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Five New Records of Hydromedusae (Cnidaria: Hydrozoa) in Korea

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ABSTRACT

Some hydromedusae were collected from Gijang (Busan), Yeounggwang, Munseom (Jejudo Is.) and Shinhangman with Issacc-Kidd Midwater trawl net or by SCUBA diving from 2001 to 2003. They were identified into five species of five families in three orders and are new to the Korean fauna. *Bougainvillia ramosa* (van Benenden, 1844) of the family Bougainvilliidae in the order Anthomedusae, *Phialidium hemishaericum* (Linné, 1767) of the family Campanulariidae and *Aeguorea macrodactyla* of the family Aequoreidae in the order Leptomedusae, *Diphyes dispar* (Chamisso and Eysenhardt, 1821) of the family Diphydae and *Abylopsis tetragona* (Otto, 1823) of the family Abylidae in the order Siphonophora. With a result of this work, the Korean hydromedusa fauna consists of 31 species of 18 families in six orders.

Key words: taxonomy, hydromedusa, Hydrozoa, Korea

INTRODUCTION

Resulting from the previous taxonomic studies (Park, 1996; 2001; 2003; 2006; Lee and Park, 2001; Park and Song, 2004; Park and Won, 2004), 26 hydromedusae species of 18 families in six orders have been known in Korean waters.

Some hydromedusae were collected from Gijang (Busan), Yeounggwang, Munseom (Jejudo Is.) and Shinhangman with Issacc-Kidd Midwater trawl net or by SCUBA diving from 2001 to 2003. They were preserved in 5% neutral formalin solution and identified on the basis of the morphological characters. The pictures of parts of medusa in figures were taken under the light microscope (Nikon Microscope ECLIPSE 80i) and the stereomicroscope (Nikon SMG-U). The photographs of whole body of large medusa were taken with camera (Canon EOS 300D).

SYSTEMATC ACCOUNTS

Phylum Cnidaria
Class Hydrozoa
Order Anthomedusae
Family Bougainvilliidae

[1]***Bougainvillia ramosa* (Van Benenden, 1844) (Fig. 1A-B)**

Bougainvillia ramosa: Hincks, 1868, p. 109. pl. 19, fig. 2a-e; Yamada, 1959, p. 24; Millard, 1975, p. 97, fig. 33E-H; Hirohito, 1988, p. 97, fig. 34b-f.

Material examined. Gijang (Busan), 3 Nov. 2005 (H. S. Ko), by SCUBA diving in about 2-3 m deep.
Description. Medusa very small, semiglobular, about 0.4 mm wide, with 4 radial canals, a ring canal, and 4 marginal tentacular bulbs. Each tentacular bulb large comparing to medusa size, with a pair of marginal filiform tentacles, and 2 ocelli. Stomach with 4 oral tentacles.
Remarks. Mature medusa have not been examined. Young medusa is similar to *B. bitentaculata* (see Kramp. 1968) in having a pair of marginal tentacles on each tentacular bulb. But it is distinguished from the later by two ocelli on each tentacular bulb.
Distribution. Temperate and subtropical oceans.

Order Leptomedusae
Family Campanulariidae

[2]***Phialidium hemishaericum* (Linne, 1767) (Fig. 2A-D)**

Phialidium hemishaericum: Mayer, 1910, p. 266, figs. 242-244; Kramp, 1961, p. 167; 1968, p. 76, fig. 201.
Clytia hemisphaerica: Cornelius, 1995, p. 252, fig. 57A-H.

Material examined. Yeonggwang, Nov. 2001 (J. H. Won).
Description. Bell hemispherical, small, about 4-8 mm wide at margin, 2.5 mm high, jelly very thin. Stomach small, with short and simple 4 oral lobes, giving rise to 4 radial canals. Radial canals narrow and straight. Marginal tentacles about

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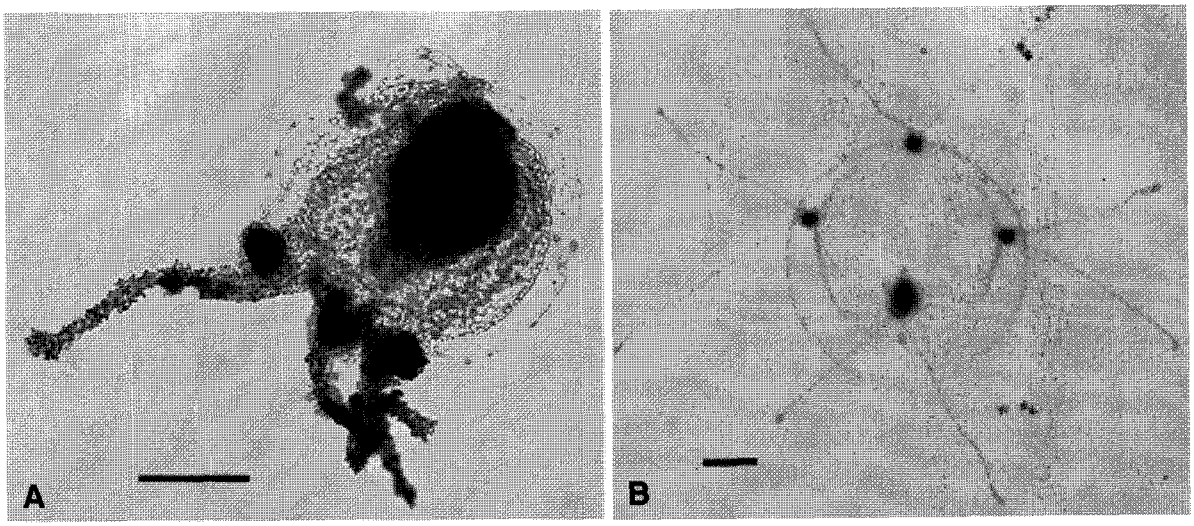

Fig. 1. *Bougainvillia ramosa*. A, medusa preserved in formalin; B, medusa in live. All scale bars=200 μm.

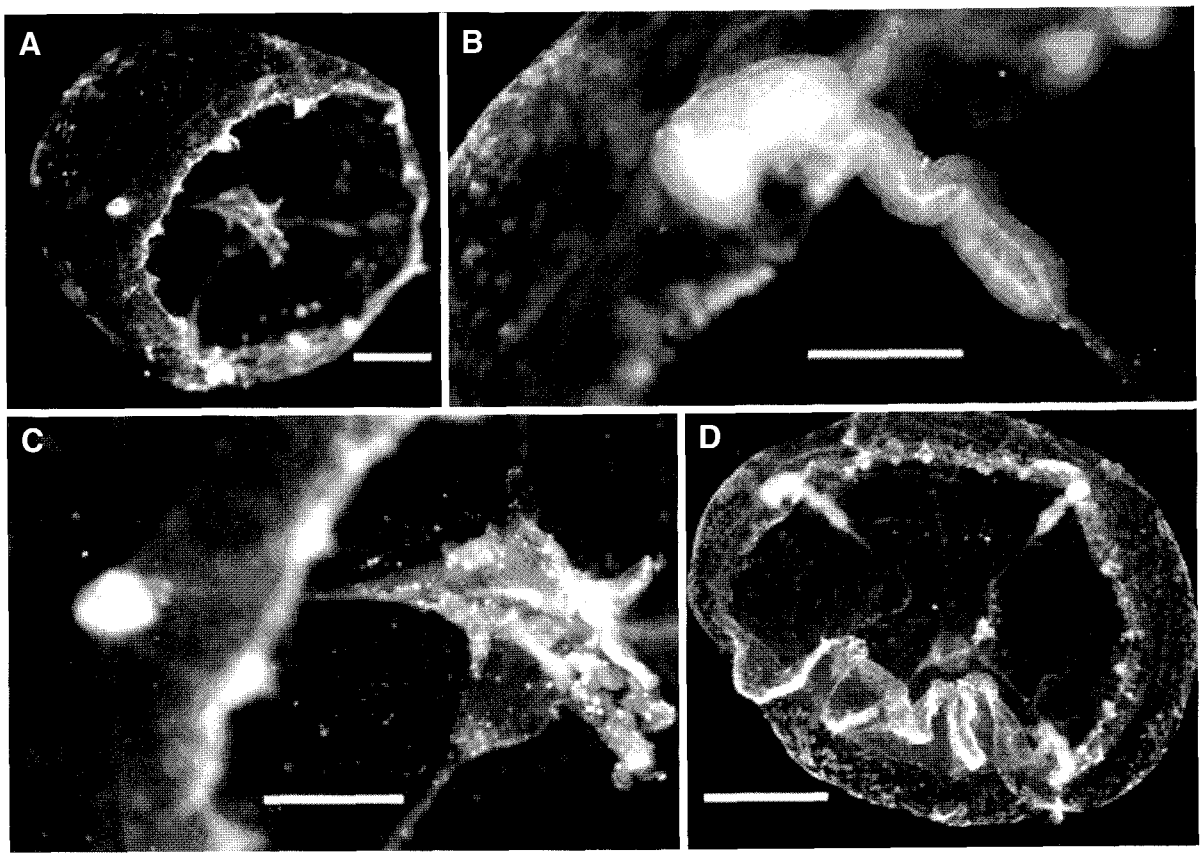

Fig. 2. *Phialidium hemishaericum*. A, sublateral view; B, gonad on radial canal; C, oral lobes; D, oral view. Scale bars=1 mm (A), 0.5 mm (B, C), 2 mm (D).

12-20 in number, with globular bulbs, 2-3 statocysts between tentacles. Velum narrow. Gonads linear, developing on about 1/3-1/2 distal radial canals.

Remarks. The number of marginal tentacles is variable acc-

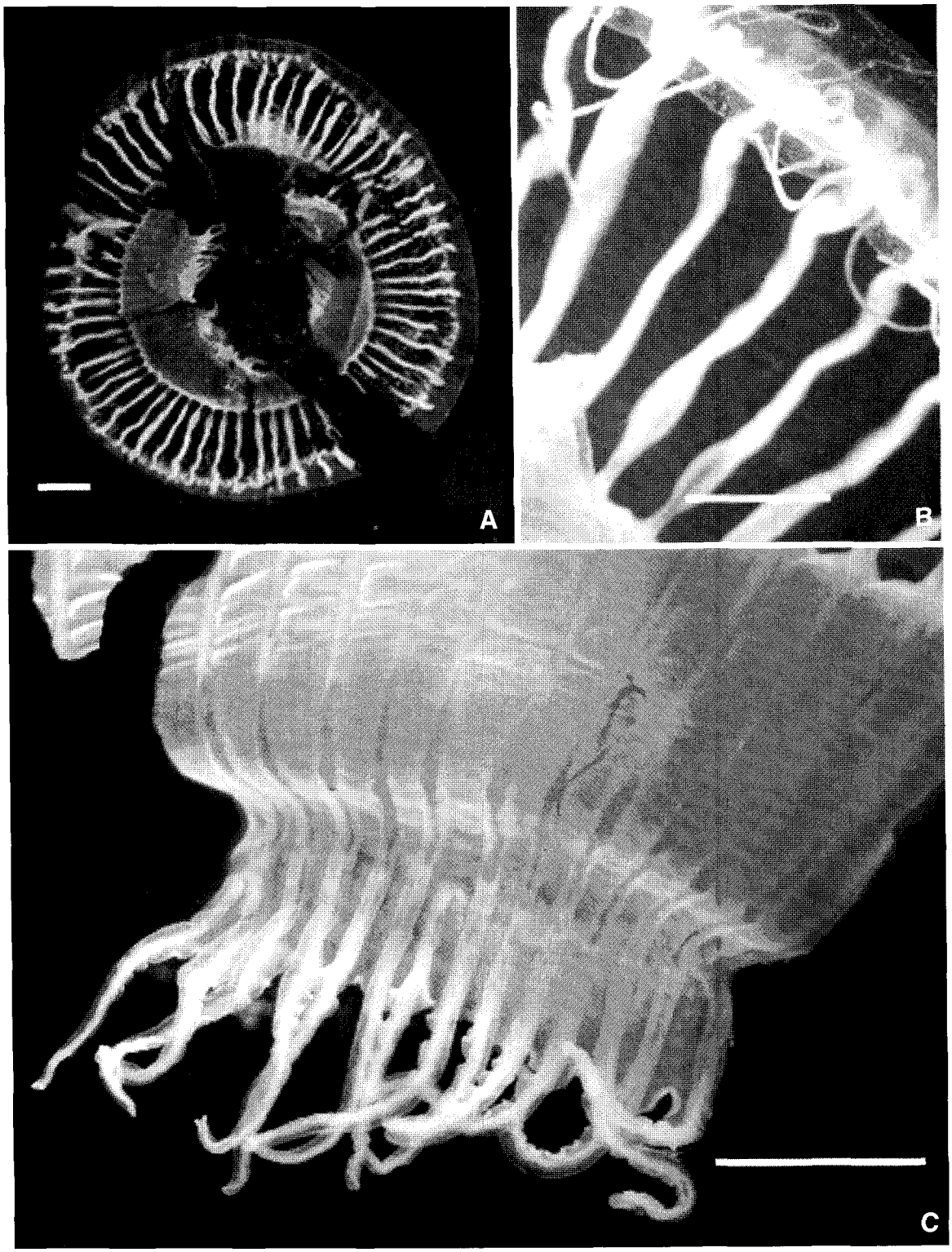

Fig. 3. *Aeguorea macrodactyla*. A, medusa; B, margin of umbrella; C, oral lobes. Scale bars=4 mm (A), 2 mm (B, C).

ording to growth. In the 21 mm wide medusa it has 30-39 tentacles (Mayer, 1910). This species is similar to *P. languidum* (see Mayer, 1910) in the position of gonads, the tantacle number and its size. But it is distinguished from *P.*

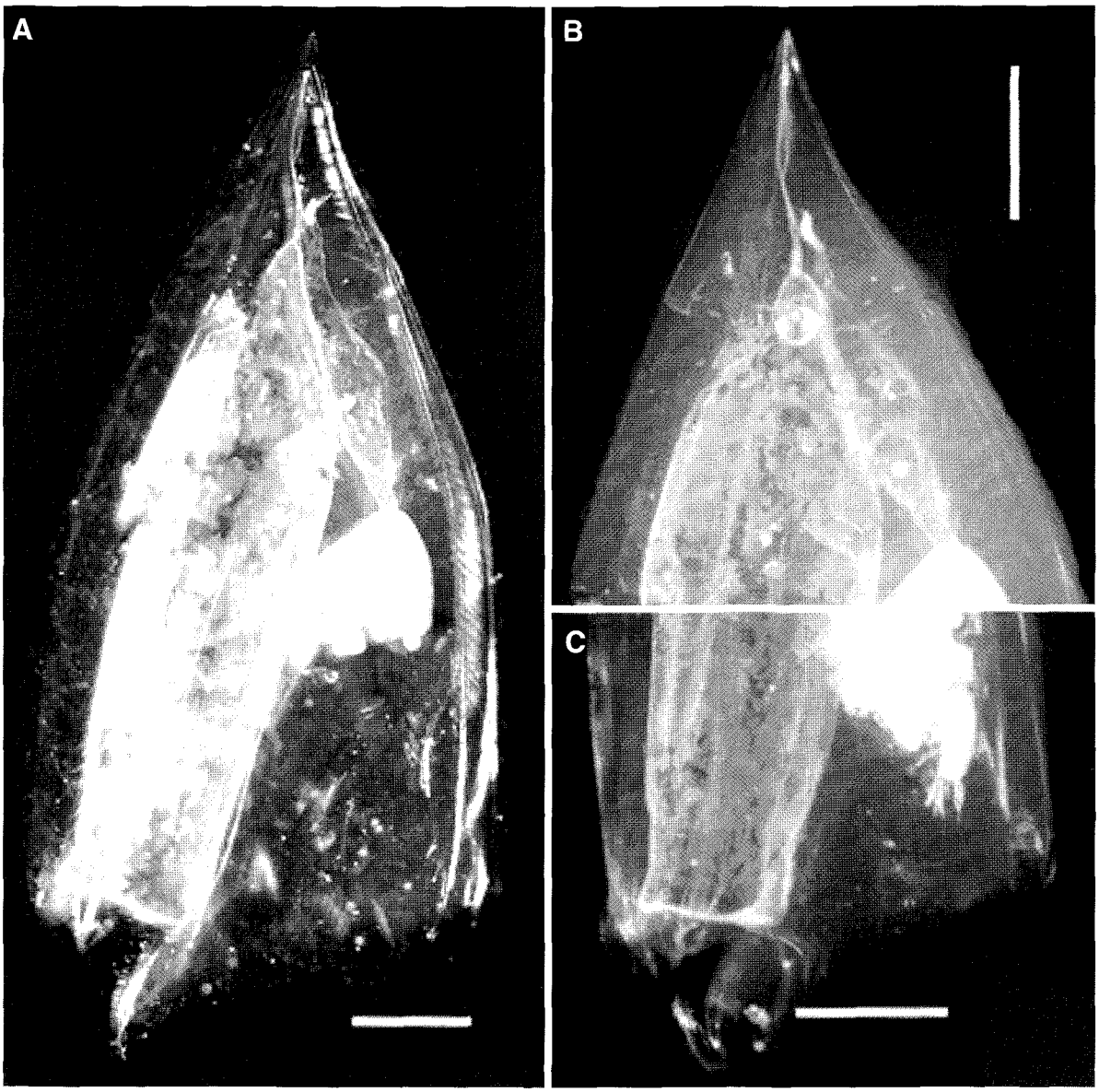

Fig. 4. *Diphyes dispar*. A, whole body of medusa; B, apex of nectophore; C, margins of hydroecium and nectosac. All scale bars=2 mm.

languidum by thinner jelly and more hemisphere bell shape.
Distribution. Indo-West Pacific region from East Africa to New Zealand, coastal waters in eastern Atlantic from Iceland and northern Norway to Cape of Good Hope, Mediterranean. Near-cosmopolitan in coastal waters.

Family Aequoreidae

[1]***Aeguorea macrodactyla* (Brandt, 1835) (Fig. 3A-C)**

Aeguorea macrodactyla: Mayer, 1910, p. 333; Kramp, 1961, p. 207; 1968, p. 98, fig. 267; Namikawa and Soyama, 2000, p. 55, photographs.

Material examined. Munseom (Jejudo Is.), 14-15 Jun. 2003 (INTHESEA KOREA Co. Ltd.).

Description. Central disk thick, biconvex lens-shaped, margin thin, about 45 mm or more wide, 10-30 tentacles at ends of some of radial canals. Tentacles distributed somewhat irregularly around bell mangin, elongate, tapering with

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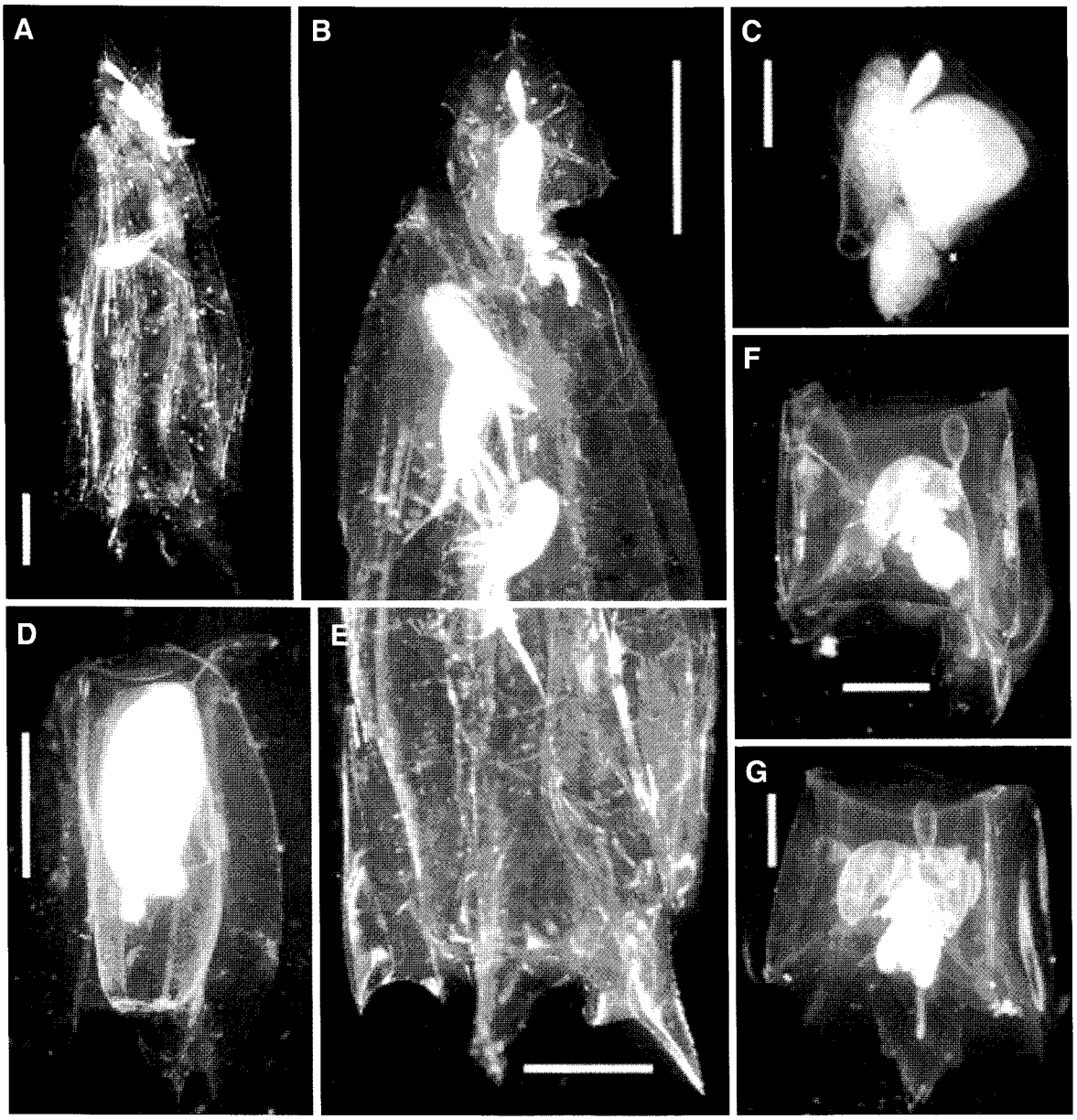

Fig. 5. *Abylopsis tetragona*. A, whole body of medusa; B, middle and apex of posterior nectophore; C, anterior nectophore; D, gonophore; E, ostial teeth of posterior nectophore; F, lateral view of eudoxid bract; G, dorsal view of eudoxid bract. Scale bars=2 mm (A, B, E), 1 mm (C, D, F, G).

large swollen, hollow-basal bulbs, longer than bell diameter when expanded, basal bulbs provided with excretory pores, 3-4 times as many rudimentary tentacular bulbs as tentacles. Statocysts more numerous than tentacular rudiments, and very small. Stomach very shallow, about half as wide as disk, with 20-40 lips, giving rise to 60-100 or more straight, simple radial canals. Gonads linear, developed on both sides of each radial canal, leaving both ends of canal free. They begin to develop when medusa about 25 mm wide and then they often appear only on the older and wider canals, leaving newly formed, narrow radial canals free of gonads until a later period.

Remarks. This species is similar to *A. coerulescens* (see Park and Song, 2004) in having numerous radial canals, more or less flat disk and large mouth, but it is distinguished from *A. coerulescens* by its smaller size and longer oral lips.

Distribution. Korea, Japan, eastern tropical Pacific, off Peru, southern coasts of Patagonia, West Indies, Gulf of Panama,

Australia (Torres Strait, Great Barrier Reef), Melanesian Islands and Tasman Sea, Indo-Malayan coastal waters, western parts of Indian Ocean from Maldive Islands to Madagascar and east coasts of Africa, off south-eastern and western coasts of Africa, off the southern parts of South America, Caribbian Sea, southern and south-western coasts of the British Isles.

Order Siphonophora
Family Diphydae
[1]***Diphyes dispar* (Chamisso and Eysenhardt, 1821) (Fig. 4A-C)**

Diphyes dispar: Moser, 1925, p. 170, taf. V-VII, VIII, fig. 3; Totton and Bargmann, 1965, p. 153, fig. 91, pl. 33, figs. 1, 2; Pugh, 1999, p. 489, figs. 3.71.

Material examined. Shinhangman, 17 May 2001 (J. H. Won).

Description. Anterior nectophore relatively large, about 25 mm long, compressed, with 5 longitudinal ridges, pointed apically. Nectosac with rounded apex and a long narrow projection towarding nectophore apex, reaching a distance from nectophore apex, margin with 3 ostial teeth, dorsal one curved inward and larger than laterals, ventral contour more convex than dorsal one. Hydroecium broad, quadrilateral extended to about mid-height of nectophore, with narrow sub-cylindrical somatocyst which reaching to just above of nectosac apex. Margin of hydroecium large, quadriate, about 9 mm wide oblique from ventral side down to mouth plate. Mouth plate not divided, but ventral and dorsal sides formed fork shape.

Remarks. This species is similar to *D. bojani* (see Park and Won, 2004) in the shape of anterior nectophore, but it is distinguished from *D. bojani* by the quadriate large hydroecium and long projection of nectosac apex.

Distribution. Worldwide distribution.

Family Abylidae
[2]***Abylopsis tetragona* (Otto, 1823) (Fig. 5A-G)**

Abylopsis tetragona: Totton and Bargmann, 1965, p. 216, pl. 40, figs. 1, 3, figs. 149, 150; Kirpatrick and Pugh, 1984, p. 132, fig. 58A-E; Pugh, 1999, p. 511, figs. 3.130, 3.138; Namikawa and Soyama, 2000, p. 71, photographs.

Material examined. Shinhangman, 17 May 2001 (J. H. Won).

Description. Anterior nectophore relatively small, about 5 mm high, pentagonal, different shape with posterior one. Nectosac tube shaped, without ostial teeth, round apex. Somatocyst composed of large round main body and apical club shaped projection. Posterior nectophore large, about 18 mm high (including ostial teeth). Nectosac long, cylindrical, with 4 stout ostial teeth, of which ventral ones more pronounced asymmetrically. Each longitudinal ridge ending basally in a tooth. Eudoxid bract pentagonal, about 5 mm high, lateral ridges parallel to each other. Phyllocyst composed of large lateral processes and an apical diverticulum and a long thin basal branch. Gonophore narrow and elongate, about 5 mm long, asymmetric, with 4 long teeth and a curved apical projection.

Remarks. This spcies is similar to *A. eschscholtzi* (see Totton and Bargmann, 1965) in the shape of medusa. But the posterior nectophore of this species is about three times as long as wide, in *A. eschscholtzi* the posterior nectophore is a little less than twice as long as wide.

Distributione. Korea, Japan, warm waters of Atlantic Ocean, Mediterranean.

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