

Two New Species of the Genus *Psammocinia* (Dictyoceratida, Irciniidae) from Korea

Chung Ja Sim and Kyung Jin Lee

(Department of Biology, Hannam University, Daejeon 306-791, Korea)

ABSTRACT

Two new species of the genus *Psammocinia* (Dictyoceratida, Irciniidae), *P. bergquisti* n. sp. and *P. gageoensis* n. sp., are described from Gageodo Island (Sohuksando Island), Korea. *P. bergquisti* n. sp. is characterized by the thumb like appearance and secondary fibre which makes a broad plate or secondary web while other known species in *Psammocinia* has many narrow and simple secondary fibres. *P. gageoensis* n. sp. is very similar to *P. mosulpia* Sim, 1998 in shape, but primary fibre of the new species has more complex fascicles, and it is difficult to see the detritus in the fibre. The primary fibre of this new species is cored with the smaller sand than that of *P. mosulpia*.

Key words: Taxonomy, new species, *Psammocinia*, Sponges, Korea

INTRODUCTION

The genus *Psammocinia* Lendenfeld, 1889 belongs to family Irciniidae and presently includes only 19 species worldwide (Cook and Bergquist, 1998; Sim, 1998; Sim and Lee, 1998). Among them, three species, *P. vesiculifera* (Poléjaeff, 1884), *P. arenosa* (Lendenfeld, 1888) and *P. halmiformis* (Lendenfeld, 1888), were reported from Australia (Poléjaeff, 1884; Lendenfeld, 1888, 1889; Laubenfels, 1948; Cook and Bergquist, 1998). One species, *P. compacta* (Poléjaeff, 1884),

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* Corresponding author: Chung Ja Sim

E-mail: cjsim@mail.hannam.ac.kr, Tel: 042-629-7485

was recorded from the Atlantic Coast of the United States (Bahia) (Poléjaeff, 1884; Cook and Bergquist, 1998). Ten species have been previously recorded from New Zealand (Bergquist, 1995; Cook and Bergquist, 1996, 1998). Five species were reported from Korea (Sim, 1998; Sim and Lee, 1998). The characteristics of the genus *Psammocinia* are as follows: it has the sand crust mixed with spicules and filaments on the sponge surface. In this paper, we describe two new species of the genus *Psammocinia* from Gageodo Island (Sohuksando Island) located at the end of South-West Sea of Korea. Sponge materials used in this study were collected using SCUBA diving at 20-25 m depth. Light microscopy and SEM (AKASHI ISI-40) were used for the identification of these psammocinian sponges. They are described with illustrations of diagnostic characters. The specimens examined are deposited at the Natural History Museum (NHM) and Department of Biology, Hannam University, Daejeon, Korea.

DESCRIPTION OF SPECIES

Order Dictyoceratida Minchin, 1900 망각해면목
Family Irciniidae Gray, 1867 가는실해면과

1. *Psammocinia bergquisti* n. sp. 베키스트모래해면 (신징) (Fig. 1A-K)

Material examined. Holotype (Por. 36, NHM, Hannam Univ.), Gageodo Island (Sohuksando Island), 15 Aug. 1999, SCUBA 20m depth. Paratype (Por. 36-1, Dept. of Biol., Hannam Univ.), collected with Holotype.

Description. Holotype, small upright specimen like thumb, size up to 30 mm wide, 25 mm thickness and 50 mm high.

Habitat: On rocky substrate.

Oscules: 1-1.5 mm in diameter, irregularly scattered on surface.

Texture: Elastic, compressible and difficult to tear apart.

Color: Upper part of sponge surface, brownish-black, under part, beige and endosome, yellowish-white in life.

Surface: Smooth and covered with low conules, 0.5-1.5 mm high, 2-5 mm apart. Sand crust mixed with many small sands, 10-60 μm in diameter, foreign spicules and filaments like filamentous membrane.

Skeleton: Primary fibres, 130-350 μm in diameter, cored with small sands and spicule fragments, and show some fasciculation near sponge surface. Secondary fibres, 70-300 μm in diameter, uncored. Sometimes, secondary fibre established secondary web, up to 500 μm wide. Filaments, 3-7 μm in diameter, occur densely throughout sponge and emerge from holes in fibre. Terminal knobs of filament, 10-15 μm in diameter. Another point of filament has rounded end (Fig. 1K).

Etymology. The specific name *bergquisti* is named after Dr. Patricia R. Bergquist, who is a professor at School of Biological Sciences, University of Auckland, New Zealand, and a sponge taxonomist.

Remarks. This species is distinct from all other known species of the genus *Psammocinia* in

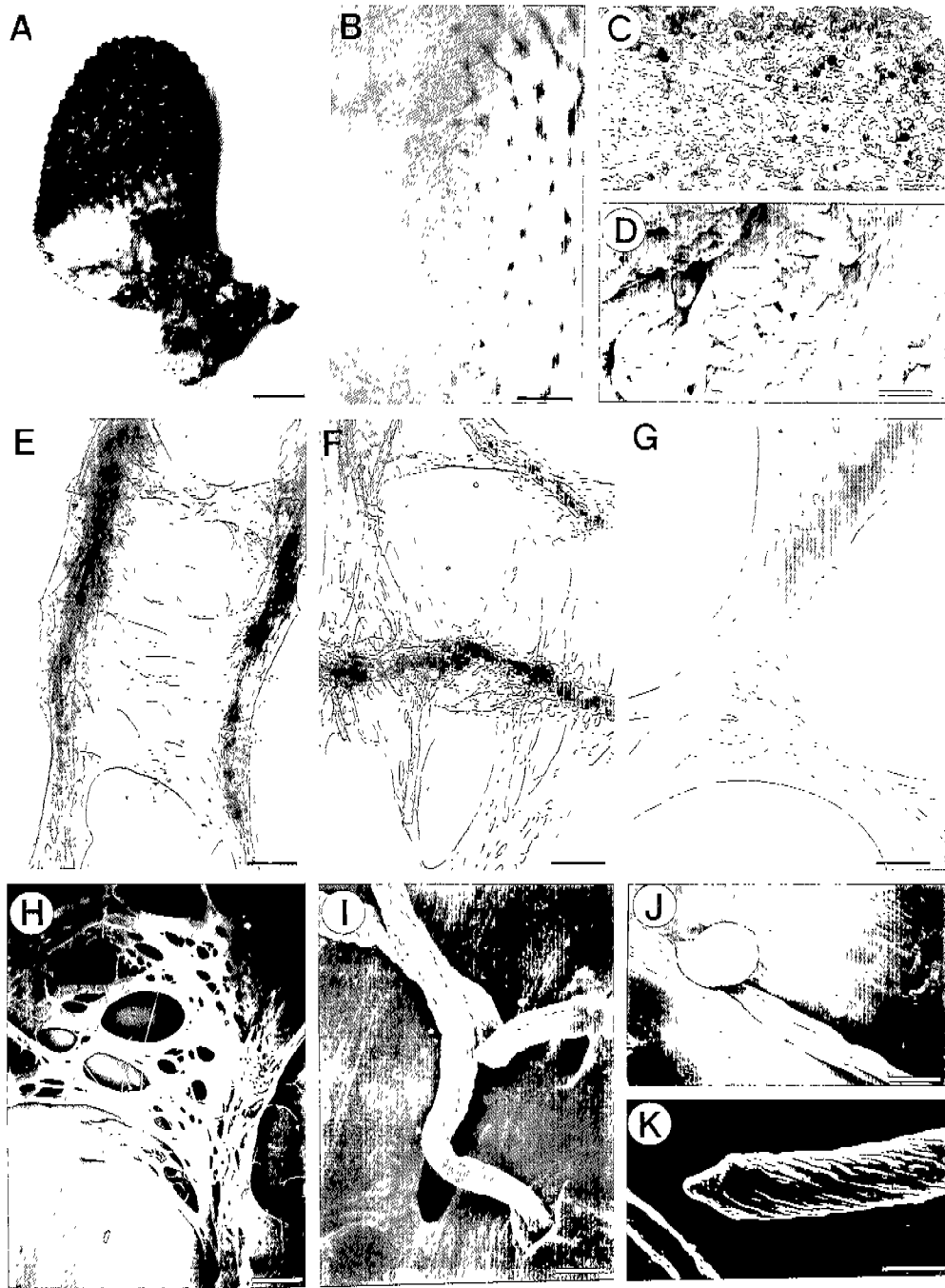


Fig. 1. *Psammocinia bergquisti* n. sp. A. side view of specimen; B. surface of specimen (conules); C. sand crust in membrane; D. endosome of specimen (longitudinal section, SEM); E-F. ectosomal skeletal structure; G. endosomal skeletal structure; H. skeletal structure (SEM); I. filament emerge from the hole of the fibre (SEM); J. terminal knob of filament (SEM); K. other point of filament (SEM). Scale bars: A. 1 cm; B. 2 cm; C, E-G, 200 μ m; D. 70 μ m; H. 300 μ m; I, J, 20 μ m; K. 5 μ m.

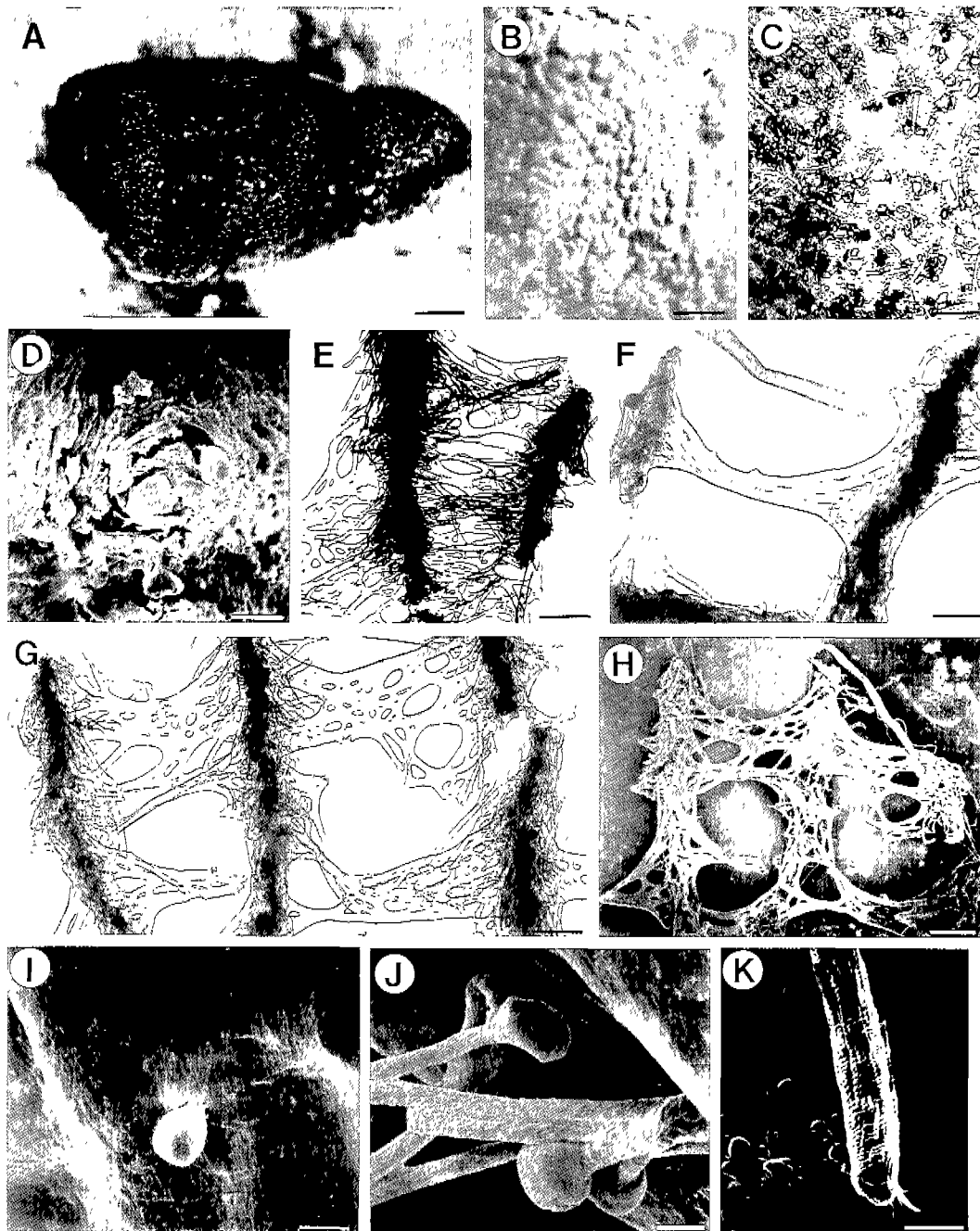


Fig. 2. *Psammocinia gageoensis* n. sp. A, side view of specimen; B, surface of specimen (conules); C, sand crust in membrane; D, endosome of specimen (transitional section, SEM); E, ectosomal skeletal structure; F-G, endosomal skeletal structure; H, skeletal structure (SEM); I, filament emerge from the hole of the fibre (SEM). J, terminal knob of filaments; K, another point of filament. Scale bars: A, 1 cm; B, 2 cm; C, E-G, 200 μ m; D, 100 μ m; H, 300 μ m; I-J, 20 μ m; K, 5 μ m.

having wide uncored secondary web and thumb like shape. The opposite end of terminal knob of filament appears to be more frequently found in ectosomal sand crust.

2. *Psammocinia gageoensis* n. sp. 가거모래해면 (신칭) (Fig. 2A-K)

Material examined. Holotype (Por. 37, NHM, Hannam Univ.), Gageodo Island (Sohuksando Island), 25 July 2000, SCUBA 20 m depth. Four Paratypes (Por. 37-1, 37-2, 37-3, 37-4, Dept. of Biol., Hannam Univ.) collected with Holotype.

Description. Holotype, massive sponge, slightly lobate, size up to 115 mm wide, 47 mm thickness and 57 mm high.

Habitat: Tightly attached to rocky substrate.

Oscules: 1-2.5 mm in diameter, scattered on surface. Sometimes large oscule, 2.5 mm in diameter, opened at top of lobe.

Texture: Elastic, compressible and difficult to tear apart.

Color: Ectosome, 0.8 μ m thick, dark brown and endosome ivory in life.

Surface: Smooth and covered with low and dull conules, 0.5-1 mm high, 1-3 mm apart. Most of conules, gathered closely together. Sand crust mixed with many small sand, 10-90 μ m in diameter, spicules and filaments like filamentous membrane.

Skeleton: Primary fibre heavily fasciculated, cored with small sand and spicules. Primary and secondary fibres difficult to distinguish actual fibres as they appear indistinct bound, though they rendered visible by presence of coring material. Secondary fibres uncored. Secondary fibres has many branches, 20-60 μ m in diameter, with connected each other. Sometimes, secondary fibre forming broad plate between adjacent primary fibres and has many small opening in it. Dense filaments, 3-6 μ m in diameter, distributed throughout sponge and emerge from holes in fibre. Terminal knobs of filament, 10-15 μ m in diameter. Another point of filament has rounded end (Fig. 2K).

Etymology. This species is named after its type locality, Gageodo Island.

Remarks. *P. gageoensis* n. sp. is very similar to *P. mosulpia* Sim, 1998 in shape, but primary fibre of new species, cored with small sands and spicules in the fibre, has more complex fascicles, and it is difficult to see the sands and spicules in the fibre. *P. gageoensis* is cored with the smaller sand than *P. mosulpia*. This new species could be considered common at Gageodo Island, because it is appear to be more frequently found in this locality.

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한국 모래해면속 (망각해면목, 가는실해면과)의 2신종

심 정 자 · 이 경 진
(한남대학교 이과대학 생물학과)

요 약

한국 가거도에서 채집된 모래해면속(망각해면목: 가는실해면과)의 2 신종, 버키스트모래해면 (*Psammocinia bergquisti* n. sp.)과 가거모래해면 (*P. gageoensis* n. sp.)을 기재한다. 버키스트모래해면은 외형이 엄지손가락 모양이며 지금까지 알려진 모래해면 속의 종들은 좁고 단순한 형태의 2차섬유를 갖는 반면 본 신종은 2차섬유가 얇은 판모양이거나 넓은 망구조이다. 가거모래해면은 모슬모래해면 (*P. mosulpia* Sim, 1998)과 외형에서 매우 유사하지만, 1차섬유가 복잡한 총생모양으로 섬유 내부에 있는 모래와 골편들이 겹으로 잘 보이지 않는 점이 특징이다. 가거모래해면의 1차섬유 속에는 모슬모래해면의 1차섬유 속의 모래보다 작은 모래들이 있다.