

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

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ABSTRACT

Two new marine sponges in family Halichondriidae, *Halichondria ulleungensis* n. sp. and *H. hongdoensis* n. sp. are collected from Ulleungdo Island and Hongdo Island, Korea by SCUBA diving during 2003-2004. *H. ulleungensis* n. sp. is similar to *H. corrugata* Diaz, Pomponi and van Soest, 1993 in the type of spicule, but it is different in growth form and choanosomal skeleton. The growth form is encrusting, with numerous erected cylindrical tube, comparing with massive-lobate of *H. corrugata*. The choanosomal skeleton is confused with loosely arranged oxea tract, comparing with densely tracts with many spicules of *H. corrugata*. *H. hongdoensis* n. sp. is similar to *H. surrubicunda* Hoshino, 1981 in type of spicule and growth form, but this species has two kinds (thick and thin) of oxea.

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

INTRODUCTION

The marine sponges of the 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*, *Spongisorites*, *Topesntia* and *Vosmaeria* (Hooper and van Soest, 2002). Among them, the genus *Halichondria* Fleming, 1828 is characterized by ectosomal skeleton which consists of thin, tangential, clearly detachable membrane, containing single oxeas or vague bundles of oxeote spicules, supported by choanosomal columns of oxeas traversing subdermal spaces. Choanosome has the appearance of a disordered loose reticulation, and spicule tracts are poorly defined (Hooper, 1994). Megascleres have exclusively oxeas or derivate in a wide size range. About 110 species distributed over all regions and habitats (Hooper and van Soest, 2002). Five species of *Halichondria* have been reported from Korean waters (Kim et al., 1968; Rho and Lee, 1976; Kang and Sim, 2008).

MATERIALS AND METHODS

The sponges were collected from Ulleungdo Island and

Hongdo Island, Korea by SCUBA diving during 2003-2004. Specimens were fixed in 95% or 99.9% ethanol. Spicules were observed by light microscope (Carl Zeiss Axioskop II). Identification was done 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 the skeleton. Spicules were prepared by dissolving a piece of sponge in sodium hypochlorite and were examined with SEM (Rützler, 1978; Hooper, 1996). The holotypes are deposited in 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 ulleungensis* n. sp. (Fig. 1)

Material examined. Holotype (Por. 87), Ssangenocho, Ulleungdo Island, 27 Aug. 2003, SCUBA 20 m deep, K.J. Lee, deposited in the Department of Biological Sciences, Hannam University, Daejeon, Korea.

Description. Encrusting with numerous erected cylindrical tube, 4.5 cm high. Sized up to 4 × 3 cm wide and 1 cm thick. Oscules, 0.5-1 cm in diameter, opened at top of each tube. Color yellow in life which gradually changes to ivory in alcohol. Texture soft. Surface smooth. Ectosomal skeleton

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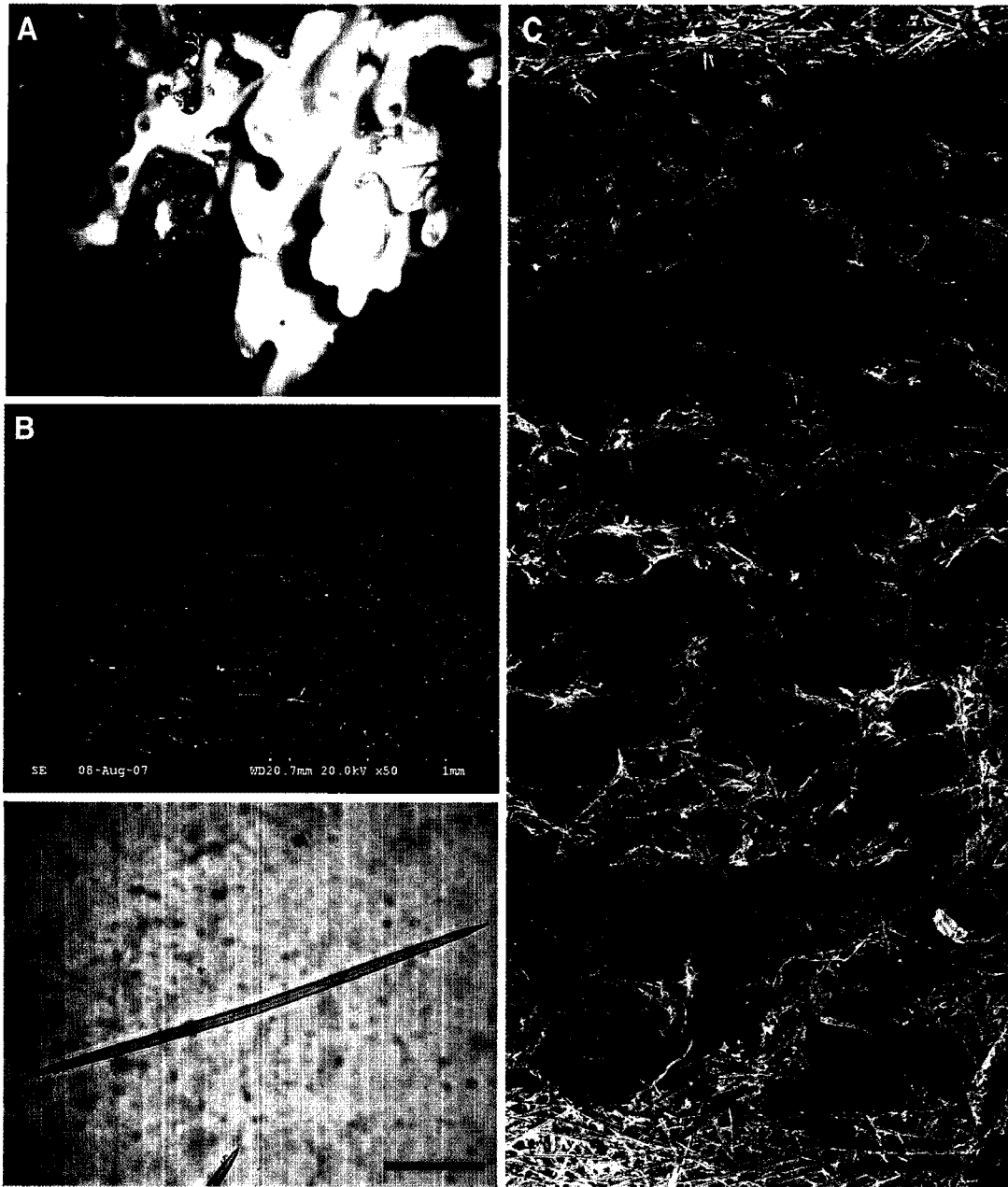


Fig. 1. *Halichondria ulleungensis* n. sp. A, entire specimen; B, surface skeleton; C, skeleton; D, oxea. Scale bars=1 mm (C), 200 μ m (D).

Table 1. The comparison of characters between *H. ulleungensis* n. sp. and *H. corrugata*

Species	<i>H. corrugata</i>	<i>H. ulleungensis</i> n. sp.
Growth form	Encrusting, with numerous erect hollow cylindrical tube	Massive-lobate
Choanosomal skeleton	Densely tracts of many spicules	Loose tracts of oxeas with no constant alignment, many choanosomal space present

tangential arrangement and intercrossing of spicule. Choanosomal skeleton loosely arranged oxea tract which has no

constant alignment and make choanosomal space. Spicules two kinds of oxea, no microscleres.

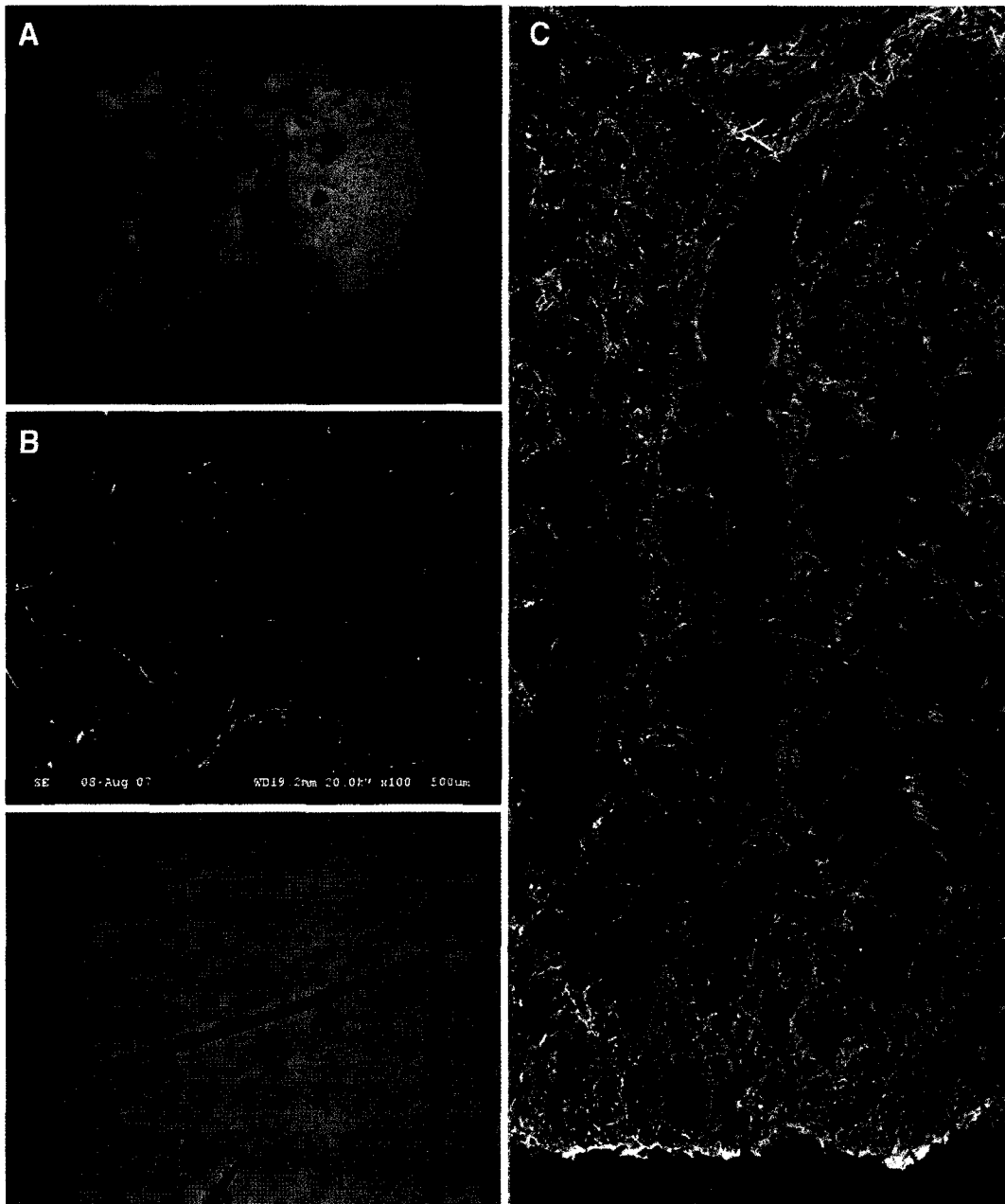


Fig. 2. *Halichondria hongdoensis* n. sp. A, entire specimen; B, surface skeleton; C, skeleton; D, oxea (a, thick oxea; b, thin oxea). Scale bars=1 mm (C), 100 μ m (D).

Table 2. The comparison of characters between *H. hongdoensis* n. sp. and *H. surrubicunda*

Species	<i>H. surrubicunda</i>	<i>H. hongdoensis</i> n. sp.
Characters		
Growth form	Irregular massive or encrusting	Irregular, thin encrusting with slightly elevated oscular rims
Size of Oxea (μ m)	198-275 \times 5-8	Thick oxea: 230-300 \times 5-10 Thin oxea: 180-260 \times 1-3

Spicules.

Thick oxea 330-520 \times 8-12.5 μ m
Thin oxea 290-430 \times 2.5-6 μ m

Etymology. This species is named after the type locality,

Ulleungdo Island, Korea.

Remark. *H. ulleungensis* n. sp. is similar to *H. corrugata* Diaz, Pomponi and van Soest, 1993 in the type of spicules, but it is different in the growth form and choanosomal skeleton. Growth form is encrusting, with numerous erected cylindrical tube, comparing with massive-lobate of *H. corrugata*. The choanosomal skeleton is confused with loosely arranged oxea tract, comparing with dense tracts with many spicules of *H. corrugata* (Table 1).

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

Material examined. Holotype (Por. 88), Nammunbawi, Hongdo Island, 9 Sep. 2004, SCUBA 20 m deep, K.J. Lee and H.J. Kim, deposited in the Department of Biological Sciences, Hannam University, Daejeon, Korea.

Description. Irregularly thin encrusting with slightly elevated oscular rims. Sized up to 6.5 × 6 cm wide and 0.3 cm thick. Oscules 0.2-0.3 cm in diameter, located on elevated oscula rims. Color light purple in life which gradually changes to ivory in alcohol. Texture soft. Surface smooth. Ectosomal skeleton tangential arrangement and intercrossing of spicule. Choanosomal skeleton confused in arrangement of oxea and vague tracts ascend to surface in places. Spicules two kinds of oxea, no microscleres.

Spicules.

Thick oxea 230-300 × 5-10 μm

Thin oxea 180-260 × 1-3 μm

Etymology. This species is named after the type locality, Hongdo Island, Korea.

Remark. *Halichondria hongdoenesis* n. sp. is similar to *H. surrubicunda* Hoshino, 1981 in type of spicule, growth form but this species has two categories (thick and thin) of oxea (Table 2).

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