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## Systematic Study on Marine Sponges in Korea 10. Demosponges of Cheju Island

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### 한국산 해산해면류의 계통분류학적 연구 10. 제주도의 보통해면류

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#### 적 요

제주도 연안과 부근 섬을 1991년 3월 부터 10월까지 5회에 걸쳐 채집한 재료와 그동안 한남대학교 생물학과와 이화여자대학교 생물학과에 보관되어 있던 제주도 표본들을 동정, 분류한 결과 30 과 40 속 67 종이 분류 되었고, 이 중 11 종은 한국 미기록종이었다. 특기를 요하는 기록종에는 간단한 기재를 하였고, 미기록종에 대하여는 기재와 도판을 첨가 하였다.

Key words: systematics, marine sponges, Demospongia, Cheju Island, Korea.

#### INTRODUCTION

The present study on marine sponges is based on materials, from Cheju Island, Korea. A systematic survey of the sponge of this Island was begun by Sim in 1980. Sim (1982a) reported 83 species in 28 families from Cheju Island. Among them 74 species were Demospongiae. 140 species in 35 families have

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been reported so far, as a result of systematic studies of Korean sponges (Kim *et al.*, 1968; Rho *et al.*, 1969; Rho and Sim, 1972a, b; 1976; 1979a, b, c, d; 1981; Sim, 1981a, b, 1982a, b; 1985; Sim and Kim, 1988; Sim and Byeon, 1989; Sim *et al.*, 1990).

The material used were collected from 18 localities (Fig. 1) in the Cheju Island during the period from 1970 to 1991. Materials were collected by fish net, fishing reel with long lines and SCUBA diver.

67 species, 40 genera and 30 families were identified, of which 11 species were new to Korea: *Oxeostilon fernaldi*, *Microciona gradalis*, *Tedania ignis*, *Haliclona koremella*, *Adocia neens*, *Callyspongia variabilis*, *Suberites axinelloides*, *Anthosigmella raromicrosclera*, *Epipolasis kushimotoensis*, *Acanthella insignis*, and *Spongosorites salomonensis*. A total 140 species of Demospongiae are now known to Cheju Island by adding the 11 more species reported in this paper. The systematic scheme of Bergquist (1978) were consulted in this study.

## SYSTEMATIC ACCOUNT

The asterisk (\*) indicates the species which were recorded only in Cheju Island and double asterisk (\*\*) indicates the species which were newly recorded in Korea.

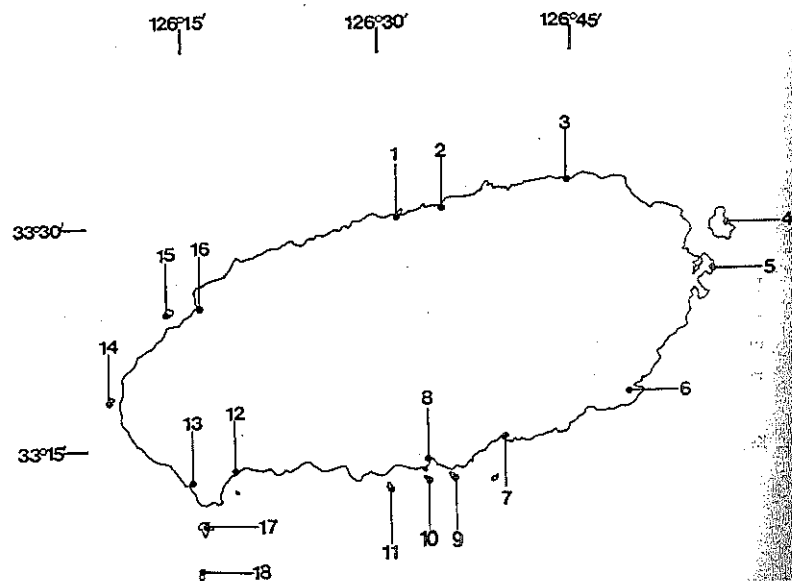


Fig. 1. A map showing the localities where the materials were collected.

1, Chejuhang; 2, Samyang 1 dong; 3, Kimnyong; 4, Udo; 5, Songsan'o; 6, Pyoson; 7, Wimi; 8, Sogwip'o; 9, Supsom; 10, Munsom; 11, Pomsom; 12, Sanbangsan; 13, Mosulp'o; 14, Ch'agwido; 15, Piyangdo; 16, Hallim; 17, Kap'ado; 18, Marado.

Class Demospongiae Sollas, 1885 보통해면 강  
Subclass 1. Ceractinomorpha Lévi, 1953 일축해면 아강  
Order 1. Keratosa Grant, 1861 각질해면 목  
Family 1. Spongiidae Gray, 1867 각질해면 과

### 1. *Spongia officinalis* Linné, 1759 간각질해면

Material examined: Songsanp'o, 13/VII/1983; Kimnyong (reel fishing), 25/VI/1991.

### Order 2. Halichondrida Vosmaer, 1885 해면해면 목

Family 2. Halichondriidae Vosmaer, 1885 해면해면 과

### 2. *Halichondria panicea* (Pallas, 1766) 회색해면해면

Material examined: Sogwip'o (fish net), 19/VII/1987; Piyangdo, 6/III/1986; Ch'agwido (SCUBA), 23/X/1991.

### 3. *Halichondria okadai* (Kadota, 1922) 검정해면해면

Material examined: Sanbangsan, 10/VII/1991.

### 4. *Halichondria oshoro* (Tanita, 1961) 황록해면해면

Material examined: Sanbangsan, 10/VII/1991.

Family 3. Hymeniacidonidae De Laubenfels, 1934 주황해면해면 과

### 5. *Hymeniacidon sinapium* De Laubenfels, 1930 주황해면해면

Material examined: Piyangdo, 6/III/1986; Samyang (SCUBA), 9/VII/1991; Sanbangsan, 10/VII/1991; Pomsom (SCUBA), 22/X/1991; Ch'agwido (SCUBA), 23/X/1991; Songsanp'o (SCUBA), 24/X/1991; Marado (SCUBA), 25/X/1991.

### \*\* 6. *Oxeostilon fernaldi* Sim and Bakus, 1986 간사해면(신칭) (Pl. 3, Figs. 3-4)

*Oxeostilon fernaldi* Sim and Bakus, 1986 (p. 14-15, figs. 2-1, 2-2)

Material examined: Mosulp'o (fish net), 6/IX/1988.

Remarks: This sponge is massive. Size up to 12×8.5×5cm. Texture is hard but friable. Surface is irregularly undulate. The oscules are sparse, 2-5 mm in diameter, dermal membrane is present. Color in life is yellow, in alcohol it is ivory.

Spicules: Large oxeas ..... 676-1015 × 12-30 μm.  
Small oxeas ..... 139-435 × 16-18 μm.  
Styles ..... 568-846 × 18-36 μm.  
Strongyles ..... 507-604 × 24 μm.



Distribution: Korea (Cheju Island); California.

### Order 3. Poecilosclerida Topsent, 1928 다골해면 목

Family 4. Anchinoidae Topsent, 1928 안키노해면 과

7. *Anchioe novaezealandiae* Dendy, 1924 안키노해면  
Material examined: Supsöm, 14/VII/1987.
- Family 5. Myxillidae Hentschel, 1923 끈적해면 과
8. *Myxilla setoensis* Tanita, 1961 넓적끈적해면  
Material examined: Piyangdo, 19/VI/1985; Sögwip'o, 9/X/1986; Mosülp'o, 19/VII/1987; Pömsöm (SCUBA), 22/X/1991; Söngsanp'o (SCUBA), 24/X/1991.
9. *Myxilla bivalvia* Tanita, 1967 덩게끈적해면  
Material examined: Mosülp'o (fish net), 18/VII/1987; Kimnyöng (reel fishing), 10/VIII/1991.
10. *Myxilla incrustans* (Johnston, 1942) 점질끈적해면  
Material examined: Kap'ado, 15/VI/1985; Mosulp'o, 19/VII/1987; Kimnyöng (reel fishing), 25/VI/1991; Kimnyong (reel fishing), 15/VII/1991; Pömsöm (SCUBA), 22/X/1991.
- \*11. *Myxilla productus* Hoshino, 1981 긴끈적해면  
Material examined: Piyangdo, 20/VI/1985; Mosülp'o, 9/IX/1988; Kimnyong (reel fishing), 25/VI/1991; Kimnyong (reel fishing), 15/VII/1991.
- \*12. *Lissodendoryx firma* (Larabe, 1895) 뇌산호끈적해면  
Material examined: Kap'ado, 17/VI/1985; Kimnyöng (reel fishing), 15/VII/1991.
- Family 6. Ophlitaspongiidae De Laubenfels, 1936 바늘뼈해면 과
13. *Ophlitaspongia noto* Tanita, 1963 바늘뼈해면  
Material examined: Sögwip'o, 18/VII/1987; Sanbangsan, 10/VII/1991; Pömsöm (SCUBA), 22/X/1991; Söngsanp'o (SCUBA), 24/X/1991; Marado (SCUBA), 25/X/1991.
- \*14. *Neofolispa dianchora* (De Laubenfels, 1935) 두닷바늘뼈해면  
Material examined: Kimnyöng (reel fishing), 15/VII/1991.
- Family 7. Clathridae Hentschel, 1923 침유령해면 과
- \*15. *Clathria dayi* Lévi, 1963 데이침유령해면  
Material examined: Mosülp'o (fish net), 9/IX/1988; Kimnyöng (reel fishing), 25/VI/1991.
16. *Clathria spinspicula* Tanita, 1968 침유령해면  
Material examined: Mosülp'o (fish net), 9/IX/1988; Kimnyöng (reel fishing), 25/VI/1991.
17. *Clathria toxipraedita* Topsent, 1913 화살유령해면  
Material examined: Sögwip'o, 25/X II/1971; Piyangdo, 20/VI/1985; Chejuhang, 6/II/1986; Mosülp'o,

18/VII/1987.

- \*18. *Microciona gradalis* Topsent, 1925 관상유령해면(신칭) (Pl. 4, Figs. 1-2)  
*Microciona gradalis* Topsent, 1925.  
*Microciona gradalis*: Lévi, 1960 (p.175).  
Material examined: Mosülp'o (fish net), 9/IX/1988.  
Remarks: This sponge is encrusting over the sponge *Discodermia kiiensis*. Texture is tough and compressible. Body surface is a little velvety with the protruding spicules. Pore and oscules are invisible. Color in life is light purple, in alcohol it is beige.  
Spicules: Large styles ..... 664-761 × 24 µm.  
Small styles ..... 302-471 × 12-18 µm.  
Subtylostyles ..... 265-580 × 2-5 µm.  
Acanthostyles ..... 60-241 × 6-12 µm.  
Isochela ..... 11-12 µm.  
Distribution: Korea (Cheju Island) ; Mediterranean.
- Family 8. Desmacidae 띠해면 과
- \*19. *Desmacella rosea* Fristedt, 1887 장미띠해면  
Material examined: Chejuhang, 6/II/1986; Mosülp'o (fish net), 9/IX/1988.
- Family 9. Eaperiopsidae Hentschel, 1923 발톱해면 과
20. *Eспериopsis uncigera* Topsent, 1928 관발톱해면  
Material examined: Kimnyong (reel fishing), 15/VII/1991.  
Remarks: Long tube, 37cm height, 2.5cm diameter, surface is smooth.
- Family 10. Plocamiidae Topsent, 1928 곱슬해면 과
21. *Lissoplocamia tocushima* Tanita, 1970 미끈이해면  
Material examined: Sögwip'o, 30/VII/1984; Samyang 1 dong (SCUBA), 9/VII/1991; Kimnyöng (reel fishing), 15/VII/1991; Kimnyöng (reel fishing), 20/IX/1991.  
Remarks: Branch, tip of branch is flat.
- Family 11. Tedaniidae Riedly and Dendy, 1886 테다니해면 과
- \*22. *Tedania tubulifera* Lévi, 1963 관테다니해면  
Material examined: Kap'ado, 10/VI/1985; Piyangdo, 5/II/1986. 
- \*23. *Tedania ignis* (Duchassing and Michelotti, 1864) 관상테다니해면(신칭) (Pl. 5, Figs. 1-2)  
*Thalysias ignis* Duchassing and Michelotti, 1864.  
*Tedania ignis*: De Laubenfels, 1936 (p.89-92); 1949 (p.16-17); 1950 (p.21-22); 1951 (p.260); 1954 (p.129); Little, 

1963 (p.48); Hechtel, 1965 (p. 37-39, pl. 5, fig. 4); Simpson, 1968 (p. 72, pl. 16, fig. 1, t-figs. 9-10); Wiedenmayer, 1977 (p. 133-135, pl. 28, fig. 3, pl. 29, fig. 1, t-fig. 14); Pultzer-Finall, 1986 (p.147).

Material examined: Sögwip'o, 10/IX/1988.

Remarks: This specimen is incrusting on the rock with bryozoans. Surface is smooth. Texture is very soft and fragile. No osculum visible but pore is scattered on the surface. Color in life is orange.

Spicules: Styles ..... 175-278 × 3-8  $\mu\text{m}$ .  
 Substrongyles ..... 151-236 × 3-6  $\mu\text{m}$ .  
 Raphid ..... 115-185 × 2  $\mu\text{m}$ .  
 Small raphid ..... 47-75 × 1  $\mu$

Distribution: Korea (Cheju Island); Jamaica; Bahama; Dominica Republic; Puerto Rico.

Order 4. Haplosclerida Topsent, 1928 단골해면 목

Family 12. Halicionidae De Laubenfels, 1932 보라해면 과

**24. Haliclona densaspicula** Hoshino, 1981 맥떡침보라해면

Material examined: Kimnyöng (reel fishing), 1/VI/1991.

**\*25. Haliclona perlucida** (Griessinger, 1971) 진주보라해면

Material examined: Kimnyöng (reel fishing), 1/VI/1991.

**26. Haliclona permollis** (Bowerbank, 1866) 보라해면

Material examined: Söngsanp'o, 15/VI/1981; Sögwip'o (fish net), 2/VII/1984; Piyangdo, 6/II/1986; Pömsöm (SCUBA), 22/X/1991; Marado (SCUBA), 25/X/1991.

**\*\*27. Haliclona koremella** De Laubenfels, 1954 앞사귀보라해면(신칭) (Pl. 5, Figs. 3-4)

*Haliclona koremella* De Laubenfels, 1954 (p. 59-60, t-fig. 34).

Material examined: Mosülp'o (fish net), 19/VII/1987.

Remarks: This sponge is leaf-like shape and erect, with short stalk attached to the substratum, measures 4.3cm high. Texture is soft. Surface is even. Oscules are 1.5 - 2.5mm in diameter at the top. Color in alcohol is beige. Laubenfels species is ramose shaped.

Spicules: Strongyles ..... 82-105 × 2-3  $\mu\text{m}$ .

Distribution: Korea (Cheju Island); Iwayama Bay

Family 13. Adocidae De Laubenfels, 1936 아도시해면 과

**\*\*28. Adocia neens** Topsent, 1918 님스아도시해면(신칭) (Pl. 2, Figs. 1-2)

*Reniera neens* Topsent, 1918.

*Adocia neens*: De Laubenfels, 1936 (p. 67-68, pl. 12, fig. 1); Little, 1963 (p.43).

Material examined: Sögwip'o, 10/IX/1988.

Remarks: This sponge is massive, size up to 4.5 × 2.5 × 1.2 cm. Oscules are slightly elevated with oscular rims. Surface is smooth. Texture is fragile. Color in life is violet but in alcohol it is beige.

Spicules: Oxeas ..... 90-145 × 1-6  $\mu\text{m}$ .

Styles ..... 95-136 × 5-6  $\mu\text{m}$ .

Strongyles ..... 80-110 × 5-6  $\mu\text{m}$ .

Distribution: Korea (Cheju Island); Antarctic Ocean.

**29. Strongylophora corticata** Wilson, 1925 불통해면

Material examined: Sögwip'o, 8/VIII/1981; Munsöm, 18/X II/1986; Mosül-p'o, 24/VII/1989; Pömsöm (SCUBA), 22/X/1991; Ch'agwido (SCUBA), 23/X/1991; Söngsanp'o (SCUBA), 24/X/1991; Marado (SCUBA), 25/X/1991.

Remarks: Mushroomshape, hard like stone. Color is purple in life.

Family 14. Callyspongiidae De Laubenfels, 1936 예쁜이해면 과

**30. Callyspongia elongata** (Ridley and Dendy, 1886) 길죽예쁜이해면

Material examined: Piyangdo, 19/VI/1985; Chejuhang, 21/VI/1985; Sogwip'o, 9/X/1986; Wimi, 10/X/1986; Mosülp'o, 9/IX/1988; Kimnyöng (reel fishing), 1/VI/1991; Kimnyong (reel fishing), 25/VI/1991.

**31. Callyspongia elegans** (Thiele, 1899) 예쁜이해면

Material examined: Söngsanp'o, 15/VII/1981; Mosülp'o, 9/VII/1991; Kimnyöng (reel fishing), 15/VII/1991; Pömsöm (SCUBA), 22/X/1991; Ch'agwido (SCUBA), 23/X/1991; Söngsanp'o (SCUBA), 23/X/1991.

**32. Callyspongia confoederata** (Ridley, 1884) 보라예쁜이해면

Material examined: Sögwip'o, 8/VIII/1981; Udo, 2/1984; Munsöm, 29/IX/1986; Mosülp'o, 9/IX/1988; Söngsanp'o (SCUBA), 24/X/1991.

**\*\*33. Callyspongia variabilis** (Dendy, 1890) 변덕예쁜이해면(신칭) (Pl. 4, Figs. 3-4)

*Pachychalina variabilis* Dendy, 1890 [cited from Hoshino, 1981 (p.109-110, t-fig. 39)].

*Callyspongia variabilis*: De Laubenfels, 1936 (p.39); Tanita, 1967 (p. 114); 1981 (p. 109-110, t-fig. 39).

Material examined: Mosülp'o(fish net), 9/IX/1988.

Remarks: This sponge is ramose and has long slender branches, size up to 12 × 5.7cm. Surface is even, oscules open on the surface of the only one side, 0.5 - 1.5mm in diameter. Texture is compressible. Color in life is orange, in alcohol it is beige.

Spicules: Oxeas ..... 109-160 × 6-9  $\mu\text{m}$

Distribution: Korea (Cheju Island); Japan (Takeno Inland sea of Japan); Bahamas.

**34. Callyspongia bispicula** Tanita, 1961 얇은예쁜이해면

Material examined: Mosülp'o, 9/VII/1991.

**35. Callyspongia ramosa** (Gray, 1843) 가시예쁜이해면

Material examined: Kimnyöng, 25/VI/1991.

Subclass 2. Tetractinomorphä Lévi, 1953 사육해면 아강

Order 5. Choristida Sollas, 1880 코리스티다해면 목  
Family 15. Stellettidae Carter, 1875 별해면 과

\*36. *Stelletta crassipicula* (Sollas, 1886) 두꺼운별해면  
Material examined: Söngsanp'o (SCUBA), 24/X/1991.

\*37. *Papyrula metastrosa* Lebewohl, 1914 변갈대해면  
Material examined: Sögwip'o (fish net), 30/IX/1978; P'yosön, 9/X/1985.

Family 16. Ancorinidae Schmidt, 1870 닻해면 과

38. *Penares incrustans* Tanita, 1963 집질닻해면  
Material examined: Ch'agwido (SCUBA), 23/X/1991.

Family 17. Geodiidae Gray, 1867 조디아해면 과

\*39. *Erylus nobilis* Thiele, 1900 유명꼭지해면  
Material examined: Pömsöm (SCUBA), 22/X/1991.

Family 18. Pachastrellidae Carter, 1875 시루해면 과

\*40. *Pachastrella doederlein* (Thiele, 1898) 털시루해면  
Material examined: Kimnyöng (reel fishing), 10/X/1991.

41. *Pachastrella cribrum* Lebewohl, 1914 체시루해면  
Material examined: Sögwip'o, 1/VII/1984; Kimnyöng (reel fishing), 15/VII/1991; Söngsanp'o (SCUBA), 24/X/1991.

\*42. *Pachastrella japonica* Thiele, 1898 시루해면  
Material examined: Sögwip'o, 31/VII/1975; Mosülp'o, 18/VII/1987; Kimnyong (reel fishing), 15/VII/1991.

Family 19. Jaspidae De Laubenfels, 1936 벽옥해면 과

\*43. *Asteropus simplex* (Carter, 1879) 자루별해면  
Material examined: Marado (SCUBA), 25/X/1991.  
Remarks: Encrusting, cover the barnacle.

Order 6. Lithistida Schmidt, 1870 리티스티다해면 목  
Family 20. Kaliapsidae De Laubenfels, 1936 돌해면 과

\*44. *Discodermia japonica* Döderlein, 1883 판가죽해면  
Material examined: Sögwip'o (fish net), 10/X/1986; Mosülp'o, 9/IX/1988; Kimnyöng (reel fishing), 15/VII/1991.

45. *Discodermia calyx* Döderlein, 1883 첨가죽해면

Material examined: Hallim, 7/VII/1972; Sögwip'o, 10/X/1986; Pömsöm (SCUBA), 22/X/1991; Ch'agwido (SCUBA), 23/X/1991; Söngsanp'o (SCUBA), 24/X/1991.

\*46. *Discodermia kiiensis* Hoshino, 1977 키가죽해면

Material examined: Sögwip'o, 12/IV/1975; Mosülp'o, 24/VII/1989; Mosülp'o, 9/VII/1991; Kimnyong, 15/VII/1991; Pömsöm (SCUBA), 22/X/1991.

\*47. *Discodermia emarginata* Dendy, 1905 유두가죽해면

Material examined: Munsöm, 26/X II/1986; Söngsanp'o (SCUBA), 24/X/1991.

Remarks: Massive, 4 × 5 × 2cm, color is gold yellow in life.

Order 7. Hadromerida Topsent, 1894 경해면 목

Family 21. Suberitidae Schmidt, 1870 크르크해면 과

\*48. *Suberites axinelloides* Brøndsted, 1924 축크르크해면(신칭) (Pl.1, Figs. 3-4)

*Suberites axinelloides* Brøndsted, 1924.

*Suberites axinelloides*: Bergquist, 1968 (p.26-27, fig. 7).

Material examined: Mosülp'o (fish net), 9/IX/1988.

Remarks: This sponge is thinly encrusting over the dead sea squirt root, 1-2mm thick. The texture is soft and easily torn. Pore and oscules are not apparent. Color in life is orange, in alcohol it is beige. Bergquist's specimens are growing over a shell.

Spicules: Large tylostyles ..... 248-821 × 6-18  $\mu$ m.

Small tylostyles ..... 115-211 × 3-6  $\mu$ m.

Distribution: Korea (Cheju Island); East of North Cape.

Family 22. Clonidae Gray, 1867 호박해면 과

\*49. *Cliona lobata* Hancock, 1826 입호박해면

Material examined: Sögwip'o (fish net), 3/X II/1978; Mosülp'o, 24/VII/1989; Ch'agwido (SCUBA), 23/X/1991.

Family 23. Spirastrellidae Ridley and Dendy, 1886 나선별해면 과

\*50. *Spirastrella panis* Thiele, 1898 나선별해면

Material examined: Sögwip'o, 5/IX/1985; Mosülp'o, 29/ /1988; Samyang (SCUBA), 9/VII/1991; Pömsöm (SCUBA), 22/ /1991; Ch'agwido, 23/X/1991.

51. *Spirastrella abata* Tanita, 1961 가나선별해면

Material examined: Munsöm, 26/X II/1986; Samyang (SCUBA), 9/VII/1991; Kimnyöng (reel fishing), 15/VII/1991; Ch'agwido (SCUBA), 23/X/1991; Marado (SCUBA), 25/X/1991.

52. *Spirastrella insignis* Thiele, 1898 죽은나선벌해면  
Material examined: Kimnyöng (reel fishing), 1/VI/1991; Samyang (SCUBA), 9/VII/1991; Kimnyöng (reel fishing), 15/VII/1991.

Family 24. Tethyidae Gray, 1867 테티아해면 과

53. *Tethya aurantium* (Pallas, 1766) 오렌지둥글해면  
Material examined: Söngsanp'o, 2/X II/1978; Söngsanp'o (SCUBA), 24/X/1991.  
Remarks: Itching to touch.

Family 25. Chondrosiidae Schulze, 1877 알해면 과

- \*54. *Chondrilla mixta* Schulze, 1877 검정알해면  
Material examined: Söngsanp'o, 30/VI/1984; Söngsanp'o (SCUBA), 24/X/1991; Marado (SCUBA), 25/X/1991.  
Remarks: Encrusting like colony Ascidian, color is black in life.

Family 26. Choanittidae De Laubenfels, 1936 코에너티해면 과

- \*55. *Anthosigmella raromicrosciera* (Dickinson, 1945) 가지꽃해면(신칭) (Pl. 3, Figs. 1-2)  
*Anthosigmella raromicrosciera* Dickinson, 1945.  
*Anthosigmella raromicrosciera*: Hoshino, 1981 (p. 218-219, pl. 2, fig. 1, pl. 4, fig. 1-2, t-fig. 9).  
Material examined: Mosölp'o (fish net), 6/IX/1988; Samyang I dong (SCUBA), 9/VII/1991.  
Remarks: This sponge is massive, 10 × 8 × 4 cm. Texture is compressible but hard. Surface is light papillate. Pores invisible but oscules 0.5-1.5 mm in diameter. Colour in life is black, in alcohol it is dark gray.  
Spicules: Tylostyles ..... 236-447 × 6-12 µm  
Spiraster ..... 18-33 µm  
Distribution: Korea (Cheju Island); California; Japan (Voshna Mitsukue Shonashi)

Family 27. Sollasellidae Lendenfeld, 1887 솔라시해면 과

- \*\*56. *Epipolasis kushimotoensis* Hoshino, 1977 루시모접질해면(신칭) (Pl. 5, Figs. 5-6)  
*Epipolasis kushimotoensis* Hoshino, 1977 (p. 11, pl. 4, figs. 3-5, t-fig. 4).  
*Epipolasis kushimotoensis*: Hoshino, 1981 (p. 240-241, t-fig. 27).  
Material examined: Mosölp'o (fish net), 19/VII/1987.  
Remarks: This sponge is irregular massive, size up to 9 × 7.8 × 4.8 cm. Texture is hard as stone, incompressible. Surface is uneven, thin dermal membrane is present. Oscules are rare 1-2 mm in diameter but pore is invisible. In alcohol it is beige.  
Spicules: Large oxeas ..... 720-900 × 6-24 µm  
Small oxeas ..... 483-680 × 6-12 µm  
Distribution: Korea (Cheju Island); Japan (Kushimote)

Order 8. Axinellida Bergquist, 1970 축해면 목  
Family 28. Axinellidae Ridley and Dendy, 1888 축해면 과

57. *Axinella copiosa* Thiele, 1898 축해면  
Material examined: Hallim, 7/VII/1972; Sögwip'o (fish net), 9/X/1986; Mosölp'o, 9/IX/1988; Kimnyöng, 15/VII/1991; Kimnyöng (reel fishing), 20/IX/1991.

- \*58. *Axinella hispida* Koltun, 1959 털많은축해면  
Material examined: Chejuhang, 6/II/1986.

- \*59. *Acanthella simplex* Thiele, 1898 긴가지가시해면  
Material examined: Sögwip'o (fish net), 11/V/1974; Kimnyong (reel fishing), 15/VII/1991.  
Remarks: Branch or fan shape but texture is very hard. Height is similar all specimen.

- \*60. *Acanthella insignis* Thiele, 1898 가지가시해면(신칭) (Pl. 1, Figs. 1-2)  
*Acanthella insignis* Thiele, 1898 (p. 54, pl. 3, fig. 10, pl. 8, figs. 37 a-c).  
Material examined: Mosölp'o (fish net), 9/IX/1988.  
Remarks: This sponge is labelliform, size up to 5 × 4 × 1 cm. It is attached to the substratum by a short stalk. The surface is hispid with numerous spicules projecting. The texture is very hard and incompressible. Color in life is orange, in alcohol it is ivory.  
Spicules: Styles ..... 326-1345 × 12-18 µm.  
Strongyles ..... 435-1129 × 6-12 µm.  
Distribution: Korea (Cheju Island); Japan (Sagami Bay).

61. *Phakellia elegans* Thiele, 1898 램시해면  
Material examined: Sögwip'o, 1/X II/8; Mosölp'o (fish net), 6/1988; Kimnyöng (reel fishing), 25/VIII/1991; Kimnyöng (reel fishing), 20/IX/1991.

- \*62. *Ceratopsis ramosa* Thiele, 1898 가지꽃해면  
Material examined: Sögwip'o (fish net), 30/IX/1978; Kimnyöng (reel fishing), 25/VI/1991.

- \*63. *Spongosorites salomonensis* Dendy, 1921 진주벌해면(신칭) (Pl. 2, Figs. 3-4)  
*Spongosorites salomonensis* Dendy, 1921 (p. 125-126, pl. 17, figs. 6 a-c).  
Material examined: Sögwip'o, 26/X II/1971; Mosölp'o (fish net), 9/IX/1988.  
Remarks: This specimens are massive, size up to 3.7 × 3.5 × 2.2 cm. Texture is hard but fragile. Surface is slightly uneven because of protrudin spicules. Dermal membrane is present. Pores are visible yellowish green, in alcohol it is beige.  
spicules: Large oxeas ..... 930-1290 × 18-36 µm.  
Middle oxeas ..... 390-795 × 12-18 µm.  
Small oxeas ..... 54-360 × 3-12 µm.  
Styles ..... 760-1140 × 18-36 µm.  
Strongyles ..... 420-1020 × 24-42 µm.



Table 1. Continued

Species	Localities																	
	Chejuhang	Samyang Idong	Kimnyong	Udo	Songsanp'o	P'yson	Wirni	Segwip'o	Munson	Supson	Pomson	Sanbangan	Mosulp'o	C'agwido	Piyangdo	Hallim	Kap'ado	Marado
<i>Callispongia bispicula</i>													+					
<i>Stelletta crassipicula</i>					+													
<i>Papyrula metastrora</i>						+		+										
<i>Penares incrustans</i>																		+
<i>Erylus nobilis</i>												+						
<i>Pachastrella doederlein</i>		+																
<i>Pachastrella cribrum</i>		+			+			+										
<i>Pachastrella japonica</i>		+						+										+
<i>Asteropus simplex</i>																		+
<i>Discodermia japonica</i>		+						+					+					
<i>Discodermia calyx</i>					+			+			+		+				+	
<i>Discodermia kilensis</i>		+						+			+		+					
<i>Discodermia emarginata</i>					+					+								
<i>Suberites acinelloides</i>													+					
<i>Cliona lobata</i>								+					+	+				
<i>Spirastrella parisi</i>		+						+		+		+	+					
<i>Spirastrella abata</i>		+	+					+					+					+
<i>Spirastrella insignis</i>		+	+															
<i>Tethya aurantium</i>					+													
<i>Chondrilla mixta</i>					+													+
<i>Anthosigmella raramicrosciera</i>		+											+					
<i>Epipolasis kushimotoensis</i>													+					
<i>Axinella copiosa</i>					+			+					+				+	
<i>Axinella hispida</i>		+																
<i>Acanthella simplex</i>					+			+										
<i>Acanthella insignis</i>													+					
<i>Phakellia elegans</i>					+			+					+					
<i>Ceratopsis ramosa</i>					+			+										
<i>Spongosorites salomonensis</i>								+					+					
<i>Raspailia folium</i>					+			+					+					
<i>Raspailia hirsuta</i>								+	+				+					+
<i>Raspailia koreana</i>					+													
<i>Plakortis simplex</i>													+					+
Total number of species	4	6	28	1	14	1	2	26	4	1	11	4	31	10	8	2	5	8

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## Explanation of Plates

## Plate 1.

Figs. 1, 2. *Acanthella insignis* Thiele

1. Entire animal
2. Megascleres : A, Style; B, Strongyle.

Figs. 3, 4. *Suberites axinelloides* Brøndsted

3. Entire animal
4. Megascleres : A, Large tylostyle; B, Small tylostyle.

## Plate 2.

Figs. 1, 2. *Adocia neans* Topsent

1. Entire animal
2. Megascleres : A, Oxea; B, Style; C, Strongyle.

Figs. 3, 4. *Spongosorites salomoensis* Dendy

3. Entire animal
4. Megascleres : A, Oxea; B, Style; C, Strongyle; D, Small oxea.

## Plate 3.

Figs. 1, 2. *Anthosigmella raromicroscleres* Dickinson

1. Entire animal
2. Megascleres : A, Tylostyle; B, Spirraster

Figs. 3, 4. *Oxeostilon fernaldi* Bakus and Sim

3. Entire animal
4. Megascleres : A, Oxea; B, Style; C, Strongyle; D, Small oxea

## Plate 4.

Figs. 1, 2. *Microciona gradalis* Topsent

1. Entire animal
2. Megascleres : A, Style; B, Subtylostyle; C, Acanthostyle  
Microscleres : D, Toxa; E, Small toxa; F, Isocheilia.

Figs. 3, 4. *Callyspongia variabilis* Dendy

3. Entire animal
4. Megascleres : A, Oxea; B, Slander oxea.

## Plate 5.

Figs. 1, 2. *Tedania ignis* Duchassing and Michelotti

1. Entire animal
2. Megascleres : A, Style; B, Strongyle  
Microscleres : C, Raphid; D, Small raphid.

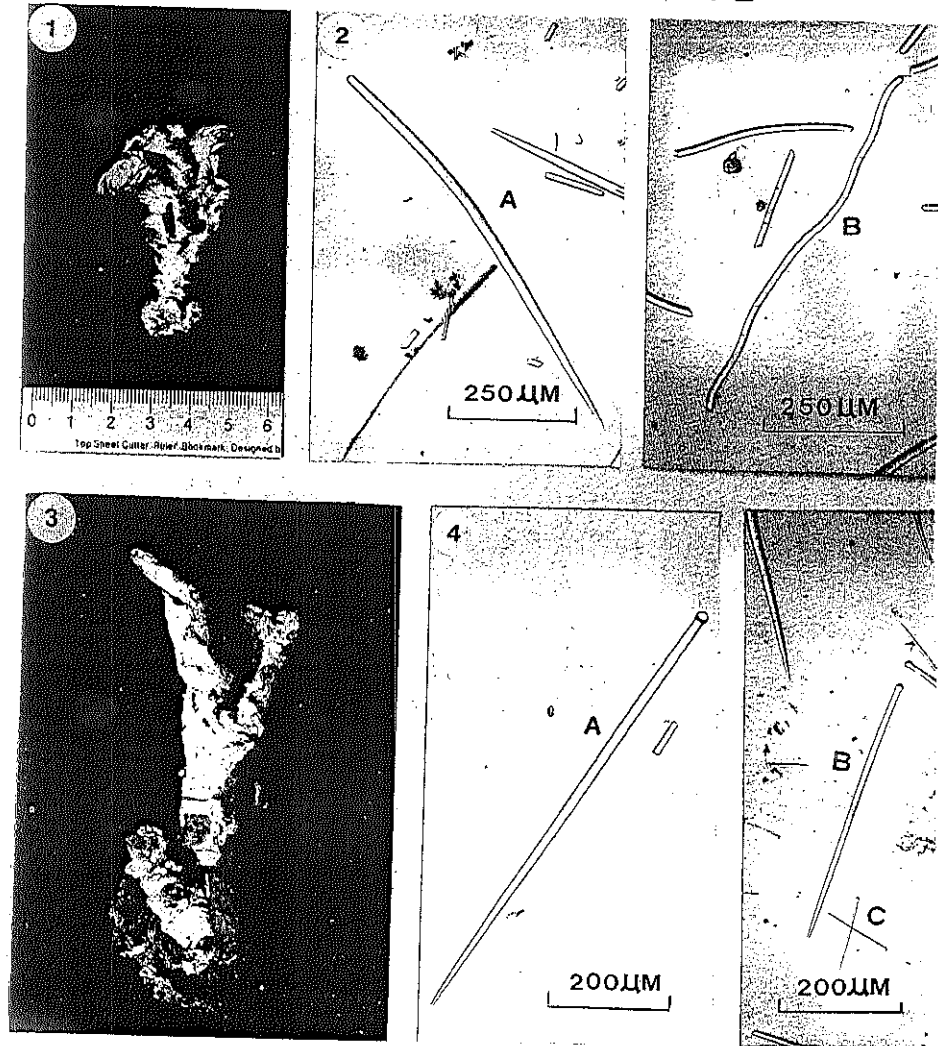
Figs. 3, 4. *Haliclona koremella* De Laubenfels

3. Entire animal
4. Megascleres : A, Strongyle

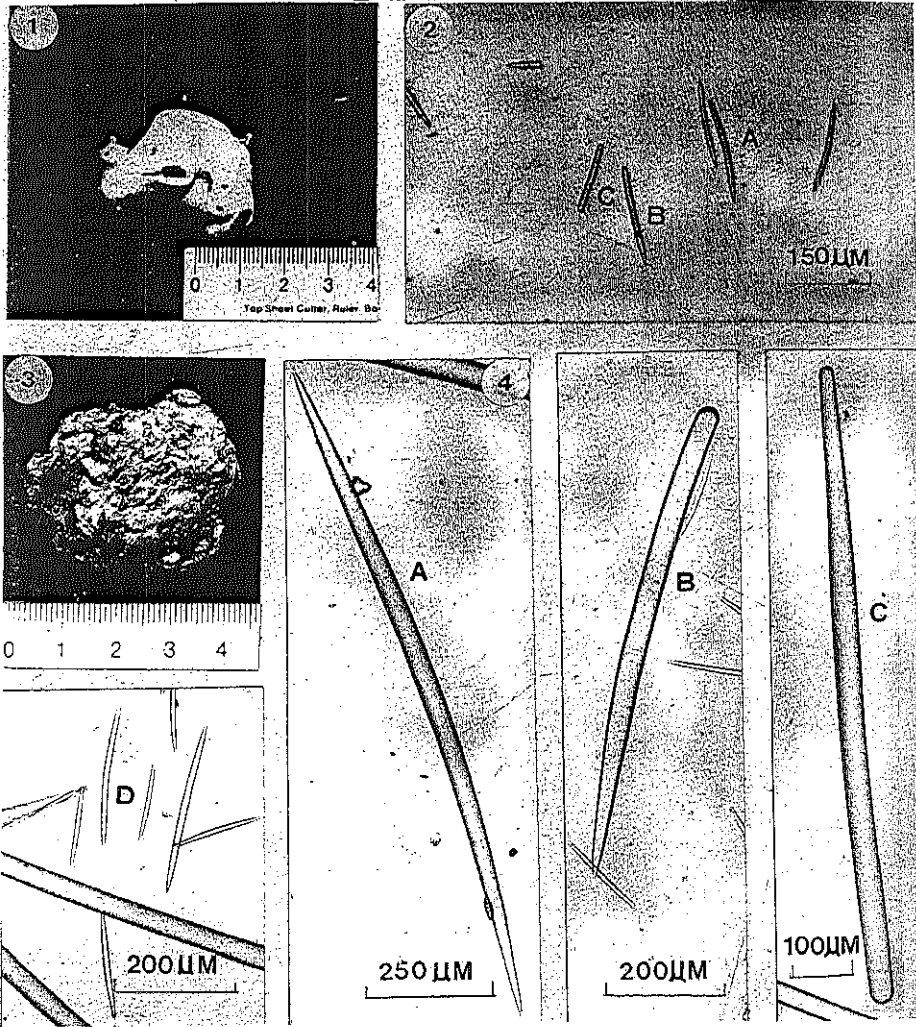
Figs. 5, 6. *Epipolasis kushimotoensis* Hoshino

5. Entire animal
6. Megascleres : A, Large oxe; B, Small oxea.

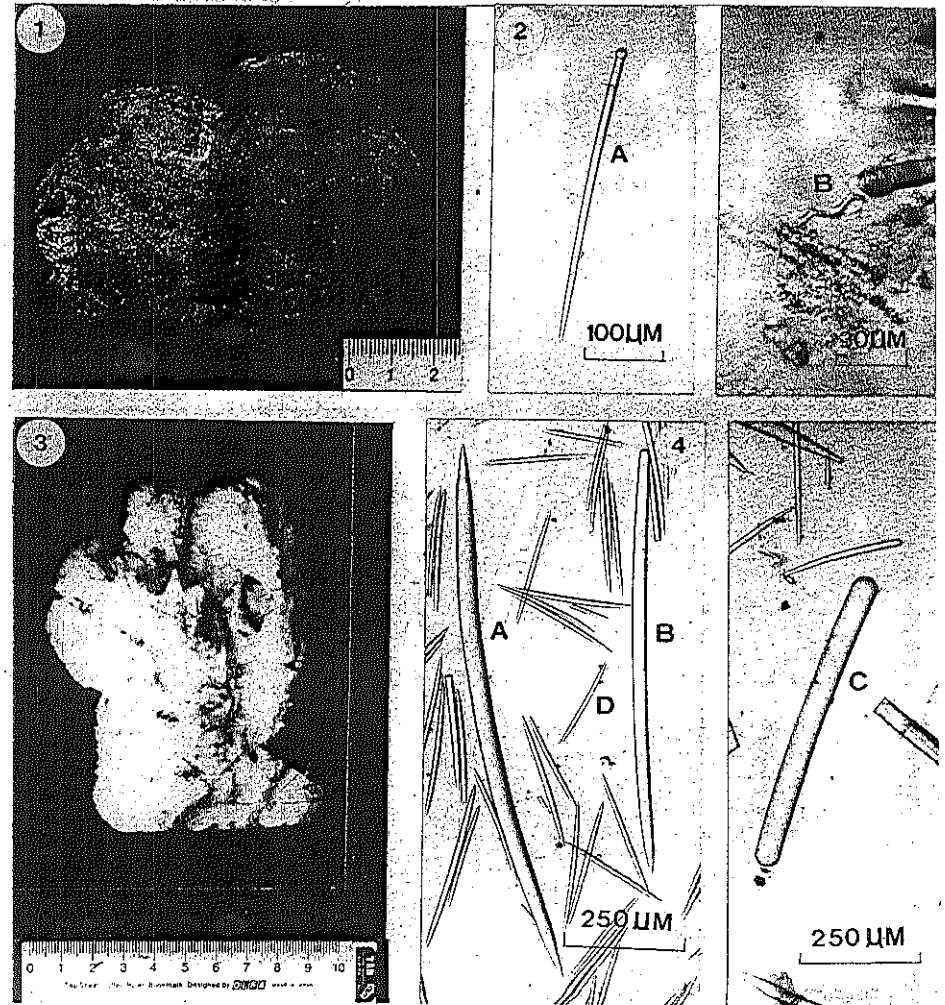
## PLATE 1



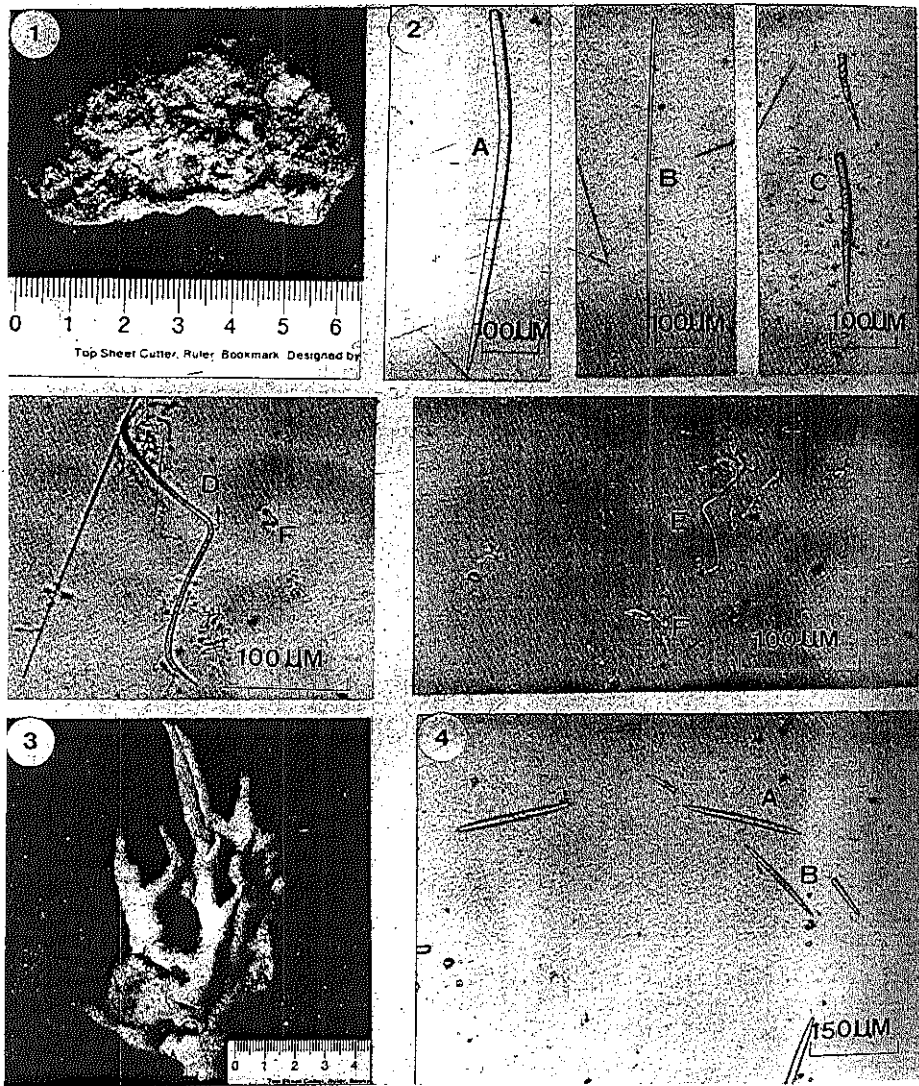
### PLATE 2



### PLATE 3



### PLATE 4



### PLATE 5

