

MARINE SPONGES IN SOUTH KOREA (2)

by

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INTRODUCTION

Since the study on marine sponges in Korea has been initiated by the authors, 17 species of marine sponges collected from the East Sea, the Korea Strait and the Yellow Sea in South Korea were reported in the previous paper (1968).

The present work has been undertaken in an attempt to further survey of marine sponges in South Korea. The specimens were obtained by the authors from the following localities of the South Korea; Haeundae, Pusan, June 9-15, 1967; Namhae-Do, July 16-25, 1967; Tolsan-Do, June 1-7, 1968; Kuryongpo and Pohang, July 17-25, 1968 and Piin, August 9-11, 1968.

The material collection and the classification of the marine sponges conducted the same methods in the previous paper (1968). The results of the identification were found to be 13 species, 9 genera and 7 families, of which four species are new to the Korean fauna and then they were especially described in detail here.

Here the authors are specially grateful to Dr. Senji Tanita, the former Director of Freshwater Fisheries Research Laboratory, Tokyo, Japan for his valuable advices and helpfulness given in the identification of some species, and also cordial thanks should be expended to Miss J. S. Kim, Department of Biology, Ewha Womans University, for her help with the drawing of the spicules.

The following is the list of the species concerned in the present paper. The asterisks indicate the species which are new to the Korean fauna.

LIST OF SPECIES

Class Demospongiae

Order Haplosclerina

Family Haliclونidae

1. *Haliclona permollis* (Bowerbank, 1866)

Family Callyspongiidae

2. *Callyspongia elegans* (Thiele, 1898)

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- ※ 3. *C. elongata* (Ridley and Dendy, 1886)
4. *Ceraochalina differentiata* Dendy, 1921

Order Halichondrina

Family Halichondriidae

5. *Halichondria japonica* (Kadota, 1922)
6. *H. panicea* (Pallas, 1776)

Order Hadromerina

Family Suberitidae

7. *Suberites ficus* (Johnston, 1842)

Family Clionidae

- ※ 8. *Cliona celata* Grant, 1826

Order Poecilosclerina

Family Myxillidae

- ※ 9. *Myxilla incrustans* (Johnston, 1842)
10. *M. setoensis* Tanita, 1961

Family Ophlitaspongiidae

11. *Ophlitaspongia noto* Tanita, 1963
※ 12. *Mycale maginitiei* De Laubenfels, 1930
13. *M. plumosa* (Carter, 1882)

DESCRIPTION OF SPECIES

Order Haplosclerina

Family Haliclōnidae

1. *Haliclona permollis* (Bowerbank, 1886)

Isodictya permollis Bowerbank, 1866, p. 278.

Haliclona permollis: Tanita, 1958, p. 130, pl. 1, figs. 3-4, text-fig. 2; _____, 1961, p. 338; _____, 1965, p. 45; _____, 1967, p. 113; _____, 1968, p. 218, pl. 109, fig. 4; Utinomi, 1962, p. 2, pl. 1, fig. 10; Little, 1963, p. 40, De Laubenfels, 1961, p. 193; Kim, Rho & Sim, 1968, p. 38, 1, fig. 1, text-fig. 5.

Material examined: Seven specimens, Kuryongpo July 20, 1968.

Distribution: Korea Strait and East Sea of Korea.

Family Callyspongiidae

2. *Callyspongia elegans* (Thiele, 1898)

Spinosella Elegans Thiele, 1898, p. 23, pl. 3, fig. 2; pl. 5, fig. 19.

Callyspongia elegans: Tanita, 1965, p. 46, pl. fig. 2; Kim, Rho & Sim, 1968, p. 38, pl. 1, fig. 2, text-fig. 3.

Material examined: One specimen, Bangjukpo Tolsan-Do, June 4, 1968.

Description: Korea Strait; Aikawa and Sado Island of Japan; Celebes.

3. *Callyspongia elongata* (Ridley and Dendy, 1886)

(Pl. 1, Fig. 1; Text-fig. 1)

Pachychalina elongata Ridley and Dendy, 1886, p. 329.

Callyspongia elongata: Tanita 1961, p. 339, pl. 1, fig. 3; _____, 1964, p. 17, pl. 1, fig. 3; _____, 1967, p. 114; _____, 1968, p. 42; _____, 1969, p. 73; Okata, 1965, p. 162.

Material examined: Micho-Do, Namhae-Do, July 21, 1967.

Description: There are several specimens in the present collection. The sponge is striat-digitate and ramous in appearance. It has slightly tuberosus branches united near the base. In the largest one measures about one 100 mm. in length and 85 mm. in breadth. The diameter of the branches varies from 4 mm. to 15 mm., and the largest branch is about 60 mm. in length. The oscula are small, round opening with attaining about 1 mm. - 4 mm. in diameter and scattered sparsely. Inside the sponge is light blue in colour externally and the texture very elastic and fibrous. The spicules are axially measuring 100-144 x 7.5 μ , which are nearly straight or slightly curved.

Text-fig. 1.

Spicules of
Callyspongia
elongata
Ridley and
Dendy. Ox-
x 150.

Distribution: Bass Strait; Kurushima Strait. Note Peninsula and Tajima Morenose of Japan.

4. *Ceraochalina differentiata* Dendy, 1921

Ceraochalina differentiata Dendy, 1921, p. 34, pl. 3, fig. 7; pl. 12, fig. 11; Tanita, 1964, p. 17; _____, 1965, p. 47, pl. 1, fig. 3; _____, 1969, p. 73; Kim, Rho & Sim, 1968, p. 39, 1, fig. 4, text-fig. 5.

Material examined: One specimen, Kuryongpo, July 20, 1968.

Distribution: Korea Strait and East Sea of Korea; Funakawa, Akita Prefecture, and Note Peninsula of Japan; Amiranse.

Order Halichondrina

Family Halichondriidae

5. *Halichondria japonica* (Kadota, 1922)

Peniera japonica Kadota, 1922, p. 705, fig. 1.

Peniera japonica: Kamita & Sato, 1941, pp. 1-3; Utida, 1956, p. 163, figs. 4706; Do-kioka, et al., 1958, p. 218, pl. 109, fig. 118.

Halichondria japonica: Utinomi, 1962, p. 2, pl. 1, figs. 8; Okata, 1965, p. 157; Kim, Rho & Sim, 1968, p. 39, pl. 1, fig. 5, text-fig. 6.

Material examined: Three specimens, Kuryongpo, July 19, 1968.

Distribution: South Korea (The species is commonly attached to the surface of the flat rocks in the intertidal zone); Houshu, of Japan.

6. *Halichondria panicea* (Pallas, 1776)

(Pl. 1, Figs. 2-4)

Spongia panicea Pallas, 1766, p. 388.

Halichondria panicea: Tanita, 1958, pp. 134-135, pl. 3, figs. 12-15, text-fig. 6; _____, 1963, p. 125; _____, 1964, p. 18; _____, 1968, p. 52; _____, 1969, p. 75; Little, 1963, p. 51; Kim, Rho, & Sim, 1968, p. 40, pl. 2, fig. 8; text-fig. 9.

Material examined: Incheon Bay, Sep. 10, 1967; numerous specimens, Kuryongpo, July 22, 1968; Pohang, July 25, 1968.

Description: This species growing on the undersides of rocks retain an encrusting form and differ from one another in external appearance according to the localities as follows: the tubes are reached 10-15 mm. in length, 3 mm in diameter from Incheon Bay, but the specimens from Yongil-Man are rather stout and larger, attaining 10-30 mm. in length with 6mm. in diameter. In life, the sponge is yellowish green in colour.

Distribution: Cosmopolitan. Korea Strait and East Sea; Matsushima and Oginohama Bay of Japan; Gulf of Mexico.

Order Hadromerina

Family Suberitidae

7. *Suberites ficus* (Johnston, 1842)

(Pl. 2, Fig. 7)

Halichondria ficus Johnston, 1842, p. 144.

Suberites ficus: Hartman, 1958, p. 1-16; Tanita, 1955a, p. 95; _____, 1965, p. 76; Kim, Rho & Sim, 1968, p. 40, pl. 2, fig. 9, text-fig. 10.

Material examined: 40 specimens, Yongil-Man, July 25, 1968.

Description: A rather large number of the materials were collected by a trawl-net from depth of about 20 meters of Yongil-Man. This species is solitary, bun-like in shape. The larger one attaining 80 mm. in height, 130 mm. in breadth, and 48 mm. in thickness. The colour in life is dark gray and the texture slightly hard.

Distribution: Cosmopolitan. Korea Strait and East Sea of Korea.

8. *Cliona celata* Grant, 1826

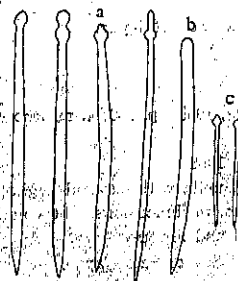
(Pl. 1, fig. 5; Text-fig. 2)

Cliona celata Grant, 1826, p. 78.

Cliona celata: Hartman, 1958, p. 16, pl. 1, figs. 1-4.

Material examined: 11 specimens; Chodo-ri, July 17, 1959; Pijon-Do, and Indae-Do, Chungmu, July 9, 1964; Haeundae, Pusan, June 11, 1967; Namhae-Do, July 17, 1967; Incheon, Dec. 12, 1967; Kuryongpo, July 21, 1968.

Description: This species is very abundant sponge in the South Korea. It has the three stages named by Vosmaer (α -, β -, and γ -stages). The α -stage, living in the shell of oysters and other mollusks, the β -stage, we have not found them, and the γ -stage is free-living. In life, the colonies are golden yellow to



Text-fig. 2. Spicules of *Cliona celata* Grant.

a. tylostyles $\times 100$; b. style $\times 100$;
c. small tylostyles $\times 100$.

Order Pocillosterina

Family Myxillidae

9. *Myxilla incrustans* (Johnston, 1842)

(Pl. 2, Figs. 9-10; Text-fig. 3)

Halichondria incrustans Johnston, 1842, p. 122, pl. 12, fig. 3; pl. 13, fig. 5.

Myxilla incrustans: Brøndsted, 1926, p. 5; Tanita, 1968, p. 45, text-fig. 5.

Material examined: Seven specimens, Sogwipo, July 11, 1965; Pangjin, July 21, 1967; Kuryongpo, July 20-22, 1968; Yongil-Man, July 25, 1968.

Description: A rather large number of specimens were collected by the trawl-net, some of which are attached to the shell *Turcia coreensis* Pease, by its basal portion. The sponge is somewhat aggregate compactly and seems to be bump-shape. Externally measures 70 \times 80 \times 38 mm. in dimensions. The surface is very rough and hispid irregularly. Oscula are nearly circular in shape with diameter of 5-7 mm. and oscular papillae protruded measures 10-30 mm. in length. In life, the colour is dull brown with gray and the texture is friable.

Spicules has two types in size, macroscleres and microscleres.

Macroscleres: Tornota—smooth, straight, abruptly pointed at both ends, measuring 160-170 μ . Acanthostyle—densely spined and stout, measuring 145-145 μ by 6-13 μ .

Microscleres: Sigma—usual shape, measuring 270-300 μ by 27 μ . Isochelas—small isochelas, measuring

Text-fig. 3. Spicules of *Myxilla incrustans* (Johnston):
a. tornota $\times 100$;
b. acanthostyle $\times 100$;
c. isochelas $\times 450$;
d. sigma $\times 450$

82-160 μ , by 13 μ .

Distribution: Korea Strait and East Sea of Korea; Ariake Sea of Japan.

Fig. 11 x 10. *Myxilla setoensis* Tanita, 1961

(Pl. 1, Fig. 6)

Myxilla setoensis Tanita, 1961b, p. 342, pl. 3, fig. 9; Okada, 1963, p. 160; Kim, Rho & Sim, 1968, p. 40, pl. 2, fig. 10, text-fig. 11.

Material examined: Two specimens, Kuryongpo, July 19, 1968.

Description: This species is erect and much flattened lamella with several digitate branches in shape. It measures 170 x 37-53 mm. in dimensions. The colour in life is beautiful pink and the texture hard and fibrous.

Distribution: Korea Strait and East Sea of Korea; Inland Sea of Seto, Japan.

Family Ophlitaspongiidae

11. *Ophlitaspongia noto* Tanita, 1963

Ophlitaspongia noto Tanita, 1963, p. 124, pl. 4, fig. 3, text-fig. 3; _____, 1964, p. 17, pl. 1, fig. 4; _____, 1965b, p. 48; Okada, 1965, p. 160; Kim, Rho & Sim, 1968, p. 41, pl. 3, fig. 12, text-fig. 13.

Material examined: Five specimens, Pinn, August 9, 1968.

Distribution: Korea Strait of Korea; Aikawa Sado Island and Noto Peninsula of Japan.

12. *Mycale macginitiei* De Laubenfels, 1930

(Pl. 2, Figs. 11-12, Text-fig. 4)

Mycale macginitiei De Laubenfels, 1930, p. 26; Tanita, 1958, p. 132, pl. 11, figs. 7-9, text-fig. 10; _____, 1968, p. 41, pl. 3, fig. 12, text-fig. 13.

Material examined: Jeonju, Pusan, June 13, 1967; Michori, Namhae-Do, July 20, 1967.

Description: The sponge encrusts around the annelida tubes and shows somewhat massive and irregular processes. It measures 150 x 80 x 45 mm. in dimensions. The surface is very rough, approximately cactus-form, and is covered with numerous, minute pores and hispid. Oscula are 8 mm. in diameter. Dermal membrane very thin, with spiculo-fibres.

Spicules: Macroscleres, subtylostyles smooth, sharply pointed at one end, measures 214-283 x 7.4 μ . Microscleres, anisochelas as a rosette-like, 57 μ in length, toxas, measures 86 μ , and sigmas abundant, measures 40-55 μ .

Distribution: South Korea; Matsushima Bay of Japan; Monterey Bay, California.

13. *Mycale plumosa* (Carter, 1882)

Esperia plumosa Carter, 1882, p. 299.

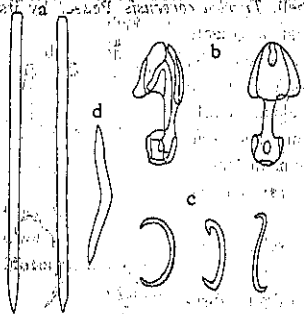
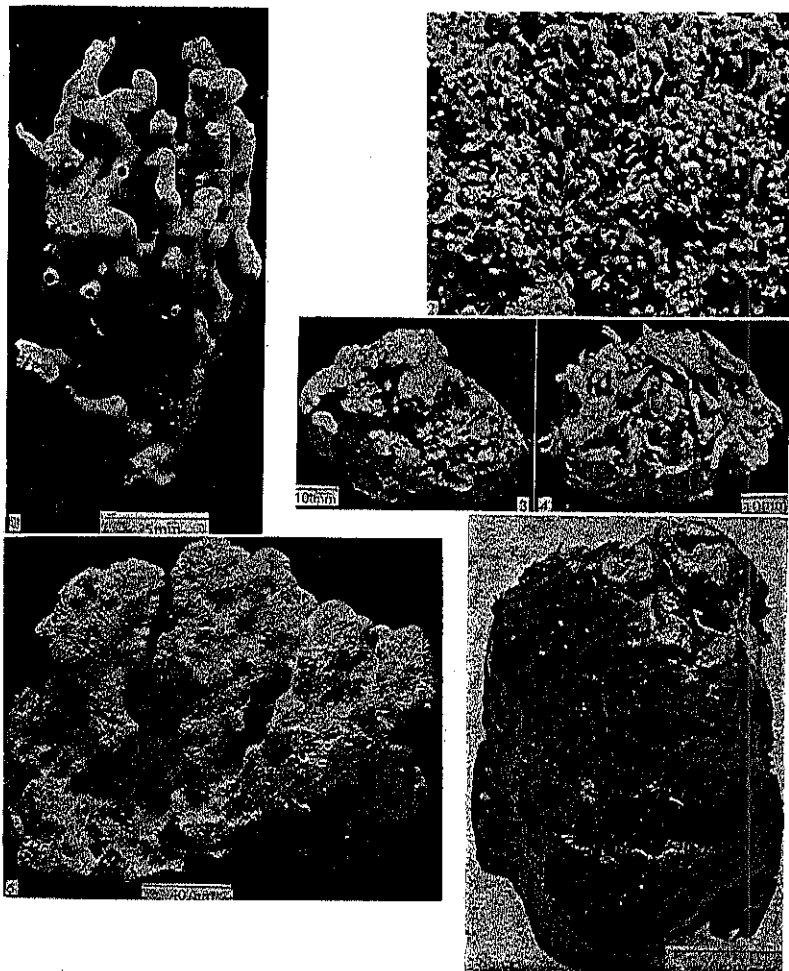


Fig. 13. Spicules of *Mycale macginitiei* De Laubenfels: a, subtylostyle x 150; b, large anisochela x 450; c, sigmas x 250; d, toxas x 450.



Explanation of Plate 1

Fig. 1. *Callyspongia elongata* (Ridley and Dendy), Entire animal, from Micho-Ri.

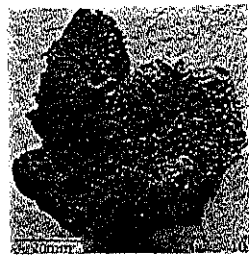
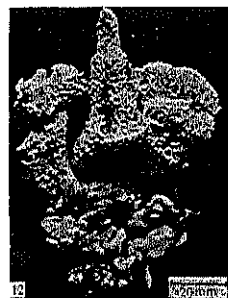
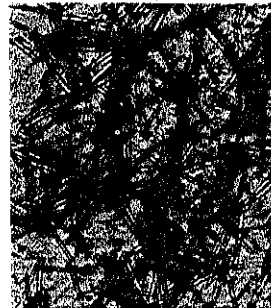
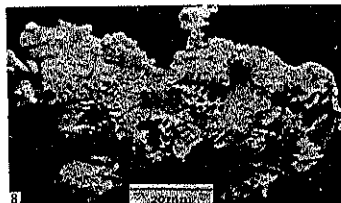
Fig. 2. *Halichondria panicea* (Pallas), Natural size, from Inchun Bay.

Fig. 3. same species, from Yongil-Man.

Fig. 4. same species, from Pohang.

Fig. 5. *Cliona celata* Grant, Entire animal, from Kuryongpo.

Fig. 6. *Myxilla setoensis* Tanita, Entire animal, from Kuryongpo.



Explanation of Plate 2

- Fig. 7. *Suberites ficus* (Johnston), Entire animal with *Pagurus pectinatus*, from Yongil-Man.
 Fig. 8. *Myxilla incrustans* (Johnston), Entire animal, from Sogwipo.
 Fig. 9. same species, Dermal skeleton, from Yongil-Man x 100.
 Fig. 10. same species, Entire animal, from Yongil-Man.
 Fig. 11. *Mycale macginitiei* De Laubenfels, Entire animal, from Micho-Ri.
 Fig. 12. same species, Entire animal, from Haeundae.

Mycale plumosa: Tanita, 1958, p. 133, pl. 2, figs. 10-11, text-fig. 5; _____, 1969, p. 74;
Kim, Rho & Sim, 1968, p. 41, pl. 3, fig. 13, text-fig. 14.

Material examined: Three specimens, Kuryongpo, July 20, 1968.

Distribution: Korea Strait and East Sea of Korea; Matsushima Bay of Japan; Mauritius and Mergui Archipelago; Ceylon.

SUMMARY

The present materials consist of the collections were obtained off the Korea Strait and the East Sea shores of Korea during the period from June to August, 1968, and the unidentified specimens which were collected from June to July, in 1967. The results of the identification were found to be 13 species, 9 genera and 7 families, of which four species *Callyspongia elongata* (Ridley and Dendy), *Cliona celata* Grant, *Myxilla incrustans* (Johnson) and *Mycale macginitiei* De Laubenfels are new records from Korea.

<要約>

南韓의 海産海綿動物의 分類

金 熏 洙 · 盧 粉 祚 · 沈 貞 宇

著者들이 1968年 6月에서 8月까지 南海와 東海에서 採集한 標本들과 1967년에 採集한 未知種 同定한 結果 7科 9屬 13種이 있다. 이들 中 4種 즉 *Callyspongia elongata*, *Cliona Celata*, *Myxilla incrustans*, *Mycale macginitiei*은 韓國 未記錄種이었으며, 이들에 對한 是는 상세히 기 하였다.

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