

## Three species of Genus *Aetea* (Bryozoa: Cheilostomata: Aeteidae) from Korea

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Three species in the genus *Aetea* (Bryozoa: Cheilostomata: Aeteidae) are described: *Aetea anguina* (Linnaeus, 1758), *A. ligulata* Busk, 1852, and *A. truncata* (Landsborough, 1852). *Aetea ligulata* Busk, 1852 and *A. truncata* (Landsborough, 1852) are new records of Korean bryozoan fauna. Four of the 17 species in the genus *Aetea* Lamouroux, 1812 are cosmopolitan or widespread. Three of these species (*Aetea sica* (Couch, 1844) was not observed) are reported in this study.

Keywords: *Aetea*, Bryozoa, Korea, new record, three species

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### INTRODUCTION

Species in the genus *Aetea* are often found on the surface of shells, algae and other colonial invertebrates, such as bryozoans and hydroids. *Aetea* species are distinguished by the size of the raised stalk region, size and shape of the distal 'head' region, zoecial ornamentation (punctate, annulated, corrugated or wrinkled), and embryo color (Vieira *et al.*, 2016). There are relatively few known species of *Aetea*, but identifying them with certainty is not straightforward as the most common, currently recognized species, are either highly variable or complexes of more than one species (Gordon, 1984; Tilbrook *et al.*, 2001). *Aetea* species often produce extended colonies that are very small and fragile, and usually occur in cryptic habitats and are thus extremely difficult to identify (Tilbrook *et al.*, 2001). The genus *Aetea* consists of 17 species worldwide, however only *Aetea anguina* (Linnaeus, 1758) has previously been reported from Korea (Rho and Song, 1980; Rho and Seo, 1990; Seo, 1992; 2005; Seo and Min, 2009; Chae *et al.*, 2016; <http://bryozoa.net/cheilostomata/aeteidae/aetea.html> – 12 Nov. 2017).

In this study, we add two species of *Aetea* to the Korean bryozoan fauna. Re-descriptions of three species with distributional data, detailed illustrations, and a taxonomic key to the species of Korean *Aetea* species are provided.

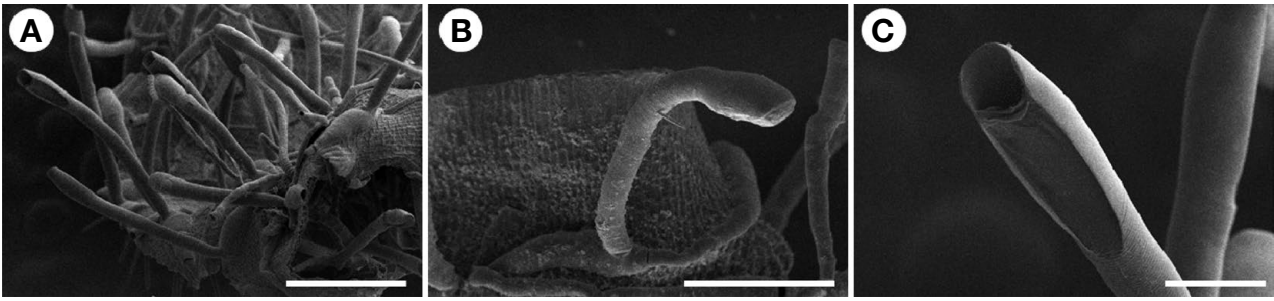
### MATERIALS AND METHODS

The materials were collected from eleven localities in the coastal seas and islands of Korea from 2013 to 2016 mainly by SCUBA diving and fishing nets. Some specimens were collected by Smith-McIntyre grab-sampling from a 27-42 m oceanographic vessel, RV *Kuklipgongwon-yeoungu 1*, on July 29 to 30 2016 from the South Sea of Korea. Specimens were preserved in 95% ethyl alcohol or dried and coated with gold in an ion sputter coater, prior to examination with a SNE-3200M Mini-SEM at 15 kV accelerating voltage. All the specimens were deposited in the Marine Bryozoans Resources Bank of Korea (MBRBK), Woosuk University, Korea.

### RESULTS

Single asterisks (\*) indicate species that were added to the Korean freshwater bryozoan fauna record.

Class Gymnolaemata Allman, 1856  
Order Cheilostomata Busk, 1852a  
Family Aeteidae Smitt, 1868  
Genus *Aetea* Lamouroux, 1812  
Type species: *Sertularia anguina* Linnaeus, 1758



**Fig. 1.** *Aetea anguina* (Linnaeus, 1758). A. colony. B. zooid. C. distal region of zooid, detail. Scale bars: A = 500  $\mu$ m, B = 300  $\mu$ m, C = 100  $\mu$ m.

#### Key to the Korean species of the genus *Aetea*

1. Distal region of zooid drooped face downwards .....  
..... *A. anguina*  
– Distal region of zooid not drooped face downwards ... 2
2. Stem region of zooid, thick annulations present .....  
..... *A. ligulata*  
– Stem region of zooid, thick annulations absent .....  
..... *A. truncata*

#### 1. *Aetea anguina* (Linnaeus, 1758) (Fig. 1)

자루이끼벌레

*Sertularia anguina* Linnaeus, 1758: 816.

*Aetea anguina*: Mawatari, 1952: 262; Ryland and Hayward, 1977: 44, fig. 13; Rho and Song, 1980: 149, pl. 1, figs. 1-3; Rho and Seo, 1990: 147; Seo, 1992: 143; 2005: 298, pl. 20; 2010: 11-12, fig. 1; Seo and Min, 2009: 19; Chae *et al.*, 2016: 553.

**Material examined.** Daeguelebido Island (Tongyeong), 25 June 2013 by SCUBA diving; Gukdo Island (Tongyeong), 25 June 2013 by SCUBA diving; Haengwon (JeJu), 4 June 2015 by SCUBA diving from 20-25 m; Gapado Island (JeJu), 5 June 2015 by SCUBA diving from 20-25 m; Marado Island (JeJu), 5 Jul. 2015 by SCUBA diving from 20-25 m; Baekdo Island (Yeosu), 27 Jul. 2016 by SCUBA diving from 10-20 m; Yeoseodo Island (Wando), 29 Jul. 2016 by SCUBA diving from 10-20 m; Gageodo Island (Heuksan), 12 Oct. 2016 by SCUBA diving.

**Description.** Colony white to light brown, mostly whitish, encrusting stone, rope, other bryozoans, creeping, formed with erect zooid from creeping stolon (Fig. 1A). Erect portion of zooid in branching uniserial, 0.6-0.8 mm long, arising from each dilatation, with long stem (Fig. 1B). Stem part thinly tubular, fragile, distinctly annulate. Distal region spoon-shaped, occupying 1/2 to 1/3 length, with frontal membrane facing downwards, punctate, porous dorsally, like a desk lamp, not annulated (Fig. 1B, C).

**Remarks.** This species had been widely reported in

shallow waters, and all materials observed in this study were collected at a depth of 25 m or less.

**Distribution.** Cosmopolitan, including Korea.

#### \*2. *Aetea ligulata* Busk, 1852 (Fig. 2A, B)

띠자루이끼벌레 (신칭)

*Aetea ligulata* Busk, 1852: 31, pl. 42; Prenant and Bobin, 1966: 89, fig. 21, IV, VI (cum syn.); Gordon, 1984: 39, pl. 8, E, F; Tilbrook *et al.*: 2001: 37, fig. 2A.

**Material examined.** NIBRIV0000811606, 30 July 2016, 27 m, southeast of Wando Island (Wando).

**Description.** Colony white, encrusting stone, creeping, delicate, formed with erect zooid from creeping stolon. Erect portion of zooid in branching uniserial, 0.6-1.4 mm long. Stem part cylindrical middle portion finely punctate, not annulate, but rather with smoothly rounded, transverse corrugations (Fig. 2A, B). Distal region comprising one-third length of erect portion, cylindrical, straight, not flexed (Fig. 2A).

**Remarks.** This species is reported from Korea for the first time. *Aetea ligulata* is easily distinguished from *A. anguina* having annulate stem and spoon-shaped distal region.

**Distribution.** Widespread, including Korea.

#### \*3. *Aetea truncata* (Landsborough, 1852) (Fig. 2C, D)

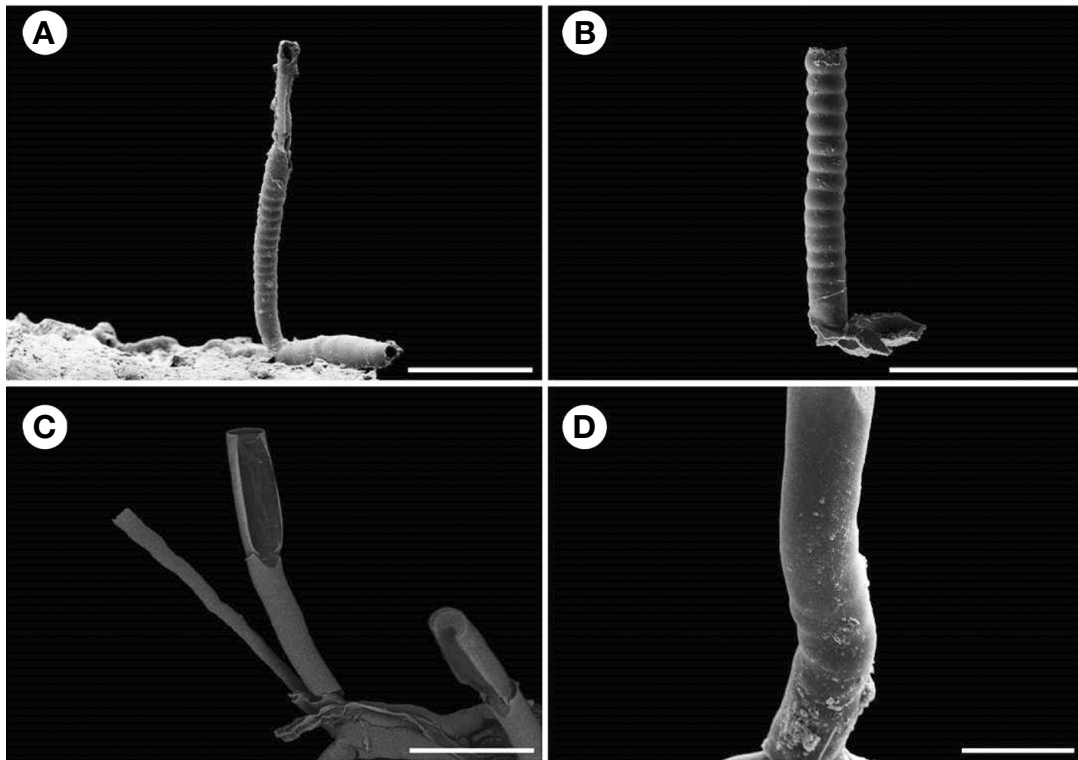
민띠자루이끼벌레 (신칭)

*Anguinaria truncata* Landsborough, 1852: 288.

*Aetea truncata*: Hincks, 1880: 8, pl. 1, figs. 8-10, pl. 2, fig. 3; Prenant and Bobin, 1966: 86; Ryland and Hayward, 1977: 48, fig. 15; Hayward and Ryland, 1998: 104, fig. 18.

**Material examined.** NIBRIV0000811607, Eoyudo Island (Tongyeong), 23 July 2013 by SCUBA diving from 35 m in depth.

**Description.** Colony white, delicate, encrusting seaweed, formed with erect zooid from creeping stolon. Erect portion pointing straight upwards, extremity trun-



**Fig. 2.** A, B. *Aetea ligulata* Busk, 1852. A. zooid. B. stem part of zooid, detail. C, D. *Aetea truncata* (Landsborough, 1852). C. zooids. D. stem part of zooid, detail. Scale bars: A-C = 300  $\mu$ m, D = 100  $\mu$ m.

cate, 0.6-0.8 mm long (Fig. 2C). Stem part closely punctate, not striated or annulate (Fig. 2D). Distal region occupying 1/2 to 1/3 length of erect portion (Fig. 2C).

**Remarks.** This species is reported from Korea for the first time. *Aetea truncata* is differentiated from *A. anguina* and *A. ligulata* by the absence of annulations in the stem part.

**Distribution.** Cosmopolitan, including Korea.

## CONCLUSION AND DISCUSSION

To date, 17 species of *Aetea* are recorded worldwide. However, only one *Aetea* species, *A. anguina* (Linnaeus, 1758), was previously reported in Korea by Rho and Song (1980). Since then, there are no reports of this genus in Korea. In this study, we added two species belonging to the genus, *Aetea ligulata* Busk, 1852 and *A. truncata* (Landsborough, 1852), collected from the South Sea, to the Korean bryozoan fauna.

Of a total of 17 species of *Aetea*, four species, including three Korean species, are cosmopolitan or widespread. The other cosmopolitan species, *A. sica* (Couch, 1844) has not been observed in Korea; however, this species is expected to inhabit Korean waters.

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