

Three New Records of Scyphomedusae (Cnidaria: Scyphozoa) in Korea

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ABSTRACT

Some scyphomedusae were collected from the coasts of Ilgwang, Jeju Harbour, Yeosu, Yokjido Is. and Mu-nyeodo Is. in Korea from May to Nov. 2004. They were identified into *Pelagia noctiluca* Forskal, 1775 and *Cyanea nozakii* Kishinouye, 1891 of the order Semaestomeae and *Nemopilema nomurai* Kishinouye, 1922 of the order Rhizostomeae in the class Scyphozoa. They are new to the Korean fauna.

Key words: taxonomy, Scyphozoa, Korea

INTRODUCTION

The scyphomedusae are usually large, and have typically thick mesogleal layer and no velum. The medusoid stage predominates in the life cycle and polypoid individuals are small or lack in some groups. Excepting the sessile forms, Stauromedusae, most are floating in the oceans. More than 200 scyphomedusa species were known from around the world oceans (Brusca and Brusca, 2003).

The taxonomic study on the Korean scyphomedusae is now in beginning. Three scyphomedusae have only been reported from Korean waters by Park (2000, 2002) so far.

Some scyphomedusae were collected from the coasts of Ilgwang, Jeju Harbour, Yeosu, Yokjido Is. and Mu-nyeodo Is., Korea with fishing nets and SCUBA diving from May to Nov. 2004 (Fig. 1). They were preserved in 5% formalin solution after narcotization with menthol powders. They were identified into *Pelagia noctiluca* Forskal, 1775 and *Cyanea nozakii* Kishinouye, 1891 of the order Semaestomeae and *Nemopilema nomurai* Kishinouye, 1922 of the order Rhizostomeae. The redescription and photographs of them are given.

SYSTEMATIC ACCOUNTS

Class Scyphozoa

Order Semaestomeae

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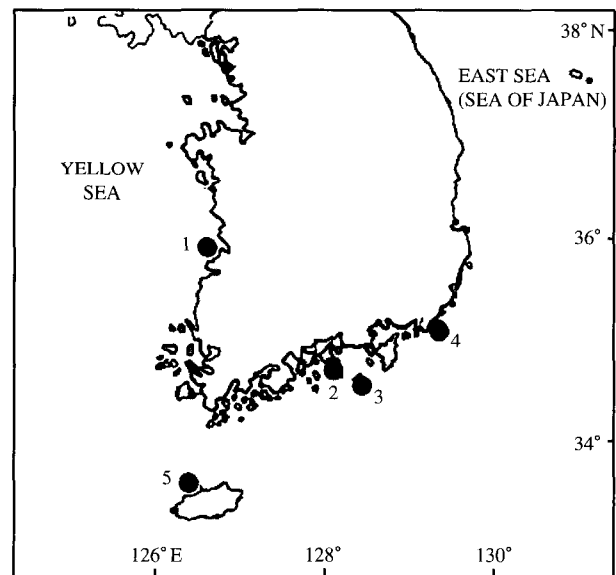


Fig. 1. A map showing the sampling sites in Korea. 1, Mu-nyeodo Is.; 2, Yeosu; 3, Yokjido Is.; 4, Ilgwang; 5, Jeju Harbour.

Family Pelagiidae

¹**Pelagia noctiluca* Forskal, 1775 (Fig. 2A-E)

Pelagia noctiluca: Mayer, 1910, p. 572, pl. 60, figs 1-3; Kramp, 1924, p. 46, fig. 37; 1961, p. 329; 1965, p. 259; Stiasny, 1934, 386; 1940, p. 20; Wrobel and Mills, 1998, p. 54, fig. 86; Mianzan and Cornelius, 1999, p. 539, fig. 5.11; Mills, 2001, p. 57; Namikawa and Soyama, 2004, p. 19, photograph.

Pelagia panopyra: Uchida, 1938, p. 57, fig. 7.

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Material examined. Jeju Harbour, May 2004 (S.-J. Chang); Ilgwang, Jun. 2004 (S.-J. Chang).

Description. Umbrella flatter than hemisphere when expanded, 7-8 cm wide, 2-3 cm high, relatively straight and sloping in side view, and its apex flat (Fig. 2B, C). Numerous nematocyst warts scattered evenly over exumbrella (Fig. 2B). Marginal tentacles arising from umbrella margin between deep clefts of lappets, alternating with rhopalia, about 9 cm long and 8 in number, hollow and tapering toward distally (Fig. 2A, C). Subrectangular marginal lappets 16 in number, with shallow median notches and rounded angles (Fig. 2D). Rhopalia 8 in number, located between clefts of lappets (Fig. 2D). Oral arms long, over 10 cm, slender proximally and with complexly folded margins, longer than marginal tentacles (Fig. 2A, C). Stomach giving rise to separated, unbranched radiating pouches, without ring canal (Fig. 2C). Gonads deep rose, seen through transparent gelatinous purple bell (Fig. 2A). Color variable, but often purple or yellow.

Remarks. This species is a common epipelagic oceanic species of the warm and temperate seas. They occur in great numbers either in surface waters or on beaches.

Distribution. All warm and temperate seas.

Family ¹*Cyaneidae

²**Cyanea nozakii* Kinshinouye, 1891 (Fig. 3A-F)

Cyanea capillata nozakii: Mayer, 1910, p. 601.

Cyanea nozakii: Uchida, 1938, p. 45; Kramp, 1961, p. 335; Gao et al., 2002, p. 204, fig. 120; Namikawa and Soyama, 2004, p. 16, photograph.

Material examined. Ilgwang, May and Jul. 2004 (S.-J. Chang).

Description. Umbrella flat and shield-shaped, about 30-50 cm wide, brown spots scattered over exumbrella and looks like eight-pointed star (Fig. 3B). Marginal tentacles arising from horseshoe-shaped regions between oral lobes, arranged in several rows and 8 clusters, each cluster consisting about 150 tentacles (Fig. 3B, E). Muscles developed well in subumbrella and divided into 16 radiating muscles (Fig. 3A-E). Oral arms short, highly folded and forming a blocky mass (Fig. 3F). Lappets 16 and rhopalia 8 in number (Fig. 3C). Central stomach divided into 4 cavities, giving rise to radial canals, each radial canal branched in many times and terminated in marginal lappets (Fig. 3E). Gonad developed in 4 stomach cavities, complexly folded, gastric cirri projecting from gonads (Fig. 3D). Color milky white.

Remarks. This species is similar to *C. capillata* (see Mayer, 1910) in external shape but it is distinguished from the latter

by smaller size and milky white color. While *C. nozakii* is warm and tropical form, *C. capillata* is boreal form (Uchida, 1938; Gao et al., 2002).

Distribution. Korea, Japan, Indonesia, northwest Pacific, Indian Ocean.

Order Rhizostomeae

Family ³*Rhizostomidae

⁴**Nemopilema nomurai* Kinshinouye, 1922

(Fig. 4A-F)

Nemopilema nomurai: Omori and Nakano, 2001, p. 20;

Omori and Kitamura, 2004, p. 44, figs 8-10.

Stomolophus nomurai: Uchida 1954, p. 211, fig. 2;

Namikawa and Soyama, 2004, p. 28, photograph.

Material examined. Yokjido Is., Aug. 2004 (S.-J. Chang); Yeosu, Nov. 2004 (S.-J. Chang), Mu-nyeodo Is., Nov. 2004 (S.-J. Chang).

Description. Umbrella rigid and thick, reaching up to about 120 cm wide when expanded, slightly reddish brown in color, divided into 8 octants (Fig. 4A). Colorless granule-like warts scattered over exumbrella, warts in near margin smaller than central ones (Fig. 4C). Subumbrella muscles well developed, divided into 16 sectors by 16 radial canals (Fig. 4D). Marginal lappets 8 in each octant, each lappet divided into round 2 sub-lappets (Fig. 4E). Rhopalia 8 in number, with short and slender rhopalar lappets (Fig. 4E). Oral arms J-shaped in lateral view, fused with each other in proximal one fourth of their length, divided into 8 arms distally, deep reddish brown. Each arm with 3 wings, 2 of them face outward (outer wing), the other faces central axis (inner wing). Each wing branched complexly, margin ornamented with numerous cirri with small terminal nobes, folded complexly into frills. Numerous whip-shaped appendages occurred on wings (Fig. 4F). Central mouth not open reaching to near bottom. Scaplets 16, located on fused portion of oral arms, each distal half branched into 2 wings (Fig. 4B). Gonads developed in subgenital cavities.

Remarks. This is an edible jellyfish and a serious fisheries nuisance. Its venomation is very famous to fishers and divers, although venomous damage has not been recorded yet. This species is similar to *Rhopilema esculentum* in shape, but it is distinguished from the latter by reddish brown color and larger size. The umbrella of *R. esculentum* shows bluish and the appendages of oral arms are milky white or transparent (Omori and Kitamura, 2004; Namikawa and Soyama, 2004).

Distribution. Korea, Japan, East China Sea, Lia-tung Bay, Pohai and Yellow Sea coasts to off Shoushan (Zhejiang Province, China).

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Fig. 2. *Pelagia noctiluca*. A, whole body in side view; B, flat apex (arrow indicates nematocyst wart); C, oral view; D, margin of umbrella; E, distal portion of oral arm. (g, gonad; l, lappet; mt, marginal tentacles; oa, oral arm; sp, stomach pouch; arrow indicates rhopalium). Scale bars=2 cm (A-D), 5 mm (E).

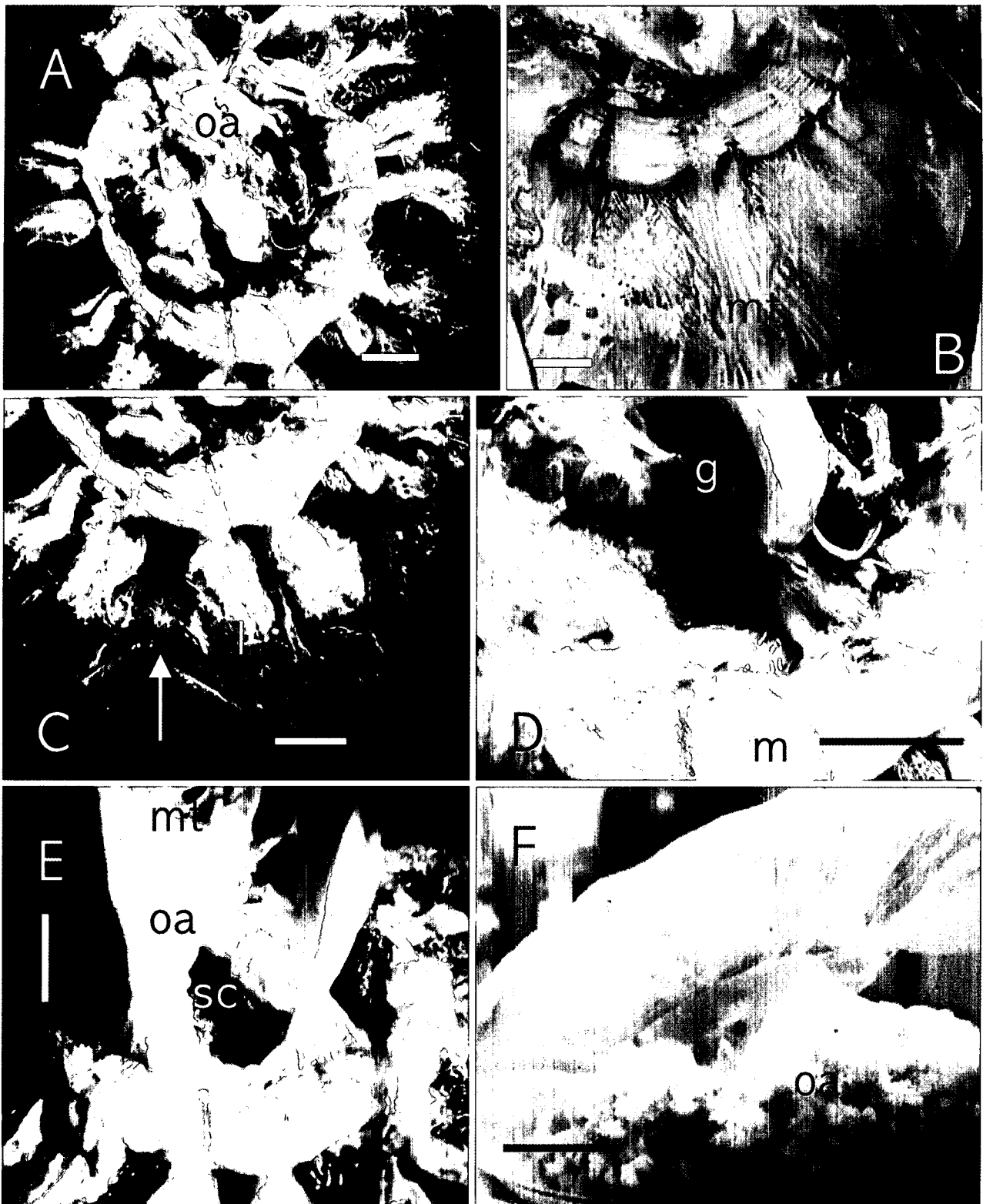


Fig. 3. *Cyanea nozakii*. A, oral view; B, aboral view; C, umbrella margin; D, oral cavity; E, expanded oral arm in side view; F, side view in fresh specimen. (g, gonad; l, lappet; m, muscle; oa, oral arm; mt, marginal tentacles; sc, stomach cavity; arrow indicates rhopalium). Scale bars=2 cm.

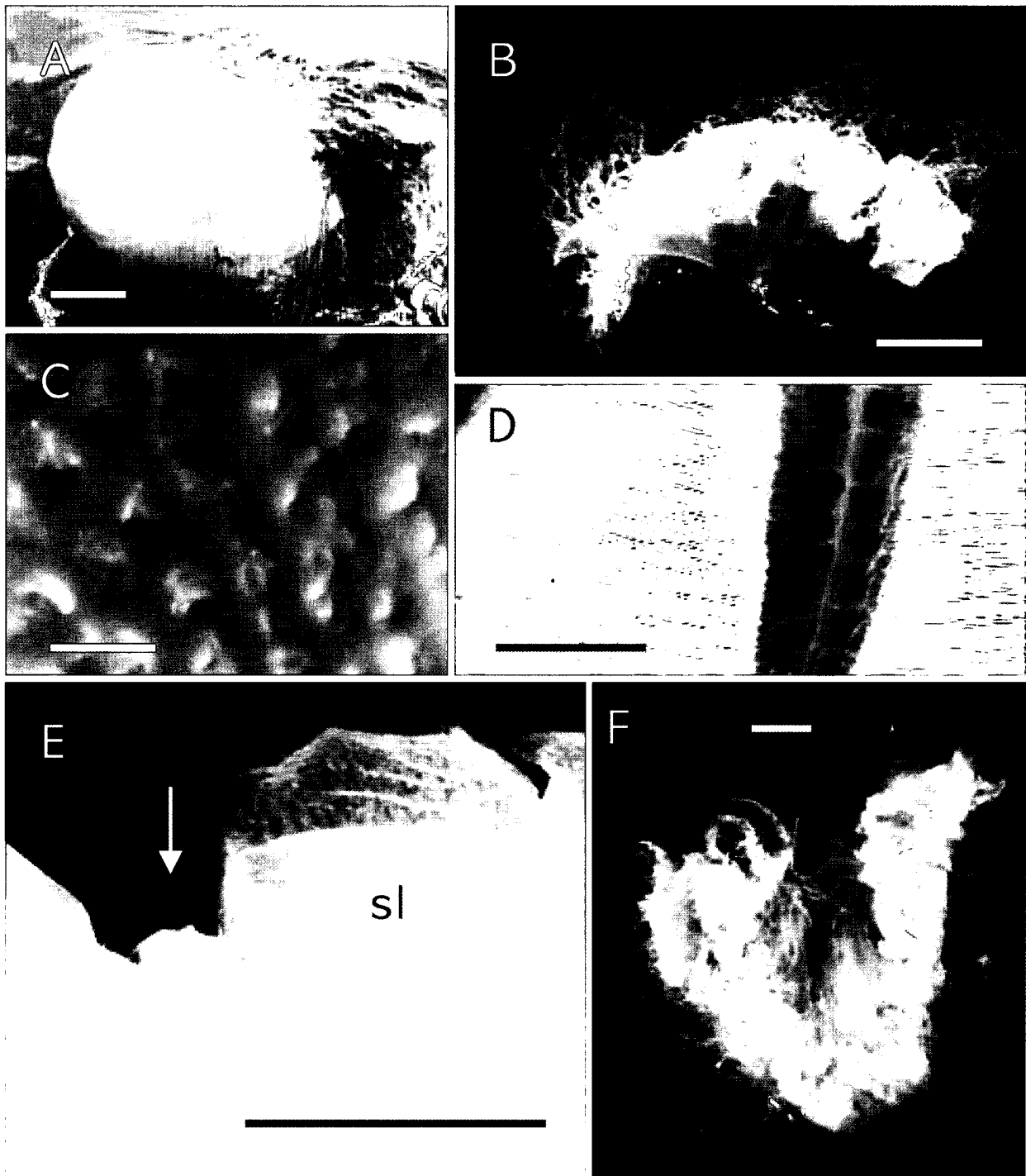


Fig. 4. *Nemopilema nomurai*. A, whole body in side view; B, scapulet; C, exumbrella surface; D, subumbrella muscle; E, umbrella margin; F, oral arm in outer view. (sl, sub-lappet; arrow indicates rhopalium). Scale bars=40 cm (A), 4 cm (B, F), 1 mm (C), 2 cm (D, E).

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