

## **New Record of Two Poecilosclerid Sponges (Porifera, Demospongiae) from Korea**

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### **ABSTRACT**

The sponge specimens were collected from Chejudo Island and Geojedo Island, Korea during from 1994 to 1999 by scuba diver. They were identified into *Forcepia japonica* Koltun, 1959 and *Crella incrustans* (Carter, 1885).

Key words: marine sponge, Poecilosclerida, Korea.

### **INTRODUCTION**

The order Poecilosclerida Topsent, 1928 is the most diverse of all groups of Porifera (Bergquist, 1978; Bergquist and Fromont, 1988) and is divided into three suborders, Microcionina, Myxillina and Mycalina (Hajdu *et al.*, 1994). Of which the suborder Microcionina has terminally microspined ectosomal megascleres and up to 5 categories of structural megascleres, most frequently monoactinal. Microscleres are palmate chelae, diverse toxas, but sigmas never present. Mycalina has microscleres consisting of sigmancistra derivatives and megascleres being subtylostyles, with swollen bases and faintly constricted necks (mycalostyles), usually of a single smooth category (never echinating). Myxillina has microscleres consisting of tridentate-derived chelae, but never toxas. Ectosomal megascleres are basically diactinal, although aniso-terminations are widespread. Terminal spination of ectosomal megascleres rare and if present usually coarse or irregular (Hajdu *et al.*, 1994). Seven families are included in Mixillina. Among them, 58 species, four families, Myxillidae, Anchinoidae, Tedaniidae and Coelosphaeridae are reported from Korean waters (Kim *et al.*, 1968; Rho and Sim, 1979; Rho and Yang, 1983; Sim, 1985; Sim and Kim, 1988, 1994;

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Sim and Byeon, 1989; Sim *et al.*, 1992; Sim and Lee, 1998). Three genera, *Coelosphaera*, *Forcepia* and *Lissodendoryx*, are included in the family Coelosphaeridae. Of these genera *Forcepia* and *Lissodendoryx* are transferred from Myxillidae to Coelosphaeridae (Sim, 1981). The family Crellidae is reported first time from Korea. The materials examined in the present study were collected by scuba diving from around Chejudo Island and Geojedo Island. The preparations of material for light microscopy and scanning electron microscopy (SEM) were made by Rützler (1978) and Sim and Lee (1998).

## RESULTS

Order Poecilosclerida Topsent, 1928 다골해면목

Suborder Myxillina Hajdu, van Soest and Hooper, 1994 끈적해면아목

Family Coelosphaeridae Hentschel, 1923 거품해면과

### 1. *Forcepia japonica* Koltun, 1959 왜핀셋해면 (신칭) (Fig. 1. A-H)

*Forcepia japonica* Koltun, 1959, p. 152, fig. 105.

**Materials Examined.** Daepo (Geojedo Isl.), 2-3 Aug. 1994; 4 July 1997, 20m, (SCUBA); Munsom (Chejudo Isl.), 4 Oct. 1995; 20 July 1999, 20 m (SCUBA).

**Description.** Sponge irregular lumpy, massive, size up to 5.5×4×3.5 cm. Texture hard but fragile, only slightly elastic. Surface markedly cavernous. Color yellow in life, beige in spirits. Ectosomal skeleton consists of dense layer of tyloles. Choanosomal skeleton made by only style, arranged in loose. Microscleres, sigmas, isochelas and forceps spread in interstices, but forceps very rare. Table 1 shows spicule dimensions of this species.

**Remarks.** Koltun's (1959) specimen has mesh-form of spicules in the main skeleton, but our specimen has no mesh-form.

**Distribution.** Korea, Japan.

**Table 1.** Spicule dimensions of *Forcepia japonica*.

Megascleres		Microscleres	
spicules	size (μm)	spicules	size (μm)
Styles	250-300×10-18	Sigmas	30-55×1
Subtyloles	240-280×6-10	Isochelas	20-25
		Forceps	8-10

Family Crellidae Hentschel, 1923 크렐라해면과

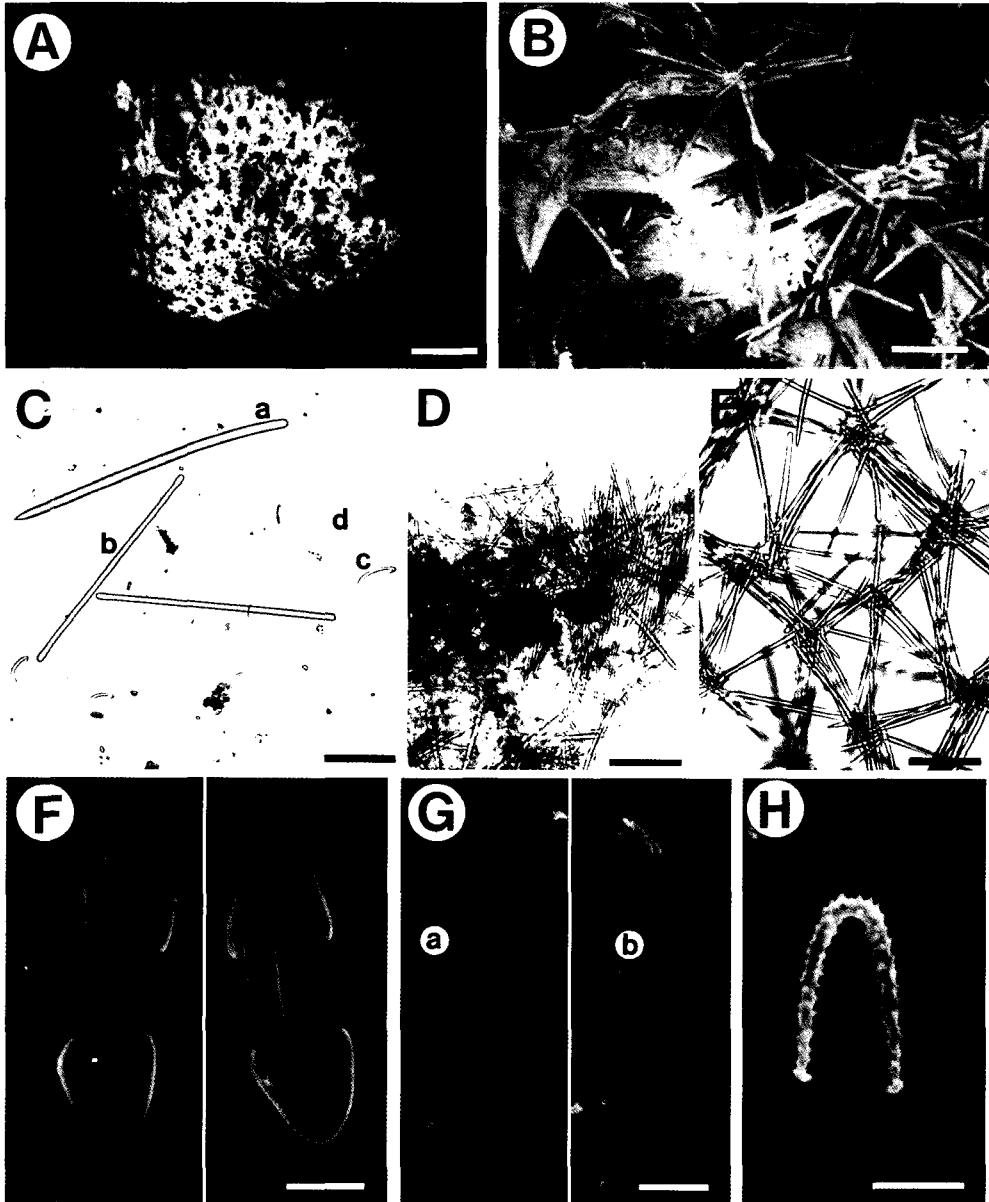
### 2. *Crella incrustans* (Carter, 1885) 덮게크렐라해면 (신칭) (Fig. 2. A-G)

*Echinonema laevis* Lendenfeld, 1888, p. 220.

*Clathria australis* Lendenfeld, 1888, p. 222.

*Clathria macropora* Lendenfeld, 1888, p. 221.

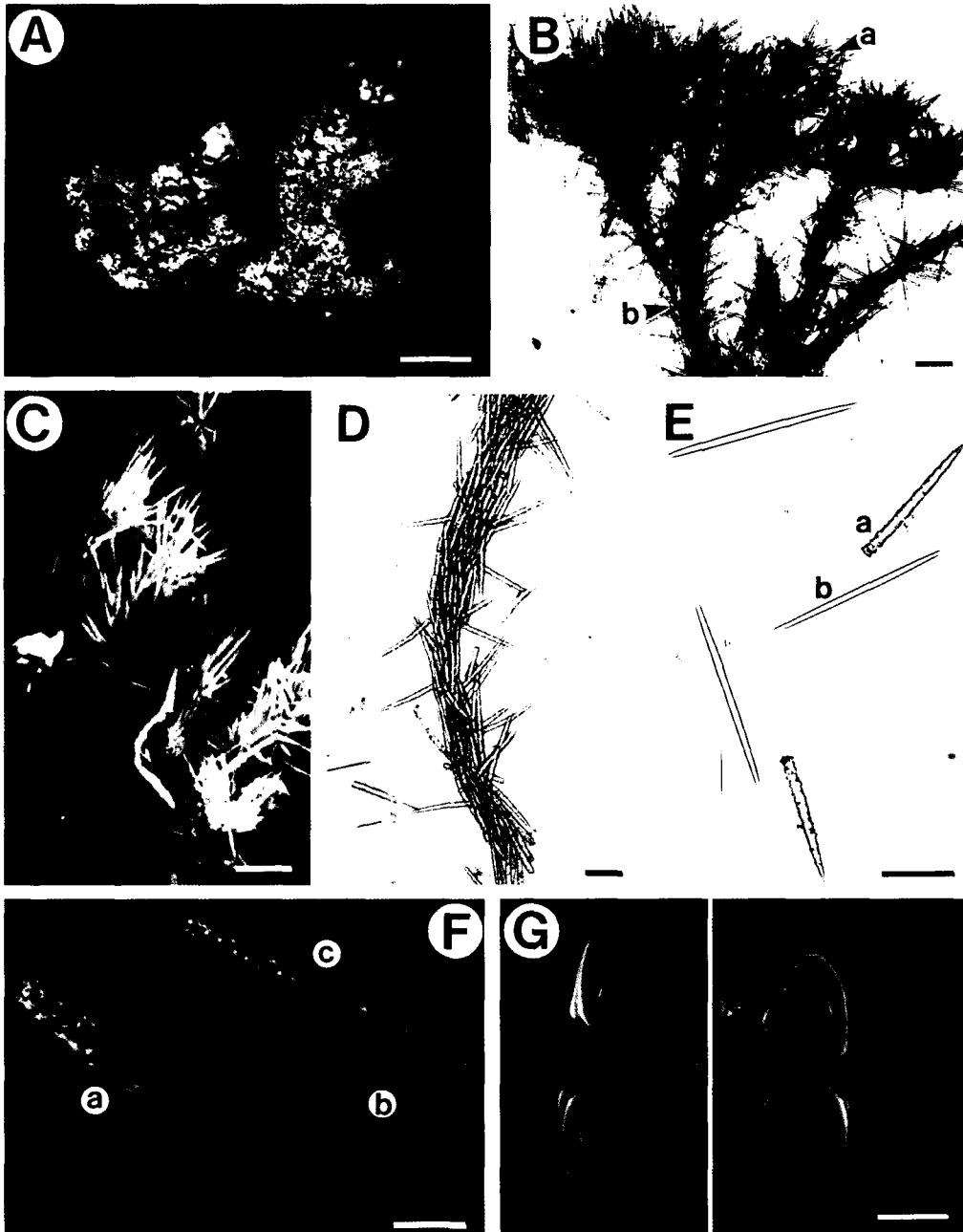
*Crella incrustans*; Bergquist and Fromont, 1988, p.77, pl. 35, figs. A-F, pl. 36, fig. A.



**Fig. 1.** *Forcepia japonica*. A, side view of whole specimen. B, choanosomal skeleton (SEM). C, spicules (a, subtylote, b, style, c, large sigma, d, small sigma). D, skeletal structure of ectosome. E, skeletal structure of choanosome. F-H, microscлерes (SEM); F, isocheles. G, sigmas (a, small sigma, b, large sigma). H, forcep. Scale bars = 1 cm (A), 200  $\mu$ m (B, D, E), 100  $\mu$ m (C), 5  $\mu$ m (F, G), 10  $\mu$ m (H).

**Materials Examined.** Hyongjedo (Chejudo Isl.), 21 Aug. 1998, 20 m (SCUBA).

**Description.** Sponge usually thickly encrusting, size up to  $9 \times 7 \times 2$  cm. Surface rough where it missing dermal membrane. Texture compressible. Color in life bright red to orange-yellow.



**Fig. 2.** *Crella incrustans*. A, upper surface of whole specimen. B, skeletal structure (a, ectosome of brushy shape, b, endosome of feather shape). C, skeletal structure of ectosome (SEM). D, skeletal structure of endosome. E, spicules (a, large acanthostyle, b, tornote). F, megascleres (SEM) (a, large acanthostyle, b, oxea, c, small acanthostyle). G, microscleres, isochelae (SEM). Scale bars = 2 cm (A), 100  $\mu$ m (B, C), 200  $\mu$ m (D, E), 20  $\mu$ m (F), 5  $\mu$ m (G).

**Table 2.** Spicule dimensions of *Crella incrustans*.

Megascleres		Microscleres	
spicules	size (µm)	spicules	size (µm)
Large Acanthostyles	150-165 × 10-13	Isochelas	18-23
Small Acanthostyles	60-115 × 2-7		
Oxeas	150-175 × 4-6		

Ectosomal skeleton consists of dense layer of oxeas lying tangentially to surface membrane. Subdermal region, acanthostyle organised as brush type. Choanosomal skeleton consists of spongin fibre, core of spicules bundle, mostly acanthostyle and oxea rare. Fibre skeleton ends at subdermal space.

**Remarks.** Bergquist and Fromont's (1988) specimens have the ectosomal skeleton which consists of a loosely meshed layer of acanthostyles lying at the surface, but our specimens have no ectosomal acanthostyles.

**Distribution.** Korea, Australia, New Zealand.

## ACKNOWLEDGMENTS

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## 한국산 다골해면류 (해면동물문, 보통해면강)의 2미기록종

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### 요 약

1994년부터 1999년까지 한국의 거제도과 제주도에서 채집 (SCUBA)된 다골해면류를 동정·분류한 결과 왜핀셋해면 (*Forcepia japonica*)과 덮게크렐라해면 (*Crella incrustans*)의 두 종이 한국 미기록종으로 밝혀져 보고한다.