

Two New Marine Psammocinian Sponges (Demospongiae: Dictyoceratida: Irciniidae) from Korea

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Two new species of the genus *Psammocinia* (Dictyoceratida, Irciniidae), *P. conulosa* n. sp. and *P. ulleungensis* n. sp., are described from Namhaedo Island and Ulleungdo Island, Korea. *Psammocinia conulosa* n. sp. seems to be close to both *P. amodes* Cook and Bergquist, 1998 and *P. hawere* Cook and Bergquist, 1996 on the basis of the skeletal structure. However, these three species are clearly separated by the following differences: Shape of *P. amodes* is spatulate and thin, with a broad blade narrowing to a semi-cylindrical stalk; *P. hawere* forms cups with a shallow excavated bowl, and attached to the substratum by a narrow base. The whole surface of the new species is very finely conulose. *Psammocinia ulleungensis* n. sp. is similar to *P. gageoensis* Sim and Lee, 2001 in shape, but this species is easily distinguished from *P. gageoensis* by the simple skeletal structure.

The family Irciniidae included three genera, *Psammocinia* Lendenfeld, 1889, *Ircinia* Nardo, 1833 and *Sarcotragus* Schmidt, 1862. Recently, a genus *Bergquistia* Sim and Lee, 2002 is added to the family Irciniidae from Korea. Therefore, the family Irciniidae is including four genera, *Psammocinia*, *Ircinia*, *Sarcotragus* and *Bergquistia* (Sim and Lee, 2002b).

To date, 23 species have been described in the genus *Psammocinia* all over the world (Cook and Bergquist, 1998; Sim, 1998; Sim and Lee, 1998, 2001, 2002a). Among them, nine species were recorded from Korea (Sim, 1998; Sim and Lee, 1998, 2001, 2002a). Two new species of the genus *Psammocinia* are described in this paper.

Materials and Methods

Sponge specimens were collected from Ulleungdo Island by SCUBA diving at 15-20 m deep and the preserved specimen in Department of Biological Science, Hannam University and Department of Biology, Ewha Womans University were used. The specimens were fixed in 95% methyl alcohol or absolute alcohol and stored, separately, in same quality of alcohol. The sponge surface and conules were observed with a stereomicroscope (Carl Zeiss, Stemi SV 6). The skeletal arrangement and filaments were studied under the light microscope (Carl Zeiss, Axioscop II) and SEM (Hitachi, S-3000N). The

type specimens were deposited at the Natural History Museum, Hannam University (HUNHM), and the Department of Biological Sciences, Hannam University, Daejeon, Korea.

Systematic Accounts

Phylum Porifera Grant, 1836
Class Demospongiae Sollas, 1885
Order Dictyoceratida Minchin, 1900
Family Irciniidae Gray, 1867

Psammocinia conulosa n. sp.
(Figs. 1, 2)

Type specimen

Holotype (Por. 51), Namhaedo, 20 July 1967, fishing-net, B. J. Rho, deposited in HUNHM, Korea.

Description

Massive hemispherical shape, size up to 120 mm wide by 70 mm long and 60 mm high.

Oscules

2–6 mm in diameter, irregularly scattered on above part.

Texture

Elastic, tough and difficult to tear apart.

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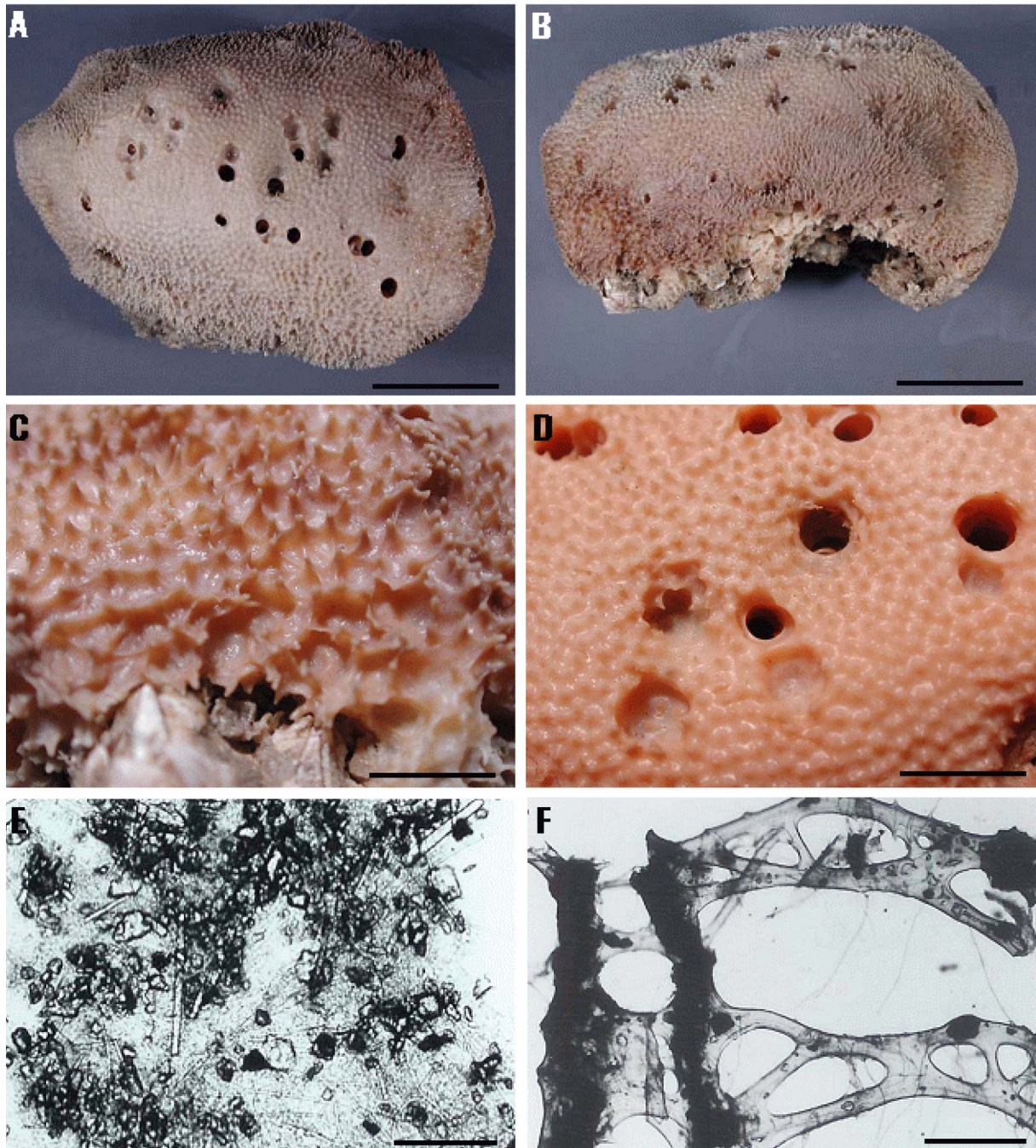


Fig. 1. *Psammocinia conulosa* n. sp. A, Specimen preserved in alcohol (upper part). B, Specimen preserved in alcohol (side part). C, Conules in side part of specimen. D, Conules in upper part of specimen. E, Filamentous membrane. F, Skeletal structure. Scale bars=3 cm (A-B), 1 cm (C-D), and 200 μ m (E-F).

Color

Grayish-white to cream in alcohol.

Surface

Upper part's conules low and dull, 1 mm high 1-3 mm

apart. Side part's conules sharply ended, 2-4 mm high, 1-3 mm apart. Filamentous membrane armoured with many sands, 10-60 μ m in diameter, and spicule detritus.

Skeleton

Primary fibres axially to fully cored with sands, 10-70 μ m

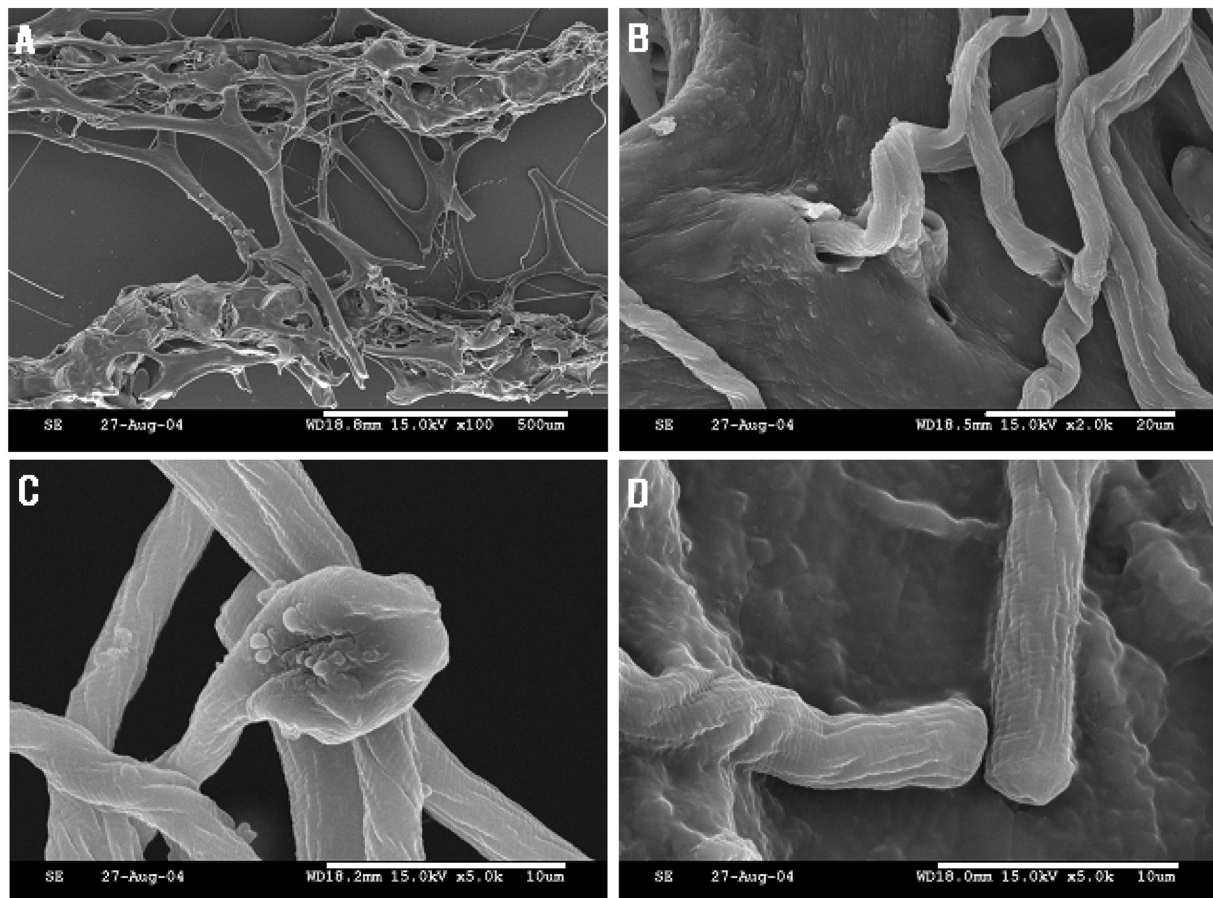


Fig. 2. *Psammocinia conulosa* n. sp. A, Skeletal structure. B, Filaments emerging from the hole in fibre. C, Terminal knob of filament. D, The other point of filament. Scale bars=500 μ m (A), 20 μ m (B), and 10 μ m (C-D).

in diameter, and secondary fibres uncored or lightly cored with small sands, 10-40 μ m in diameter. Primary fibres, 90-230 μ m thick, weakly fasciculated. Secondary fibres, 70-140 μ m thick, laminated and connected with each other. Filaments, 1-5 μ m thick, emerge from holes in secondary fibre, and have terminal knobs, 10-12.5 μ m in diameter. Sometimes, filament has middle knob.

Etymology

The specific name, *conulosa*, refers to the distinct conule shape of the sponge surface.

Remarks

This new species seems to be close to both *Psammocinia amodes* Cook and Bergquist, 1998 and *P. hawere* Cook and Bergquist, 1996 on the basis of the skeletal structure. However, these three species are clearly separated by the following differences: Shape of *P. amodes* is spatulate and thin, with a broad blade narrowing to a semi-cylindrical stalk, and its primary

fibres are 155 μ m (97-194 μ m) in diameter and 398 μ m (213-630 μ m) when fasciculated; *P. hawere* forms cups with a shallow excavated bowl, and attached to the substratum by the narrow base. The whole surface of the sponge is very finely conulose.

Psammocinia ulleungensis n. sp. (Fig. 3)

Type specimens

Holotype (Por. 52), Neunggul (Ulleungdo Island), 1 Oct. 2001, SCUBA, 29 m deep, K. J. Lee, deposited in HUNHM, Korea; Three paratypes: Por. 52-1, Bukjeobawui (Ulleungdo Island), 31 July 2001, SCUBA, 20 m deep, K. J. Lee and H. J. Kim; Por. 52-2, Jukdo (Ulleungdo Island), 1 Oct. 2001, SCUBA, 20 m deep, K. J. Lee and H. J. Kim; Por. 52-3, Gadubong (Ulleungdo Island), 17 June 2002, SCUBA, 20 m deep, K. J. Lee, deposited in the Department of Biological Sciences, Hannam University, Korea.

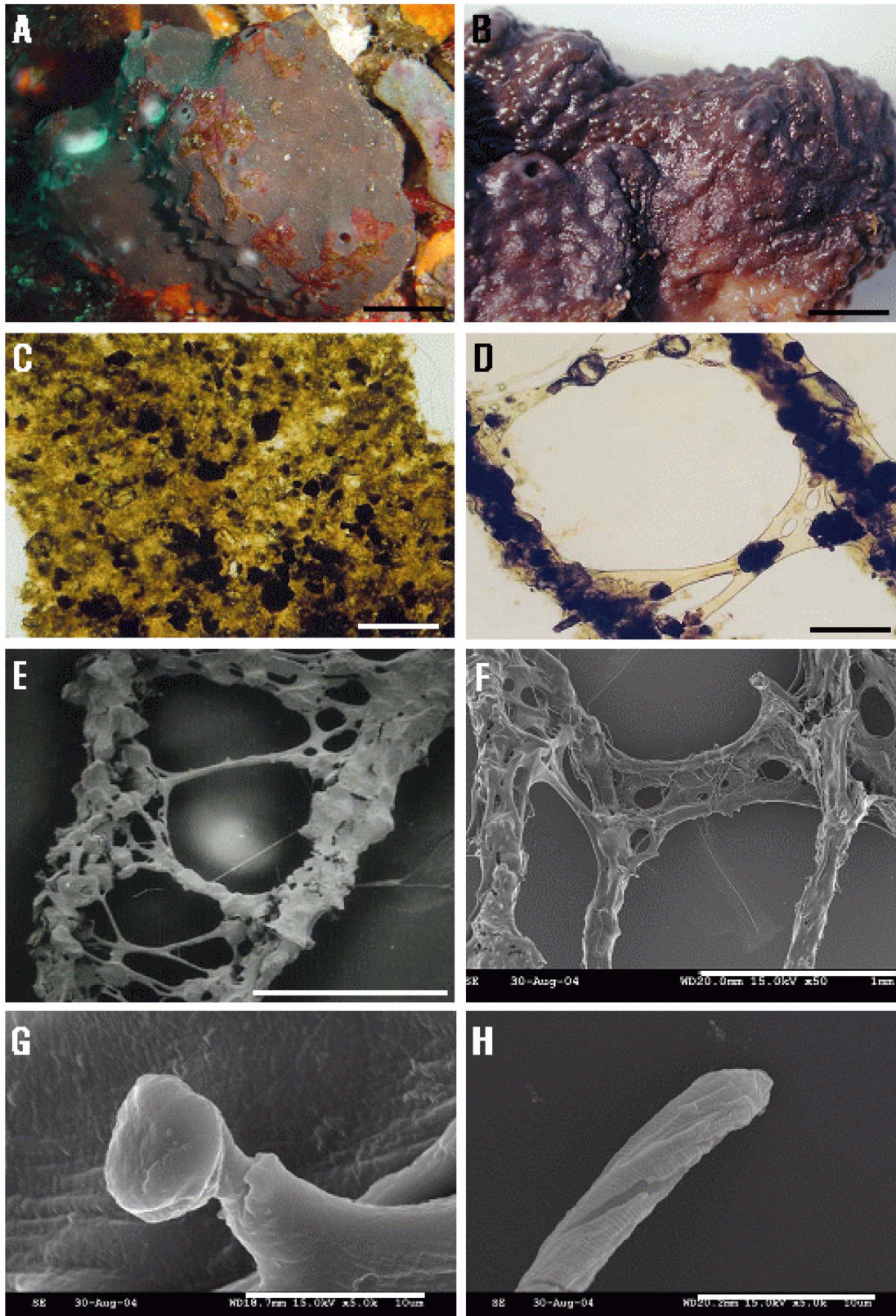


Fig. 3. *Psammocinia ulleungensis* n. sp. A, Entire animal *in situ*. B, Conules of surface. C, Filamentous membrane. D, Skeletal structure. E-F, Skeletal structure (SEM), G, Terminal knob, filament emerging from the hole in fibre. H, The other point of filament. Scale bars=3 cm (A), 1 cm (B), 200 µm (C-D), 1 mm (E-F), and 10 µm (G-H).

Description

Irregular massive, thickly incrusting sponge, and slightly lobate, size up to 10.5×8 cm wide, 2.5 cm thick.

Habitat

Tightly attached to rocky substrate.

Oscules

Small oscules, under 1 mm in diameter, scattered on surface, and larger oscules, 1-2 mm in diameter, opened at top of each lobe.

Colour

Dark gray above part, and dark ivory under part.

Surface

Smooth. Low and round conules, 1-2 mm high and 2-4 mm apart, scattered on surface.

Texture

Elastic, compressible and difficult to tear apart.

Skeleton

Simple and reticulated fibre skeleton, easily broken. Slightly fasciculated primary fibres, 100-300 µm in diameter, heavily cored with small sands. Secondary fibres, 60-200 µm in diameter, clear or cored with sand partly. Filaments, 3-5 µm in diameter, emerged from hole in fibre. Terminal knobs, 10-12 µm in diameter.

Etymology

This species is named after its type locality.

Remarks

This new species is similar to *P. gageoensis* Sim and Lee, 2001 in shape, but new species is easily distinguished from *P. gageoensis* by a simple skeletal structure. *Psammocinia gageoensis* has heavily fasciculated primary fibre and secondary fibres with many branch.

Acknowledgements

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