

A New Sponge of the Genus *Smenospongia* (Dictyoceratida: Thorectidae) from Gageodo Island, Korea

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Abstract: A new species of the genus *Smenospongia* (Dictyoceratida, Thorectidae), *S. coreana* n. sp., is described from Gageodo Island, Korea. This new species is readily distinguished from the other species of *Smenospongia* by the un-lobated growth forms and un-crowded primary fibres. *S. aurea* and *S. lamellata* are no distinction between primary and secondary elements, but this species is easily distinguished from them. The matrix easily derived from the fibres. This species has five sesterterpenes, three scalaranones and two linear furanosesterterpenes, in chemical compounds.

Key words: New species, *Smenospongia*, Dictyoceratida, sponge, Korea

The order Dictyoceratida includes four families such as Dysideidae Gray, 1867, Irciniidae Gray, 1867, Spongiidae Gray, 1867 and Thorectidae Bergquist, 1978 (Bergquist, 1980; Hooper and Soest, 2002). Among them, Thorectid sponges are differentiated from others of the Dictyoceratida though the diploidal choanocyte chambers and laminated skeletal fibres (Bergquist, 1978; Hooper and Soest, 2002). The family Thorectidae is divided into two subfamilies, Thorectinae Bergquist, 1978 and Phyllospongiinae Sorokin and Karuso, 1999, which are containing 23 valid genera and 129 species in the world.

The genus *Smenospongia* in subfamily Thorectinae was erected by Wiedenmayer (1977). This genus is characterized by a well developed secondary fibre reticulum, low collagen deposition, and surface which displays a characteristic honeycomb pattern. To date, four species are known worldwide. In Korea, the family Thorectidae and the genus *Smenospongia* is first reported in this paper.

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MATERIALS AND METHODS

The sponge specimens were collected at 15-20 m deep from Gageodo Island, Korea by SCUBA diving. They were fixed and stored in 95% methyl alcohol or absolute alcohol. They were observed by a stereomicroscope (Carl Zeiss, Stemi SV 6), a light microscope (Carl Zeiss, Axioscop II) and SEM (Hitachi, S-3000N). The type specimens are deposited in 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 Thorectidae Bergquist, 1978
Subfamily Thorectinae Bergquist, 1978
Genus *Smenospongia* Wiedenmayer, 1977

Smenospongia coreana n. sp.
(Fig. 1A-G)

Type specimens: Holotype (Por. 53), Jakeunganyeo (Gageodo Island), 26 June 2000, SCUBA, 15 m deep, K. J. Lee and H. J. Kim, deposited in HUNHM, Korea; Three Paratypes: Por. 53-1, Por. 53-2 and Por. 53-3, collected with Holotype, deposited in Department of Biological Sciences, Hannam University, Korea.

Description: Semispherical massive sponge, sized up to 11×9 cm wide and 5.5 cm high, with small mounds. Sponges attached to rocky substrate. Specimen easily taken from substrate with hand. Concentrative oscules, 1-2 mm in

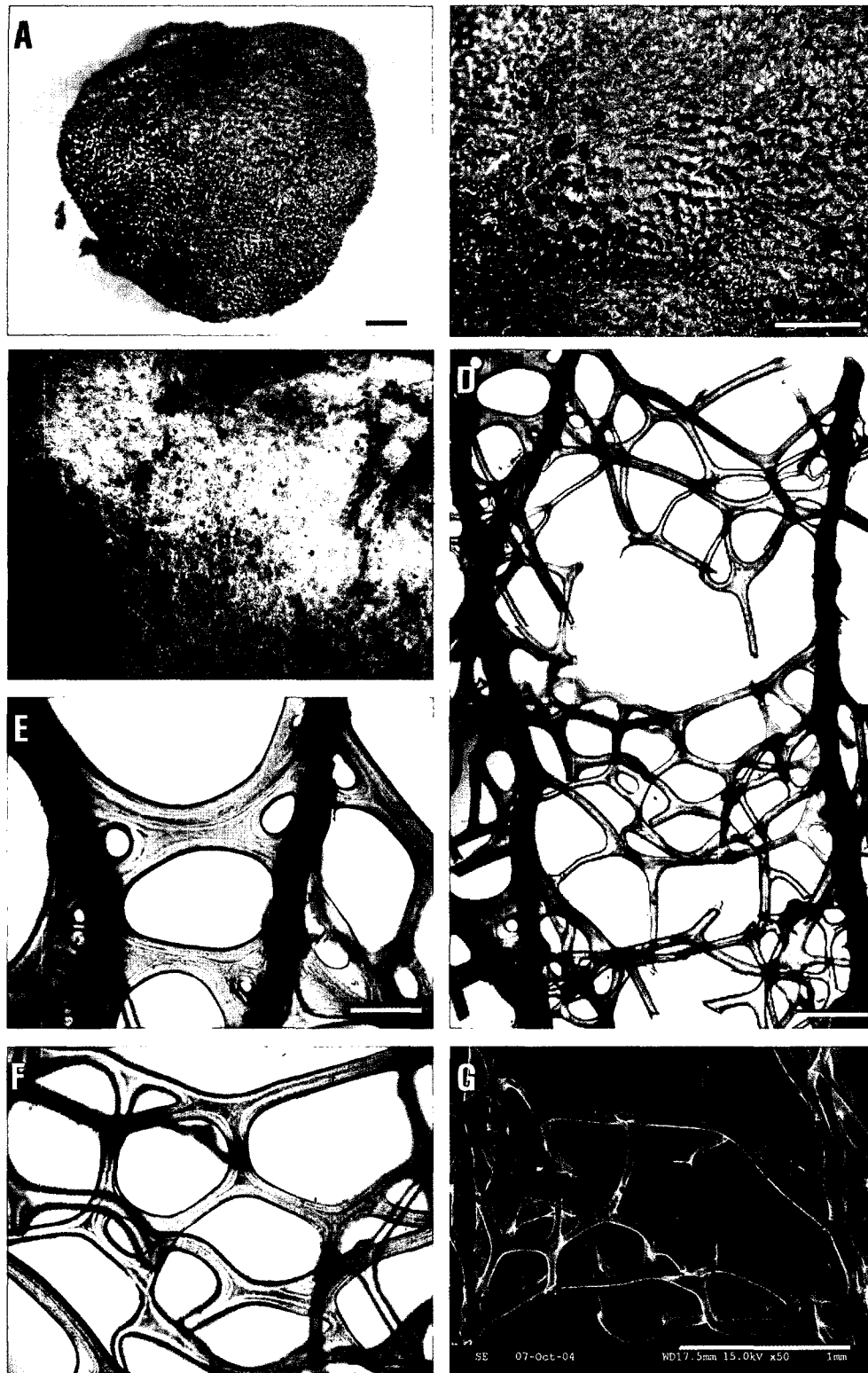


Fig. 1. *Smenospongia coreana* n. sp. A, Spirit-preserved specimen. B, Oscules and low conules. C, Unarmoured surface membrane. D, Fibre skeletal structure. E, Laminated skeleton. F, Secondary fibre skeleton. G, Fibre skeletal structure in SEM. Scale bars=1 cm (A-B), 100 μ m (C-D), 200 μ m (E-F), 1 mm (G).

diameter, locally opened on top of small mounds of specimen. Sometimes 3-4 small oscules formed large oscules,

3-4 mm in diameter. Colour, dark reddish brown in life and change to dark brown in alcohol gradually. Surface, covered

with sharply pointed low conules, under 0.5-1 mm high, 1-3 mm apart. Fine conules made honey comb shape. Some of conules have emergent terminal fibres. Thin membrane uncored with any detritus. Texture, compressible and easily cut and tear.

Skeleton: All fibres has dark brown colour and concentrically laminated. Primary fibre connected with adjacent primary fibre by well developed secondary fibre. Secondary fibres made mesh in diverse diameter. Branching point of primary fibres, simply connected with adjacent primary fibres by broad secondary fibre like ladder. Primary fibres, 100-225 μm in diameter, slightly cored with small amounts of sand and broken spicule. Secondary fibres, 50-150 μm in diameter, uncored with detritus.

Etymology: This species name, *coreana*, is named after its nationality, Korea.

Remarks: Four species, *Smenospongia aurea*, *S. echina*, *S. maynardi* and *S. conulosa*, are known in the genus *Smenospongia* in the world (Cook, 2001). This new species is readily distinguished from the other species of *Smenospongia* by the un-lobated growth form and un-crowded primary fibres. *S. aurea* and *S. lamellata* is no distinction between primary and secondary elements but

this species is easily distinct from them. The matrix easily derived from the fibres. This species has five sesterterpenes, three scalarane-types and two linear furanosesterterpenes, in chemical compounds (Rho et al., 2004).

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