

# A New Species of the Genus *Biemna* (Demospongiae: Poecilosclerida: Desmacellidae) from Korea

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**Abstract:** A new species of the genus *Biemna* (Demospongiae: Poecilosclerida: Desmacellidae), *Biemna hongdoensis* n. sp. was collected from Hongdo Island, Korea by SCUBA diving in 2004. *B. hongdoensis* n. sp. is closely related to *B. megalosigma* Hentshel, 1912 in their spicules, but the styles and sigmas of new species are larger than *B. megalosigma*'s and microxeas and raphides of new species are smaller than *B. megalosigma*'s. Also, new species has not spheres. The stubby conulose are distributed throughout the surface of new species.

**Key words:** *Biemna*, Desmacellidae, Korea

## INTRODUCTION

The family Desmacellidae Ridley & Dendy, 1886 consists of six genera worldwide; *Biemna*, *Desmacella*, *Dragmatella*, *Micritylostylifer*, *Neofibularia* and *Sigmaxinella*. Among them, the genus *Biemna* Gray, 1867 is characterized by ectosomal skeleton consisting of the brushed endings of choanosomal tract; choanosomal skeleton mostly plumose or plumoreticulated (Hooper and Van Soest, 2002). Three species of *Biemna* have been reported from Korean waters (Sim and Bae, 1987; Sim and Shim, 2006).

## MATERIALS AND METHODS

The present taxonomic study on marine sponge was based on the specimens collected by SCUBA from Hongdo Island Korea in 2004. All procedures were followed the methods of Kim and Sim (2005) and Rützler (1978). The materials examined in this study were deposited in the Natural History Museum and Department of Biological Sciences,

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## SYSTEMATIC ACCOUNTS

Phylum Porifera Grant, 1836  
Class Demospongiae Sollas, 1885  
Order Poecilosclerida Topsent, 1928  
Suborder Mycalina, Hajdu, Van Soest & Hooper, 1994  
Family Desmacellidae Ridley & Dendy, 1886

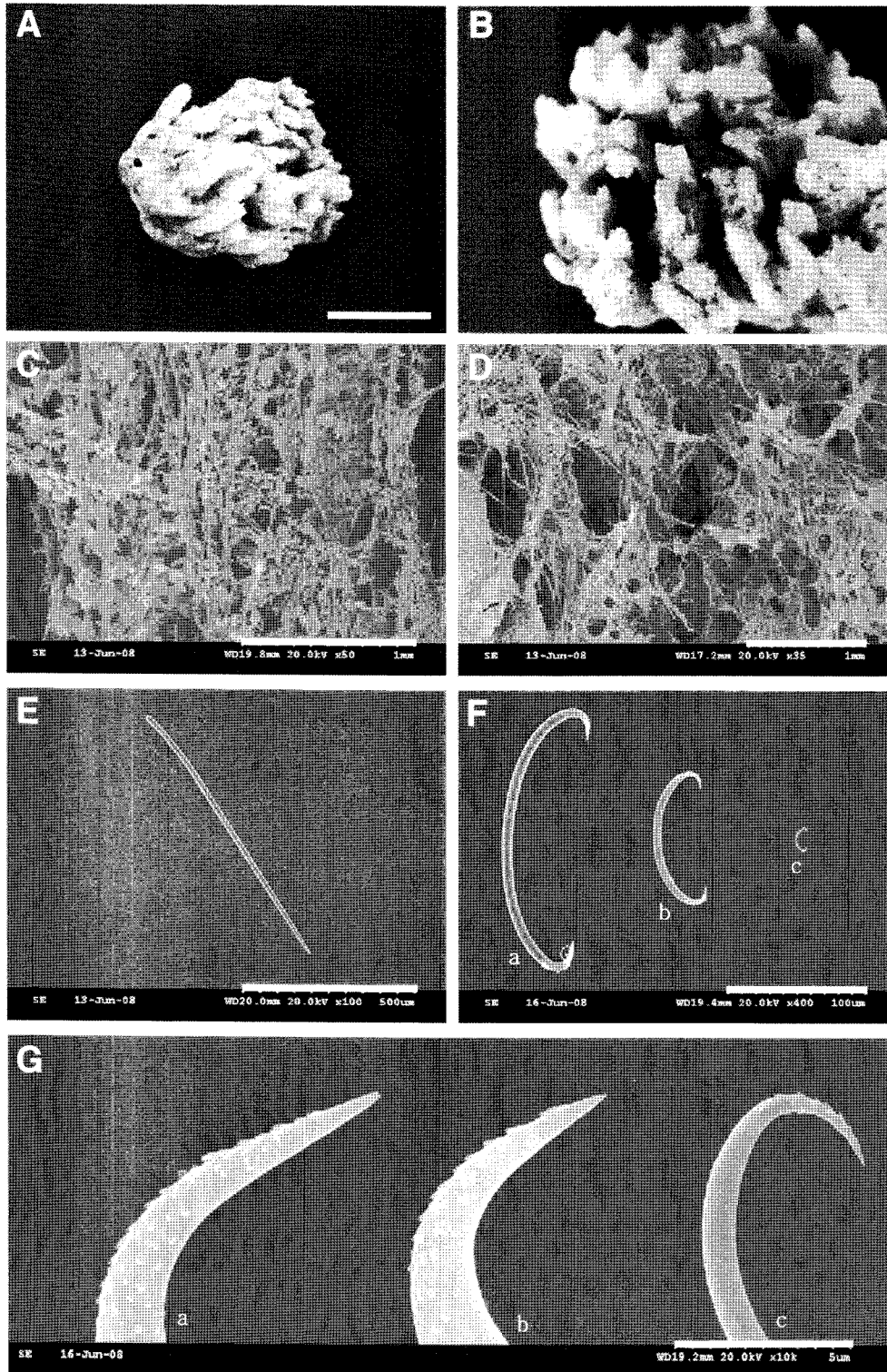
*Biemna hongdoensis* n. sp.  
(Figs. 1-2)

**Type specimen:** Holotype (Por. 92), Paratype (Por. 92-1) Hongdo (Jebibawi), Heuksan-myeon, Sinan-gun, Jeollanam-do, 9 September 2004, SCUBA diving 20 m deep, K. J. Lee.

**Description:** This new species massive, size up to 6×5.5 cm, 4 cm thick. Texture rough and elastic. Surface uneven due to stubby conulose projection, down covered on surface. Several oscules scattered across the upper surface of the sponge. Colour orange in life, gradually changed to light gray in ethyl alcohol. Ectosomal skeleton consists of bundles of styles with spongin attached between bundles. Choanosomal skeleton irregularly reticulated structure of style bundles and covered with spongin composed of microscleres. Spicules megascleres style. Microscleres three types of sigma, microxea and raphide.

### Spicules

Megascleres  
Styles ..... 730-1, 040×19-21 μm  
Microscleres  
Sigmas I ..... 100-220 μm  
Sigmas II ..... 35-50 μm  
Sigmas III ..... 12-20 μm  
Microxeas ..... 55-65 μm

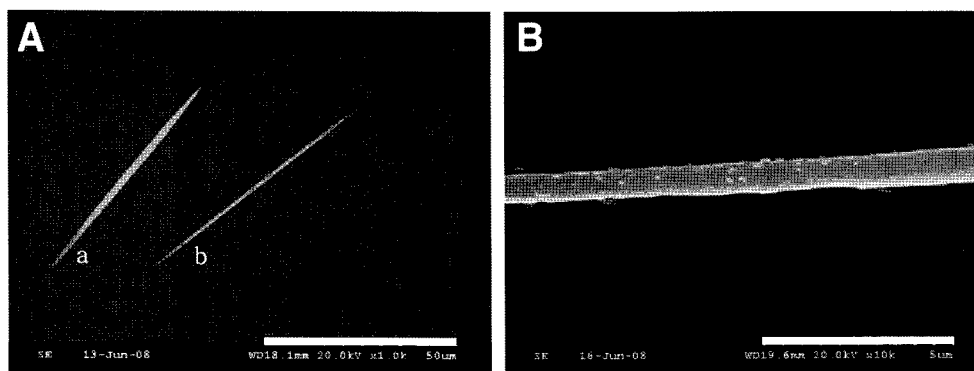


**Fig. 1.** *Biemna hongdoensis* n. sp. A, entire animal; B, surface (stubby conulose projection); C, ectosomal skeleton; D, choanosomal skeleton; E, style; F, sigmas (a, sigma I; b, sigma II; c, sigma III); G, end of sigmas (a, sigma I; b, sigma II; c, sigma III). Scale bars=3 cm (A); 1 mm (C-D); 500  $\mu$ m (E); 100  $\mu$ m (F); 5  $\mu$ m (G).

Raphides ..... 50-80  $\mu$ m

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

**Remarks:** *Biemna hongdoensis* n. sp. is closely related to *B. megalosigma* Hentshel, 1912 in their spicules, but the styles and sigmas II of new species are larger than *B. megalosigma*'s and microxeas and raphides of new species



**Fig. 2.** *Biemna hongdoensis* n. sp. A, spicules (a, microxea; b, raphide); B, surface of raphide with spines. Scale bars=50 µm (A); 5 µm (B).

**Table 1.** The comparison of characters between *Biemna hongdoensis* n. sp. and *B. megalosigma*

Characters	Species <i>Biemna hongdoensis</i> n. sp.	<i>B. megalosigma</i> Hentshel, 1912
Growth form	Stubby conulose projection	Shaggy digitate projection
Color	Orange	Brown
Styles	730-1040×19-21	576-704×15-29
Sigmas I	100-220	72-216
Sigmas II	35-50	27-32
Sigmas III	12-20	15-18
Microxeas	55-65	40-112×2
Raphides	50-80	136-208
Spheres		9

are smaller than *B. megalosigma*'s. Also, new species has not spheres. The stubby conulose distribute throughout the surface of new species (Table 1).

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