Two New Eurypospogian Sponges
(Dictyoceratida: Dysideidae) from Korea

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ABSTRACT

Two new sponges, Eurypospogia coreana n. sp. and E. regularis n. sp., collected from Hataedo, Ulleung-do and Chujado, Korea by SCUBA diving during the period from 2001 to 2005. Eurypospogia coreana n. sp. is very close to E. lactea Row, 1911 and E. arenaria Bergquist, 1961 in skeletal structure, but primary and secondary fibres of the new species are thicker than those of E. lactea. E. arenaria is cored with mostly spicule fragments but E. coreana n. sp. is cored with mainly sand. E. regularis n. sp. is readily distinguished from other eurypospogian sponges by its thickly encrusting growth form, yellowish ivory colour, and thickness of fibres. The bright yellow color and regular ladder-like skeletal structure are major features distinguishing this E. regularis n. sp. from other eurypospogian sponges. Most species are brown, violet, red or orange in color except for E. lactea (milky white), E. arenaria (biscuit) and E. coreana n. sp. (yellowish ivory). Other eurypospogian sponges have regularly or irregularly well developed secondary fibres, but E. regularis n. sp. has simple and regular secondary fibres.

Key words: new species, Eurypospogia, Dysideidae, Dictyoceratida, Korea

INTRODUCTION

Dictyoceratid sponges constitute four families, Incinidae Gray, 1867, Spongiiidae Gray, 1867, Thorectidae Bergquist, 1978 and Dysideidae Gray, 1867 (Cook and Bergquist, 2002; Lee and Sim, 2005). The family Dysideidae is characterized by laminated skeletal fibres and eurypospogian chaonocyte chambers. Dysideidae has five valid genera, Dysidea, Plerapsyllia, Eurypospogia, Lamellocystidea, and Citriona, with about 120 species described worldwide (van Soest, 2005).

The genus Eurypospogia is characterized by cored primary fibres, uncored secondary fibres, and well-developed and reticulated secondary fibres (Cook and Bergquist, 2002). The genus Eurypospogia Row, 1911 is a small group in the family Dysideidae. Ten species have been described (van Soest, 2005). In Korea, the family Dysideidae and the genus Eurypospogia are reported for the first time in the present study.

MATERIALS AND METHODS

Sponge specimens were collected from Hataedo Is. (Heuk-nyeon, Sinan-gun, Jeollanam-do) locating at the southwestern end of the Yellow Sea, Ulleung-do Is. (Ulleung-gun, Kyungsangbuk-do) in the East Sea and Chujado Is. (Bukjeju-gun, Jeju-do) in the South Sea, Korea. They were obtained in shallow water (20-40 m deep) by SCUBA diving during 2001-2005. Their fixation was followed the procedures of Sim and Lee (2002). Sponges were examined under the stereo-microscope (Carl Zeiss, Stemi SV 6 and Leica, MZ75) and light-microscope (Carl Zeiss, Axiochop II and Leica DMLS), following the procedures described by Hooper (1996). The type specimens are deposited in the Natural History Museum, Hannam University (HUNHM), and Department of Biological Science, Hannam University, Daejeon, Korea.

SYSTEMATIC ACCOUNTS

Phylum Porifera Grant, 1836
Class Demospongiae Sollas, 1885
Order Dictyoceratida Minchin, 1900
Family Dysideidae Gray, 1867
¹*Genus Eurypospogia Row, 1911
²†Eurypospogia coreana n. sp. (Fig. 1A-1)

Material examined. Holotype (Por. 67), Ganseo (Hataedo Is., Heuk-nyeon, Sinan-gun), 25 June 2005, SCUBA

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**Fig. 1.** *Euryspongia corana* n. sp. A, preserved specimen in spirit; B, connected adjacent conules like a folding screen (arrows); C, primary fibres protruding out of conules (arrows); D-I, fibre skeletal structure (photographs D-E in stereo microscope, photographs F-I in light microscope). Scale bars=1 cm (A), 5 mm (B, C), 1 mm (D), 500 μm (E), 200 μm (F-H), 60 μm (I).
diving, 20 m deep. K.J. Lee and H.J. Kim, deposited in HUNHM, Korea.

*Description.* Encrusting, up to 0.5 cm thick, with small mounds or small erected branches. Size up to 7.5 x 4.5 cm wide. Sponges attached to rocky substrate, easily taken from substrate by hand. Texture very soft. Oscules very rare; a large oscule, 4 mm in diameter, locally opened on top of specimen. Colour yellowish ivory throughout whole body in life and gradually changing to grayish ivory. Surface, smooth and covered with low conules, under 0.5 mm high, 1-5 mm apart. Conules connected with adjacent conules continuously like folding screen. Some primary fibres protruded out of conules. Thin membrane uncored with any detritus.

*Skeleton.* Primary fibres, 90-150 μm in diameter, heavily cored with small sand and reduced in number in endosome. Primary fibres irregularly divided into two or three primary fibres near surface. Some primary fibres start from branched secondary fibre and create conule. Primary and secondary fibres of endosome, thicker, more compact than in

![Fig. 2](image.png)

Euryaporia regularis n. sp. A, preserved specimen in spirit; B, firm and short conules (arrows); C, long and thin conules (arrows); D-F, fibre skeletal structure (photograph D in stereo microscope, photographs E-F in light microscope). Scale bars=1 cm (A), 5 mm (B, C), 1 mm (D), 50 μm (E, F).
ectosome. Secondary fibres, 65-100 μm in diameter, clean, well developed and irregularly branched. Mesh of skeleton diverse in form and size. All fibres laminated.

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

Remarks. Ten species were known in the genus Eurytospongia so far. Among them, this new species is very close to E. lactea (see Cook and Bergquist, 2002) and E. arenaria (see Bergquist, 1961) in skeletal structure, but primary and secondary fibres of the new species are thicker than those of E. lactea. E. arenaria is cored with mostly spicules fragments but the new species is cored with mainly sand. E. arenaria is biscuit color in life and dull yellow gray in spirit. This new species is readily distinguished from other species of Eurytospongia by its thickly encrusting in growth form, yellowish ivory colour, and thickness of fibres.

1a Eurytospongia regularis n. sp. (Fig. 2A-F)

Material examined. Holotype (Por. 68), Neunggul (Ulleungdo Is., Ulleung-gun, Kyungsangbuk-do), 2 Oct. 2001, SCUBA diving, 40 m deep, K.J. Lee and H.J. Kim, deposited in HUNHM, Korea. Paratype (Por. 68-1), Sasudo (Chuja-do Is., Bukjeju-gun, Jeju-do), 24 April. 2004, SCUBA diving, 39 m deep, K.J. Lee and H.J. Kim, deposited in Department of Biological Science, Hannam University, Korea.

Description. Massive, size up to 5 × 2 cm wide and 3.5 cm high, with short and thick stalk. Sponges attached to rocky substrate. Specimen easily taken from substrate by hand. Texture hard, but slightly compressible. Large oscules, 2-3 mm in diameter, irregularly scattered on surface. Color light yellowish through whole body in life, gradually changing to ivory in alcohol. Surface covered with thin firm and short conules, 1-3 mm high and 1-4 mm apart, but many long and thin conules, 4-7 mm high, and project out of surface like harsh brush. Some bryozoan and barnacles lived on or within sponge bodies.

Skeleton: Ectosomal skeleton more developed than endosomal. A primary fibre extending from base to surface divided into two or three primary fibres near surface and make conules. Ectosomal skeleton has regular ladder form. Sometimes, secondary fibres create web structure with large mesh. Endosomal skeleton more simple, thick, loose and regular in form than ectosome. Primary fibre, 200-280 μm in diameter, cored with sand and some broken spicules. Secondary fibre, 40-120 μm in diameter, clean. All fibres heavily laminated.

Etymology. The species name, regularis, reflects the regular ladder-like skeletal structure.

Remarks. The bright yellow color and regular skeletal structure are major features distinguishing new species from other species of Eurytospongia. Most species are brown, violet, red or orange in color except for E. lactea (milky white), E. arenaria (biscuit) and E. coreana (yellowish ivory, in this paper). Other species of Eurytospongia have regularly or irregularly well developed secondary fibres, or strongly fasciculated primary fibres (E. delicatula Bergquist, 1995), but this new species has simple secondary fibres.

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REFERENCES


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