

## Two New Microcionid Sponges (Poecilosclerida: Microcionidae) from Taedo Island, Korea

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### ABSTRACT

Two new marine sponges, *Clathria* (*Clathria*) *jungtaedoensis* n. sp. and *Antho* (*Antho*) *hataedoensis* n. sp. were collected in Taedo Island, Korea. *C. (C.) jungtaedoensis* n. sp. is similar to *C. (C.) striata*. The new species, however, has many small toxa and massive form. *A. (A.) hataedoensis* n. sp. is similar to *A. (A.) inconstans* from Gulf of Naples, Italy, but differs from the latter in the size of spicules. The toxa in the new species is about one third as long as *A. (A.) inconstans*'s.

**Key words:** *Clathria*, *Antho*, new species, Poecilosclerida, Microcionidae, Korea

### INTRODUCTION

To date, the genus *Clathria* in family Microcionidae is containing about 430 species and the subgenus *Clathria* is including about 120 described species in the world (Van Soest, 2005). Twenty species of *Clathria* have been reported from Korean waters (Rho and Sim, 1972, 1976; Rho and Lee, 1976; Sim, 1982; Rho and Yang, 1983; Sim and Kim, 1988, 2002; Sim and Byeon, 1989; Sim et al., 1992; Sim and Lee, 1998a, b; Kim and Sim, 2000, 2005, 2006). The genus *Antho* is containing about 72 species and the subgenus *Antho* is containing about 27 described species worldwide (Van Soest, 2005). Three species of *Antho* have been reported from Korean waters (Rho and Sim, 1972; Sim and Kim, 1988, 1994) but the subgenus *Antho* is reported in the Korean fauna for the first time.

### MATERIALS AND METHODS

The sponges were collected from Taedo Island, Sinangun, Jeollanamdo, Korea on July, 2005 by SCUBA diving. Collected specimens were fixed in 95% or 99.9% ethanol. The spicules were observed by a light microscope (Carl Zeiss Axioskop II) and a scanning electron microscope (SEM, HITACHI S-3000N). Identification were made on the basis of external features, shape, structure of skeleton, and size and form of spicules. Thin free-hand sections were made

with specimens hardened in alcohol using a surgical blade in order to observe the structure of skeleton. The spicules were prepared by dissolving a piece of sponge in sodium hypochloride and examined with SEM (Rützler, 1978; Hooper, 1996). The holotypes are deposited in the Natural History Museum, Hannam University (HUNHM) Daejeon, Korea.

### SYSTEMATIC ACCOUNTS

Phylum Porifera Grant, 1836

Class Demospongiae Sollas, 1885

Order Poecilosclerida Topsent, 1928

Suborder Microcionina Hajdu, Van Soest and Hooper, 1994

Family Microcionidae Carter, 1875

Subfamily Microcioninae Carter, 1875

<sup>1</sup>\**Clathria* (*Clathria*) *jungtaedoensis* n. sp. (Figs. 1, 2)

*Material examined.* Holotype (Por. 69), Chobaeki (Jungtaedo Is.), 25 Jul. 2005 (K.J. Lee and H.J. Kim) from 20 m deep by SCUBA diving.

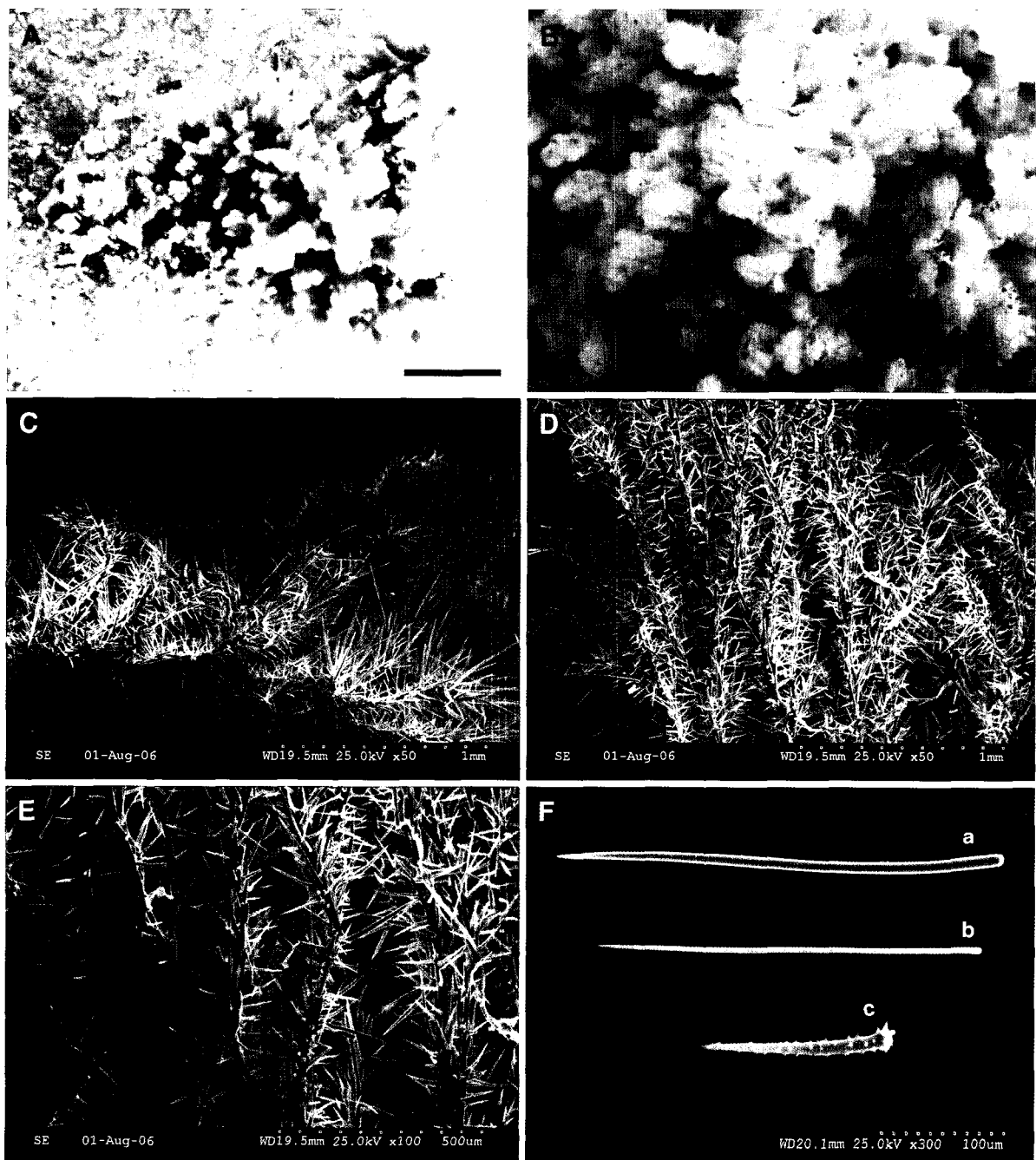
*Description.* Colony irregular massive, thick incrusting and honey-combed sponge. Size up to 75 mm wide, 46 mm high and 25-32 mm thick. Sponges attached to rocky substrate. Texture little tough and stiff. Oscula invisible. Colour orange in life, gradually changes to ivory preserved in alcohol. Surface rough and hispid with small protrusion. Skeletal structure regularly plumosed choanosomal skeleton with well developed spongin fibres. Differentiated primary fibres forming regularly anastomosed fibres with well developed spon-

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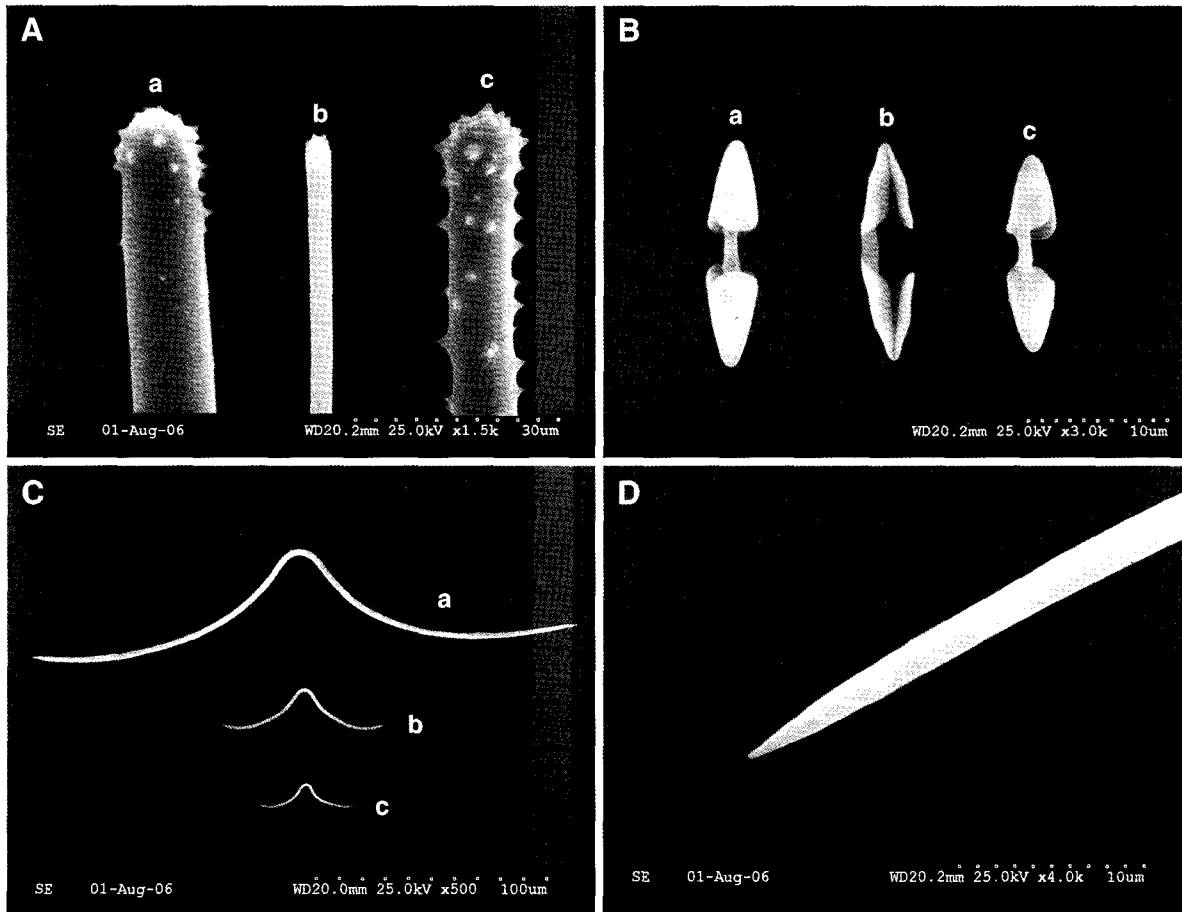


**Fig. 1.** *Clathria (Clathria) jungtaedoensis* n. sp. A, entire animal; B, surface; C, ectosomal skeletal structure; D, choanosomal skeletal structure; E, magnification of choanosomal skeletal structure; F, megascleres (a, thick style; b, slender style; c, acanthostyle). Scale bar=10 mm (A).

gin. Fibres cored with thick styles in multispicular ascending tracts. Acanthostyles echinated perpendicularly to spongin fibres, sometimes forming acute angles. Ectosomal skeleton hispid with thick styles. Spicules megascleres, thick and slender styles with spines on tip of head. Echinating acanthostyles with even spines. Microscleres palmate isochelae,

and smooth toxas.

*Remarks.* The new species is similar to *C. (C.) striata* based on their spicule composition and skeletal structure. But, differs in the size of spicules (toxa) and growth form. The new species has many small toxa, but they absent in *C. (C.) striata*. The growth form is projected massive in the new



**Fig. 2.** *Clathria (Clathria) jungtaedoensis* n. sp. A, head of megascleres with spines (a, thick style; b, slender style; c, acanthostyle); B, palmate isochelae (a, front view; b, side view; c, rear view.); C, toxas (a, large toxa; b, middle toxa; c, small toxa); D, end of large toxa (no spine on their end).

**Table 1.** The comparison of characters between *C. (C.) jungtaedoensis* n. sp. and *C. (C.) striata*

| Species       |                   | <i>C. (C.) jungtaedoensis</i> n. sp. | <i>C. (C.) striata</i>      |
|---------------|-------------------|--------------------------------------|-----------------------------|
| Character     | Thick styles      | 200-(370)-540 × 10-(12.5)-15         | 193-(369)-546 × 15-(19)-23  |
|               | Slender styles    | 170-(240)-310 × 3-(4.5)-6            | 175-(281)-387 × 3.5-(5.7)-8 |
|               | Acanthostyles     | 80-(105)-130 × 5-(7.5)-10            | 84-(98)-112 × 6-(8.5)-11    |
|               | Palmate isochelae | 10-(12.5)-15                         | 14-(17)-20                  |
|               | Large toxas       | 180-(220)-260                        |                             |
|               | Middle toxas      | 90-(120)-150                         | 108-(206.5)-305             |
|               | Small toxas       | 40-(55)-70                           |                             |
| Growth form   |                   | Honey-combed thick incrusting        | Digitate                    |
| Color in life |                   | Orange                               | Unknown                     |

species, while it is thin fan shape in *C. (C.) striata* (see Hooper, 1996) (Table 1).

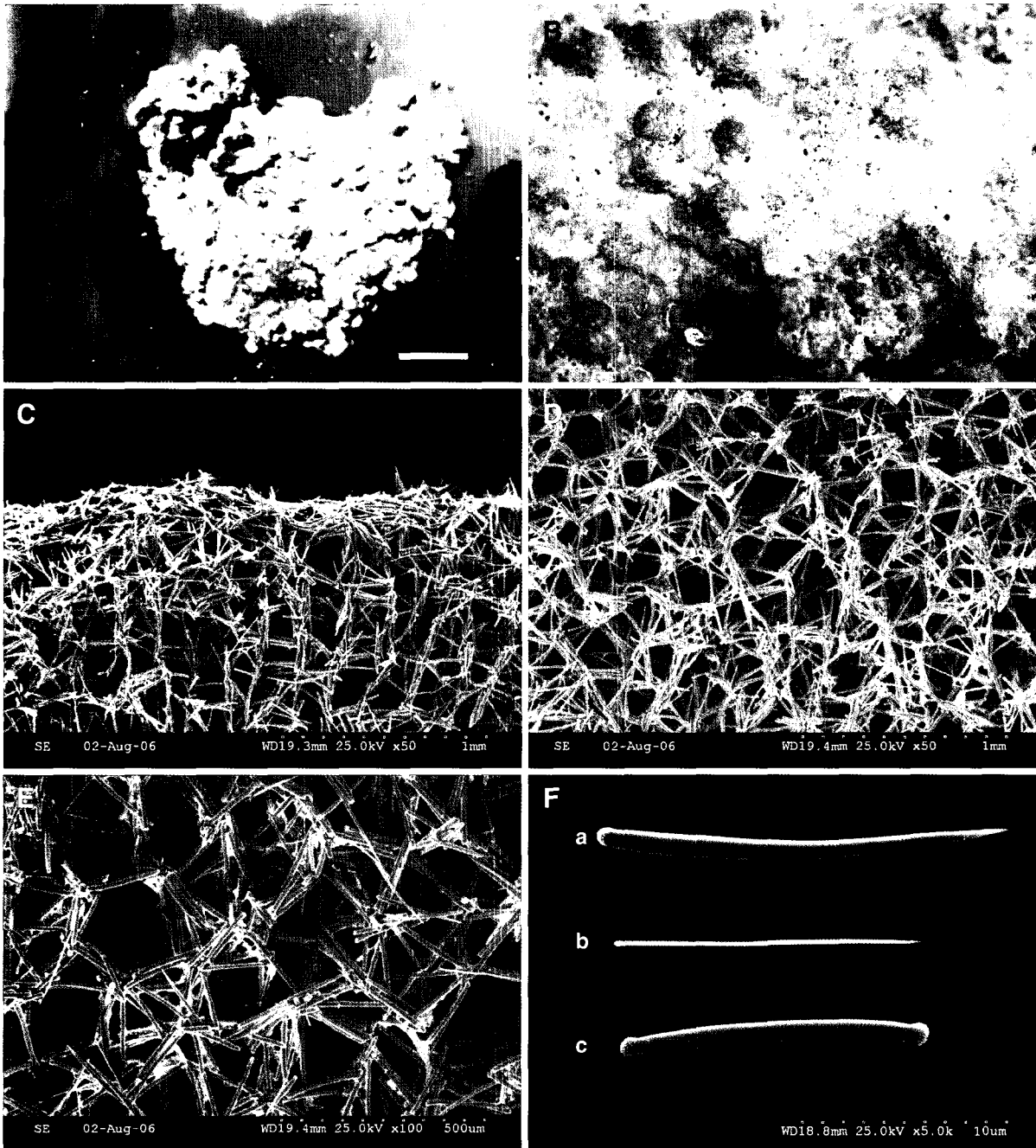
*Etymology.* This species is named after the type locality, Jungtaedo Is., Korea.

Subfamily Ophlitaspongiinae De Laubenfels, 1936

<sup>1</sup>\**Antho (Antho) hataedoensis* n. sp. (Figs. 3, 4)

*Material examined.* Holotype (Por. 70), Kangseom (Hataedo

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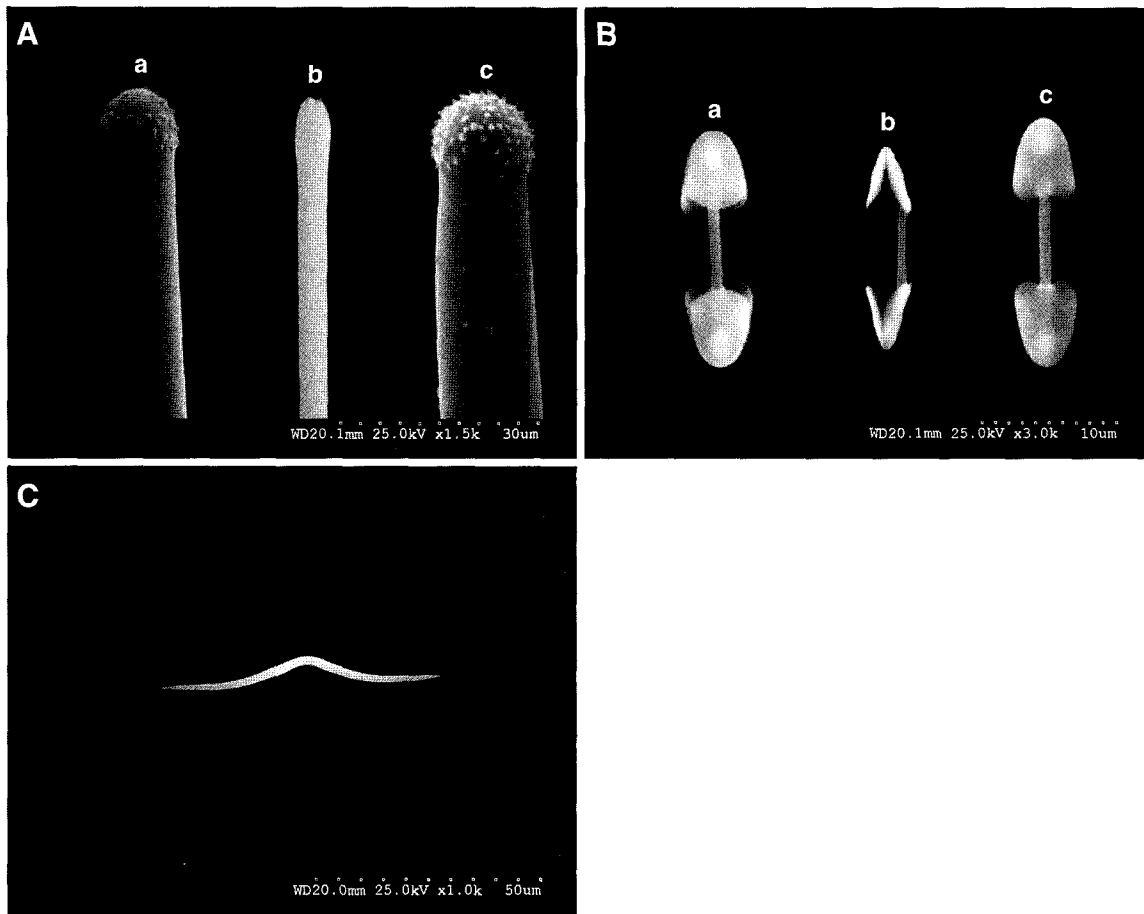


**Fig. 3.** *Antho (Antho) hataedoensis* n. sp. A, entire animal; B, surface; C, ectosomal skeletal structure; D, choanosomal skeletal structure; E, magnification of choanosomal skeletal structure; F, Megascleres (a, thick style; b, slender style; c, subtylote). Scale bar=10 mm (A).

Is.), 27 July 2005 (K.J. Lee and H.J. Kim) from 20 m deep by SCUBA diving.

**Description.** Colony irregular, thin incrusting sponge, size up to 81 mm wide, 65 mm high and 15-25 mm thick. Sponges attached to scollop. Texture rough and a little hard. Oscula 0.2-0.5 mm in diameter, scattered on surface. Colour

red in life and gradually changes to dark ocher in preserved alcohol. Surface round and small protrusion. Skeletal structure plumo-reticulated or simply composed with echinated choanosomal styles in basal renieroid skeleton. Spongin fibres poorly developed. Megascleres thick and slender styles, with spines on tip of head, and subtylotes with spines



**Fig. 4.** *Antho (Antho) hataedoensis* n. sp. A, head of megascleres with spines (a, head of thick style; b, head of slender style; c, both tip of subtylote.); B, palmate isochelae (a, front view of palmate isochela; b, side view of palmate isochela; c, rear view of palmate isochela.); C, toxa (no spine on their end).

**Table 2.** The comparison of characters between *A. (A.) hataedoensis* n. sp. and *A. (A.) inconstans*

| Character                  | Species           | <i>A. (A.) hataedoensis</i> n. sp.  | <i>A. (A.) inconstans</i>         |
|----------------------------|-------------------|-------------------------------------|-----------------------------------|
| Spicules ( $\mu\text{m}$ ) | Thick styles      | 205-(305)-450 $\times$ 10-(12.5)-15 | 190-(265)-340 $\times$ 13-(15)-17 |
|                            | Slender styles    | 150-(215)-280 $\times$ 4-(4.5)-5    | 230-(260)-290 $\times$ 4-(4.5)-5  |
|                            | Subtylotes        | 130-(140)-150 $\times$ 10-(12.5)-15 | 130-(140)-150 $\times$ 10-(11)-12 |
|                            | Palmate isochelae | 15-(17.5)-20                        | 16-(18)-20                        |
|                            | Toxas             | 25-(47.5)-70 $\times$ 1-(1.5)-2     | 50-(125)-200 $\times$ 3           |
| Growth form                |                   | Thin encrusting                     | Encrusting                        |
| Color in life              |                   | Red                                 | Unknown                           |

both tips. Microscleres, palmate isochelae and smooth toxas.

**Remarks.** The new species is similar to *A. (A.) inconstans* based on their spicule type and skeletal structure. However, differs in the dimension of toxas. Toxa in the new species is about one third as long as *A. (A.) inconstans*'s (Table 2).

**Etymology.** This species is named after the type locality, Hataedo Is., Korea.

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