

Two New Psammocinian Sponges (Dictyoceratida: Irciniidae) from Korea

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Two new species of the genus *Psammocinia* (Dictyoceratida, Irciniidae), *P. lobatus* and *P. rubra*, are described from Gageodo Island (Sohuksando Island) and Jejudo Island, Korea. *Psammocinia lobatus* is most closely related to *P. wandoensis* Sim and Lee in growth form. However, it can be distinguished by its sharp conules and primary and secondary fibres, lightly cored with detritus. *Psammocinia rubra* is readily distinguished from the other described *Psammocinia* species by the blunt conules, reddish brown color of specimen, brown color of fibres and filaments, secondary web between adjacent primary fibres and filament coated with brown granules.

Prior to the present work, only 21 species belonging to the genus *Psammocinia* had been described all over the world. Among them, 10 species were recorded from New Zealand (Bergquist, 1995; Cook and Bergquist, 1996, 1998), three from Australia (Polejaeff, 1884; Lendenfeld, 1888, 1889; Laubenfels, 1948; Cook and Bergquist, 1998), one from the Atlantic coast of the United States (Bahia) (Polejaeff, 1884; Cook and Bergquist, 1998), and seven from Korea (Sim, 1998; Sim and Lee, 1998, 2001). The present paper describes two new species of the genus *Psammocinia* each from Gageodo Islet (Sohuksando Island) located at the southwestern end of Yellow Sea in Korea and Jejudo Island. The sponge specimens used in this study were collected by SCUBA diving at 10–25 m depth. They were prepared and examined under both light microscope (Carl Zeiss, Axioskop 50) and SEM (AKASHI ISI-40) following the procedures described by Rützler (1978). The examined type specimens are deposited in the Natural History Museum (NHM), Hannam University, Daejeon, Korea.

Results

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

Psammocinia lobatus n. sp.
(Fig. 1)

Type specimens: Holotype (Por. 38), Shinyeo (Gageodo

I., 125° 08' E, 34° 03' N), 25 July 2000, 20 m depth (SCUBA), Sim & Lee s. n. (NHM). Paratypes: Por. 38-1, Gaeinyeo (Gageodo I.), 26 July 2000, 20 m depth (SCUBA); Sim & Lee s. n. (NHM). Por. 38-2, Gukhuldo (Gageodo I.), on 25 July 2000, 20 m depth (SCUBA); Por. 38-3, Gukhuldo (Gageodo I.), 11 July 2001, 20 m depth (SCUBA) Sim & Lee s. n. (NHM).

Description: Holotype. Erect, lobate sponge, up to 90 × 52 mm in size and 160 mm in height.

Habitat. Tightly attached to rocky substrates.

Oscules. 1.5–5.0 mm in diameter, located at top of lobe.

Texture. Elastic, compressible and difficult to tear apart.

Color. Ectosome, 0.5 μm thick, dark brownish black; endosome, pale yellowish white in life.

Surface. Smooth and covered with sharply ended conules, 1–2 mm high, 2–5 mm apart, over most of the body. Sand crust mixed with many small sands, 10–70 μm in diameter, and spicules.

Skeleton. Fibre skeleton of moderate density and laminated. Primary fibres cored with small sands, 10–60 μm in diameter, and spicules. Fascicular primary fibres with multiple diverging and converging tracts within single fibre axis. Secondary fibres uncored, and formed by many thin branches, 10–60 μm in diameter, connected with each other. Sometimes secondary fibre with plate form fibre, distinguished from secondary web. Filaments, 2–6 μm in diameter, occur densely throughout the sponge and emerge from holes in fibre. Terminal knobs of filament 12–15 μm in diameter. The other point of filament with rounded end or sharply pointed end.

Etymology: The specific epithet, *lobatus*, is based upon the lobate growth form of the type specimen.

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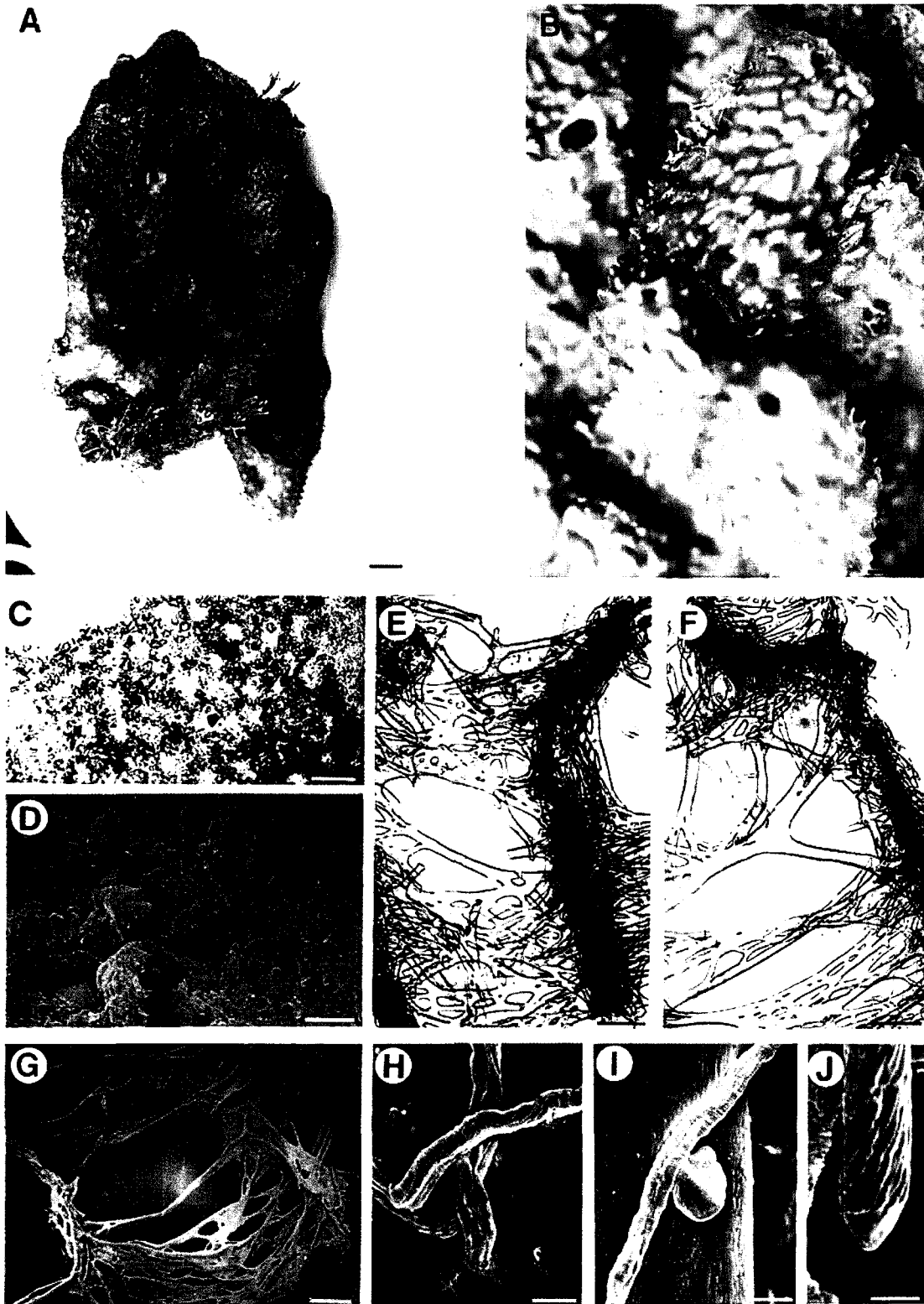


Fig. 1. *Psammocinia lobatus* n. sp. A, Side view of specimen, in life. B, Surface showing smooth and covered with sharply ended conules. C, Filamentous membrane of surface bearing many sands and spicules. D, Endosome of specimen bearing many small sands (transverse plane, SEM). E-F, Skeletal structure of primary and secondary fibres, respectively. G, Skeletal structure of primary and secondary fibres (SEM). H-I, Filaments emerging from hole of fibres (SEM). J, The other point of filament (SEM). Scale bars = 1 cm (A, B), 200 μ m (C, E, F), 100 μ m (D), 300 μ m (G), 10 μ m (H, I), and 3 μ m (J).

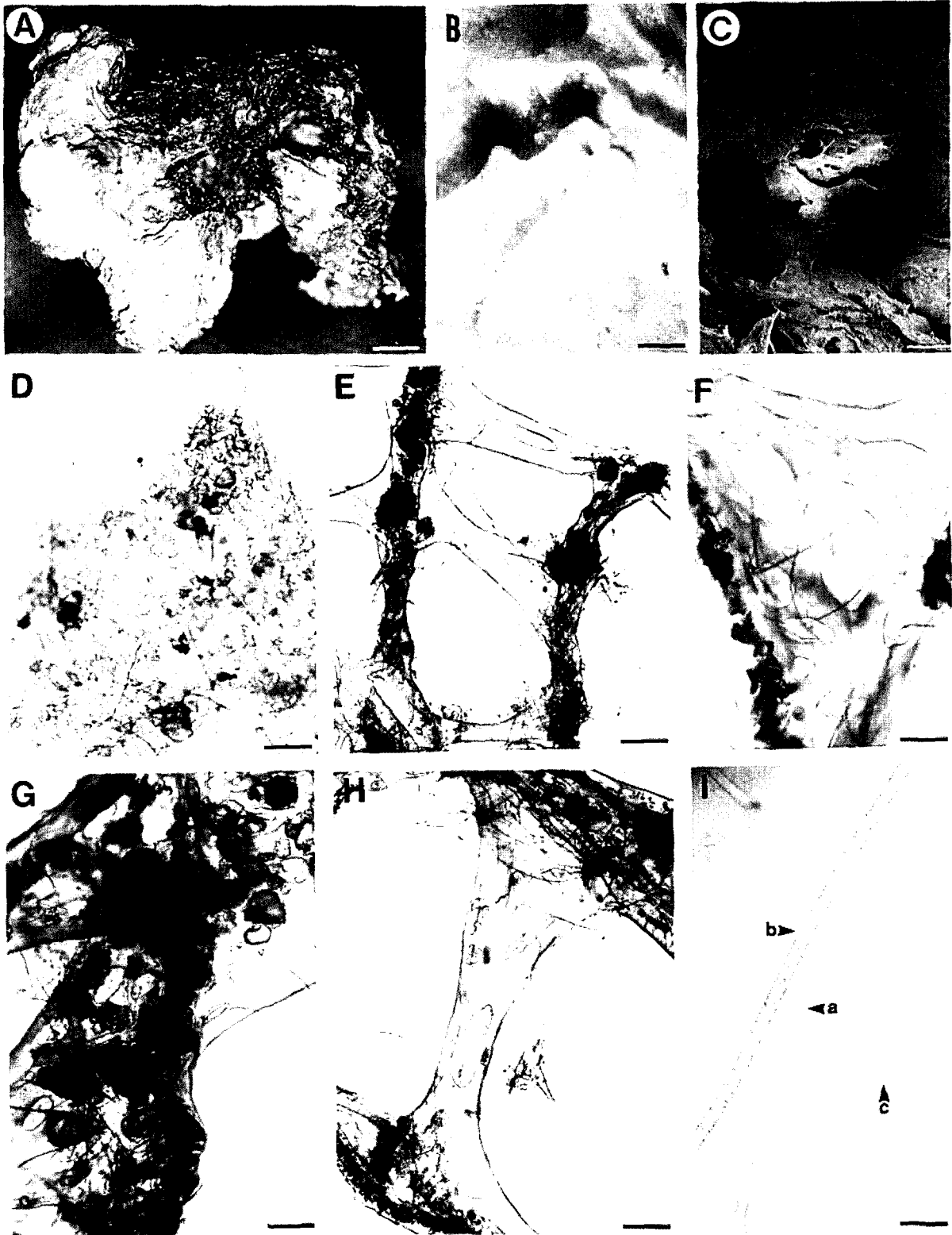


Fig. 2. *Psammocinia rubra* n. sp. A, Side view of specimen preserved in alcohol. B, Surface showing smooth and covered with very low and blunt conules. C, Endosome of specimen (transverse plane, SEM). D, Filamentous membrane of surface bearing some spicules and sands. E, Fibre skeleton of cortex (SEM). F, Secondary web of ectosomal fibre skeleton. G, Primary fibre cored with many sands. H, Fibre skeleton of choanosome. I, Filaments (a, white filament without brown granules; b, brown filament bearing brown granules densely; c, filament having brown granules loosely). Scale bars = 1 cm (A), 300 μ m (B), 400 μ m (C, D, E, H), 200 μ m (F, G), and 50 μ m (I).

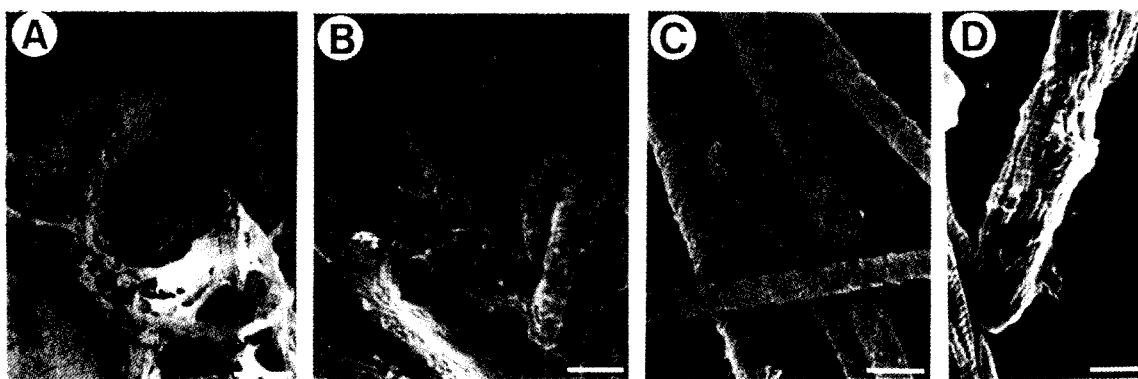


Fig. 3. *Psammocinia rubra* n. sp. A, Fibre skeleton in cortex (SEM). B, Base of filament emerging from hole of fibre (SEM). C, Terminal knob of filament (SEM). D, The other point of filament (SEM). Scale bars = 400 μm (A), 10 μm (B, C), and 3 μm (D).

Remarks: This new species is similar to *Psammocinia wandoensis* Sim and Lee, 1998 in growth form. However, the new species can be distinguished from the latter by its sharp conules and the primary and secondary fibres, lightly cored with detritus.

Psammocinia rubra n. sp.
(Fig. 2, 3)

Type specimen: Holotype (Por. 39), Seoguipo, 126° 34' E, 33° 13' N (Jejudo Island), July 1991, 15 m depth (SCUBA) Sim & Lee s. n. (NHM).

Description: Holotype. Massive, irregular sponge, with disposed lobes. Up to 68 mm \times 62 mm in size and 25 mm in thickness.

Habitat. Attached to rocky substrates.

Oscules. Small oscules, 1 mm in diameter, rare, distributed at top of lobe.

Texture. Compressible, difficult to tear apart.

Color. Reddish brown in alcohol.

Surface. Smooth and covered with very low and blunt conules, 1-2 mm high, 1-10 mm apart. Each conule located at some distance away from adjacent conules. Other animals, like Ascidiacean animals, and Sea weeds covered with side of sponge surface. Sand crust mixed with many small sands, 10-50 μm in diameter, spicules and filaments like filamentous membrane.

Skeleton. Color of primary and secondary fibres reddish brown, not changed in bleach. Slightly fasciculated primary fibres, 150-320 μm in diameter, heavily cored with consistently small sand, 10-40 μm in diameter, and spicules. Secondary fibre, 90-230 μm in diameter, uncored. Sometimes it makes massive secondary webs between adjacent cored primary fibres. Secondary web with many holes, 20-150 μm in diameter. Endosomal primary and secondary fibres with more simple, thick and easily broken fibres than choanosomal fibres. Filaments 2.5-7 μm in diameter, brown or clear, emerge

from holes in fibre, and with terminal knobs, 10-14 μm in diameter. The other point of filament with rounded end. Brown filaments densely or loosely coated with brown granules.

Etymology: The specific epithet, *rubra*, is named after the red color of the specimen.

Remarks: This new species is readily distinguished from the other species of *Psammocinia* by the blunt conules, the reddish brown color of the specimen, the brown color of the fibres and filaments, the secondary web between adjacent primary fibres, and the filament coated with the brown granules.

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