

A New Species of the Genus *Caminus* (Astroporida: Geodiidae) from Korea

Eun Jung Shim^{1,*}, Chung Ja Sim²

¹Natural History Museum of Hannam University, Daejeon 306-791, Korea

²Department of Biological Sciences, College of Life Sciences and Nano Technology,
Hannam University, Daejeon 305-811, Korea

ABSTRACT

Caminus jejuensis n. sp was collected from depth of 20 m at Geomeunyeo, Seogwipo, Jeju Island by a SCUBA diving from April 2004 to December 2008. This new species is similar to *C. chinensis* from China in the composition of spicules except for the spherasters and they differ in spicule size and growth form. This species has longer orthotriaenes and spherules, smaller sterrasters and oxyasters than those of *C. chinensis*. This species also has many spherasters in choanosome, but *C. chinensis* lacks. Moreover, the new species is a massive shape with wrinkles, whereas *C. chinensis* is a club shape with smooth surface. Description and figures of the new species are provided.

Keywords: Geodiidae, *Caminus*, new species, Jeju Island, Korea

INTRODUCTION

The genus *Caminus* within family Geodiidae has a single article oscule at the top of the sponge body, and sievelike inhalant pores. The megascleres are consisted of oxeas, strongyles and orthotriaenes. And also, the microscleres composed of subspherical sterrasters and spherules in cortex and oxyasters in choanosome (Hooper and van Soest, 2002). Up to now, 5 species have been reported in the world (Schmidt, 1862; Sollas, 1886; Lindgren, 1897; Tanita, 1969; Pulitzer-Finali, 1996). Among them, only one species has been reported from the Korean waters (Sim and Byeon, 1991).

Specimens were collected from depth of 20 m at Jeju Island by a SCUBA diving from April 2004 to December 2008. They were preserved in 95% ethanol and then deposited in the Natural History Museum of Hannam University (HUNHM). The colour and texture were described before preservation. Identification was based on the morphological characteristics, skeletal structure, shape and size of spicules. Skeletal structure and spicules were examined by using microscopy and scanning electron microscopy (SEM). Length and width of 20 spi-

cles were measured for each spicule type. Procedure of dissociated spicules followed Rützler (1978).

SYSTEMATIC ACCOUNTS

Order Astrophorida Sollas, 1888

Family Geodiidae Gray, 1867

Genus *Caminus* Schmidt, 1862

¹**Caminus jejuensis* n. sp (Table 1, Figs. 1, 2)

Type specimen. Korea: Holotype (Por. 108), Geomeunyeo, Seogwipo, Jeju Island, 16 Apr 2004, Lee KJ, by SCUBA diving at 20 m deep, HUNHN. Paratype (Por. 108-1, 108-2), Geomeunyeo, Seogwipo, Jeju Island, 19 Dec 2008, Kim BI, by SCUBA diving at 20 m deep, HUNHM.

Description. Massive shape with thick wrinkles, sized up to 5 × 4 × 3.5 cm. Oscule 1-3 mm diameters, rarely scattered. Surface wrinkles. Texture very hard, due to a layer of sterrasters and spherules. Colour khaki in life, gradually changed

Korean name: ¹*제주카미너스해면 (신칭)

© This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/3.0/>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

*To whom correspondence should be addressed

Tel: 82-42-629-8455, Fax: 82-42-629-8280

E-mail: hyny1999@hanmail.net

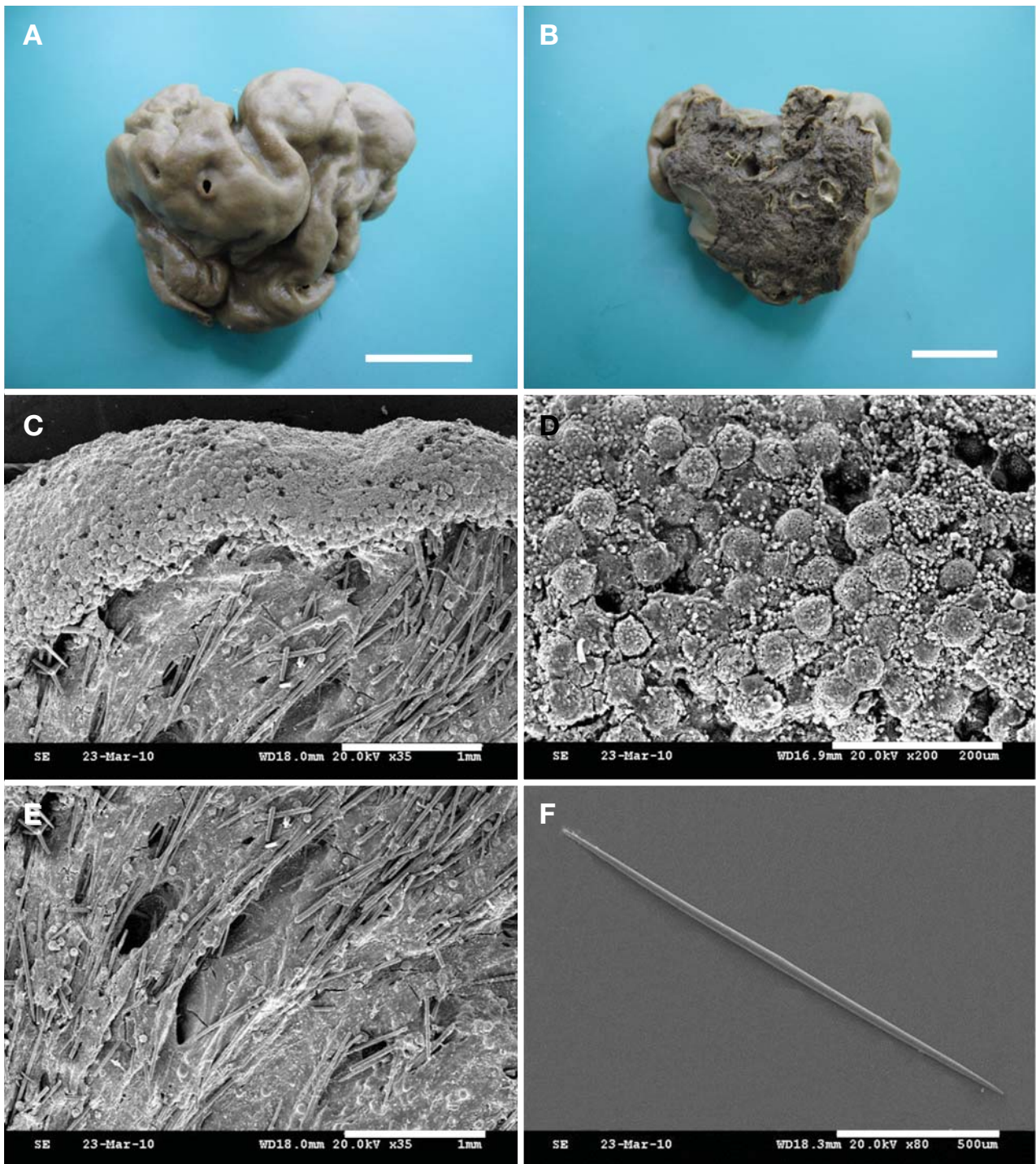


Fig. 1. *Caminus jejuensis* n. sp. A, Entire animal (upper); B, Entire animal (back); C, Skeleton; D, Cortex; E, Choanosome; F, Oxea. Scale bars: A, B=1 cm, C, E=1 mm, D=200 μm, F=500 μm.

to brown in alcohol. Cortex 1 mm thick, easily separated from choanosome, densely packed with sterrasters and spherules. Choanosome arranged with oxeas and orthotriaenes. Clads

of orthotriaenes faced to cortex and rhabds faced inwards. Oxyasters and spherasters scattered in sponge body.

Spicules. Megascleres oxeas and orthotriaenes. Microscler-

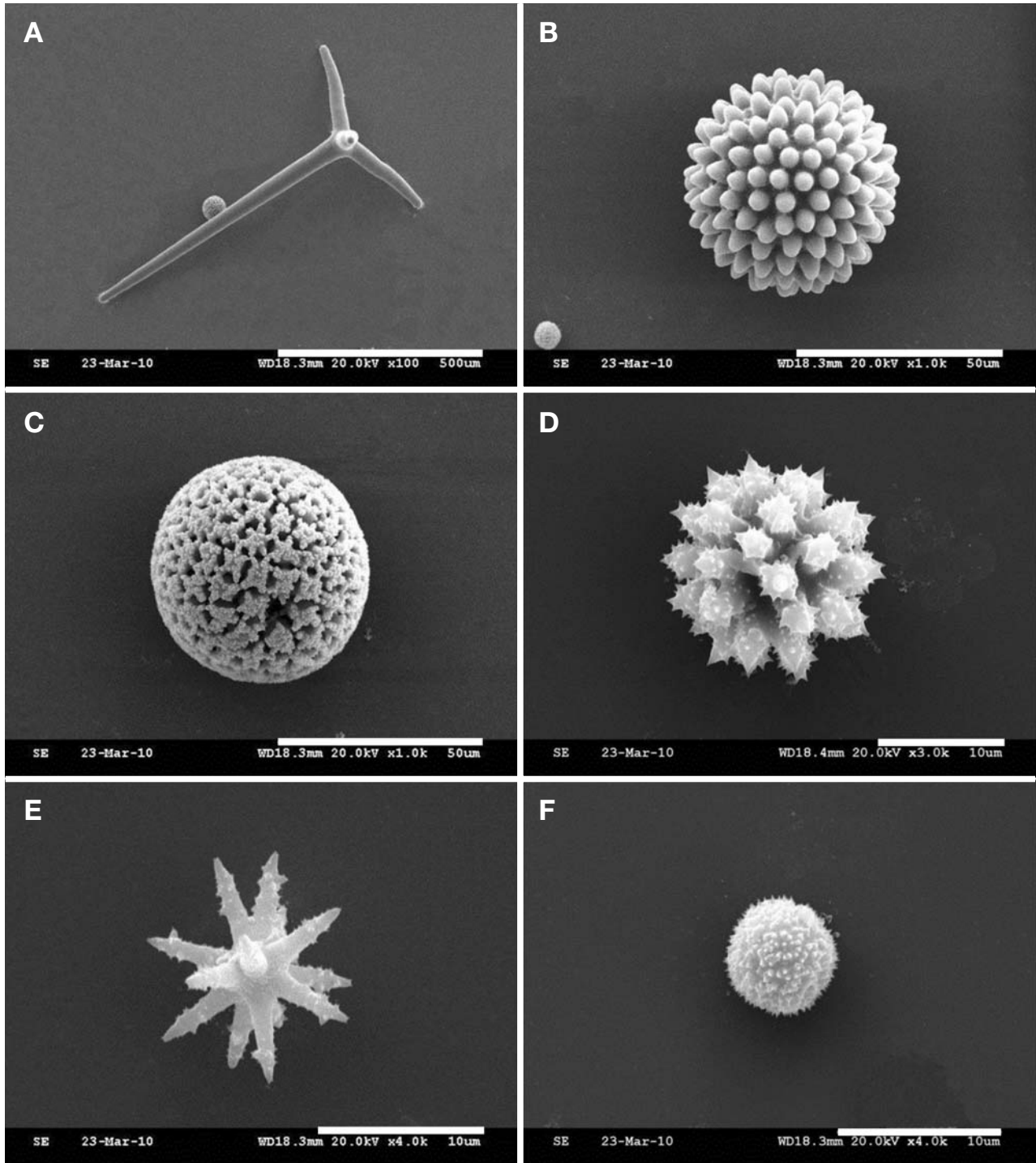


Fig. 2. *Caminus jejuensis* n. sp. A, Orthotriaene; B, C, Sterrasters; D, Spheraster; E, Oxyaster; F, Spherule. Scale bars: A=500 µm, B, C=50 µm, D-F=10 µm.

res sterrasters, spherasters, oxyasters and spherules. Sterrasters round shaped with flat asterose and horn shaped projections at surface. Oxyasters and oxyaster spines at ray. Spherules

rules spines on surface.

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

Table 1. Comparison of spicules between *Caminus jejuensis* n. sp. and *C. chinensis*

Spicules (μm)	Species	
	<i>C. jejuensis</i> n. sp	<i>C. chinensis</i>
Oxeas	840-1,500 \times 10-30	720 \times 24
Orthotriaenes	Rhabds 350-1,060 \times 20-50 Clads 150-300	Rhabds 460-600 \times 36 Clads 325-540
Sterrasters	40-60	136
Spherasters	15-23	–
Oxyasters	7-15	24-32
Spherules	4-10	2-5

Remarks. This new species is similar to *Caminus chinensis* from China (Lindgren, 1897) in the composition of spicules except for the spherasters. They differ in the spicule size and growth form. This species has longer orthotriaenes and spherules, smaller sterrasters and oxyasters than those of *C. chinensis*. This species also has many spherasters in choanosome, but *C. chinensis* lacks (Table 1). Moreover, the new species is a massive shape with wrinkles, whereas *C. chinensis* is a club shape with smooth surface.

ACKNOWLEDGMENTS

This research was supported by a grant from Marine Biotechnology Programme funded by the Ministry of Land, Transport and Maritime Affairs of Korean Government. We thank Dr. G.J. Bakus in the Department of Biological Science, University of Southern California for his review and manuscript.

REFERENCES

- Hooper JNA, van Soest RWM, 2002. *Systema Porifera: a guide to the classification of sponges*. Kluwer Academic/Pleum Publisher Press, New York, pp. 1-1101.
- Lindgren NG, 1897. Beitrag zur Kenntniss der Spongienfauna des Malaiischen Archipels und der Chinesischen Meere. *Zoologische Anzeiger*, 547:480-487.
- Pulitzer-Finali G, 1996. Sponges from the Bismarck Sea. *Bollettino dei Musei e degli Istituti Biologici della (R.) Università di Genova*, 60-61:101-138.
- Rützler K, 1978. Sponges in coral reef. In: *Coral reef: research method. Monographs on oceanographic methodology 5* (Eds., Stoddart DR, Johannes RE). United Nations Educational, Scientific and Cultural Organization, Paris, pp. 299-313.
- Schmidt O, 1862. *Die Spongien des adriatischen Meeres*. Wilhelm Engelmann, Leipzig, pp. 1-88.
- Sim CJ, Byeon HS, 1991. A systematic study on the marine sponges from the South sea of Korea: three new record for Korea. *Korean Journal of Systematic Zoology*, 7:111-116.
- Sollas WJ, 1886. Preliminary account of the tetractinellid sponges dredged by H.M.S. 'Challenger' 1872-76. Part I. The Choristida. *Scientific Proceedings of the Royal Dublin Society (new series)*, 5:177-199.
- Tanita S, 1969. Further studies on the sponges obtained from the Sado Island and its adjacent waters. *Bulletin Japan Sea Regional Fisheries Laboratory*, 21:67-88.

Received March 9, 2012
Revised April 10, 2012
Accepted April 16, 2012