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A New Sponge, *Antho* (*Acarnia*) *seogwipoensis* (Poecilosclerida: Microcionidae) from Korea

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ABSTRACT

A new marine sponge, *Antho* (*Acarnia*) *seogwipoensis* n. sp., of the family Microcionidae, was collected from Seogwipo-si, Jeju-do, Korea, about 100 m in depth using a gill net on 1969. The genus *Antho* Gray, 1867 including Demospongiae, Poecilosclerida, Microcionidae, is a large group of sponges. About 100 species in *Antho* were reported from worldwide. The genus *Antho* contains five subgenera: *Antho*, *Acarnia*, *Isopenectya*, *Jia*, and *Plocamia*. Among them, about 30 species in *Acarnia* were described in world sponge. A new sponge's body shape is branching, size up to 124 mm wide, 213 mm high, 3−8 mm thick in branch and 7−9 mm thick in stalk. *Antho* (*Acarnia*) *seogwipoensis* n. sp. is similar to *A.* (*A.*) *novizelanicum* Ridley and Duncan, 1881 based on their spicules type and skeletal structure, but differs in the spicules dimension and growth form. This new species is branched growth form and have three kinds of toxa.

Keywords: Porifera, Poecilosclerida, Microcionidae, *Antho*, new species Jeju Island, Korea

INTRODUCTION

The genus *Antho* Gray, 1867 (Demospongiae, Poecilosclerida, Microcionidae) is a large group of sponges. About 100 species in *Antho* were reported from worldwide (Van Soest et al, 2014). The genus *Antho* contains five subgenera: *Antho*, *Acarnia*, *Isopenectya*, *Jia*, and *Plocamia*. Among them, about 30 species in *Acarnia* were described in world sponge fauna (Van Soest et al., 2014). Five species in genus *Antho* and two in subgenus *Acarnia* have been reported from Korean waters (Rho and Sim, 1972; Sim and Kim, 1994; Sim and Lee, 1998). The genus *Antho* is defined by having a choanosomal skeleton modified to a basal or axial renieroid reticulation of acanthose or occasionally smooth styles and/or strongyles (Hooper and Van Soest, 2002). The subgenus *Acarnia* is characterized by acanthotylostrongyles forming the renieroid skeleton, less often acanthostyles, and a special category of echinating acathostyles overlap the main skeleton (Hooper and Van Soest, 2002).

MATERIALS AND METHODS

A new marine sponge was collected from Seogwipo-si, Jeju-do, Korea in 100 m in deepth using a gill net on 12 December 1969. Specimens were fixed in 95% or 99.9% ethanol. Spicules were observed by light microscopy (Carl Zeiss Axio Imager A2; Germany) and by scanning electron microscopy (SEM, HITACHI S-3000N; Japan). Identifications were made on the basis of external features, shape, skeleton structure, and size and form of spicules. Thin free-hand sections were made with specimens shardened in alcohol using a surgical blade in order to observe the structure of skeleton. Spicules were prepared by dissolving a piece of sponge in sodium hypochlorite and examined with SEM (Rützler, 1978; Hooper, 1996). The holotype is 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 Ophlitaspongiinae De Laubenfels, 1936
Genus *Antho* Gray, 1867

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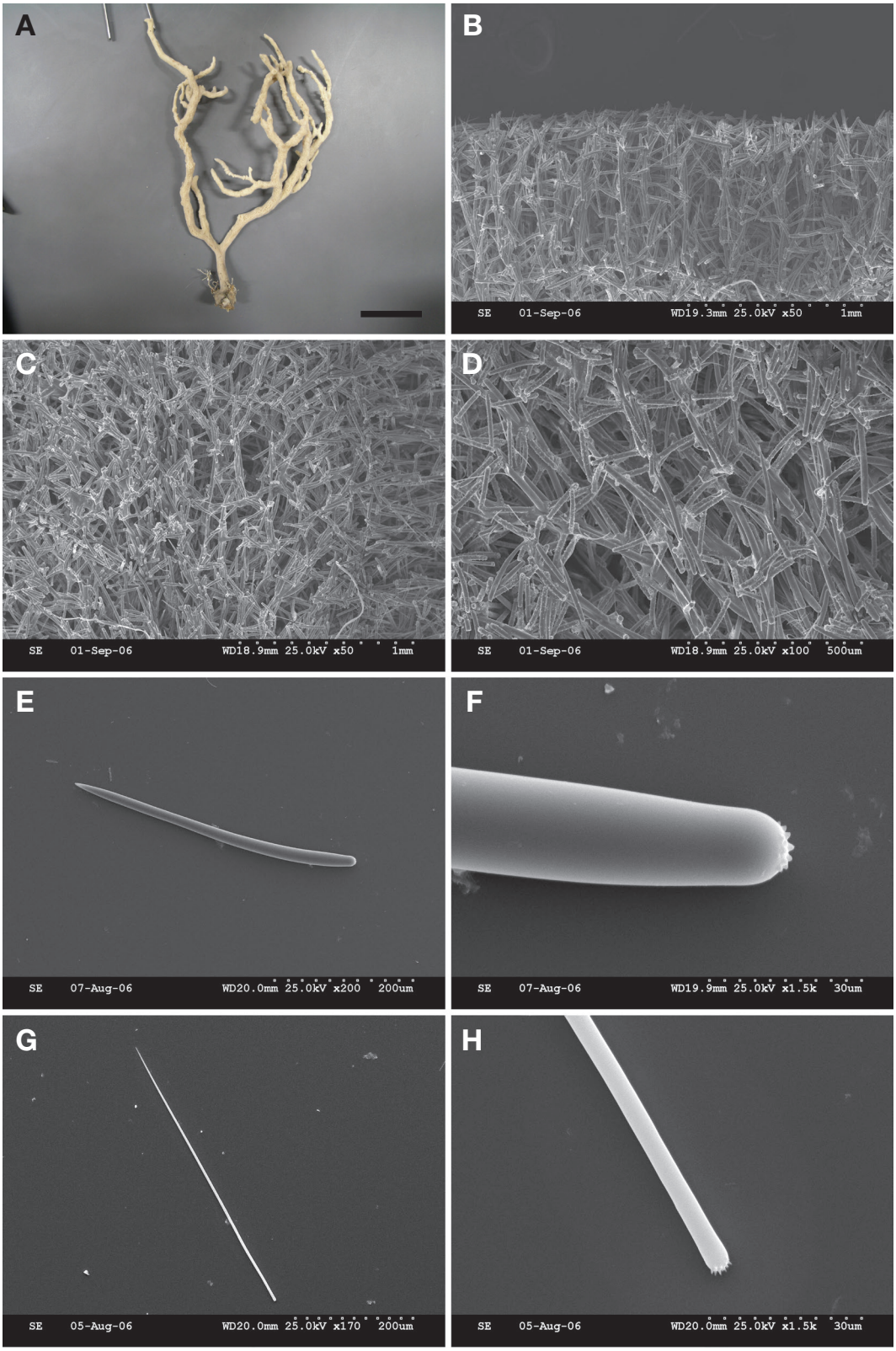

Fig. 1. *Antho* (*Acarnia*) *seogwipoensis* n. sp. A, Entire animal; B, Ectosomal skeletal structure; C, Choanosomal skeletal structure; D, Magnification of choanosomal skeletal structure; E, Thick style; F, Head of thick style with spines; G, Slender style; H, Head of slender style with spines. Scale bar: A = 25 mm.

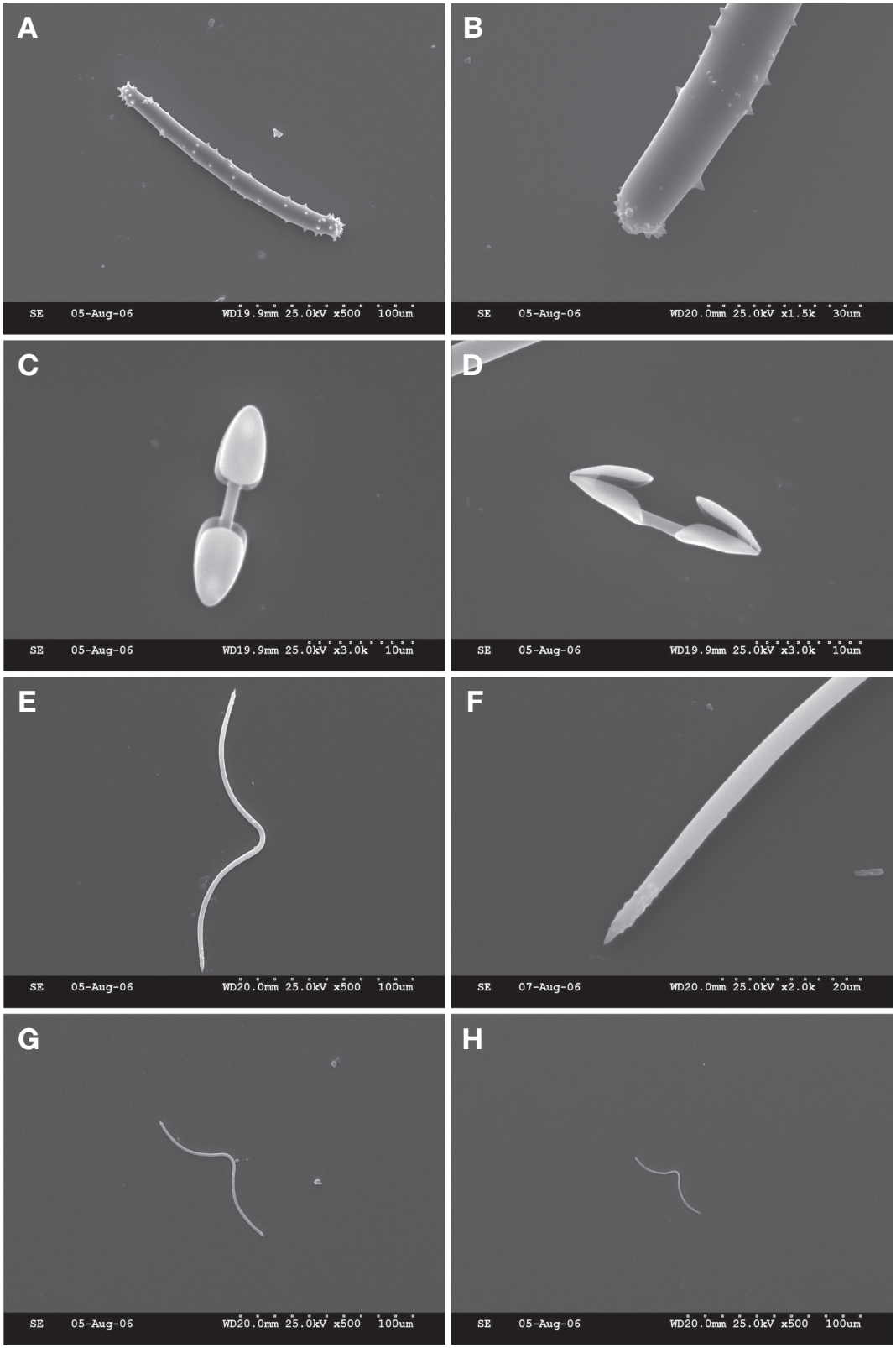

Fig. 2. *Antho* (*Acarnia*) *seogwipoensis* n. sp. A, Acanthostrongyle; B, End of acanthostrongyle; C, Front view of palmate isochela; D, Side view of palmate isochela; E, Large toxa; F, End of large toxa; G, Middle toxa; H, Small toxa.

Table 1. The comparison of characters between *Antho* (*Acarnia*) *seogwipoensis* n. sp. and *A.* (*A.*) *novizelanicum*

Characters		Species	
		Antho (*Acarnia*) *seogwipoensis* n. sp.	*Antho* (*Acarnia*) novizelanicum
Spicules (μm)	Thick styles	200–(415)–630×15–(22.5)–30	272–(386)–500×17.4–(21.2)–25
	Slender styles	180–(340)–500×3–(4)–5	190–(275)–360×2–(3.35)–4.7
	Acanthostrongyles	130–(140)–150×11–(13.5)–16	177×15.8
	Palmate isochelae	15–(17.5)–20	19
	Large toxas	120–(185)–250×2–(3.5)–5	–
	Middle toxas	70–(80)–90×1–(1.25)–1.5	63.3×2.1
	Small toxas	30–(45)–60×0.5–(0.75)–1	–
Growth form		Branch	Digitate
Color in life		Unknown	Unknown

[1]****Antho* (*Acarnia*) *seogwipoensis* n. sp. (Figs. 1, 2)**

Type specimen. Holotype (por. 120), Korea, Jeju-do, Seogwipo-si, 12 Dec 1969, from 100 m in deep by gill net, Rho BJ, deposited in the HUNHM.

Description. Body shape branching, size up to 124 mm wide, 213 mm high, 3–8 mm thick in branch and 7–9 mm thick in stalk. Texture, hard and well broken. Oscules 0.1–0.3 mm in diameter, scattered on surface. Colour unknown in life which gradually changeds to dark brown in ethanol. Surface rough and hispid with spicules. Ectosomal skeletal structure is plumo-reticulate. Choanosomal skeletal structure irregular reticulations composed of acanthostrongyles. Spongin fibres poorly developed. Spicules, megascleres, thick styles, size 200–(415)–630 × 15–(22.5)–30 μm and slender styles, size 180–(340)–500 × 3–(4)–5 μm with spines on tip of head. Acanthostrongyles, size 130–(140)–150 × 11–(13.5)–16 μm with spines both end. Microscleres, one category of palmate isochelae, size 15–(17.5)–20 μm. Three kinds of toxas, large toxas, size 120–(185)–250 × 2–(3.5)–5 μm, middle toxas, size 70–(80)–90 × 1–(1.25)–1.5 μm, small toxas, size 30–(45)–60 × 0.5–(0.75)–1 μm do not have spines on their ends.

Etymology. This species named after the type locality, Seogwipo-si, Jeju-do, Korea.

Remarks. *Antho* (*Acarnia*) *seogwipoensis* n. sp. is similar to *A.* (*A.*) *novizelanicum* Ridley and Duncan, 1881 based on their spicules type and skeletal structure, but differs in the spicules dimension and growth form. This new species is branching growth form and have three kinds of toxa (Hooper, 1996) (Table 1).

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