

## **Two Species of *Celleporaria* (Cheilostomata: Bryozoa) from Korea**

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### **ABSTRACT**

Two species of the ascophoran bryozoan genus *Celleporaria*, *Celleporaria triangula*, n. sp. and *C. fusca*, are described from Korean waters. *C. fusca* is reported from the North Pacific Ocean for the first time.

Key words: Bryozoa. Cheilostomata. *Celleporaria*. New species. Korea.

### **INTRODUCTION**

The genus *Celleporaria* Lamouroux, 1821 is abundantly represented in the tropics and the West Indian region has its full share of the species (Osburn, 1940), comprising about 65 species. The species from the North Pacific Ocean are composed of ten known species: *Celleporaria tridenticulata* (Busk, 1881), *C. aperta* (Hincks, 1882), *C. columnaris* (Busk, 1881), *C. brunnea* (Hincks, 1884), *C. albirostris* (Smitt, 1873), *C. hancockie* (Osburn, 1952), *C. honolulensis* (Busk, 1884), *C. peristomata* (Osburn, 1952), *C. quadrispinosa* (Canu & Bassler, 1930) and *C. wakayamensis* (Okada and Mawatari, 1938) (see Osburn, 1952). Among them, *C. tridenticulata*, *C. wakayamensis* (see Okada and Mawatari, 1938), *C. aperta* and *C. columnaris* (see Ortmann, 1890) were reported from Japan. Previously in Korea, three species of the genus have been recorded: *C. aperta* by Song (1985), and *C. wakayamensis* and *C. brunnea* by Seo and Rho (1989). In this report, one new species and one species new to Korean fauna are added.

The materials examined were collected from fishing nets, and bleached or burned for observation with stereomicroscope. Both species are illustrated with scanning electron micrographs.

Type specimens of new species are currently stored in the Department of Biology, Chŏnju Woosuk University, Korea. Holotype is to be deposited in the Natural History Museum, London.

## SYSTEMATIC DESCRIPTIONS

Suborder Ascophora Levinsen, 1909 유낭아목

Family Celleporariidae Harmer, 1957 섬유이끼벌레과

Genus *Celleporaria* Lamouroux, 1821 섬유이끼벌레속

***Celleporaria triangula*, n. sp. (Pls. 1, 2)** 세모섬유이끼벌레

**Type specimens.** Holotype: one colony from fishing nets, collected from Mip'o (129°11' E, 35°09' N) in the Korea Strait on 10 July 1974 by B. J. Rho. Depth unknown. Paratypes: one colony, same data as holotype; one colony from fishing nets, from 20m depth, from Sögwip'o (126°33' E, 33°14' N), southern coast of Cheju Island on 9 October 1986 by J. H. Park and S. Shin.

**Description.** Colony of a few layers, encircling anthozoans, and forming tubular mass (Pl. 1, Fig. 1). Zooecia arranged irregularly, rising on all sides toward orifice, distinct at the edges. Frontal surface nodular, very rough, with a few small areolar pores. Orifice slightly wider than long, more or less semielliptical; proximal margin straight, with three proximal denticles (d in Fig. 2 of Pl. 1); middle lyrula almost quadrangular, and lateral ones sharply triangular, slightly curved inward, sometimes concealed by raised rostrum of suboral avicularium. Spine absent, but with vestigial spines (arrow in Fig. 3 of Pl. 2) or spine bases (sp in Fig. 1 of Pl. 2) in a few zooecia. Suboral avicularium (sav) small, round and asymmetrical; mandible semicircular, directed distolaterally; rostrum dentate distally, sometimes situated at apex of narrow cylindrical mucro. Interzoooidal avicularium (iav in Figs. 1, 2 of Pl. 2) large and long; mandible bluntly triangular. Zooeciule (Pl. 1, Figs. 2, 3) with only avicularium (represented by an asterisk in Fig. 2 of Pl. 1) similar to suboral one. Ovicell prominent, a simple hemisphere, widely opened frontally, and granular.

**Remarks.** The following species of *Celleporaria* have three proximal oral denticles: *C. oculata* (Lamarck, 1816), *C. tridenticulata*, *C. vagans* (Busk, 1881), *C. aperta*, *C. honolulensis*, *C. polymorpha* (Busk, 1884) and *C. discoidea* (Busk, 1884) (see Busk, 1884; Harmer, 1957). Among these species, only *C. tridenticulata* and *C. aperta* have same middle lyrula as this new species. But the new species distinctly differs from these two species in the shape of interzoooidal avicularium. *C. tridenticulata* has spatulate interzoooidal avicularium (Harmer, 1957) or no interzoooidal avicularium (Brown, 1952), and *C. aperta* has spatulate interzoooidal avicularium toothed marginally (Cook, 1985). On the other hand, it is bluntly triangular shape in the new species (see Table 1).

Other differences are the number of spines and shape of ovicell. *C. tridenticulata* and *C. aperta* has two to four spines, but in the new species, there is no spine, vestigial spine or spine bases. The ovicell of *C. tridenticulata* is pyriform, but is hood-shaped in *C. aperta* and the new species. Moreover this structure of the new species is wider than long (see Table 1), therefore it is quite different from that of *C. aperta* which is longer than wide.

The zooeciule, which is not found in *C. tridenticulata* and *C. aperta*, is also characteristic to the new species.

**Ethymology.** The specific name is derived from *tri*, Latin, three, and *angulosus*, Latin, with angles, referring to the triangular mandible of interzoooidal avicularium.

**Table 1.** Comparison of *Celleporaria triangula*, n. sp. with other related species

	<i>C. tridenticulata</i>	<i>C. aperta</i>	<i>C. triangula</i> , n. sp.
Frontal wall	granular with large areolar pores	granular with areolar pores	nodular with small areolar pores
Orifice	with 3-4 denticles	with 2-3 denticles	with 3 denticles
Spine	2-4	2-4	absent, vestigial or with spine bases
Suboral avicularium	not denticulate	denticulate distally	denticulate distally
Interzooidal avicularium	absent or spatulate	spatulate marginally	toothed bluntly triangular
Ovicell	pyriform	hood-shaped, longer than wide	hood-shaped, wider than long
Distribution	Japan, Galapagos Is., Indo-Pacific, Indian	cosmopolitan	Korea

***Celleporaria fusca* (Busk, 1854) (Pls. 3, 4) 갈색섬유이끼벌레(신칭)**

*Cellepora fusca* Busk, 1854, p. 88, pl. 119, fig. 2, pl. 120, fig. 6.

*Holoporella fusca*: Hastings, 1932, p. 447.

*Celleporaria fusca*: Harmer, 1957, p. 680, pl. 43, figs. 1-7; Hayward, 1988, p. 345, pl. 16d.

**Material examined.** Mosulp'o, 18 June 1985, B. J. Rho and H. S. Choi.

**Description.** Colony pale brown, forming thick and erect mass, very coarse (Pl. 3, Fig. 1). Zooecia irregular in arrangement, more or less round, raised at peristomial region, especially at avicularian chamber. Frontal surface fine-grained, smooth, with distinct large areolar pores. Orifice orbicular with small, shallow and V-shaped sinus (s in Fig. 2 of Pl. 3 and Fig. 2 of Pl. 4). Sinus median, sometimes asymmetrical. Suboral avicularium (sav in Figs. 1, 2 of Pl. 3 and Fig. 2 of Pl. 4) situated at the lateral to sinus, directed laterally; rostrum raised and toothed marginally, sometimes it is replaced by large suboral avicularium with duck bill-shaped mandible (sav in Figs. 1, 2 of Pl. 4). Small and narrow avicularium (lav in Figs. 1, 2 of Pl. 3 and Figs. 1, 2 of Pl. 4) situated at one or both sides of orifice, near zoecial suture. Interzooidal avicularium (iav in Fig. 2 of Pl. 4) long and narrow, rare, its distal end rather acute. Ovicell not found.

**Remarks.** According to Busk (1854), the color of colony is deep brownish purple, but it is pale brown in the specimen from Mosulp'o. Also, Busk (1854) described numerous scattered avicularia distributed over the polyzoarium, but in our specimen only lateral avicularium is found at the lateral to the orifice. There is no spine in my specimen, whereas oral spine was found in the specimens from Torres Straits (Harmer, 1957). In comparison with Hayward's specimens, the present specimen has narrower and longer interzooidal avicularium, and a short umbo (tall in Hayward's specimens) below the orifice. *C. fusca* appears to be the commonest species in the Indo-Pacific Ocean as noted by Harmer (1957), although it is reported for the first time from the North Pacific.

**Distribution.** Cheju Island (Korea); Australia; Indo-Pacific Ocean; Mauritius.

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### REFERENCES

- Brown, D.A., 1952. The Tertiary cheilostomatous Polyzoa of New Zealand. *Brit. Mus. (Nat. Hist.)*, pp. 1-405.
- Busk, G., 1854. Catalogue of marine Polyzoa part II. Cheilostomata (part). *Brit. Mus.(Nat. Hist.)*, pp. 55-120, pls. 69-124.
- Busk, G., 1884. Report on the Polyzoa collected by H.M.S. Challenger during the years 1873-76, Part 1. The Cheilostomata. *Zool. Chall. Exp.*, **30**: 1-216.
- Cook, P. L., 1985. Bryozoa from Ghana. *Zoologische Wetenschappen-Ann. vol. 238- Sciences zoologiques*, pp. 1-315, pls. 1-23.
- Harmer, S. F., 1957. Polyzoa of the Siboga Expedition, part IV. Cheilostomata-Ascophora II. *Siboga-Expeditie*, **28d**: 641-1147.
- Hastings, A. B., 1932. The Polyzoa with a note on an associated hydroid. *Brit. Mus.(Nat. Hist.)*, reports, **4(12)**: 398-460, pl. 1.
- Hayward, P.J., 1988. Mauritian cheilostome Bryozoa. *J. Zool. Lond.*, **215**: 269-356.
- Okada, Y. and S. F. Mawatari, 1938. On the collection of Bryozoa along the coast of Wakayama-ken, the middle part of Honsyu, Japan. *Annot. Zool. Japon*, **17(3,4)**: 445-462.
- Ortmann, A. E., 1890. Die Japanische bryozoen fauna, *Arch. F. Naturgesch. Jahrg.*, **56(1)**: 1-74.
- Osburn, R. C., 1940. Bryozoa of Porto Rico with a resume of the West Indian bryozoan fauna. *Scientific survey of Porto Rico and the Virgin Islands*, 16, part **3**: 321-486, pls. 9.
- Osburn, R. C., 1952. Bryozoa of the Pacific coast of America part I. Cheilostomata-Anasca. *Allan Hancock Pacific Expedition*, **14(2)**: 271-518.
- Seo, J. E. and B. J. Rho, 1989. A systematic study on the marine bryozoans in Korea 6. Ascophora. *Korean J. Syst. Zool.* **5(2)**: 205-223.
- Song, J. I., 1985. Studies on the fouling animals in Wolsŏng and Sŏchŏn. *Jour. Kor. Res. Inst. Bet. Liv.*, **36**: 69-78 (in Korean).

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한국산 섬유이끼벌레속(태형동물문, 순구목)의 2종

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요 약

한국산 섬유이끼벌레 속(*Celleporaria*)의 2종을 보고한다. 신종인 세모섬유이끼벌레(*Celleporaria triangula*)와 북태평양으로부터 처음으로 보고하는 종인 갈색섬유이끼벌레(*Celleporaria fusca*)를 기재한다.

**Explanation of Plates**

**Plate 1.** *Celleporaria triangula*, n. sp. 1, colony. 2, arrangement of zooecia with ovicell (ov). 3, suboral avicularium (sav) with three denticles (d), vestigial spines (arrow) and zooeciule(star).

**Plate 2.** *Celleporaria triangula*, n. sp. 1, a pair of spine bases (sp). 2, interzoooidal avicularium (iav) with bluntly triangular mandible (m).

**Plate 3.** *Celleporaria fusca* (Busk). 1, colony. 2, lateral avicularium (lav) on lateral to orifice (or) and suboral one (sav). 3, orifice (or) with sinus (s).

**Plate 4.** *Celleporaria fusca* (Busk). 1, large suboral avicularium (sav). 2, interzoooidal avicularium (iav).

PLATE 1



PLATE 2



PLATE 3

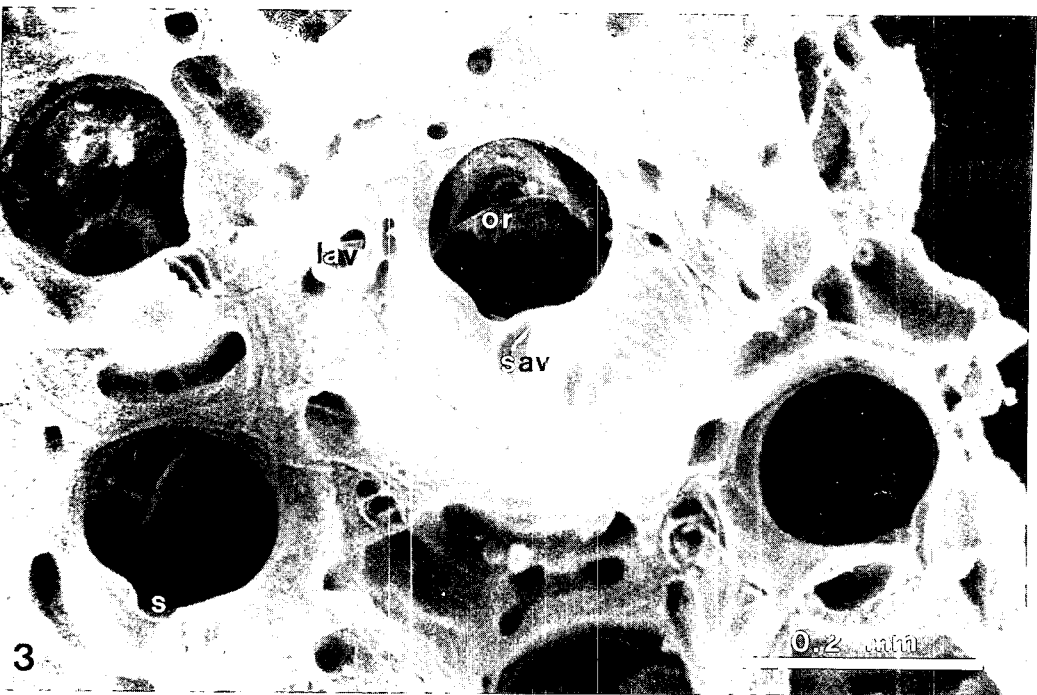
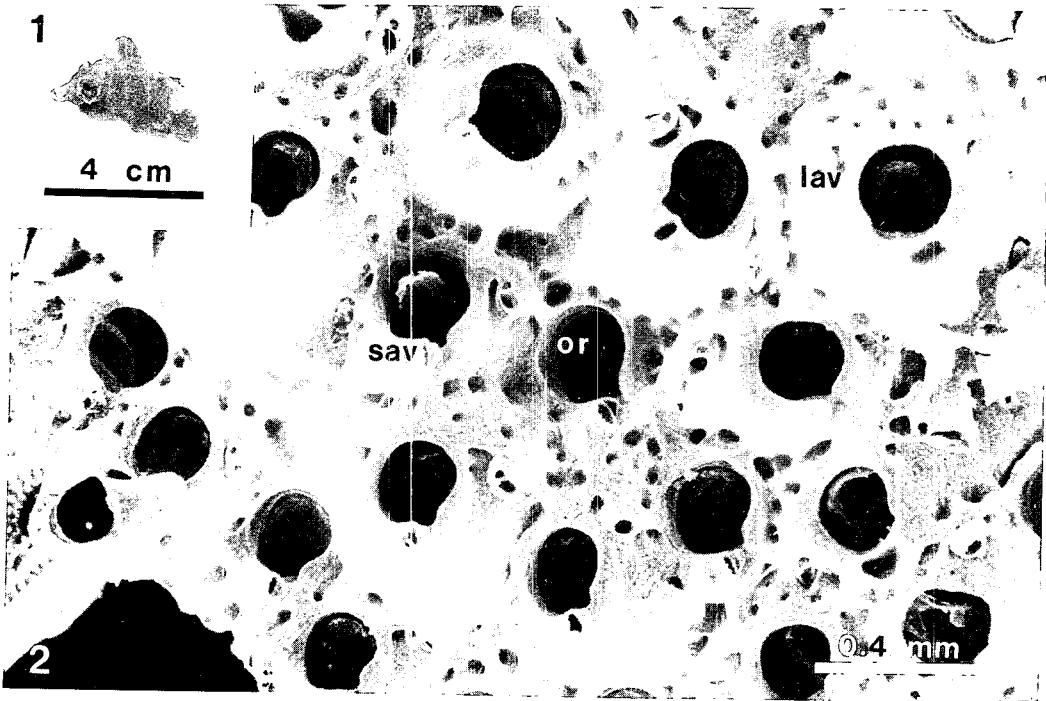




PLATE 4

