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A New Sponge of the Genus *Haliclona* (*Gellius*) (Haplosclerida: Chalinidae) from Gageodo Island (So-Huksando), Korea

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A taxonomic study on marine sponges was conducted by SCUBA diving at Gageodo Island, Korea from August 1999 to July 2001. Among them, *Haliclona* (*Gellius*) *coreana* n. sp. turned out to be new to science. This new species seems to be close to *H.* (*G.*) *arcoferus* Vosmaer, 1885, based on the type of spicules. However, it is different in size of toxa and growth form. Toxa of the new species is half in length compared to *H.* (*G.*) *arcoferus*. The growth form is jar shaped in this new species, but flat in *H.* (*G.*) *arcoferus*.

The family Chalinidae Gray, 1867, including four synonyms; Renieridae Ridley, Gelliidae Ridley, Haliclonidae de Laubenfels and Adociidae de Laubenfels, belongs to the suborder Haplosclerina together with Callyspongiidae de Laubenfels and Niphatidae Van Soest (Hooper and Van Soest, 2002). Chalinidae has a world wide distribution with possibly more than 150 extant species living in all parts of the Sea (De Weerdt, 2000). Twenty seven genera have been described, but only four genera are presently considered valid: *Chalinula*, *Cladocroce*, *Dendroxea* and *Haliclona*. The genus *Haliclona* contains the subgenera *Gellius*, *Halichoclona*, *Haliclona*, *Reniera*, *Rhizoniera* and *Soestella*. The genus *Haliclona* is characterized by a unispicular secondary line. The subgenus *Gellius* is characterized by a choanosomal skeleton consisting of rather confused, subhalichondroid reticulation of pauci- to multispicular primary line, irregularly connected by a unispicular secondary line. Ectosomal skeleton, if present, has either a regular, tangential, unispicular, isotropic reticulation, or consists of irregularly strewn, tangentially orientated spicules (Hooper and Van Soest, 2002). Five species of *Haliclona* (*Gellius*) have been reported from Korean waters so far (Sim, 1981; Rho and Yang, 1983; Sim and Bae, 1987; Sim and Kim, 1988; Sim and Byeon, 1989).

The sponge materials observed in this research were collected from Gageodo Island, Korea from August 1999 to July 2001 by SCUBA diving. Specimens were fixed at once in 99.6% methyl alcohol or 99.9% ethyl alcohol. The specimens were examined by light microscopy (Carl Zeiss Axioskop II) and scannig electron microscopy (HITACHI S-3000N). For SEM of spicules and skeletons, the procedure of Rützler (1978) was followed. The holotype was deposited in the Natural History Museum, Hannam University (HUNHM), Daejeon, Korea.

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Results

Phylum Porifera Grant, 1836
Class Demospongia Sollas, 1885
Order Haplosclerida Topsent, 1928
Suborder Haplosclerina Topsent, 1928
Family Chalinidae Gray, 1867

Haliclona (*Gellius*) *coreana* n. sp.
(Figs. 1, 2)

Type specimen: Holotype (Por. 49), Gageodo (Sin-yeo), Heuksan-myeon, Sinan-gun, Jeollanam-do, 25 July 2000, SCUBA, 25 m deep, K. J. Lee and H. J. Kim, deposited in HUNHM, Daejeon, Korea. Paratype (Por. 49-1), collected with holotype, deposited in the Department of Biological Sciences, Hannam University, Daejeon, Korea.

Description: This new species, jar shaped, sized up to 10.5×9.5 and 12.4 cm thick. Texture very soft and fragile. Color, soft violet in life, gradually changed to ivory color in methyl alcohol. Surface with alternating parallel ridges and groove covered with thin dermal membrane. Sharply ending long projection located at top of sponge. Oscules scattered on surface and size up 0.5–4.5 mm. Ectosomal skeleton irregular and rather confused, somewhat subisotropic reticulation. Choanosomal skeleton rather dense and irregular reticulation of paucispicular primary line, irregularly connected by unispicular secondary line, with many spicules in confusion. Megascleres, straight or

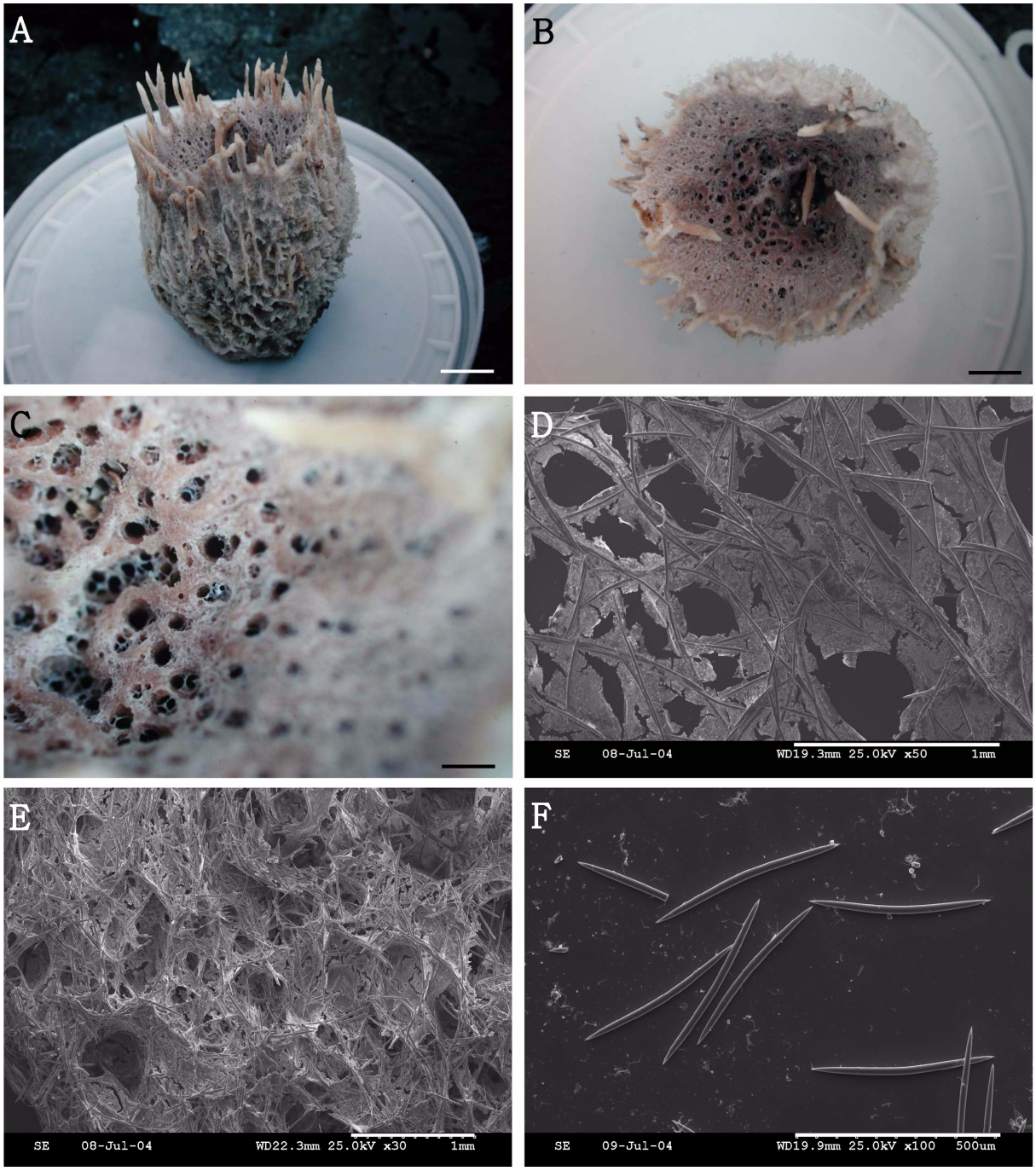

Fig. 1. *Haliclona* (*Gellius*) *coreana* n. sp. A, Entire specimen (side view). B, Entire specimen (upper view). C, Oscules (inner part of surface). D, Ectosomal skeleton. E, Choanosomal skeleton. F, Large oxeas. Scale bars=1.5 cm (A-B), 5 mm (C), 1 mm (D-E), and 500 μm (F).

slightly curved oxeas with a long and sharp point. Microscleres have sigmas and two categories of toxa.

Megascleres	
Large oxeas	420-450 × 15-18 μm
Small oxeas	240-370 × 3-8 μm
Microscleres	
Large toxas	20-40 μm
Small toxas	8-15 μm
Sigmas	15-20 μm

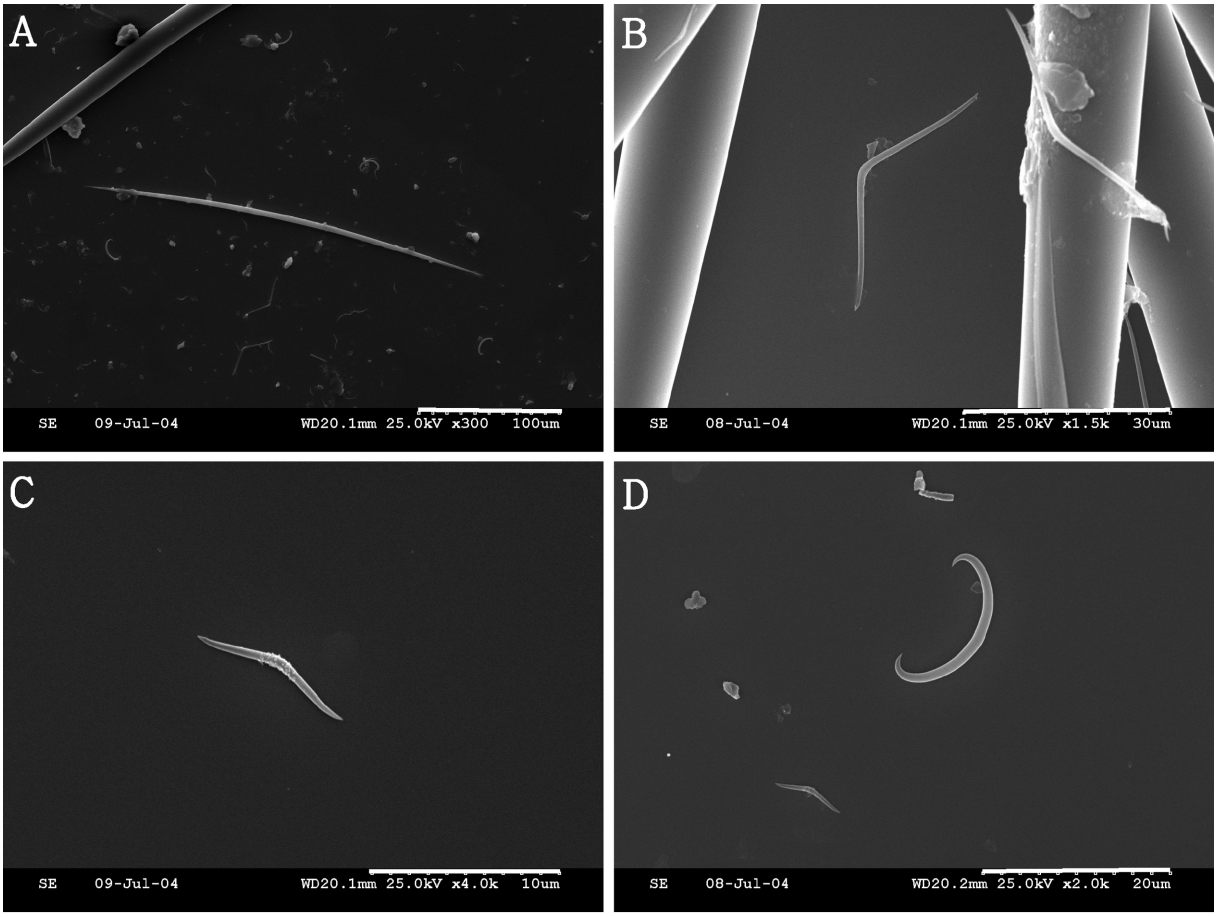

Fig. 2. *Haliclona* (*Gellius*) *coreana* n. sp. A, Small oxea. B, Large toxa. C, Small toxa. D, Sigma. Scale bars=100 μm (A), 30 μm (B), 10 μm (C), and 20 μm (D).

Etymology: The species name *coreana* is named for the Republic of Korea.

Remark: This new species seems to be close to *Haliclona* (*Gellius*) *arcoferus* Vosmaer, 1885 based on its type of spicules. However, it is different in size of toxa and growth form. The toxa of new species is half in length compared to *H.* (*G.*) *arcoferus*. Also *H.* (*G.*) *arcoferus* does not have small toxa. The growth form is jar shaped in this species, but flat in *H.* (*G.*) *arcoferus* (Table 1).

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Table 1. Differences between *Haliclona* (*Gellius*) *coreana* n. sp. and *H.* (*G.*) *arcoferus*

Species	Growth form	Large oxeas (μm)	Small oxeas (μm)	Large toxas (μm)	Small toxas (μm)	Sigmas (μm)
H. (*G.*) *coreana* n. sp.	Jar shape	420-450 × 15-18	240-370 × 3-8	20-40	8-15	15-20
H. (*G.*) *arcoferus*	Flat form	411-450 × 14-23	350-370 × 4-7	48-100	.	14-19

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