

## Three New Records of Marine Hydromedusae (Cnidaria: Hydrozoa) in Korea

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### ABSTRACT

Some hydromedusae were collected from the East Sea (36° 30'124"N and 130° 06'446"E), Yousu and Youngkwang with horizontal plankton net during from Nov. 2001 to Dec. 2002. They were identified into *Proboscidactyla flavicirrata* in the order Limnomedusae, and *Muggiaea bargmannae* and *Diphyes bojani* in the suborder Calycophorae of the order Siphonophora, respectively. *P. flavicirrata* is similar with *P. stellata* in the shape and size, but it is distinguished from later species in that *P. stellata* has six radial canals, 24 short marginal tentacles and dichotomous branching pattern. The suborder Calycophorae is the first recorded in Korea and posseses only develop a nectosome. In *Muggiaea bargmannae*, anterior nectophore is simillar with *Dimophyes arctica* in the shape of nectophore, but it is distinguished from the later in that *D. arctica* has a undivided mouth plate and deeper hydroecium. In *Diphyes bojani*, anterior nectophore is simillar with *Diphyes dispar* in the shape of nectophore, but it is distinguished from the later in which *D. dispar* has a deeper hydroecium and more prominant dorsal tooth. No posterior nectophores of *Muggiaea bargmannae* and *Diphyes bojani* have been observed.

Key words: taxonomy, hydromedusae, Korea

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## INTRODUCTION

By the previous taxonomic studies on hydromedusae (Park, 1996, 1998, 1999, 2001, 2002, 2003; Lee and Park, 2001; Park and Song, 2004), 15 species of 13 families in five orders were known from Korean waters. Of which five species are in the order Anthomedusae, five species in the Leptomedusae, one species in Trachymedusae, two species in Limmnomedusae and two species in Siphonophora. While the hydromedusae in the orders Anthomedusae, Leptomedusae and Limmnomedusae are a stage alternating with polyp of their life cycles, there is no polyp stage in the Trachymedusae (Mayer, 1910). The Siphonophora is forms colonies that swim and drift, and is divided into three suborders on the basis of the presence or absence of either an apical, gas filled float, the pneumatophore, or of swimming bells, nectophores which are grouped together to form the nectosome. The suborder Cystonectae possess only the pneumatophore; the Physonectae possesses both a nectosome and the pneumatophore; while the Calycophorae only develop a nectosome (Kirkpatrick and Puch, 1984).

Some hydromedusae were collected from the East Sea (36° 30'124"N and 130° 06'446"E), Yousu and Youngkwang with horizontal plankton net during from Nov. 2001 to Dec. 2002. They were preserved in 3-5% neutral formalin. All pictures in figures were photographed with a camera Nikon FX-35DX attached to the stereomicroscope Nikon SMG-U.

## SYSTEMATIC ACCOUNTS

Order Limmnomedusae

Family <sup>1\*</sup>Proboscidactylidae

<sup>2\*</sup>***Proboscidactyla flavicirrata* Brandt, 1835 (Fig. 1A-E)**

*Proboscidactyla flavicirrata*: Mayer, 1910, p. 189; Uchida and Okuda, 1941, p. 431, figs. 1-2; Chow and Huang, 1958, p. 185, pl. 5, fig. 40; Kramp, 1961, p. 234; 1968, p. 108, fig. 291.

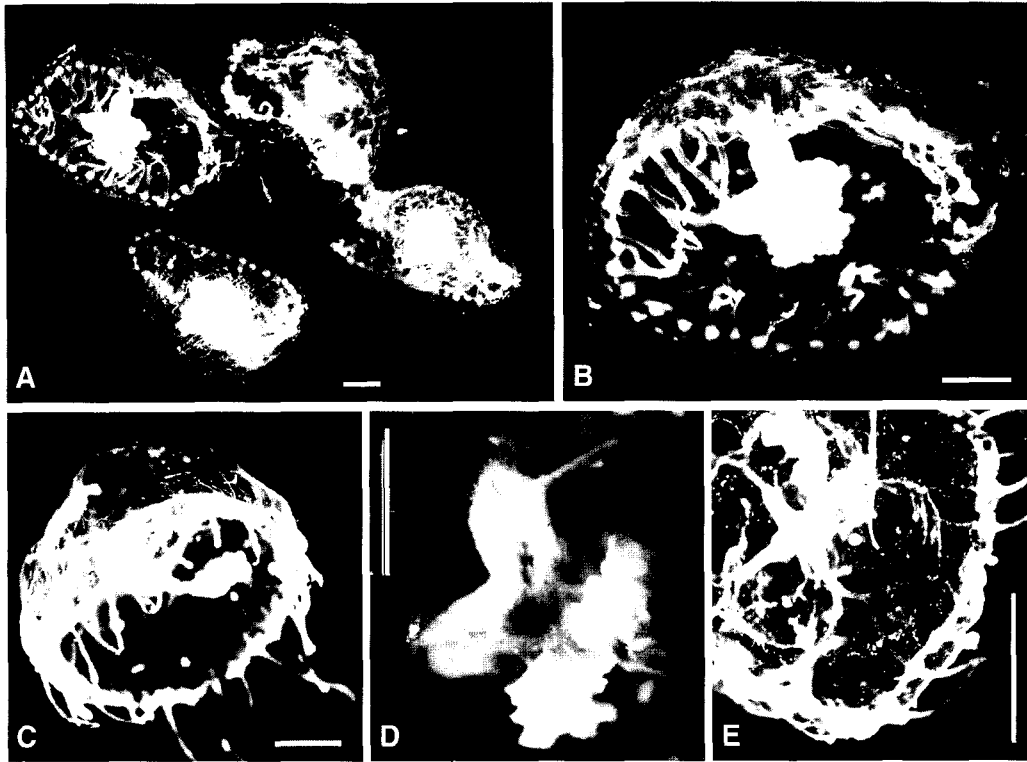
*Willsia flavicirrata*: Uchida, 1938, p. 51, fig. 3.

**Material examined.** Youngkwang, Nov. 2001 (J. H. Won).

**Description.** Bell small, below 5 mm in diameter and height, dome-shaped, with thick mesoglea. Four or five primary radial canals developed from stomach, branched, each branch giving rise to side branches from one side only in several times. Marginal tentacles arising from end of each terminal branch of radial canals, short, 33-46 in number, with round tentacular bulbs, Manubrium very short, with highly pleated oral lobes. Without ring canal. With clusters of nematocysts upon exumbrella between maginal tentacles. Gonads developed upon adradial sides of stomach extending outwards along sides of radial canals.

**Remarks.** This species is similar with *Proboscidactyla stellata* (see Kramp, 1968) in the shape and size, but it is distinguished from later species in which *P. stellata* has 6 radial canals, 24 short marginal tentacles and dichotomous branching pattern.

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**Fig. 1.** *Proboscidactyla flavicirrata*. A, four hydromedusae; B, oral view; C, lateral view of young medusa; D, pleated oral lobe and gonads; E, branching pattern of radial canal in young medusa. Scale bars = 1 mm.

**Distribution.** Pacific coasts of North America from Vancouver to California, coasts from Kamtschatka to Vietnam, Puget Sound (Washington), Japan, Chefoo (China), Korea.

Order Siphonophora  
 Suborder <sup>1\*</sup>Calycophorae  
 Family <sup>2\*</sup>Diphyidae  
 Subfamily <sup>3\*</sup>Diphyinae

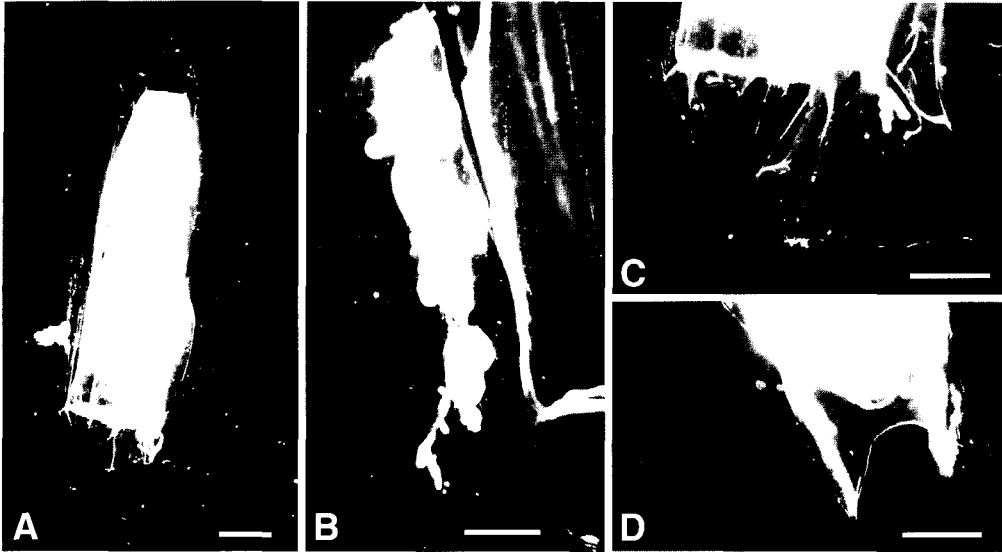
<sup>4\*</sup>***Diphyes bojani* (Eschscholtz, 1829) (Fig. 2A-D)**

*Diphyes bojani*: Bigelow, 1931, p. 565; Kawamura, 1954, p. 103; Totton and Bargmann, 1965, p. 155, text-fig. 92; Pugh, 1999, p. 488, figs. 3.79, 3.81.

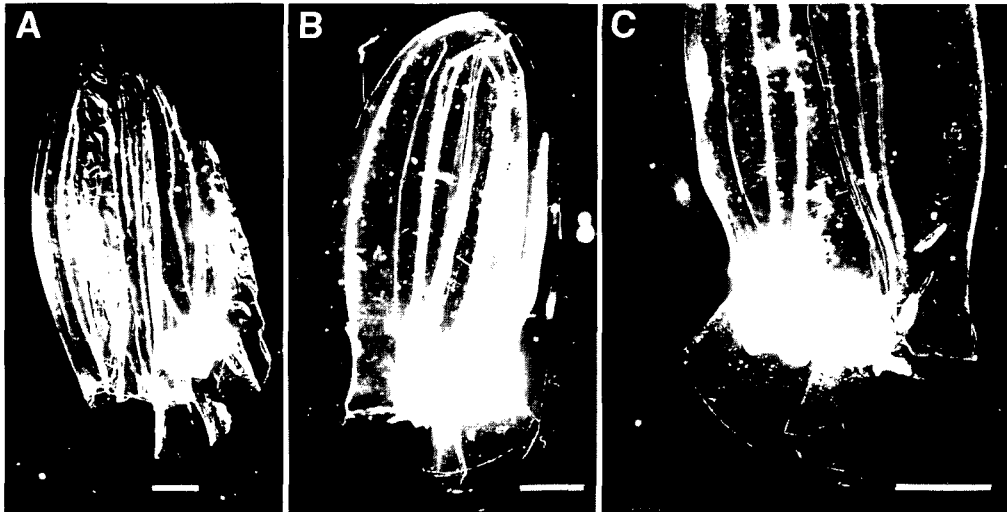
**Material examined.** Yousu, Nov. 2002 (J. H. Won).

**Description.** Anterior nectophore about 14 mm long in common, pyramid-shaped, five serrated longitudinal ridged, slender, pointed in apex. Nectosac slender, gradually narrowing toward its apex. With 3 similar ostial teeth, one dorsal and two laterals. Mouthplate margin fork-shaped in dorsal and ventral sides. Radial canals 4 in number, two ventrals shorter than two dorsals. Hydroecium reaching to

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**Fig. 2.** *Diphyes bojani*. A, anterior nectophore; B, stem with cornidia in hydroecium; C, ostial teeth and mouth plate; D, ventral view of mouth plate. Scale bars = 1 mm.



**Fig. 3.** *Muggiaea bargmannae*. A, two anterior nectophores; lateral view showing the round mouth plates; C, enlarged mouth plates and ostium. Scale bars = 1 mm.

about one-third of height of nectophore. Somatocyst arising from hydroecium and extending near to apex of nectophore. No posterior nectophores have been observed.

**Remarks.** This species is similar with *Diphyes dispar* (see Pugh, 1999) in the shape of nectophore, but it is distinguished from the later in that *D. dispar* has a deeper hydroecium and more prominent dorsal tooth.

**Distribution.** Cosmopolitan in tropical and subtropical seas [Philippine waters, Misaki (Japan), Korea].

\****Muggiaea bargmannae* Totton, 1954 (Fig. 3A-C)**

***Muggiaea bargmannae*:** Totton and Bargmann, 1965, p. 183, text-fig. 120; Pugh, 1999, p. 491, fig. 3.75.

**Material examined.** East Sea (36° 30'124"N and 130° 06'446"E), 3 Dec. 2002 (J. H. Won).

**Description.** Anterior nectophore below 10 mm long, with convex longitudinal folds which forming on contraction of nectosac. Small gap between apex of nectosac and that of nectophore. 4 radial canals, Mouth plate oblique, divided and round. Hydroecium shallow. Somatocyst over a little half height of nectophore.

**Remarks.** This species is similar with *Dimophyes arctica* (see Pugh, 1999) in the shape of nectophore, but it is distinguished from the later in that *D. arctica* has a undivided mouth plate and deeper hydroecium.

**Distribution.** Atarctic, Arctic, Korea.

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### 요 약

동해, 여수 및 영광에서 2001년 11월과 2002년 12월에 채집된 히드라해파리를 동정·분류한 결과 노란무늬지상해파리 (*Proboscidactyla flavicirrata*), 보야누스두겹관해파리 (*Diphyes bojani*) 및 바르그만머그관해파리 (*Muggiaea bargmannae*)가 한국미기록종으로 밝혀져 재기재하고 보고한다. 본 연구의 결과 지금까지 밝혀진 한국 해산 히드라해파리는 5목 15과 18종이 된다.