

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

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ABSTRACT

Two new marine sponges, *Halichondria jangseunggenesis* n. sp. and *H. nagokenesis* n. sp., of the family Halichondriidae, were collected from Uljin-gun, Gyeongsangbuk-do, Korea by SCUBA diving during the period from Apr 2007 to Aug 2007. Based on their spicule composition and skeletal structure, *H. jangseunggenesis* n. sp. appears to have a close similarity with *H. panicea* (Pallas, 1766); however, they differ in length of spicule. The spicule length of oxea of *H. jangseunggenesis* n. sp. is shorter than that of *H. panicea*. Based on their spicule composition and growth form, *H. nagokenesis* n. sp. is quite similar to *H. cylindrata* Tanita and Hoshino, 1989; however, but they differ in length of spicule. The spicule length of oxea of *H. nagokenesis* n. sp. is longer than that of *H. cylindrata*.

Keywords: *Halichondria*, new species, sponge, Korea

INTRODUCTION

Marine sponges of the family Halichondriidae Gray, 1867 have an irregular choanosomal skeleton consisting of a high density of spicules arranged in confusing, vague, ill-defined, directionless tracts and spicules (Hooper et al., 1997). Finding conspicuous anatomical characteristics of the genus *Halichondria* has been a particular challenge for sponge taxonomists (Carvalho and Hajdu, 2001).

The genus *Halichondria* is characterized by a tangential ectosomal skeleton carried by subectosomal spicule tracts or brushes separated by subdermal spaces. Megascleres of the genus *Halichondria* have only oxeas or derivatives in a wide range of sizes (de Laubenfels, 1936; Hooper and van Soest, 2002). Approximately 110 species from all regions and habitats have been recorded (Hooper and van Soest, 2002). Nine species of *Halichondria* from Korean waters have been reported (Kim et al., 1968; Rho and Lee, 1976; Kang and Sim, 2008a, 2008b; Jeon and Sim, 2009; Kim and Sim, 2009).

MATERIALS AND METHODS

Sponges were collected from Uljin-gun, Gyeongsangbuk-do,

Korea by SCUBA diving during 2007. Specimens were fixed in 95% or 99.9% ethanol. Spicules were observed under a light microscope (Carl Zeiss Axioskop II; Carl Zeiss, Jena, Germany). Identification was made on the basis of external features of sponges, growth form, skeletal structure, and spicule size and form. For observation of the endosomal skeletal structure, thin free-hand sections were made with specimens hardened in alcohol using a surgical blade. Spicules were prepared by dissolving a piece of sponge in sodium hypochlorite and examined under a scanning electron microscopy (Rützler, 1978; Hooper, 1996). Holotypes of two new species 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 jangseunggenesis* n. sp.
Kang and Sim, 2011 (Fig. 1)

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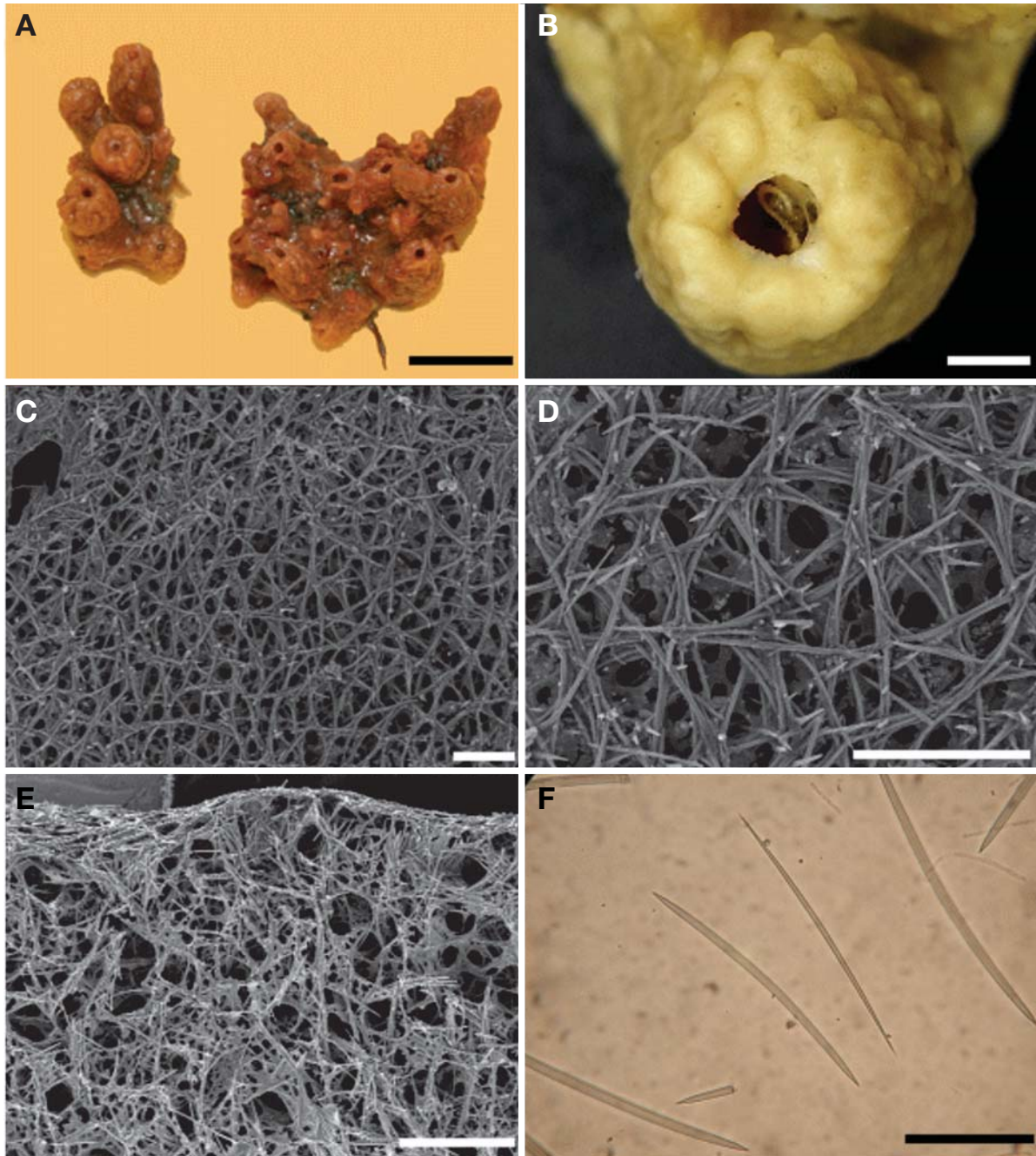


Fig. 1. *Halichondira jangseungensis* n. sp. A, Entire animal; B, Oscule opened at the top of the column, like a chimney; C, D, Surficial skeletal structure; E, Endosomal skeletal structure (longitudinal section); F, Oxeas. Scale bars: A=2 cm, B=0.2 cm, C, D=200 μ m, E=400 μ m, F=100 μ m.

Material examined. Holotype (Por. 104), Uljin-gun, Gyeongsangbuk-do, 1 Apr 2007, SCUBA 25 m depth, by Lee JR, deposited in the Department of Biological Sciences, Hannam University, Daejeon, Korea.

Description. Encrusting with chimney. Sized up to 4 \times 3 cm wide and 0.2 cm thick. Oscules, 0.2-0.5 cm in diameter,

opened at top of chimney. Oscular chimney, characteristically grooved. Colour orange in life and gradually changed to ivory in alcohol. Texture Firm and compressible. Surface smooth. Ectosomal skeleton tangential arrangement and intercrossing bundles of spicule. Choanosomal skeleton composed of many spicular tracts and individual spicules scatter-

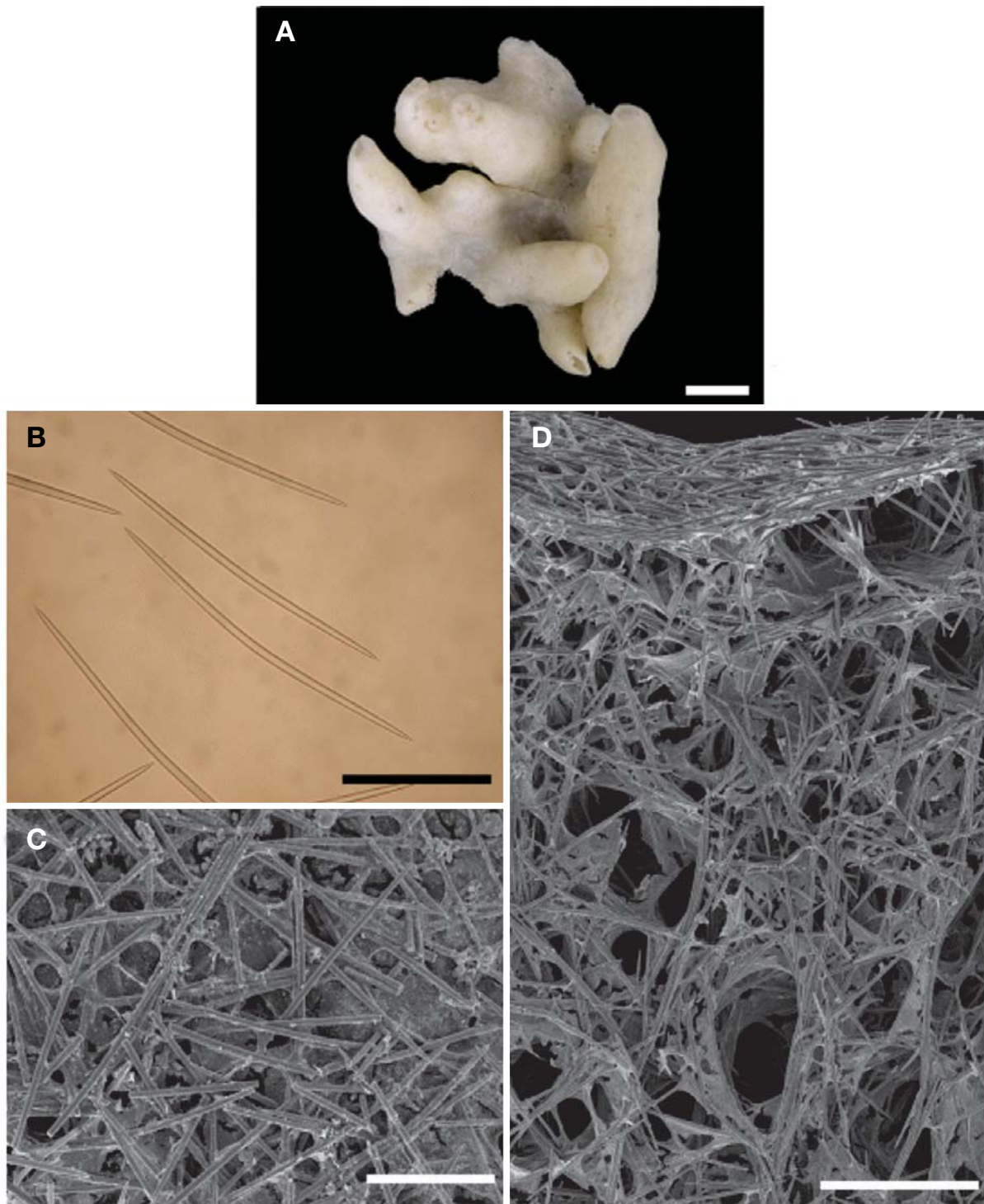


Fig. 2. *Halichondria nagokenesis* n. sp. A, Entire animal; B, Spicules (oxeas); C, Surficial skeletal structure; D, Skeletal structure (longitudinal section). Scale bars: A=1 cm; B, C=300 μ m; D=500 μ m.

ed whole body in confusion. Spicules composed of one type of oxea without microscleres. Oxea approximately 215-290 \times 5-7.5 μ m in size.

Etymology. The species is named after the type locality, Jangseungbaegi, Uljin-gun, Korea.

Remarks. *Halichondria jangseungensis* n. sp. is similar to

H. panicea (Pallas, 1766) in type of spicule and choanosomal skeletal structure; however the former differs from the latter in size of spicule. The oxea of spicules is smaller than that of *H. panicea*. The shape of *H. surrubicunda* Hoshino, 1981, and *H. corrugate*, Diaz et al., 1993, were described as an irregular encrusting form with or without exhalant hollow cylinder/massive-lobate with oscular chimneys, and the composition of spicules with one type of oxea; thus, *H. jangseungensis* n. sp. is close to these two species in these aspects. Nevertheless, they differ from this new species in their size of oxea, 300-500 μm , while in this new species 250 μm .

¹**Halichondria nagokenesis* n. sp.
Kang and Sim, 2011 (Fig. 2)

Material examined. Holotype (Por. 105), Uljin-gun, Gyeongsangbuk-do, Korea, 1 Aug 2007, SCUBA 20 m depth, by Lee JR, deposited in the Department of Biological Sciences, Hannam University, Daejeon, Korea.

Description. Thick encrusting with numerous erect hollow cylindrical tube, 2.5-5 cm high. Sized up to 8 \times 5 cm wide and 1.5 cm thick. Oscules, 0.3-0.5 cm in diameter, opened at top of each tube. Color ivory in ethyl alcohol. Texture soft. Surface smooth. Ectosomal skeleton tangential arrangement. Choanosomal skeleton large and extensive subchoanosomal space present, irregular and large-meshed net of spicules, columns with spicules extend to surface and supporting ectosomal skeleton. Spicules composed of one type of oxea without microscleres.

Oxea approximately 500-670 \times 10-15 μm in size.

Etymology. The species is named after the type locality, Nagok, Uljin-gun, Korea.

Remarks. *H. nagokenesis* n. sp. resemble *H. cylindrata* Tanita and Hoshino, 1989, in their growth form, with a well-developed hollow cylinder. Also, oscules open at the top of each tube. However, oxea of the new species is larger than that of *H. cylindrata*. The length of oxeas in the new species, 500-670 μm , is nearly double that of the *H. cylindrata*, 230-315 μm . This new species is similar to *H. osculum* Lundbeck, 1902, in its growth form, spicule composition and skeletal structure. However, oxea of *H. nagokenesis* n. sp., 500-670 μm in length, is smaller than that of *H. osculum* 600-920 μm in length.

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