

Two New Sponges of the Genus *Halichondria* (Halichondrida: Halichondriidae) from Korea

Dong Won Kang and Chung Ja Sim*

Department of Biological Sciences, College of Life Science and Nano Technology, Hannam University, Daejeon 305-811, Korea

Abstract Two new marine sponges in the family Halichondriidae, *Halichondria gageoensis* n. sp. and *Halichondria muanensis* n. sp. are collected from Gageodo Island and Yongjeong-ri, Hyeongyeong-myeon, Muan-gun, Korea during 2006-2007. *H. gageoensis* n. sp. is similar to *H. oshoro* (Tanita, 1961) in type of spicule, but is different from the latter in growth form and size of spicule. The oxea of the new species is larger than *H. oshoro*'s. The growth form of *H. gageoensis* n. sp. is thick and consists of encrusting with numerous erect hollow cylindrical tubes, but *H. oshoro* is of massive form. *H. muanensis* n. sp. is similar to *H. retiderma* (Dendy, 1921) in type of spicule and choanosomal skeleton, but it is different from the latter in growth form and size of spicule. The oxea is smaller than that of *H. retiderma*. The growth form is thick and consists of encrusting, with numerous erect hollow cylindrical tubes, compared with the massive lobose of *H. retiderma*.

Key words: *Halichondria*, new species, Halichondrida, Halichondriidae, Korea

Demospongiae having a simple spicule complement of oxea and styles and a confused skeletal arrangement were recently grouped in the order Halichondrida (Diaz et al., 1993). The marine sponge family Halichondriidae Gray, 1867 have choanosomal skeleton consisting of high density of spicules arranged in vague, ill-defined, directionless tracts and spicules in confusion (Hooper et al., 1997). It consists of 11 genera: *Axinyssa*, *Amorphinopsis*, *Ciocalapata*, *Ciocalypta*, *Epipolasis*, *Hymeniacidoan*, *Halichondria*, *Laminospongia*, *Spongosorites*, *Topesntia*, and *Vosmaeria*. Among them, the genus *Halichondria* is characterized by tangential ectosomal skeleton. Megascleres have exclusively oxeas or derivate in a wide size range. About 110 species are distributed over all regions and habitats (Hooper and

Van Soest, 2002). Three species of *Halichondria* have been reported from Korean waters (Kim et al., 1968, Rho and Lee, 1976).

MATERIALS AND METHODS

The sponges were collected by SCUBA from Gageodo Island and by hand from Yongjeong-ri, Hyeongyeong-myeon, Muan-gun, Korea during 2006-2007. Specimens were fixed in 95% or 99.9% ethanol. They were prepared and examined under both light microscope (Carl Zeiss Axioskop II) and scanning electron microscope (SEM, HITACHI S-3000N) following the procedures described by Rtzler (1978). The holotypes have been deposited in the Department of Biological Sciences, Hannam University, Daejeon, Korea.

SYSTEMATIC ACCOUNTS

Phylum Porifera Grant, 1836
Class Demospongiae Sollas, 1885
Order Halichondrida Gray, 1867
Family Halichondriidae Gray, 1867

1. *Halichondria gageoensis* n. sp.
(Fig. 1)

Type specimen: Holotype (Por. 78), Soganyeo, Gageodo Island, 20 July 2007, SCUBA 20 m, H. S. Kim, deposited in the Department of Biological Sciences, Hannam University, Daejeon, Korea.

Description: Thick encrusting with numerous erect hollow cylindrical tubes, 1.5-4 cm high. Sized up to 13×9 cm wide and 2 cm thick. Oscules 0.8-1.5 cm in diameter opened at the top of each tube. Texture firm. Surface smooth. Ectosomal skeleton in tangential arrangement (densely

*To whom correspondence should be addressed.
Tel: +82-42-629-8755; Fax: +82-42-629-8751
E-mail: cjsim@hnu.kr

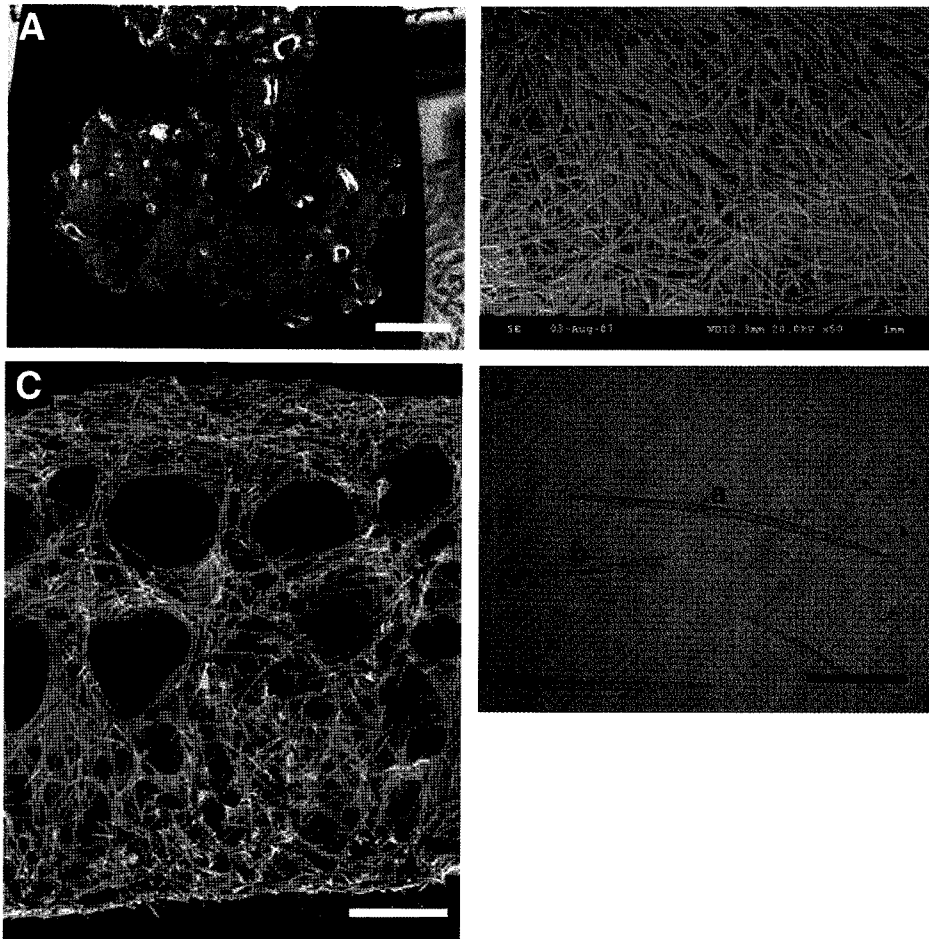


Fig. 1. *Halichondria gageoensis* n. sp. A, entire specimen. B, surface skeleton. C, skeleton. D, spicule (a. large oxea, b. small oxea). Scale bars = 2 cm (A), 1 mm (C), 200 μm (D).

cursted with spicules). Choanosomal skeleton large and extensive subchoanosomal space present, columns with spicules extending to surface and supporting ectosomal skeleton. Spicules two size of oxea, no microscleres. Colour yellow in life, gradually changed to ivory in alcohol.

Etymology: The species is named after the type locality, Gageodo Island, Korea.

Remarks: *Halichondria gageoensis* n. sp. is similar to *H. oshoro* (see Tanita, 1961) in type of spicule, but is different in growth form and size of spicule. The oxea of the new

species is larger than *H. oshoro*'s. The growth form of *H. gageoensis* n. sp. is thick encrusting with numerous erect hollow cylindrical tubes, but *H. oshoro* is of massive form (Table 1).

2. *Halichondria muanensis* n. sp.
(Fig. 2)

Type specimen: Holotype (Por. 79), Yongjeong-ri, Hyeongyeong-myeon, Muan-gun, 9 June 2006, intertidal zone, D. W. Kang and H. J. Kim, deposited in the Department of Biological Sciences, Hannam University, Daejeon, Korea.

Description: Thin encrusting with numerous erected cylindrical tubes, 1~1.5 cm high. Sized up to 5×2 cm wide and 0.5 cm thick. Oscules, 0.1~0.2 cm in diameter, opened at top of each tube. Texture soft. Surface smooth with thin membrane. Ectosomal skeleton in tangential arrangement. Subectosomal space present. Choanosomal skeleton columns with spicules extending to surface and supporting

Table 1. The comparison of characters between *Halichondria gageoensis* n. sp. and *Halichondria oshoro*

Species		<i>Halichondria oshoro</i>	<i>Halichondria gageoensis</i> n. sp.
Characters			
Growth form		massive	thick encrusting, with numerous erect hollow cylindrical tube
Oxea (μm)	Thick	450~580 × 10~17	475~650 × 15~17.5
	Thin	200~400 × 4~5	220~510 × 5~7.5

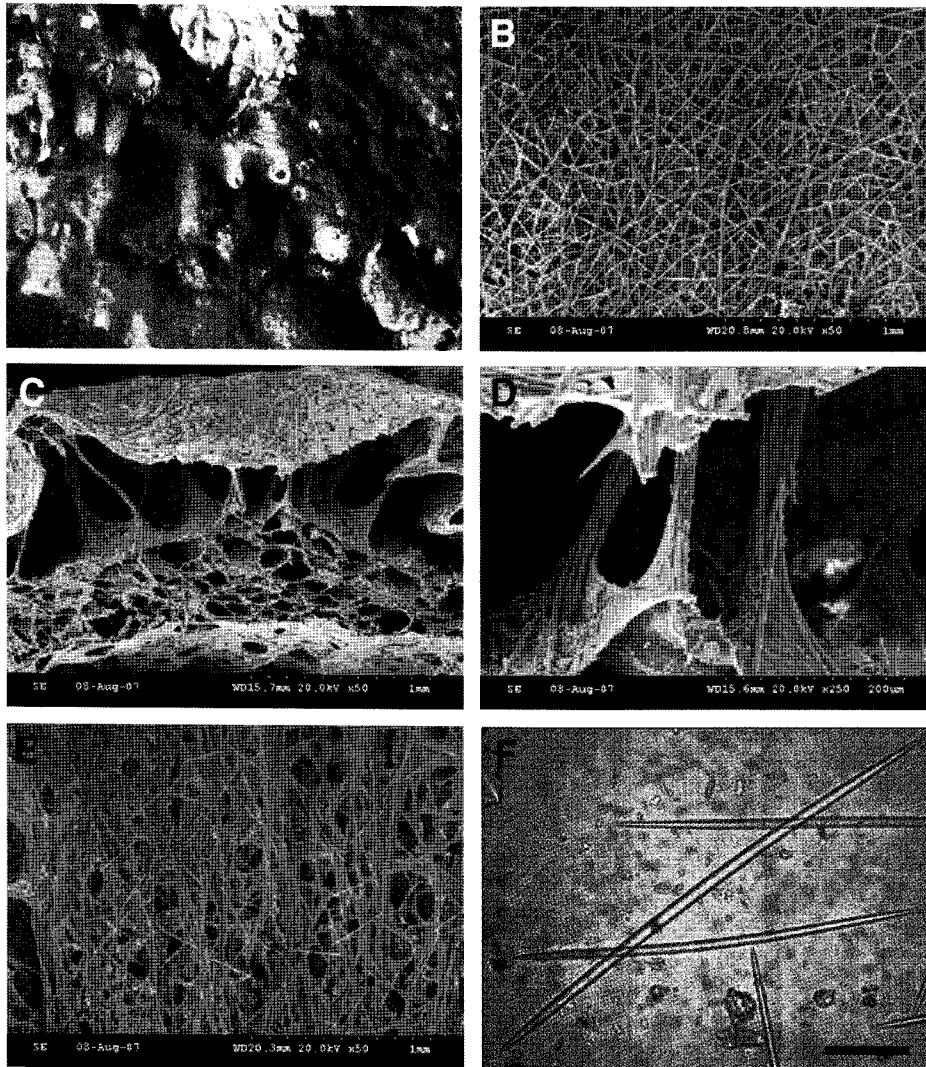


Fig. 2. *Halichondria muanensis* n. sp. A, entire specimen. B, surface skeleton. C-D, skeleton. E, inner wall surface. F, oxea. Scale bars = 200 μ m (F).

Table 2. Comparison of characters between *Halichondria muanensis* n. sp. and *Halichondria retiderma*

Species Characters	<i>Halichondria retiderma</i>	<i>Halichondria muanensis</i> n. sp.
Growth form	massively lobose	thick encrusting, with numerous erect hollow cylindrical tube
Oxea (μ m)	400 \times 12	250~450 \times 5~10

membrane with many spicular tracts. Spicules one size of oxea, no microscleres. Colour yellow in life which gradually changed to dark ivory in alcohol.

Etymology: The species is named after the type locality, Muan-gun, Korea.

Remarks: *Halichondria muanensis* n. sp. is similar to *H. retiderma* (see Dendy, 1921) in type of spicule and choanosomal skeleton, but is different from the latter in

growth form and size of spicule. The oxea is smaller than that of *H. retiderma*. The growth form is thick encrusting, with numerous erect hollow cylindrical tubes, compared with the massively lobose of *H. retiderma* (Table 2).

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