).**Material examined.** Munsom, Jul. 1, 1993; Supsom, Jul. 2, 1993.***37. *Sertularia dalmasi* (Versluys, 1899)** 달마스화관히드라**Previous record.** Sogwip'o (Rho, 1967); Sogwip'o (Rho and Chang, 1972); Sogwip'o, Songsanp'o, Wimi-ri (Rho and Chang, 1974); Sogwip'o (Park and Rho, 1986).**Material examined.** Munsom, Jun. 30, 1993.**38. *Sertularia hattorii* Leloup, 1940** 달마스화관히드라**Previous record.** Sogwip'o (Rho and Chang, 1972); Sogwip'o (Rho and Chang, 1974); Sogwip'o (Park and Rho, 1986).

39. *Sertularia densa* Stechow, 1919** 백백화관히드라**Previous record.** Hoeng-gando (Park and Rho, 1986).**Material examined.** Munsom, Jul. 1, 1993; Supsom, Jul. 2, 1993.40. *Sertularia distans* (Laumouroux, 1816)** 화관히드라**Previous record.** Sogwip'ŏ (Rho and Park, 1980); Sogwip'ŏ, Pomsom (Park and Rho, 1986).**Material examined.** Munsom, Jul. 1, 1993; Supsom, Jul. 2, 1993.****41. *Sertularia desmoides* Torrey, 1902** 사슬화관히드라**Material examined.** Munsom, Jun. 30, 1993; Munsom, Jul. 2, 1993.**42. *Sertularella lagenoides* Stechow,** 플라스크테히드라**Previous record.** Sasudo (Rho and Chang, 1972).**43. *Sertularella arey* Nutting, 1904** 아레이테히드라**Previous record.** Sogwip'ŏ (Rho and Chang, 1974).**44. *Sertularella gotoi* Stechow, 1913** 고평테히드라**Previous record.** Sogwip'ŏ (Rho and Chang, 1974).**45. *Sertularella solidula* Bale, 1882** 단단테히드라**Previous record.** Sogwip'ŏ (Rho and Park, 1983).**46. *Sertularella sinensis* Jaderholm, 1896** 그물테히드라**Previous record.** Sogwip'ŏ (Rho and Chang, 1974); Sogwip'ŏ, Supsom, Pomsom, Cheju harbour (Park and Rho, 1986).***47. *Sertularella distans* (Allman, 1877)** 분리테히드라**Previous record.** Sogwip'ŏ (Park and Rho, 1986); Sogwip'ŏ (Park, 1990).**Material examined.** Munsom, Jun. 30, 1993.***48. *Sertularella levigata* Stechow, 1931** 테히드라**Previous record.** Sogwip'ŏ, Songsanp'ŏ (Rho, 1967); Supsom (Rho and Chang, 1972); Sogwip'ŏ, Songsanp'ŏ (Park and Rho, 1986); Kap'ado (Park, 1990).**Material examined.** Munsom Jun. 30, 1993; Supsom, Jul. 2, 1993.**49. *Sertularella miurensis* Stechow, 1921** 가로테히드라**Previous record.** Sogwip'ŏ (Rho, 1967); Sogwip'ŏ, Wimi-ri (Rho and Chang, 1974); Sogwip'ŏ, Pomsom, Songsanp'ŏ (Park, and Rho, 1986).

50. *Sertularella obtusa* Stechow, 1931** 무던테히드라**Previous record.** Sogwip'ŏ (Park and Rho, 1986).**Material examined.** Munsom, Jun. 30, 1993.**51. *Sertularella quinquelaminata* Stechow, 1931** 오컵테히드라**Previous record.** Sogwip'ŏ (Park and Rho, 1986).52. *Sertularella robusta* Coughtrey, 1876** 붉은테히드라**Previous record.** Songsanp'ŏ (Park and Rho, 1986).**Material examined.** Munsom, Jun. 30, 1993; Munsom, Jul. 1, 1993.**53. *Sertularella tenella* (Alder, 1856)** 연테히드라**Previous record.** Pomsom (Park and Rho, 1986).***54. *Sertularella tongensis* Stechow, 1919** 통가테히드라**Previous record.** Munsom (Park and Rho, 1986); Sogwip'ŏ (Park, 1990).**Material examined.** Supsom, Jul. 2, 1993.*****55. *Sertularella natalensis* Millard, 1968** 나탈테히드라(신칭)(Fig. 4A-B)*Sertularella natalensis*: Millard, 1975 (pp. 297-299, fig. 96D-F).**Material examined.** Supsom, Jul. 2, 1993 (J.H. Park).**Description.** Erect stem stiff, monosiphonic and not branched, reaching below 10mm in height, divided into regular internodes by oblique but not distinct nodes sloping in alternate directions, each internode bearing one hydrotheca, internode 0.75-0.85mm in length and 0.12-0.13mm in minimum width. Hydrothecae alternately right and left in same plane with axis, distally tapered, margin with four teeth, adcauline wall adnate for about two-fifth or one half its length and free portion basally lightly undulated, abcauline wall more or less smooth; 0.72-0.78mm in height, 0.15-0.19mm in width of base, 0.19-0.22mm in width of margin, 0.28-0.33mm in maximum width. Gonothecae absent.**Remarks.** Regarding on Millard (1975), the striations on the hydrothecal wall are always occur in some hydrothecae of a colony. They may be faint or absent in other hydrothecae, particularly the older ones. The striations of our specimens are absent. Type locality is off Natal.**Distribution.** Natal and Moçambique, Korea (Supsom).**56. *Thuiaria nuttingi* (Levinsen, 1912)** 누팅테히드라**Previous record.** Supsom, Pomsom (Park and Rho, 1986).**57. *Thuiaria similis* (Clarke, 1876)** 의테히드라**Previous record.** Sogwip'ŏ (Park and Rho, 1986).

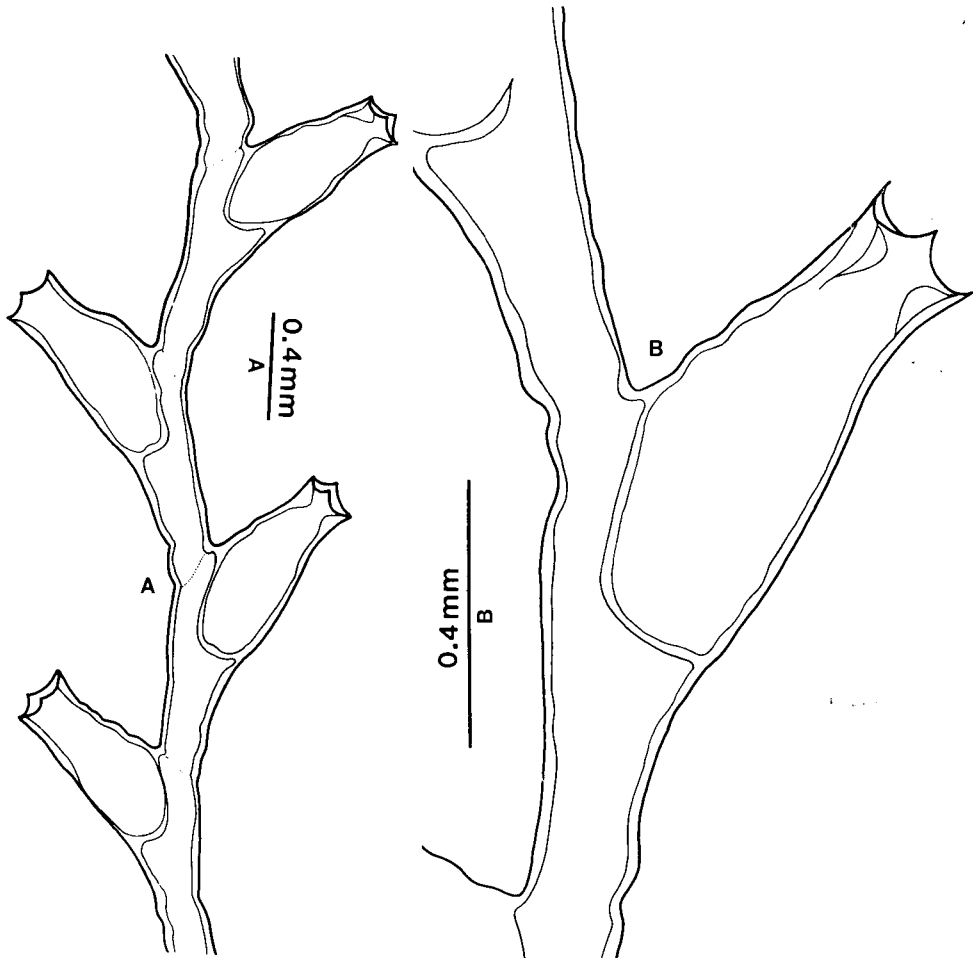


Fig. 4. A-B. *Sertularella nataensis*. A, stem with hydrothecae; B, enlarged hydrotheca.

***58. *Thuiaria articulata* (Pallas, 1766)** 관절테히드라

Previous record. Sopsom (Park and Rho, 1986).

Material examined. Munsom, Jun. 30, 1993; Munsom, Jul. 1, 1993.

59. *Thuiaria carica* Levinsen, 1893 사초테히드라

Previous record. Sogwip'o (Park and Rho, 1986).

60. *Thuiaria plumosa* Clarke, 1876 깃테히드라

Previous record. Sogwip'o (Park and Rho, 1986).

Family 12. Plumulariidae 깃히드라 科

61. *Halopteris constricta* Totton, 1930 수축깃히드라**Previous record.** Sogwip'o (Park, 1990).***62. *Antennella diaphana siliquosa* (Hincks, 1877)** 꼬투리깃히드라**Previous record.** Sogwip'o (Rho and Park, 1980); Sogwip'o, Munsom (Rho and Park, 1986); Kap'ado (Park, 1990).**Material examined.** Munsom, Jun. 30, 1993; Pomsom, Jul. 2, 1993.***63. *Antennella secundaria* (Gmelin, 1789)** 둘째깃히드라**Previous record.** Sogwip'o (Rho, 1967); Sogwip'o, Munsom, Supsom (Rho and Chang, 1972); Sogwip'o (Rho and Chang, 1974); Sogwip'o (Rho and Park, 1986); Sogwip'o (Park, 1990).**Material examined.** Munsom, Jun. 30, 1993; Munsom, Jul. 1, 1993; Supsom, Jul. 2, 1993.**64. *Antennella africana* Broch, 1914** 아프리카깃히드라**Previous record.** Sogwip'o, Wimi-ri, Udo (Rho and Chang, 1974); Sogwip'o, Udo (Rho and Park, 1986).**65. *Antennella integerrima* (Jaderholm, 1896)** 둥근깃히드라**Previous record.** Sogwip'o, Pomsom (Rho and Chang, 1972); Sogwip'o (Rho and Chang, 1974); Sogwip'o, Taep'o (Rho and Park, 1986).**66. *Monothecha obliqua* (Johnston, 1847)** 외틀이깃히드라**Previous record.** Sogwip'o (Rho and Park, 1986).**67. *Monostaechas quadridens* (McCraday, 1857)** 네주름깃히드라**Previous record.** Sogwip'o (Rho and Chang, 1972); Sogwip'o, Munsom (Rho and Chang, 1974).***68. *Gymnangium hians* (Busk, 1852)** 민숭이깃히드라**Previous record.** Sogwip'o (Rho, 1967); Sogwip'o (Rho and Chang, 1972); Sogwip'o, Supsom, Wimi-ri, Chigwido (Rho and Chang, 1974); Sogwip'o, Munsom, Pomsom, Chigwido (Rho and Park, 1986).**Material examined.** Munsom, Jun. 30, 1993; Munsom, Jul. 1, 1993; Supsom, Jul. 2, 1993.***69. *Gymnangium eximium* (Allman, 1874)** 특수깃히드라**Previous record.** Sogwip'o (Rho and Park, 1986).**Material examined.** Munsom, Jun. 30, 1993.

70. *Gymnangium roretzi* (Marktanner, 1890) 로레찌깃히드라**Previous record.** Sogwip'o, Munsom (Rho and Park, 1986).***71. *Macrorhynchia phoenicea* (Busk, 1852)** 자색깃히드라**Previous record.** Sogwip'o (Rho, 1967); Sogwip'o, Munsom, Supsom, Pomsom (Rho and Chang, 1972); Sogwip'o, Wimi-ri, Chigwido (Rho and Chang, 1974); Sogwip'o, Munsom, Supsom, Taep'o, P'yoson, Udo, Mosulp'o (Rho and Park, 196).**Material examined.** Munsom, Jun. 30, 1993; Munsom, Jul. 1, 1993; Supsom, Jul. 2, 1993.**72. *Nemertesia antennina* (Linnaeus, 1758)** 촉각깃히드라**Previous record.** Sogwip'o (Rho and Park, 1983); Sogwip'o (Rho and Park, 1986).**73. *Nemertesia polygeniculata* Rho and Park, 1984** 다관절깃히드라**Previous record.** Sogwip'o (Rho and Park, 1984).**74. *Sibogella erecta* Billard, 1911** 곤두깃히드라**Previous record.** Sogwip'o, Wimi-ri (Rho and Park, 1986).**75. *Halicornaria expansa* Jaderholm, 1903** 넓적고래수염깃히드라**Previous record.** Sogwip'o (Rho and Park, 1986).**76. *Halicornaria twista* Rho and Park, 1984** 꼬인깃히드라**Previous record.** Sogwip'o (Rho and Park, 1984).***77. *Pycnotheca mirabilis* (Allman, 1883)** 질긴컵히드라**Previous record.** Sogwip'o (Rho, 1967); oogwip'o (Rho and Chang, 1972); Sogwip'o Supsom, Wimi-ri (Rho and Chang, 1974); Supsom, Wimi-ri (Rho and Park, 1986); Kap'ado (Park, 1990).**Material examined.** Munsom, Jul. 1, 1993; Supsom, Jul. 2, 1993.***78. *Plumularia hertwigi* Stechow, 1907** 헤르트비히깃히드라**Previous record.** Sogwip'o (Rho and Park, 1983); Wimi-ri (Rho and Park, 1986).**Material examined.** Munsom, Jun. 30, 1993.**79. *Plumularia filicaulis* Kirchenpauer, 1876** 고비깃히드라**Previous record.** Sogwip'o (Rho and Park, 1986); Kap'ado (Park, 1990).***80. *Plumularia filicaulis japonica* Jaderholm, 1919** 왜고비깃히드라**Previous record.** Sogwip'o, Chigwido, Pomong-ri, Udo, Hwasunp'o (Rho and Park, 1986).**Material examined.** Munsom, Jul. 1, 1993.

81. *Plumularia pennycuikai* Millard et Bouillon, 1973 페니깃히드라**Previous record.** Sogwip'o (Rho and Park, 1986).***82. *Plumularia spinulosa* Bale, 1882** 가시깃히드라**Material examined.** Munsom, Jul. 1, 1993.***83. *Plumularia setacea* (Linnaeus, 1758)** 깃히드라**Previous record.** Sogwip'o (Rho and Chang, 1972); Sogwip'o, Wimi-ri, Hallim (Rho and Chang, 1974); Sogwip'o, Wimi-ri (Rho and Park, 1986).**Material examined.** Munsom, Jun. 30, 1993; Munsom, Jul. 1, 1993; Supsom, Jul. 2, 1993.**84. *Plumularia spiralis* Billard, 1911** 나사깃히드라**Previous record.** Sogwip'o (Rho, 1969); Munsom, Supsom (Rho and Chang, 1972); Sogwip'o (Rho and Park, 1986).**85. *Plumularia lagenifera* Allman, 1886** 플라스크깃히드라**Previous record.** Songsanp'o (Rho and Park, 1980); Sogwip'o (Rho and Park, 1986).**86. *Thecocarpus myriophyllum orientalis* Billard, 1908** 동양협깃히드라**Previous record.** Sogwip'o (Park, 1990).***87. *Lytocarpus niger* Nutting, 1906** 검정깃히드라**Previous record:** Sogwip'o, Hallim (Rho, 1967); Sogwip'o (Rho and Chang, 1972); Sogwip'o (Rho and Chang, 1974); Sogwip'o, P'yoson, Hwasunp'o, Mosulp'o (Rho and Park 1986).**Material examined.** Munsom, Jun. 30, 1993; Munsom, Jul. 1, 1993.***88. *Lytocarpus philippinus* (Kirchenpauer, 1847)** 필리핀깃히드라**Previous record.** Sogwip'o (Rho, 1967); Sogwip'o (Rho and Chang, 1972); Sogwip'o (Rho and Chang, 1974); Sogwip'o, Munsom (Rho and Park, 1986).**Material examined.** Munsom, Jun. 30, 1993; Munsom, Jul. 1, 1993.**89. *Lytocarpus secundus* (Kirchenpauer, 1872)** 제이깃히드라**Previous record.** Taep'o (Rho and Park, 1986).***90. *Aglaophenia whiteleggei* Bale, 1888** 흰깃히드라**Previous record.** Sogwip'o (Rho, 1969); Sogwip'o, Supsom, Mosulp'o (Rho and Park, 1986).**Material examined.** Munsom, Jun. 30, 1993; Munsom, Jul. 1, 1993; Supsom, Jul. 2, 1993.***91. *Aglaophenia suensonii* Jaderholm, 1896** 주발깃히드라**Previous record.** Sogwip'o (Rho, 1967); Sogwip'o, Pomsom, Chigwido (Rho and Chang, 1972); Sogwip'o, Supsom, Chodo, Wimi-ri (Rho and Chang, 1974); Sogwip'o, Taep'o (Rho and Park, 1986).

Table 1. Continued

species	localities**																			
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
<i>Pycnotheca mirabilis</i>					•		•			•	•				•					
<i>Plumularia hertwigi</i>					•		•				•									
<i>P. filicaulis</i>							•									•				
<i>P. f. japonica</i>	•					•	•		•		•				•					
<i>P. pennycuikai</i>							•													
<i>P. spinulosa</i>											•									
<i>P. setacea</i>					•		•			•	•								•	
<i>P. spiralis*</i>							•			•	•									
<i>P. lagenifera</i>			•				•													
<i>Thecocarpus myriophyllum orientalis*</i>							•													
<i>Lytocarpus niger</i>				•			•				•			•		•			•	
<i>L. philippinus*</i>							•				•									
<i>L. secundus</i>													•							
<i>Aglaophenia whiteleggei</i>							•			•	•						•			
<i>A. suensonii</i>					•		•	•	•	•	•	•	•							
	3	4	6	2	13	2	71	2	4	26	43	11	4	2	7	4	1	2	1	2

*: Species distributed only in Cheju Island

** : A=Cheju harbour, B=Udo, C=Songsanp'o, D=P'yoson, E=Wimi-ri, F=Pomong-ri, G=Sogwip'o, H=Chodo, I=Chigwido, J=Supsom, K=Munsom, L=Pomsom, M=Taep'o, N=Hwasunp'o, O=Kap'ado, P=Mosulp'o, Q=Piyangdo, R=Hallim, S=Hoenggando, T=Sasudo

Material examined. Munsom, Jun. 30, 1993.

In this study 46 species and/or subspecies of 25 genera in 10 families are identified and classified. Of which four species: *Rhizocaulus chinensis*, *Obelia bicuspidata*, *Sertularia desmoides* and *Plumularia spinulosa* are new to Cheju hydroid fauna and four species: *Hebella parastica*, *Campanularia groenladica*, *Campanularia everta* and *Sertularella natalensis* are new to Korean fauna. So that the hydroid fauna of Cheju Island consists of 91 species and/or subspecies of 41 genera in 12 families. The Korean hydroid fauna identified up to date consists of 123 species and/or subspecies. According this results, the hydroids of Cheju Island account for 74% of Korean hydroid fauna. The distribution of hydroid species in Cheju Island is given in Table 1.

According to the Table 1, *Macrorhynchia phoenicea* is a dominant species in Cheju sea area which occurs in 10 of 20 points; *Aglaophenia suensonii* in eight points; *Lafoea fruticosa* in seven points; *Gymnangium hians*, *Plumularia filicaulis japonica* and *Lytocarpus niger* in six points. The numbers of species occurred at each point were 71 (78%) in Sogwip'o, 43 (47%) in Munsom, 26 (29%) in Supsom, 13 (14%) in Wimi-ri and 11 (12%) in Pomsom in order. Thirty-three percent (30 species) of the hydroids of Cheju Island was only found in Cheju Island.

ABSTRACT

The marine hydroids of Cheju Island in this work identified into 46 species and/or subspecies of 25 genera in 10 families. Of which four species: *Rhizocaulus chinensis*, *Obelia bicuspidata*, *Sertularia desmoides* and *Plumularia spinulosa* are new to the hydroid fauna of Cheju Island and four species: *Hebella parastica*, *Campanularia groenlandica*, *Campanularia everta* and *Sertularella natalensis* are new to the Korean fauna. Adding these eight species to the previous known species (83 species and/or subspecies) in Cheju Island, the hydroid fauna in Cheju Island identified up to date consists of 91 species and/or subspecies of 41 genera in 12 families. *Macrorhynchia phoenicea* is dominant species which occur in 10 points, *Aglaophenia suensonii* in eight points. 71 species (78%) occur in Songsanp'ŏ, 43 species (47%) in Munsom, 26 species (29%) in Supsom, 13 species (14%) in Wimi-ri and 11 species (12%) in P'omsom in order. Thirty-three percent (30 species) of the hydroids of Cheju Island was only found in Cheju Island.

REFERENCES

- Gibbons, M.J. and J.S. Ryland, 1989. Intertidal and shallow water hydroids from Fiji. 1. Athecata to Sertulariidae. Mem. Qd. Mus., **27**: 377-432.
- Fraser, C.M., 1944. Hydroids of the Atlantic coast of North America. Toronto Univ. Press, pp. 451.
- Millard, N.A., 1975. Monograph on the Hydroida of South Africa. Ann. S. Afr. Mus., **68**: 1-512.
- Naumov, D.V., 1960. Hydroids and hydromedusae of the USSR. Opređ. Faune SSSR **70**: 1-660. (Translated by Israel program for Scientific Translation, Jerusalem, 1969).
- Nutting, C.C., 1915. American hydroids. Part 3. The Campanulariidae and Bonneviellidae. Smith. Inst. U.S. Nat., Special Bull.: 1-126.
- Park, J.H., 1990. Systematic study on the marine hydroids (cnidaria, Hydrozoa) in Korea 1. Kor. J. Syst. Zool., **6**: 71-86.
- Park, J.H., 1991. Systematic Syudy on the Marine Hydroids (Cnidaria: Hydrozoa) in Korea II. Thr families Sphaerocorynidae, Eudendriidae, Haleciidae and Lafoeidae. Kor. J. Zool., **34**: 541-547.
- Park, J.H. and B.J. Rho, 1986. A systematic study on the marine hydroids in Korea 9. The family Sertulariidae. Kor. J. Syst. Zool., Special Issue No. **1**: 1-52.
- Rho, B.J., 1967. Marine hydroids from the west and south sea of Korea (1). Kor.Cult. Res. Inst. Better Liv., Ewha Womans Univ., **10**: 341-360.
- Rho, B.J., 1969. Studies on the marine hydroids in Korea (2). J. Kor. Res. Inst. Better Liv., Ewha Womans Univ., **2**: 161-174.
- Rho, B.J. and S.R. Chang, 1972. Taxonomic study on the marine hydroids 3. Marine hydroids from Jeju-Do and Chuja-Kundo. J. Kor. Res. Inst. Better Liv., Ewha Womans Univ., **9**: 15-43.
- Rho, B.J. and S.R. Chang, 1974. On the classification and distribution on the marine benthic animals in Korea 1.

- Hydroids. J. Kor. Res. Inst. Better Liv. Ewha womans Univ., **12**: 133-158.
- Rho B.J. and J.H. Park, 1979. A systematic study on the marine hydroids in Korea 5. Athecate hydroids. Kor. J. Zool., **22**: 165-174.
- Rho, B.J. and J.H. Park, 1980. A systematic study on the marine hydroids in Korea 6. Thecata. J. Kor. Res. Inst. Better Liv., Ewha Womans Univ., **25**: 15-43.
- Rho, B.J. and J.H. Park, 1983. A systematic study on the marine hydroids in Korea 7. Nine unrecorded species. J. Kor Res Inst Better Liv., Ewha Womans Univ., **31**: 39-56.
- Rho, B.J. and J.H. Park, 1984. A systematic study on the marine hydroids in Korea 8. On two new species belonging to family Plumulariidae. Kor. J. Zool., **27**: 255-263.
- Rho, B.J. and J.H. Park, 1986. A systematic study on the marine hydroids in Korea 9. The family Plumulariidae. J. Kor. Res. Inst. Better Liv., Ewha Womans Univ., **37**: 87-112.
- Stechow, E., 1913. Hydropolipen der japanischen Ostcuste. Abh. bayer. Akad. Wiss. (Math-phys. Kl.) Suppl. Bd., **3**: 1-162.
- Stechow, E., 1919. Zur Kenntnis der hydroidenfauna des Mittelmeeres, Amerikas und anderer gebiete. Zool. Jahrb., **42**: 1-172.
- Stechow, E., 1923. Die Hydroidenfauna der japanischen Region. J. Coll. Sci. Imp. Univ. Tokyo, **44**: 1-23.
- Vervoort, W. and P. Vasseur, 1977. Hydroids from French Polynesia with note on distribution and ecology. Zool. Verh. Leiden, **159**: 1-98.
- Yamada, M., 1958. Hydroids from the Japanese Island Sea, mostly from Matsuyama and its vicinity. J. Fac. Soc. Hokkaido Univ. Ser. 6. Zool., **14**: 51-63.
- Yamada, M., 1959. Hydroida fauna of Japanese and its adjacent waters. Akkeshi Mar. Biol. Stat., **9**: 1-101.

RECEIVED: October 1993

ACCEPTED: October 1993