

A Systematic Study on Octocorallia in Korea
5. Paramuriceidae (Holaxonia: Gergonacea)

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韓國產 八放珊瑚類의 系統分類學의 研究
5. 측뿔족산호科 (全軸亞目, 海楊目)

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摘 要

著者は 한국산 八放珊瑚類의 계통분류학적 연구를 하기 위하여 1965년 부터 1978년까지 제주도의 濟州, 爲美里, 林島, 西歸浦, 鳥島, 門島, 虎島, 橫干島와 해운대의 尾浦 등 9個 地域으로 부터 채집한 標本들을 同定, 分類한 결과 다음과 같은 측뿔족산호科에 속하는 7屬 14種의 韓國未記錄種이 밝혀졌다.

Bebryce indica, *B. thomsoni*, *B. brocki*, *Calicogorgia granulosa*, *Filigella mitsukuri*, *Muricella abnormalis*, *Paracis pustulata*, *P. ijimai*, *Plexauroides reticulata*, *P. praelonga*, *P. rigida*, *P. complexa*, *Villogorgia alterans* 및 *V. antillarum*.

INTRODUCTION

The present investigation is an extensive work for the study on faunistic and ecological accounts of the Korean Octocorallia.

The Paramuriceidae had been called Muriceidae, but afterwards it was transferred to Paramuriceidae except the genus *Muricea* (Bayer, 1956).

The following accounts of specimens are based on the materials which have been collected from nine localities (Jeju, Wimi Ri, Supdo I., Seogwipo, Jodo I., Mundo I., Beomdo I., Haenggan I., Mipo) in the South Sea of Korea for the period of 1965 through 1978. The identified Paramuriceidae animals were turned out to be

14 species and seven genera. They were all new to the Korean gorgonian fauna and thereby the author has briefly described each species with the plate figures. A scale in the plate figures indicates one centimeter.

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SYSTEMATIC ACCOUNTS

Order Gorgonacea Lamouroux, 1816, 해양 목

Suborder Holaxonia Studer, 1887, 전축 아목

Family Paramuriceidae Bayer, 1956, 촉뿔족산호 과

Genus 1. *Bebryce* Phillippi, 1842, 바보산호 속

1. *Bebryce indica* Thomson, 1905, 인도바보산호

(Pl. 1, figs. 1~7)

Bebryce indica: Aurivillius, 1931, pp.190, 200; Thomson & Dean, 1931, pp.205~206.

Material examined: Two specimens from Mundo I., Dec. 3, 1978.

Description: The colony attains 80 mm in height, 55 mm in width and the smaller colony is 32 mm in height, 20 mm in width. They are dichotomously branching at a right angle. Calyxes are dome-shape, 0.5~1.5×1.0~1.5 mm, arranged at 0.5~1.5 mm interval. In colour, colonies are purplish brown and the axis is brown at lower part, yellowish brown at upper part. These specimens adhere to the shell particles and sea weeds. The colour of spicules are all colourless and their measurements (mm) are as follows:

tentacles	0.07×0.01~0.15×0.04	
collaret	0.31×0.06~0.41×0.07	
points.....	0.28×0.05~0.41×0.08	
margin of calyxes.....	0.10 (0.08)×0.03 (0.03)	0.04~0.24 (0.15)×0.07 (0.04)
	0.08 [a (b)×c (d)e]*	
rind of calyxes	0.06×0.06~0.08×0.07,	0.09×0.07~0.21×0.21
rind of stem	0.06×0.07~0.09×0.09,	0.1×0.07~0.18×0.16
rind of basal plate.....	0.07×0.06~0.07×0.08,	0.08×0.08~0.16×0.15

Distribution: Korea. Indian Ocean (Mana Bay).

* : a. total length

b. length of outer plate

c. width of outer plate

d. width of neck portion

e. width of inner plate

2. *Bebryce thomsoni* Nutting, 1910, 돌손바보산호

(Pl. 1, figs. 15~21)

Bebryce thomsoni: Thomson & Dean, 1931, p. 206, pl. 11, fig. 2; Aurivillius, 1931, p. 190.**Material examined:** Three specimens from Wimi Ri, July 8, 1972.**Description:** The colonies attain 115~155 mm in height, 46~130 mm in width and the smallest colony is 50 mm in height, no branch. Branches are comparatively many, no anastomosis, parallel. Calyxes are low, 0.5×1.0~1.5 mm, arranged at 2~4 mm interval but compactly at the terminal part of twigs. In colour, colonies are dirty white, and the axis is brown at lower part, yellowish white at upper part. These specimens adhere to Porifera, *Halecium* sp., Entoprocta, *Codonellina* sp., Annellida, *Didemnum* (*D.*) *moseley*. The colour of spicules are all colourless and their measurements (mm) are as follows:

tentacles	.....	0.07×0.02~0.13×0.04
collaret	.....	0.24×0.07~0.42×0.06
points	.....	0.26×0.07~0.41×0.07
margin of calyxes	.....	0.10(0.07)×0.04(0.02)0.05~0.16(0.11)×0.09(0.03)0.07
rind of calyxes	.....	0.06×0.07~0.08×0.07, 0.14×0.13~0.18×0.15
rind of stem	.....	0.06×0.06~0.08×0.08, 0.12×0.07~0.18×0.16
rind of basal plate	.....	0.06×0.05~0.08×0.08, 0.12×0.12~0.19×0.16

Distribution: Korea, Indo-Pacific Ocean (Flores Sea, Kei Is.).3. *Bebryce brocki* Aurivillius, 1931, 브로크바보산호

(Pl. 1, figs. 8~14)

Bebryce brocki Aurivillius, 1931, pp. 190, 194~199, text-fig. 38, pl. 4, fig. 4.**Material examined:** Two specimens from Beomdo I., Dec. 15, 1969.**Description:** The colony attains 98 mm in height, 50 mm in width. Main branches alternately arise from stem at the angle of 80~90°, and lateral branches at a right angle. Calyxes are low, 0.4~0.5×1.0~1.5 mm, arranged at 2~3 mm interval on the stem and base, at 1.5~2.0 mm interval on branches, compactly at terminal part of twigs. In colour, colonies are dirty white, axis yellowish brown. The colour of spicules are all colourless and their measurements (mm) are as follows:

tentacles	.....	0.07×0.02~0.16×0.05
collaret	.....	0.34×0.05~0.48×0.13
points	.....	0.19×0.06~0.44×0.07
margin of calyxes	.....	0.16(0.07)×0.05(0.03)0.07~0.24(0.15)×0.09(0.04)0.12
rind of calyxes	.....	0.07×0.05~0.09×0.06, 0.12×0.11~0.21×0.19
rind of stem	.....	0.06×0.06~0.09×0.08, 0.12×0.11~0.20×0.19
rind of basal plate	.....	0.06×0.06~0.08×0.09, 0.12×0.09~0.12×0.11

Distribution: Korea, Japan (Bonin Is.)

Genus 2. *Calicogorgia* Thomson & Henderson, 1906, 컵산호 속

4. *Calicogorgia granulosa* Kükenthal & Gorzawsky, 1908, 둥근컵산호

(Pl. 1, figs. 22~26)

Calicogorgia granulosa Kükenthal & Gorzawsky, 1908a, p. 631; 1908b, pp. 68~71, text-figs. 62~65, pl. 4, fig. 22; Utinomi, 1954, p. 104.

Material examined: One specimen from Seogwipo, Dec. 14, 1969; one specimen from Seogwipo, Aug. 1, 1970; one specimen from Seogwipo, Aug. 5, 1970; two specimens from Seogwipo, Apr. 13, 1975; one specimen from Supdo I., Apr. 15, 1975; one specimen from Supdo I., Feb. 15, 1976; one specimen from Jodo I., Nov. 30, 1978.

Description: Colonies are fan-shape, alternately branched, and the largest colony attain 570 mm in height, 200 mm in width. Main branches arise at angles of 45~90° from the stem at 10~13 mm interval. Twigs are flexible, 30~45 mm long. The cylindrical polyps are 1.5~2.0 mm in height, 1.5 mm in width, arranged at the lateral sides of stem and branches. In colour, colonies are reddish brown except blue tentacles at living state. In alcohol, colonies are yellowish brown, tentacles white, and the axis is yellowish brown at lower part, white at upper part. These specimens adhere to *Halecium* sp., *Plumularia setacea*, Bryozoa. There are gonads in the specimen which were collected in November at Jodo I. The colour of spicules and their measurements (mm) are as follows:

tentacles	colourless	0.13×0.02~0.21×0.04
anthocodia.....	yellow	0.16×0.08~0.51×0.01
rind of stem.....	yellow	0.03×0.03~0.05×0.04,
		0.11×0.09~0.16×0.13,
		0.26×0.05~0.32×0.12
rind of basal plate.....	yellow	0.07×0.05~0.13×0.09,
		0.16×0.10~0.34×0.13

Distribution: Korea, Japan (Tokyo Bay, Sagami Bay, Kii Peninsula).

Genus 3. *Filigella* Gray, 1868, 실산호 속

5. *Filigella mitsukuri* Kinoshita, 1909, 실산호

(Pl. 2, figs. 1~6)

Filigella mitsukuri Kinoshita, 1909, pp. 1~3, pl. 1, fig. 1, pl. 2, figs. 7~9; Aurivillius, 1931, pp. 129~136, text-fig. 25, pls. 3~4; Bayer, 1956, p. 206, text-figs. 148, 3, 3a, 3b; Utinomi, 1961, pp. 213~216, text-figs. 9~10, pl. 9, figs. 10~11; Utinomi & Harada, 1958, p. 388.

Material examined: One specimen from Mipo, Dec. 6, 1978.

Description: The thread-like colony is slender, tied, and 285 mm in length, with two branches, 120~130 mm long. Branches arise at a right angle from stem at 40~45 mm interval. In diameter, the stem is 1.5 mm at lower part, 0.8 mm at upper part, and the axis is 0.6 mm. Anthocodias retract into low calyxes, less than 0.5 mm

in height. In colour, colony is grayish brown, polyps dark brown, axis brown. The colour of spicules are all colourless and their measurements (mm) are as follows:

tentacles	0.06×0.01~0.12×0.03
anthocodia	0.19×0.03~0.33×0.05
calyxes	0.18×0.06~0.25×0.11
outer rind of stem.....	0.22×0.09~0.39×0.13
inner rind of stem.....	0.10×0.04~0.18×0.07

Distribution: Korea, Japan (Sagami Bay, Misaki, Okino, Kyusyu).

Genus 4. *Muricella* Verrill, 1869, 큰뿔족산호 속

6. *Muricella abnormalis* Nutting, 1912, 큰뿔족산호

(Pl. 2, figs. 7~12)

Muricella abnormalis Nutting, 1912, p. 79, pl. 2, figs. 3-3a. pl. 20, fig. 6; Bayer, 1956, p. 206, text-figs. 149, 1; Utinomi, 1961, pp. 204~206, text-fig. 4, pl. 7, fig. 3.

Material examined: One specimen from Haenggan I., Aug. 9, 1969.

Description: The colony is fan-shape, no anastomosis, and 210 mm in height, 120 mm in width, and branched at angles 70~90° at 10~20 mm interval. Coenenchymes are 2.5~3.0 mm in thickness, and twigs are bented, 25~100 mm long. The truncated calyxes are 1.0~2.0 mm in height, 1.5~2.0 mm in diameter, irregularly scattered at 1.0~4.0 mm interval. In colour, the colony is creamy white, and the axis is pale brown at lower part, yellowish white at upper part. The specimen is covered with thin Monaxonida and Tetractinomorpha. The colour of spicules are all colourless and their measurements (mm) are as follows:

tentacles	0.05×0.01~0.13×0.03
points.....	0.17×0.03~0.34×0.05
collaret	0.26×0.02~0.66×0.06
calyxes	0.54×0.11~1.04×0.21
rind of stem.....	0.08×0.04~0.09×0.04, 0.32×0.04~0.37×0.06,
	0.19×0.08~0.60×0.10, 0.72×0.18~1.08×0.21
rind of basal plate.....	0.07×0.04~0.10×2.04, 0.24×0.06~0.34×0.07,
	0.14×0.09~0.83×0.18, 0.56×0.21~1.01×0.22

Distribution: Korea, Japan (Minabe, Tanabe Bay, Suruga Bay).

Genus, 5. *Paracis* Kükenthal, 1919, 평행산호 속

7. *Paracis pustulata* (Wright & Studer, 1889) 흑평행산호

(Pl. 3, figs. 1~6)

Acis pustulata Wright & Studer, 1889, pp.122~123, pl. 24, figs. 1, la, pl. 27, fig. 6; Studer, 1889, p.24; Kinoshita, 1909, pp. 5-8, pl. 1, fig. 2, pl. 2, figs. 10-12.

Paracis pustulata: Aurivillius, 1931, p. 144.

Material examined: One specimen from Seogwipo, Dec. 27, 1971.

Description: The incomplete colony is fan-shape, 75 mm in height, 80 mm in

width, no anastomosis, branched at a right angle. Calyxes are low, 0.3 mm in height, 0.9~1.0 mm in diameter, and spines are arranged in two circles at the margin. Outer rind of branches pile up each other with large scale and spindle, and inner rind consist of smaller spindle. In colour, the colony is pale brown, tentacles brown, axis yellowish brown. The specimen retains gonades in December. The colour of spicules are all colourless and their measurements (mm) are as follows:

tentacles	.....	0.09×0.02~0.32×0.08	
points	.....	0.40×0.07~0.54×0.09	
collaret	.....	0.31×0.03~0.51×0.05	
calyxes	.....	0.45×0.13~0.88×0.15,	0.58×0.32~1.02×0.63
inner rind of branches	.....	0.35×0.10~0.86×0.16	
outer rind of branches	.....	1.01×0.29~2.54×0.59,	0.70×0.58~2.34×0.82

Distribution: Korea, Japan (Sagami Bay, Uji Is.).

8. *Paracis ijimai* (Kinoshita, 1909) 이지마평행산호

(Pl. 2, figs. 13~18)

Acis ijimai Kinoshita, 1909, pp.8~10, pl. 1, fig. 3; pl. 2, figs. 13~16.

Paracis ijimai: Aurivillius, 1931, pp. 146~150, text-fig. 28, pl. 6.

Material examined: One specimen from Seogwipo, Aug. 7, 1970.

Description: The colony is 120 mm in height, 115 mm in width, irregularly branched at 5~12 mm interval. Branches are parallel, at rare anastomosis. Calyxes are 0.5~1.0 mm in height, 1.0~1.5 mm in diameter. Coenenchymes pile up with oral and polygonal spicules. In colour, the colony is yellowish white, polyp and axis yellowish brown. The specimen adheres to Cirripedia and Tetractinomorpha on the basal plate. The colour of spicules are all colourless and their measurements (mm) are as follows:

tentacles	.....	0.08×0.02~0.28×0.08	
points	.....	0.39×0.08~0.60×0.12	
collaret	.....	0.37×0.05~0.63×0.06	
calyxes	.....	0.29×0.18~0.64×0.29,	0.46×0.32~0.64×0.42
inner rind of stem	.....	0.11×0.03~0.61×0.28	
outer rind of stem	.....	0.77×0.42~2.00×0.69,	0.93×0.73~1.69×0.96

Distribution: Korea, Japan (Sagami Bay, Misaki, Okino, Uji Is.).

Genus 6. *Plexauroides* Wright & Studer, 1889, 맵시산호 속

9. *Plexauroides reticulata* (Esper, 1791) 망상맵시산호

(Pl. 3, figs. 7~9)

Echinogorgia pseudosassa: Wright & Studer, 1889, pp. 119~120, pl. 23, fig. 9, pl. 25, fig. 5; Thomson & Dean, 1931, p. 205, pl. 5, fig. 4, pl. 25, fig. 4; Bayer, 1956, p. 203.

Echinogorgia reticulata: Thomson & Dean, 1931, p. 205; Kükenthal, 1924, p. 202.

Gorgonia sasappa reticulata: Bayer, 1956, p. 203.

Material examined: One specimen from Seogwipo, July 13, 1973.

Description: The incomplete colony is 190 mm in height, 80 mm in width, frequently anastomosis, reticulate. Polyps are completely retracted into low calyces, flatten, and no spicules. In colour, the colony is blood red, polyps white, and the axis is glossy dark brown at lower part, yellowish brown at upper part. The colour of spicules and their measurements (mm) are as follows:

outer rind of stem.....red..... $0.20 \times 0.06 \sim 0.32 \times 0.47$, $0.16 \times 0.36 \sim 0.28 \times 0.37$
 inner rind of stem.....red..... $0.05 \times 0.04 \sim 0.15 \times 0.11$, $0.18 \times 0.10 \sim 0.31 \times 0.18$

Distribution: Korea, Japan (Kii Peninsula), Torres Strait, Malay Peninsula, Indian Ocean (Ceylon).

10. *Plexauroides praelonga* (Ridley, 1884) 축긴맷시산호

(Pl. 3, figs. 10~16)

Plexauroides praelonga: Wright & Studer, 1889, pp. 138~139, pl. 28, figs. 1, 1a, pl. 33, fig. 2; Nutting, 1910, pp. 10~11; Utinomi, 1954, p. 104; Muzik & Wainwright, 1977, pp. 312~337, text-fig. 13.

Material examined: Two specimens from Jeju, July 8, 1965; one specimen from Seogwipo, Dec. 24, 1971.

Description: Colonies attain 260~350 mm in height, 190~300 mm in width, and the first branches arise at 10~15 mm high. The cylindrical branches are slender, and twigs reach 170 mm long. Polyps have some spicules, retract into calyces. In colour, colonies are bright red, polyps pale yellow, and the axis is glossy black at lower part, yellowish brown at upper part. The colour of spicules and their measurements (mm) are as follows:

anthocodia.....colourless $0.08 \times 0.02 \sim 0.16 \times 0.03$
 margin of calyces.....red..... $0.15 \times 0.11 \sim 0.18 \times 0.13$
 outer rind of stem.....red..... $0.26 \times 0.15 \sim 0.42 \times 0.50$,
 $0.60 \times 0.26 \sim 0.69 \times 0.36$
 inner rind of stem.....red..... $0.10 \times 0.07 \sim 0.25 \times 0.22$,
 $0.24 \times 0.10 \sim 0.46 \times 0.19$
 outer rind of basal plate.....red..... 0.29×0.08 , 0.27×0.34
 inner rind of basal plate.....red..... $0.11 \times 0.08 \sim 0.34 \times 0.18$

Distribution: Korea, Japan (Southern waters of Japan), Torres Strait, Cape York, Ceylon.

11. *Plexauroides rigida* Kükenthal, 1908, 곧은맷시산호

(Pl. 4, figs. 1~5)

Plexauroides rigida Kükenthal, 1908, p. 500; 1909, p. 27; Nutting, 1910, p. 9.

Material examined: One specimen from Seogwipo, July 13, 1973.

Description: The colony is 140 mm in height, 110 mm in width, and main bran-

ches oppositely arise from stem at 10 mm high. Lateral branches attain 100 mm long, and twigs are 10~25 mm long, parallel each other. Polyps have no spicules, and tentacles are 0.4 mm long with 9~10 pinnules on each sides. In colour, the colony is bright blood red, polyps white, and the axis is glossy dark brown at lower part, yellowish brown at upper part. The colour of spicules and their measurements (mm) are as follows:

outer rind of branch.....red	0.19×0.17~0.44×0.51,
	0.32×0.14~0.46×0.17
inner rind of branch.....red	0.06×0.06~0.32×0.20
outer rind of basal plate.....red	0.24×0.16~0.35×0.31
inner rind of basal plate.....red	0.06×0.05~0.28×0.16

Distribution: Korea, Japan (Southern coast of Kii Peninsula), Western Australia.

12. *Plexauroides complexa* Nutting, 1910 촉매키산호

(Pl. 4, figs. 6~9)

Echinogorgia complexa: Thomson & Dean, 1931, p. 204; Dean, 1932, p. 19

Material examined: One specimen from Seogwipo, July 13, 1973.

Description: The colony is 110 mm in height, 85 mm in width, and the first branch arises from stem at a right angle at 7 mm high. Lateral branches expand parallel each other at 5 mm interval. The spicules of coenenchymes are plump spindles with spinose projections on one side. In colour, the colony is dark red, polyps white, and the axis is glossy brown at lower part, yellowish white at upper part. The specimen attaches to Bryozoa and Annelida. The colour of spicules and their measurements (mm) are as follows:

anthocodia.....colourless	0.09×0.02~0.15×0.03
outer rind of stem.....red	0.23×0.14~0.31×0.33,
	0.32×0.44~0.48×0.76
inner rind of stem.....red	0.06×0.06~0.14×0.12,
	0.15×0.17~0.34×0.19

Distribution: Korea, Indo-Pacific Ocean (New Guinea, Flores Sea).

Genus 7. *Villogorgia* Duchassaing & Michelott, 1860 수풀산호 속

13. *Villogorgia alterans* (Wright & Studer, 1889) 장미수풀산호

(Pl. 4, figs. 10~16)

Acamptogorgia alterans Wright & Studer, 1889, pp. 117~118, pl. 23, fig. 6, pl. 27, fig. 4.

Villogorgia alterans: Aurivillius, 1931, p. 207.

Material examined: One specimen from Seogwipo, Dec. 25, 1971.

Description: The colony is 87 mm in height, 45 mm in width, no anastomosis. The first branch arises from stem at 7 mm high, and main branches are branching at angles of 60~80° at 5 mm interval. Calyxes are 1 mm in height, 1 mm in diame-

ter, mainly arranged at lateral sides. Coenenchymes of calyxes consist of spicules with four foliaceous projections. In colour, the colony is yellowish white, tips of polyps white, and the axis is yellowish brown at lower part, yellowish white at upper part. The colour of spicules and their measurements (mm) are as follows:

tentacles.....	colourless	0.12×0.02~0.15×0.03
base of tentacles	colourless	0.10×0.07~0.22×0.07
points.....	colourless	0.25×0.08~0.39×0.09
collaret	colourless	0.30×0.04~0.48×0.05
calyxes	yellow	0.15 (0.05)×0.09 (0.07)~
		0.28 (0.15)×0.09 (0.07),
		0.18 (0.09)×0.16 (0.10)~
		0.32 (0.18)×0.40 (0.19)
rind of branch.....	yellow	0.10×0.07~0.16×0.12,
		0.15 (0.06)×0.12 (0.09)~
		0.24 (0.16)×0.30 (0.16)
rind of stem.....	yellow	0.10×0.07~0.16×0.12,
		0.22 (0.09)×0.16 (0.12)~
		0.22 (0.13)×0.24 (0.13)
		[a (b)×c (d)]**
rind of basal plate.....	yellow	0.12×0.09~0.14×0.10,
		0.15×0.07~0.20×0.07

Distribution: Korea, Pacific Ocean (Fiji).

14. *Villogorgia antillarum* Aurivillius, 1931, 수풀산호

(Pl. 2, figs. 19-24)

Villogorgia antillarum Aurivillius, 1931, pp. 209~212, text-fig. 40, pl. 4, fig. 5.

Material examined: One specimen from Jodo I., Nov. 30, 1978.

Description: The colony is 138 mm in height, 110 mm in width, sometimes anastomosis, concave towards one side plane. Branches are delicate, spread out at a right angle. Calyxes are 1.0~1.2 mm in height, 1.0 mm in diameter. Calyxes and coenenchymes consist of spicules with 2~3 foliaceous projections. In colour, the colony is yellowish brown, polyps white, and the axis is brown at lower part, pale brown at upper part. The specimen retains gonades in November. The colour of spicules and their measurement (mm) are as follows:

tentacles.....	colourless	0.07×0.02~0.14×0.05
base of tentacles.....	colourless	0.15×0.05~0.19×0.09

** : a. total length

b. length of foliaceous projection

c. total width

d. width of foliaceous projection

points	.....colourless	.....0.25×0.06~0.31×0.09
collaret	.....colourless	.....0.30×0.05~0.46×0.06
calyxes	.....yellow	.....0.12 (0.09)×0.13 (0.09)~ 0.19 (0.10)×0.29 (0.12), 0.25 (0.14)×0.15 (0.13), 0.22 (0.15)×0.22 (0.13)
rind of branch	.....yellow	.....0.06×0.05~0.11×0.09, 0.12 (0.07)×0.18 (0.08)~ 0.23 (0.12)×0.15 (0.13)
rind of stem	.....yellow	.....0.07×0.05~0.13×0.10, 0.13 (0.09)×0.12 (0.12)~ 0.16 (0.12)×0.18 (0.12)

Distribution: Korea, West Indies.

SUMMARY

A systematic study of Korean Paramuriceidae was done with specimens collected from nine localities in the South Sea of Korea for the period of 1965 through 1978.

The identified Paramuriceidae was turned out to be 14 species and seven genera. They were all new to the Korean gorgonarian fauna: *Bebryce indica*; *B. thomsoni*; *B. brocki*; *Calicogorgia granulosa*; *Filigella mitsukuri*; *Muricella abnormalis*; *Paracis pustulata*; *P. ijimai*; *Plexauroides reticulata*; *P. praelonga*; *P. rigida*; *P. complexa*; *Villogorgia alterans*; *V. antillarum*.

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EXPLANATION OF PLATES 1~4

Plate 1

- Figs. 1~7.** *Bebryce indica* Thomson, 1905, 인도바보산호
Fig. 1. colony; **Fig. 2.** spicules of calyx, $\times 100$; **Fig. 3.** of anthocodia, $\times 100$; **Fig. 4.** of tentacle, $\times 100$; **Fig. 5.** of stem, $\times 100$; **Fig. 6.** of basal plate, $\times 100$; **Fig. 7.** of calyx, marginal, $\times 100$.
- Figs. 8~14.** *Bebryce brocki* Aurivillius, 1931 브로크바보산호
Fig. 8. colony; **Fig. 9.** spicules of anthocodia, $\times 100$; **Fig. 10.** of tentacle, $\times 100$; **Fig. 11.** of branch, $\times 100$; **Fig. 12.** of calyx, $\times 100$; **Fig. 13.** of calyx, marginal, $\times 100$; **Fig. 14.** of basal plate, $\times 100$.
- Figs. 15~21.** *Bebryce thomsoni* Nutting, 1910, 톰손바보산호
Fig. 15. colony; **Fig. 16.** spicule of tentacle, $\times 100$; **Fig. 17.** spicules of basal plate,

×100; **Fig. 18.** of anthocodia, ×100; **Fig. 19.** of calyx, ×100; **Fig. 20:** of calyx, marginal, ×100; **Fig. 21.** of stem, ×100.

Figs. 22~26. *Calicogorgia granulosa* Kükenthal & Gorzawsky, 1908, 봉근껍산호

Fig. 22. colony; **Fig. 23.** spicules of tentacle, ×100; **Fig. 24.** of basal plate, ×100; **Fig. 25.** of anthocodia, ×100; **Fig. 26.** of branch, ×100.

Plate 2

Figs. 1~6. *Filigella mitsukuri* Kinoshita, 1909, 실산호

Fig. 1. colony; **Fig. 2.** spicules of tentacle, ×100; **Fig. 3.** of stem, inner, ×100; **Fig. 4.** of stem, outer, ×100; **Fig. 5.** of anthocodia, ×100; **Fig. 6.** of calyx, ×100.

Figs. 7~12. *Muricella abnormalis* Nutting, 1912, 큰뾰족산호

Fig. 7. colony; **Fig. 8.** spicules of anthocodia, ×100; **Fig. 9.** spicule of tentacle, ×100; **Fig. 10.** spicules of calyx, ×40; **Fig. 11.** of stem, ×40; **Fig. 12.** of basal plate, ×40.

Figs. 13~18. *Paracis ijimai* (Kinoshita, 1909), 이지마평행산호

Fig. 13. colony; **Fig. 14.** spicules of tentacle, ×100; **Fig. 15.** of calyx, ×40; **Fig. 16.** spicule of point, ×100; **Fig. 17.** of collaret, ×100; **Fig. 18.** spicules of stem, ×40

Figs. 19~24. *Villogorgia antillarum* Aurivillius, 1931, 수풀산호

Fig. 19. colony; **Fig. 20.** spicules of tentacle, ×100; **Fig. 21.** of collaret, ×100; **Fig. 22.** of stem, ×100; **Fig. 23.** of point, ×100; **Fig. 24.** of calyx, ×100.

Plate 3

Figs. 1~6. *Paracis pustulata* (Wright & Studer, 1889), 흑평행산호

Fig. 1. colony; **Fig. 2.** spicules of tentacle, ×100; **Fig. 3.** of point, ×100; **Fig. 4.** of collaret, ×100; **Fig. 5.** of stem, ×40; **Figs. 6.** of calyx, ×40.

Figs. 7~9. *Plexauroides reticulata* (Esper, 1791) 망상뿔시산호

Fig. 7. colony; **Fig. 8.** spicules of stem, outer, ×100; **Fig. 9.** of stem, inner, ×100.

Figs. 10~16. *Plexauroides praelonga* (Ridley, 1884) 측긴뿔시산호

Fig. 10, colony; **Fig. 11.** spicules of basal plate, outer, ×100; **Fig. 12.** of basal plate inner, ×100, **Fig. 13.** spicule of calyx, marginal, ×100; **Fig. 14.** spicules of anthocodia, ×100; **Fig. 15.** of stem, outer, ×100; **Fig. 16.** of stem, inner, ×100.

Plate 4

Figs. 1~5. *Plexauroides rigida* Kükenthal, 1908, 곧은뿔시산호

Fig. 1. colony; **Fig. 2.** spicules of branch, outer, ×100; **Fig. 3.** of basal plate, outer, ×100; **Fig. 4.** of basal plate, inner, ×100; **Fig. 5.** of branch, inner, ×100.

Figs. 6~9. *Plexauroides complexa* Nutting, 1910, 측뿔시산호

Fig. 6. colony; **Fig. 7.** spicules of anthocodia, ×100; **Fig. 8.** of stem, inner, ×100; **Fig. 9.** of stem, outer, ×100.

Figs. 10~16. *Villogorgia alterans* (Wright & Studer, 1889) 장미수풀산호

Fig. 10. colony; **Fig. 11.** spicule of collaret, ×100; **Fig. 12.** spicules of point, ×100; **Fig. 13.** of tentacle, ×100; **Fig. 14.** of calyx, ×100; **Fig. 15.** of basal plate, ×100; **Fig. 16.** of stem, ×100.

Plate I

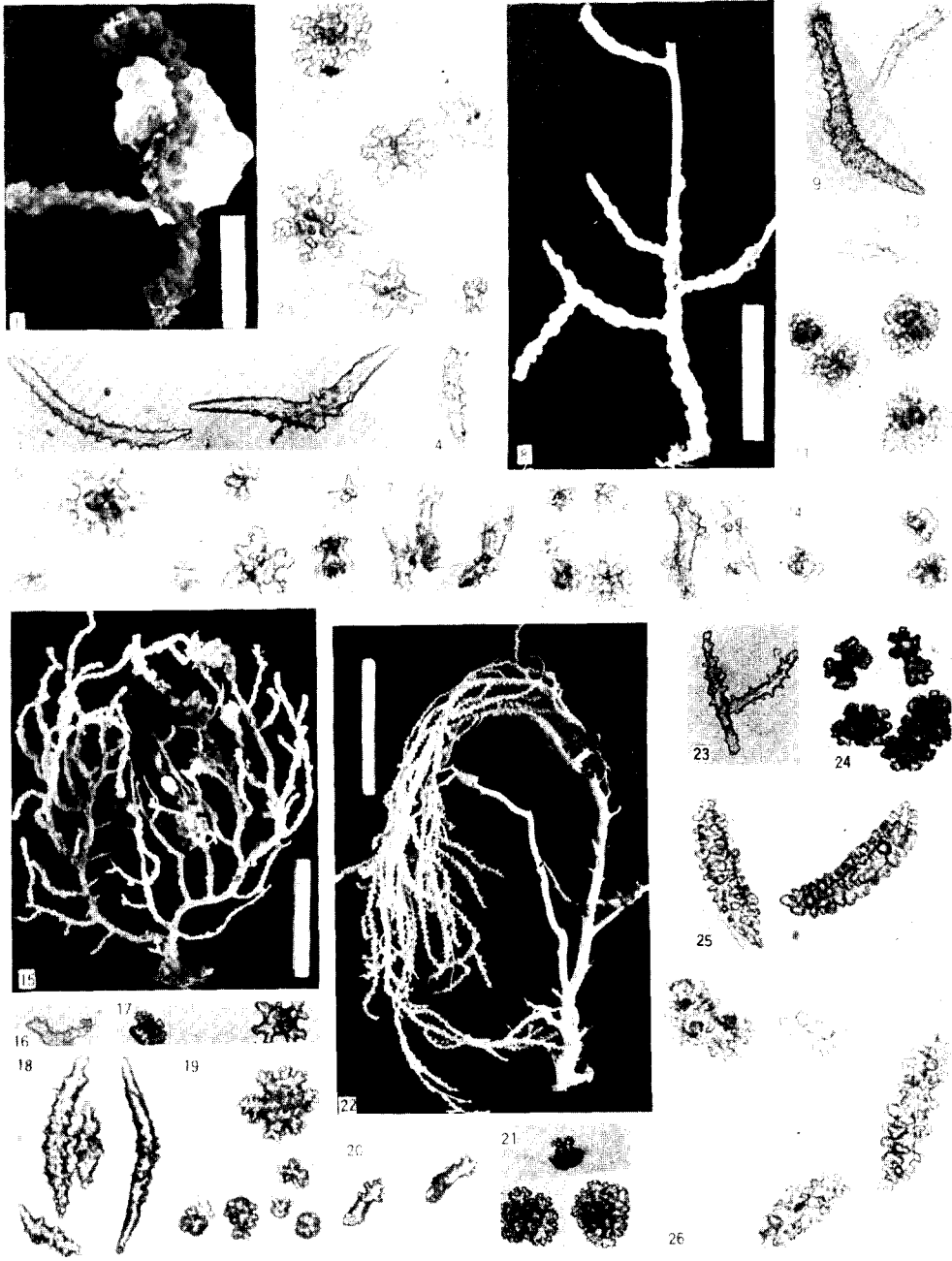


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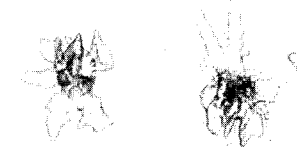
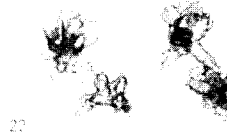
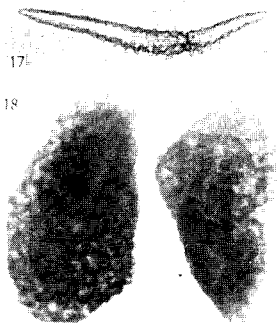
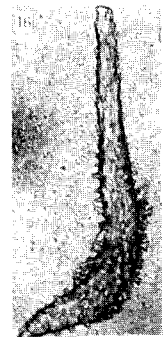
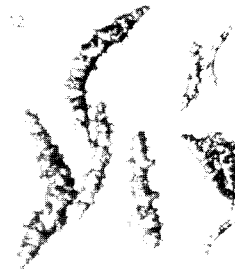
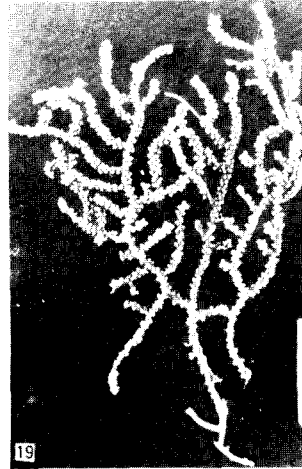
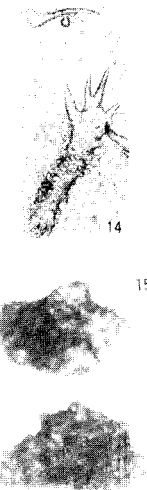
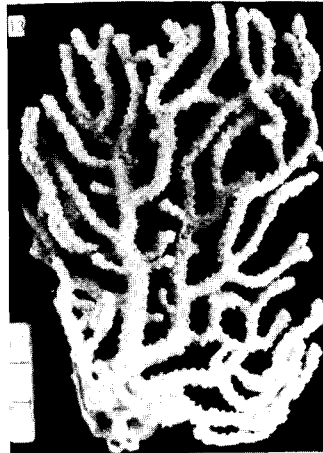
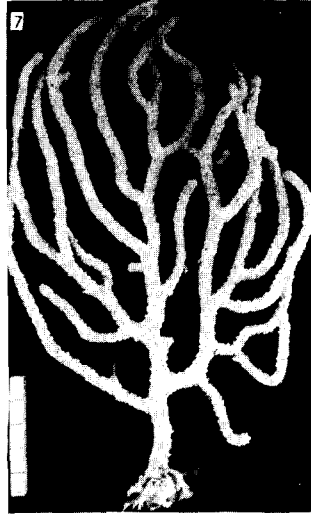
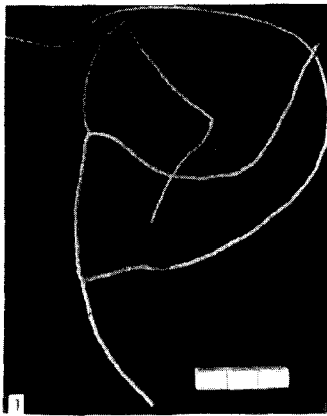


Plate III

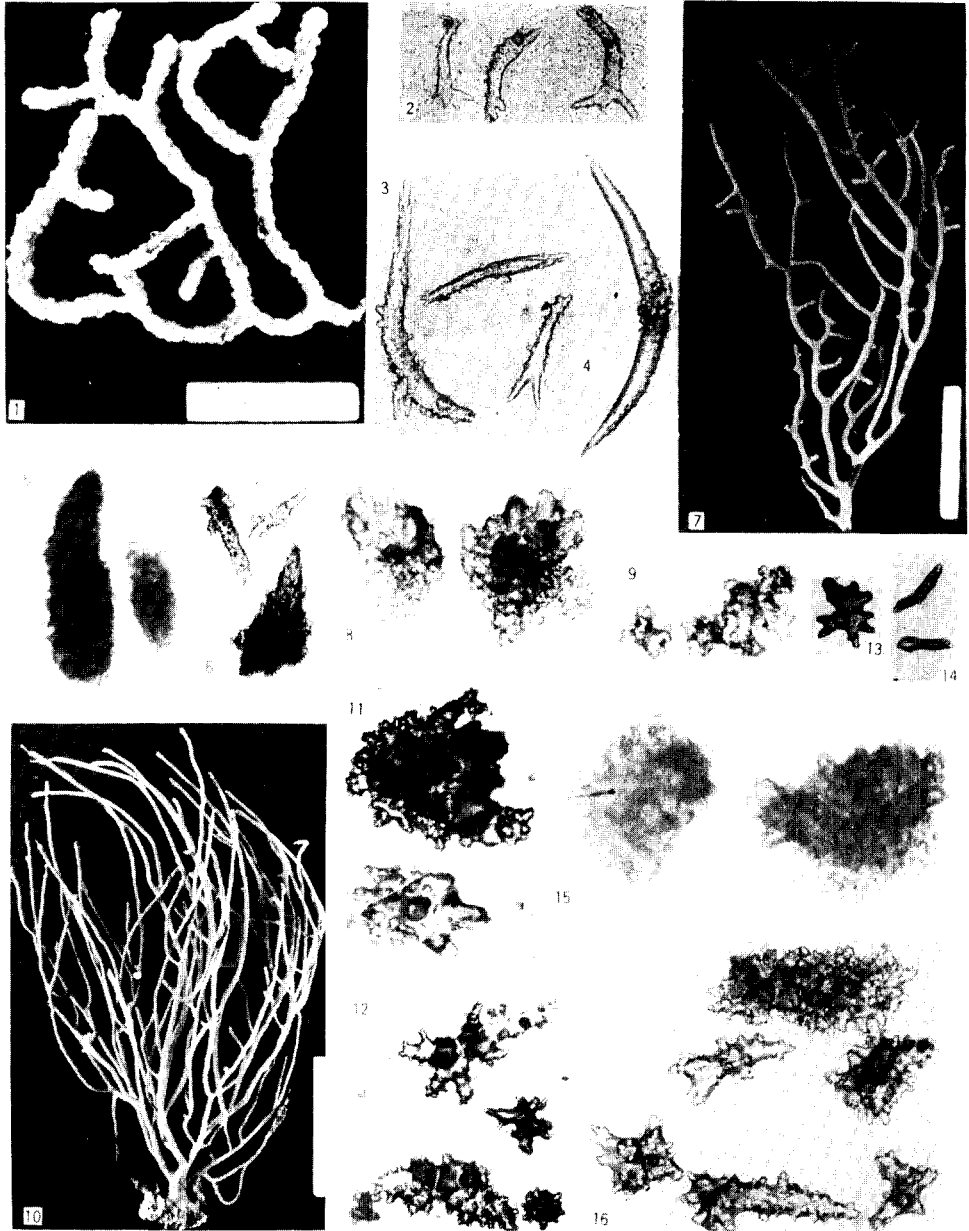


Plate IV

