

Two Species of Genus *Stelletta* (Astrophorida: Ancorinidae) from Korea

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Abstract: Two species in the genus *Stelletta*, *Stelletta crusta* n. sp and *Stelletta maxima* Thiele, 1898 have been collected from Geomundo Island. *Stelletta crusta* n. sp is similar to *Stelletta tetrafurcata* Hoshino, 1981 in the clade of the dichotriaenes which is trifurcate or multifurcate, but both species differ in spicule size and composition. *Stelletta maxima* is first recorded in the Korean fauna.

Key words: *Stelletta*, Ancorinidae, Korea

INTRODUCTION

The genus *Stelletta* is characterized by the presence of euasters with one to three type, long-shafted trianes of various type and oxea without polarization of the inhalant and exhalant areas (Hooper and van Soest, 2002).

The genus was described by Schmidt (1862) and represented by 180 species (van Soest, pers. comm.). Ten species of *Stelletta* have been reported in Korean waters: *S. crassispicula*, *S. kundukensis*, *S. misakiensis*, *S. validissima*, *S. validissima orthotriaena*, *S. japonica*, *S. spinulosa*, *S. calyx*, *S. purpurea* (Sim, 1981, 1996; Sim and Kim, 1988; Sim and Kim, 1995, 2003; Sim and Lee, 1998).

MATERIALS AND METHODS

The specimens for this work were collected from Geomundo Island, Korea at 18-20 m deep by SCUBA diving. The identification was made mainly on the basis of the external feather, the shape and size of spicules and the structure of skeleton. All procedures were followed the methods of Sim and Kim (2003) and Rützler (1978). The specimens examined in this study were deposited in the Natural History Museum, Hannam University (HUNHM), Daejeon, Korea.

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SYSTEMATIC ACCOUNT

Phylum Porifera Grant, 1836
Class Demospongiae Sollas, 1885
Subclass Tetractinomorpha Levi, 1953
Order Astrophorida Sollas, 1888
Family Ancorinidae Schmidt, 1862
Genus *Stelletta* Schmidt, 1862

Stelletta crusta n. sp.
(Figs. 1-3)

Type specimen: Holotype (Por. 95), Daesambudo, Geomundo, Jeollanam-do, 2 Nov. 1994. K. J. Lee, 18-20 m in depth by SCUBA.

Description: Sponge irregular massive shape, size up to 15.5×8.5×7 cm. Surface even and hispid due to projecting spicules. Texture very hard like a stone. Oscule and pore invisible. Colour in alcohol, beige externally and internally. Cortex 3 mm thickness, densely packed dichotriaenes, prototriaenes, spherasters and strongylasters, easily distinguished from choanosome by inner cavity between cortex and choanosome. Choanosome tender fleshy, arranged with oxeas, dichotriaenes and prototriaenes and scattered oxyasters. Megascleres oxea, dichotriaene and prototriaene. Some dichotriaenes each clade trifurcate or multifurcate. plagiotriaenes three to five clades, somewhat forked clade tip. Microscleres oxyaster, oxyspheraster and strongylaster. Oxyasters slightly spines at the ray tip. Strongylasters, heavy spine throughout the surface.

Etymology: Specific name *crusta* is derived from Latin term for a hard outer surface.

Remarks: This new species is similar to *Stelletta tetrafurcata* Hoshino, 1981 in the clade of the dichotriaenes

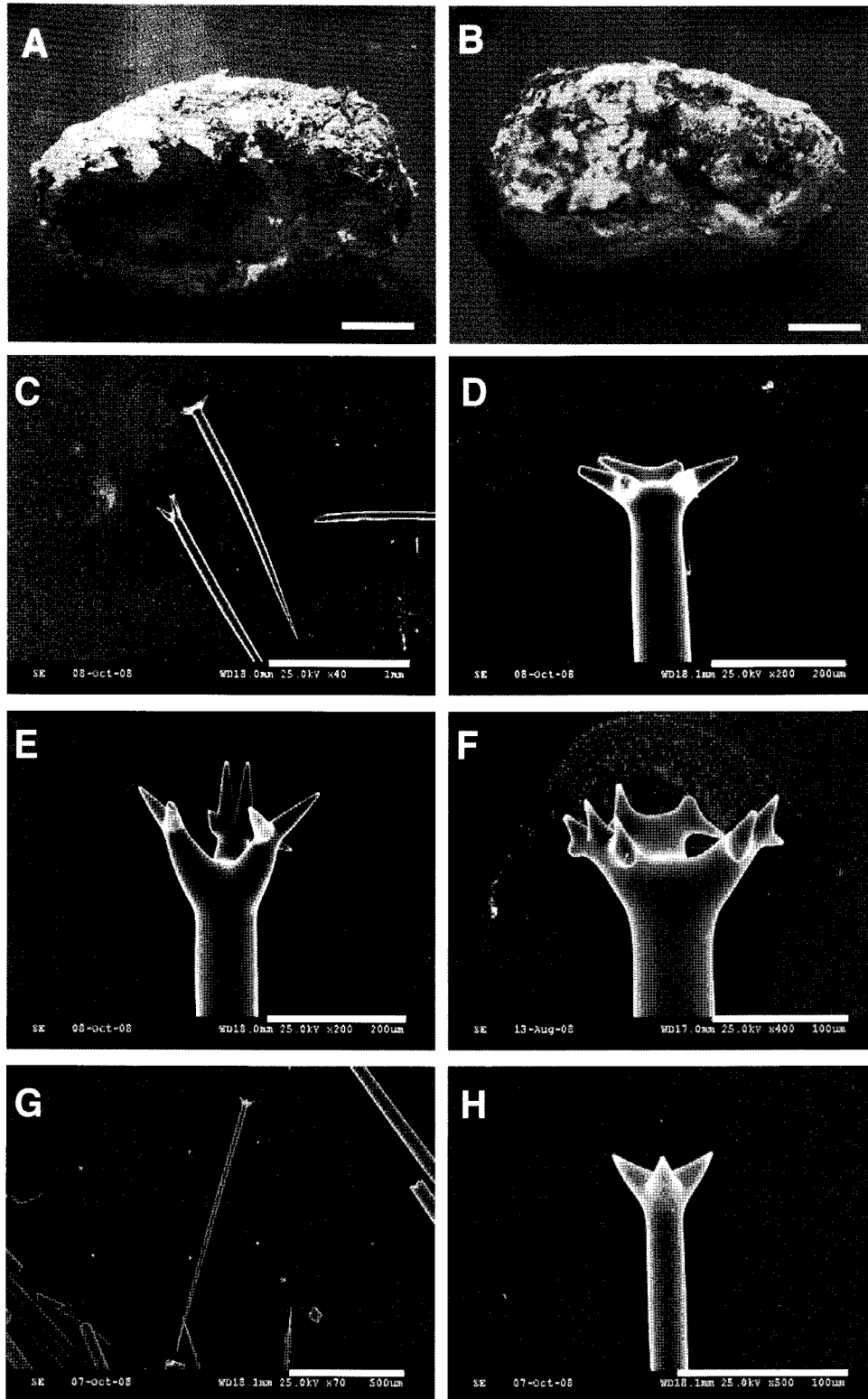


Fig. 1. *Stelletta crusta* n. sp. A, entire animal (upper view); B, entire animal (side view); C, dichotriaene; D-F, clade of dichotriaene; G, protriaene; H, clade of protriaene. Scale bars=3 cm (A, B), 1 mm (C); 500 μm (G); 200 μm (D, E); 100 μm (F, H).

which is trifurcate or multifurcate, but they differ in the size and composition of spicules. *S. tetrafurcata* has smaller oxea and dichotriaene than those of this new species and

none of oxyspheraster. This new species has complete form of protriaenes but small protriaenes of *S. tetrafurcata* are found as juvenile forms of dichotriaenes (Table 1).

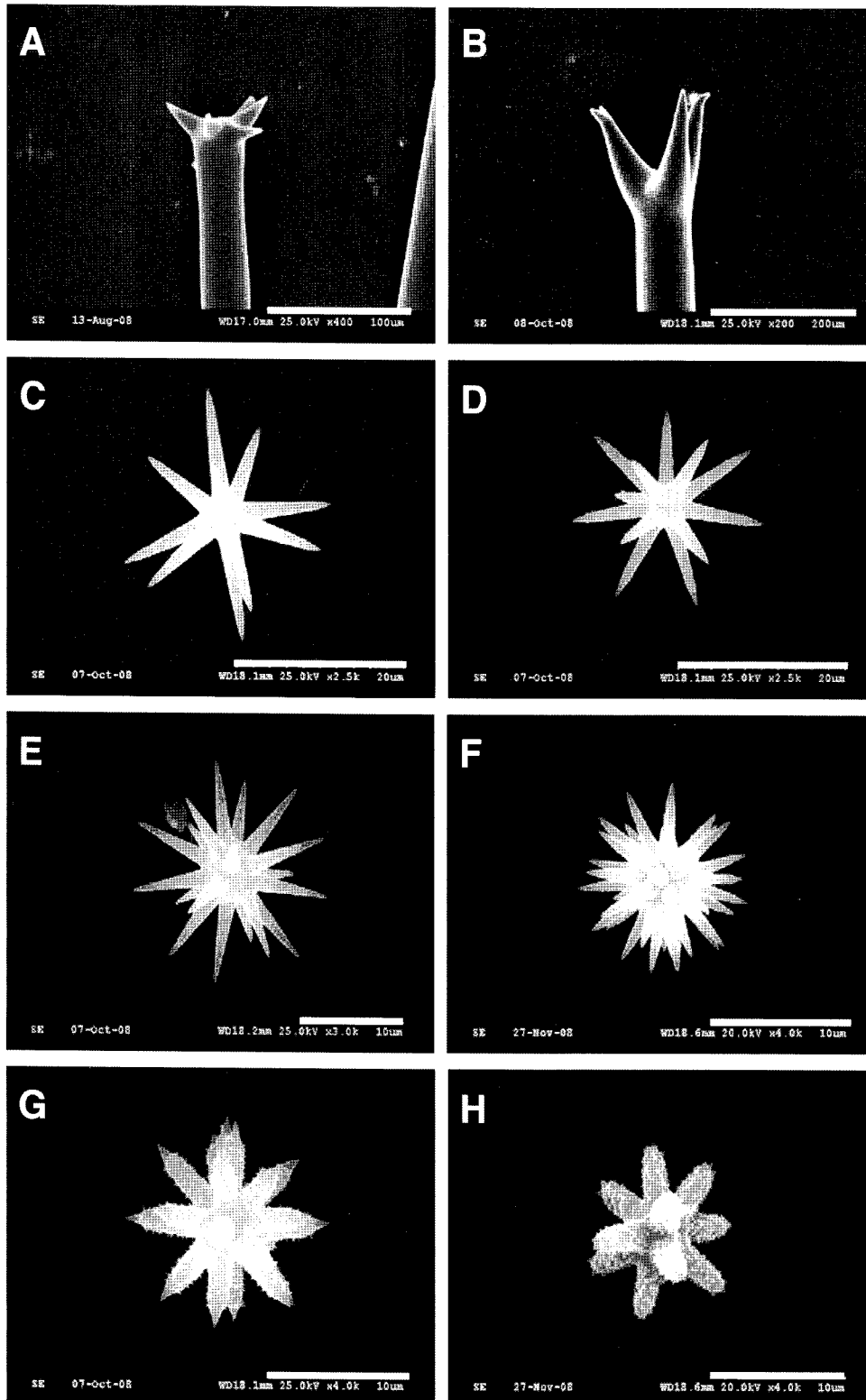


Fig. 2. *Stelletta crusta* n. sp. A-B, clade of protriaene; C-D, oxyaster; E-G, oxyspheraster; H, strongylaster. Scale bars=200 μm (B); 100 μm (A); 20 μm (C,D); 10 μm (E-H).

***Stelletta maxima* Thiele, 1898
(Figs. 4-5)**

Stelletta maxima Thiele, 1898, p. 15, pl. 1, Fig. 8, pl. 7, Fig.

3(a-f); Hoshino, 1981, p. 246-247, Fig. 31.

Material examined: Baekdo, Geomundo, Jeollanam-do. 28 Mar. 2002, K. J. Lee, 20 m in depth by SCUBA.

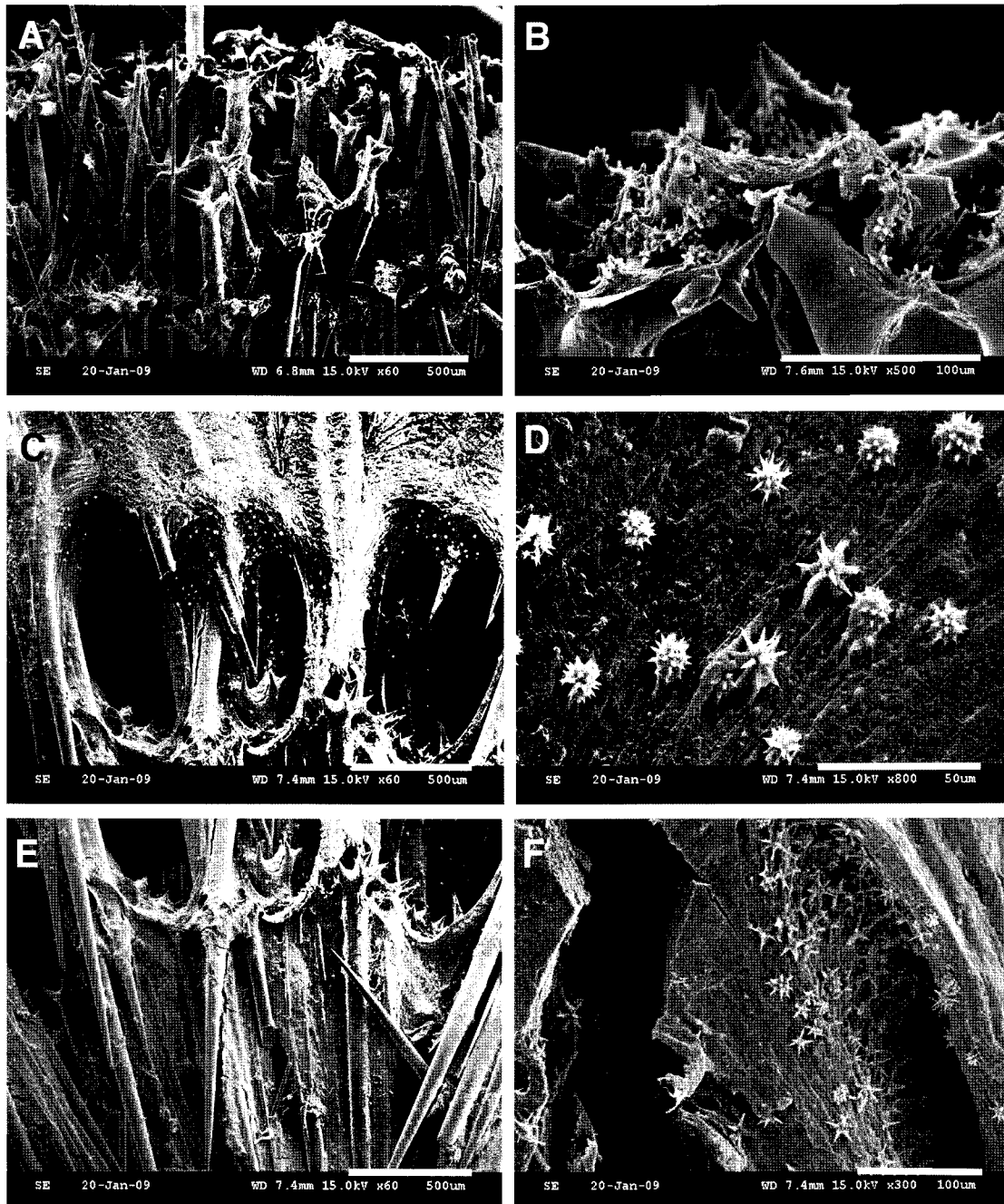


Fig. 3. Skeleton of *Stelletta crusta* n. sp. A, cortex; B, magnification of cortex showing the strongylasters; C, cavity between cortex and choanosome; D, spherasters in cavity; E, choanosome. F, oxyasters in choanosome. Scale bars=500 µm (A, C, E), 100 µm (B, F); 50 µm (D).

Description: Sponge massive shape, size up to 8×7.5×5 cm. Surface hispid due to projecting plagiotriaenes. Texture firm. Oscule and pore invisible. Colour of outside white, inside yellow in life. Cortex 5-10 mm thickness, densely packed with plagiotriaenes and strongylasters. Choanosome oxea bundles connected with radial arrangement of cortex, oxyasters scattered in spongin. Megascleres oxea and two kinds of plagiotriaene. plagiotriaenes sharply pointed clade, somewhat rounded. Microscleres oxyaster and strongylaster.

Strongylasters heavy spines throughout the body surface.

Remarks: Our specimen is a little different from the one of Thiele in spicule size of oxea and oxyaster, but size of other spicules, spicule composition, and skeleton are similar to Thiele's (Table 2).

Distribution: Korea (Geomundo), Japan (Enoshima).

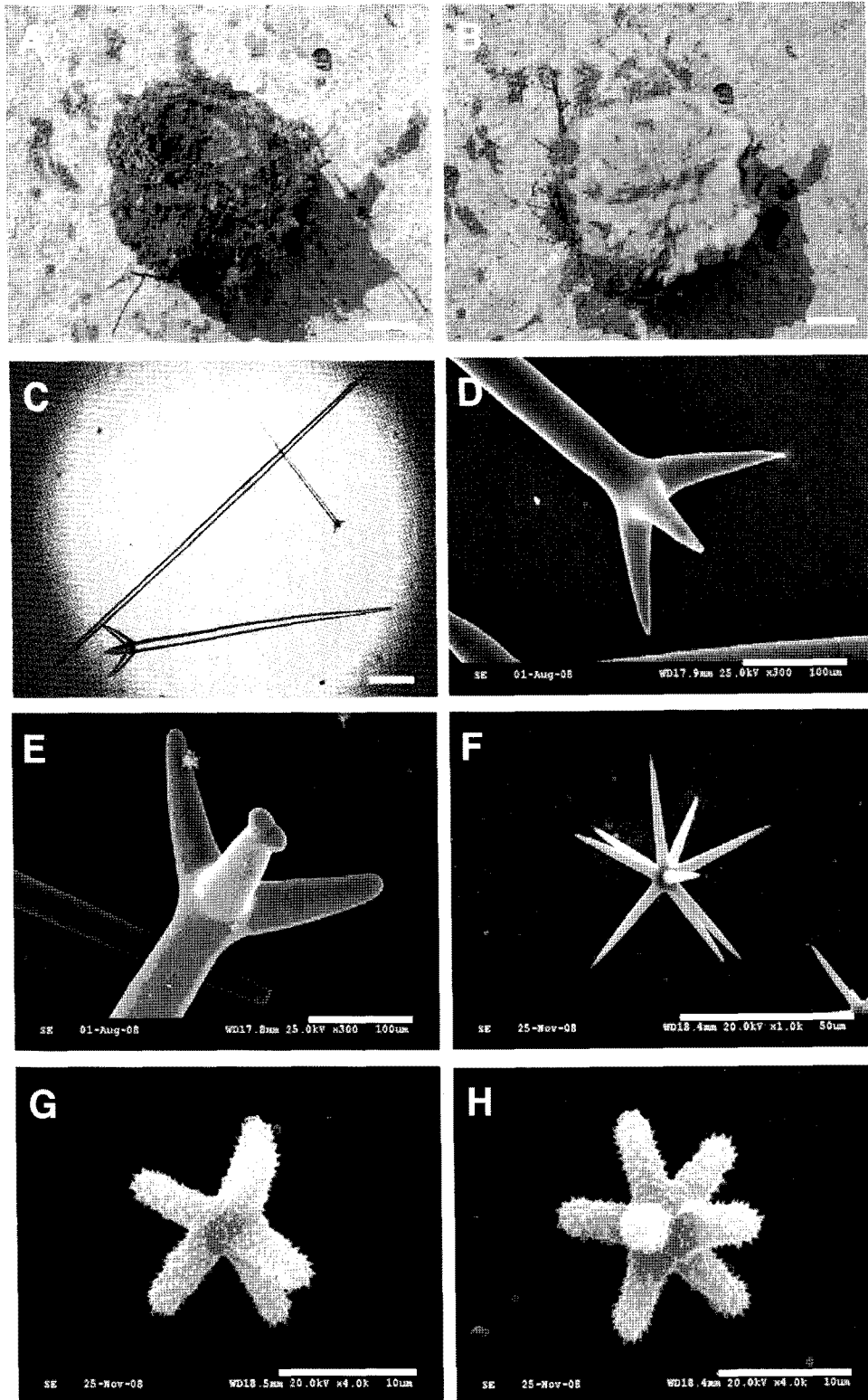


Fig. 4. *Stelletta maxima*. A, entire animal (upper view); B, entire animal (back view); C, megasclere (a, oxea; b, large plagiotriaene; c, small plagiotriaene); D-E, clade of plagiotriaene; F, oxyaster; G-H, strongylaster. Scale bars=2 cm (A, B); 200 μ m (C); 100 μ m (D, E); 50 μ m (F); 10 μ m (G, H).

ACKNOWLEDGMENT

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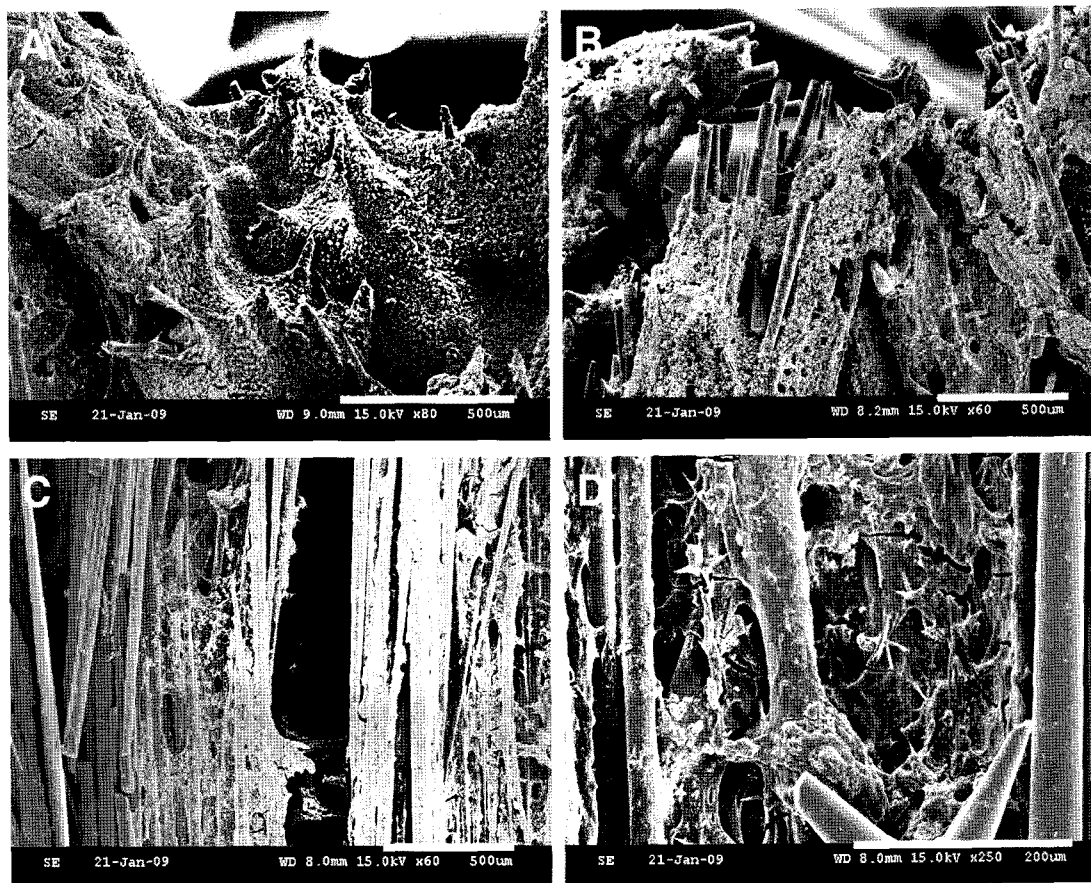


Fig. 5. Skeleton of *Stelletta maxima* A, surface; B, cortex; C, choanosome; D, magnification of choanosome showing the oxyasters. Scale bars= 500 µm (A-C), 200 µm (D).

Table 1. The comparison of spicules between *Stelletta crusta* n. sp and *Stelletta tetrafurcata*

spicules	species <i>Stelletta crusta</i> n. sp	<i>Stelletta tetrafurcata</i>
dichotriaenes (µm)	1,180-1,680×30-90 clade: 50-120	800×40 (mean) clade: 150-250
prototriaenes (µm)	940-1,770×25-90 (20-150)	juvenile form of dichotriaene
oxeas (µm)	2,470-2,870×50-80 1,150-2,400×12-22	1,600×27 (mean)
oxyasters (µm)	20-30	50 (mean)
oxyspherasters (µm)	11-16	-
strongylasters (µm)	11-16	10 (mean)

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Table 2. The comparison of spicules on *Stelletta maxima* between Korea and Japan

spicules	species Specimen from Korea	Specimen from Japan
plagiotriaenes (µm)	660-970×10-40 clade: 40-130 1,100-2230×20-90 clade: 90-260	1,400×65 (mean) clade: 150-200
oxeas (µm)	1,710-4,740×20-85	2,000-2,250×60
oxyasters (µm)	45-80	25 (mean)
strongylasters (µm)	10-25	9 (mean)

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