

A New Species of the Genus *Hippospongia* (Demospongiae: Dictyoceratida) from Korea

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ABSTRACT

Sponges of the family Spongiidae are poorly known in Korean waters. This paper describes *Hippospongia bergquistia* n. sp. of the family Spongiidae (Demospongiae: Dictyoceratida) collected from Moselpo, Jeju Island, Korea in 2007. This new species has a cavernous construction, rare pseudo-tertiary fibre, and rare primary fibres.

Keywords: new species, *Hippospongia*, Spongiidae, Porifera, Korea

INTRODUCTION

The family Spongiidae consists of six valid genera; *Spongia*, including three subgenera, *S. (Spongia)*, *S. (Australospongia)*, and *S. (Heterofibria)*, *Hippospongia*, *Coscinoderma*, *Hyatella*, *Leiosella*, and *Rhappaloeides*. Important characteristics used to distinguish genera include surface armouring, skeletal morphology, and internal lacunae (Hooper and van Soest, 2002). The genus *Hippospongia* is characterized by the presence of a cavernous construction and rare primary fibres (Poléjaeff, 1884). There are only three valid species of *Hippospongia* worldwide: *H. communis* (Lamarck, 1814) and *H. gossypina* (Duchassaing de Fonbressin and Michelotti, 1864) from Europe and *H. lachne* (de Laubenfels, 1936) from the West Indies (Duchassaing de Fonbressin and Michelotti, 1864; Dendy, 1905, de Laubenfels, 1936; van Soest, 1978; Bergquist, 1980). Generic assignment of species, except for three valid species of *Hippospongia*, remains undetermined (Cook and Bergquist, 2001; Hooper and van Soest, 2002).

Hippospongia from Korean waters is reported for the first time. Sponge specimens were collected by SCUBA diving at a depth of 20-30 m at Moselpo, Jeju Island, Korea. They were fixed in 95% methyl alcohol or absolute ethyl alcohol, and stored separately. The sponge surface and conules were observed under a stereomicroscope. The skeletal arrangement was studied under a light microscope and scanning electron microscope (S-3000N; Hitachi, Tokyo, Japan). The type speci-

mens have been deposited at the Natural History Museum, Hannam University (HUNHM).

SYSTEMATIC ACCOUNTS

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

¹**Hippospongia bergquistia* n. sp. (Figs. 1, 2)

Type specimen. Holotype (Por. 105), Moselpo (Unjin Harbor), Jeju Island, 28 Sep 2007, Mun SE, by SCUBA diving at 20-30 m in depth (HUNHM). Paratype (Por. 105-1), collected with Holotype (HUNHM).

Description. Upright with sub-cylindrical cavernous body. Size up to 8 × 13 cm high and 2-5 mm thick. Surface smooth and covered with thin transparent membrane pierced by numerous large and small pores. Top of body narrower than lower part. Numerous pores of variable diameter arranged in groups of 8-15. Texture, elastic but easily torn. Colour, ivory and pale purple in life. Large lacunae well developed through whole body.

Skeleton. Cored primary fibres, 30-60 μm in diameter, near surface but very simple and rare. Uncored secondary fibres,

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20-60 μm in diameter, mainly forming polygonal mesh, 160-520 μm in diameter, just under sponge surface. Inside choanosome, irregular skeletal mesh. Pseudo-tertiary fibres, 8-12 μm in diameter, restricted to sponge base near primary fibres.

Etymology. This species is named for the late Dr. Patricia Bergquist, former professor at the University of Auckland, Auckland, New Zealand.

Remarks. This new species is distinguished from other hippospongia species by pseudo-tertiary fibres in the sponge

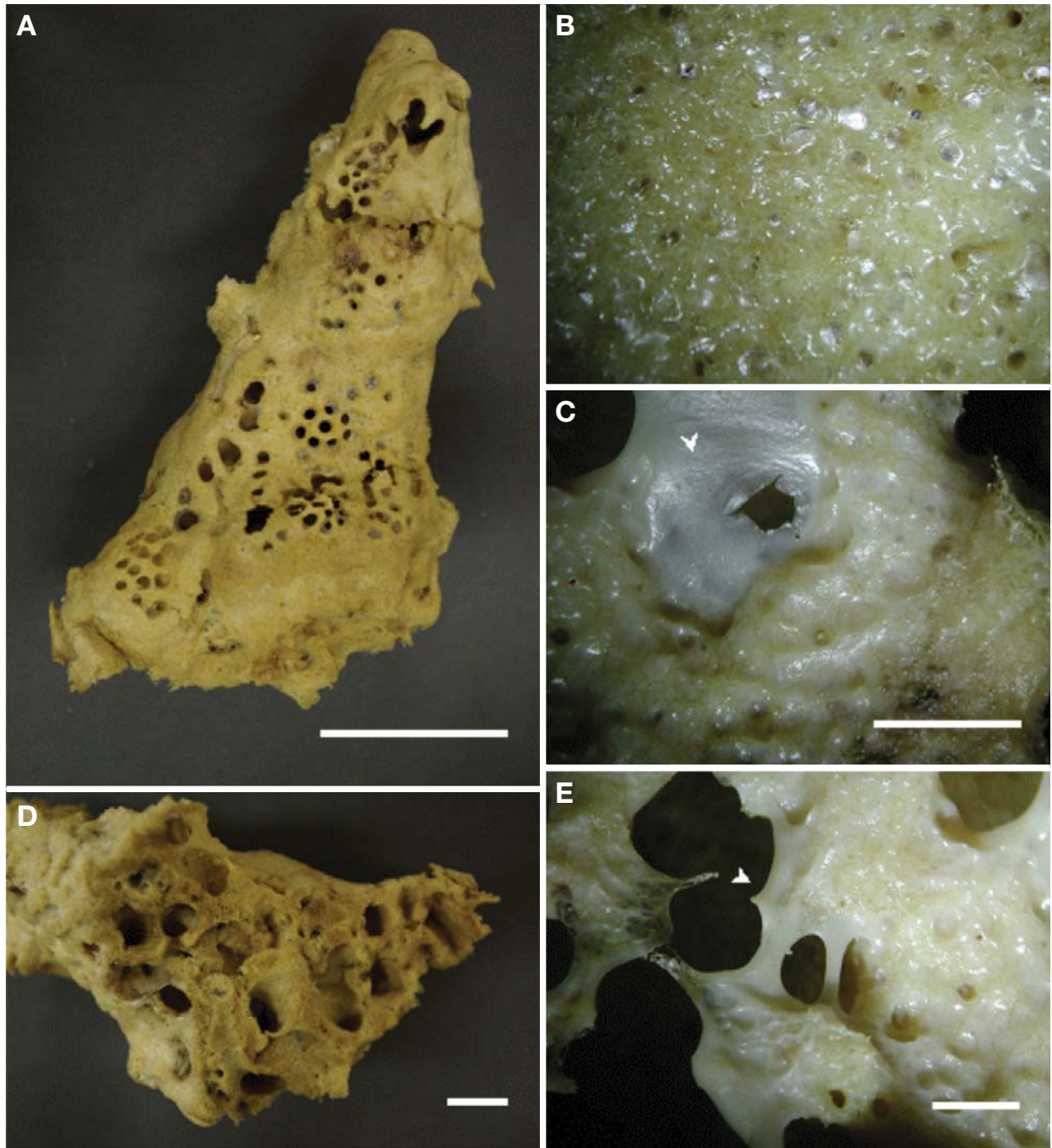


Fig. 1. *Hippospongia bergquistia* n. sp. A, Specimen; B, Surface of the specimen; C, Dermal membrane (arrowhead); D, Lacunae in the specimen; E, Dermal membrane (arrowhead). Scale bars: A=40 mm, C, E=5 mm, D=15 mm.

base part. *Hippospongia communis* is extremely tough, as durable as leather, and has extremely rare primary fibres, 80 μm in diameter, and very thin fibres, 9-17 μm in diameter

(Lamarck, 1814; de Laubenfels, 1954). *H. gossypina* has thicker primary fibres, 50-100 μm in diameter, and secondary fibres, 10-45 μm in diameter, compared with fibres of the

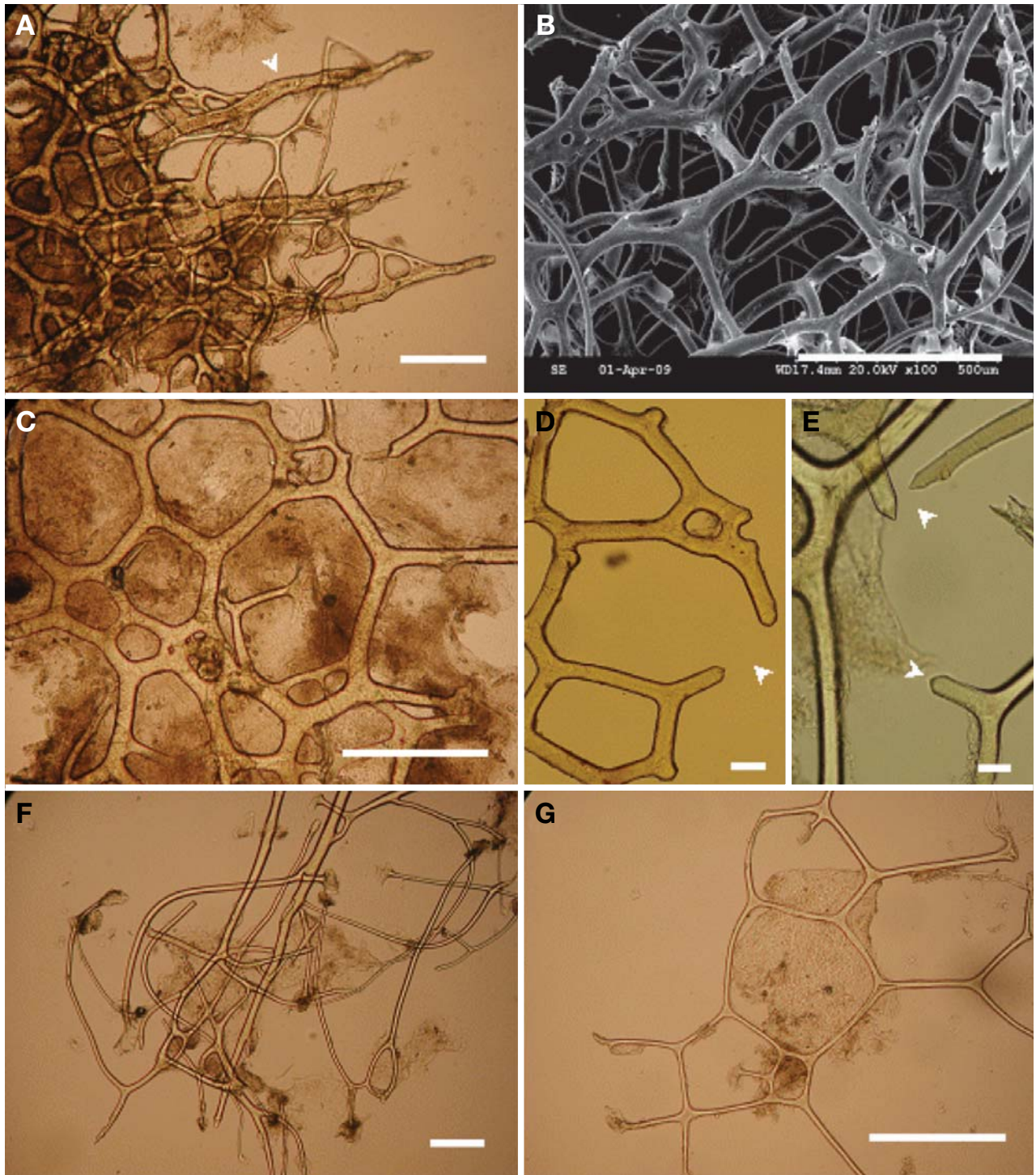


Fig. 2. *Hippospongia bergquistia* n. sp. A, Primary fibre near the base (arrowhead); B, C, Secondary fibres; D, E, The end of the secondary fibres (arrowheads); F, G, Pseudo-tertiary fibres near the base part. Scale bars: A, G=300 μm , B, C=500 μm , D-F=100 μm .

new species (Duchassaing de Fonbressin and Michelotti, 1864; van Soest, 1978). Fibres of *H. lachne* are approximately equal in diameter, around 30 µm (de Laubenfels, 1936, 1948).

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