

Hydroids (Cnidaria, Hydrozoa) of Dokdo Islands, Korea

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ABSTRACT

As a part of ecological survey of Dokdo Islands, Korea the hydroid collections were made in its intertidal and subtidal zones by the one of present authors and others during the periods from March 1993 to May 1999. The specimens were identified into 15 species of 11 families (Corymorphidae, Corynidae, Eudendriidae, Solanderiidae, Bougainvilliidae Tubulariidae, Lafoëidae, Haleciidae, Campanulariidae, Sertulariidae and Plumulariidae) in two orders (Athecatae and Thecatae). Two species of them, *Fukaurahydra anthoformis* (Corymorphidae) and *Rhizorhagium sagamiense* (Bougainvilliidae) were turned out to be new to the Korean fauna.

Key words: hydroids, Dokdo Islands, Korea

INTRODUCTION

Dokdo Island is located in the eastmost of Korea, between 131°52'22"E of longitude and 37°14'18"N of latitude, where is influenced by the warm Tsushima Current, a western branch of Kuroshio and the North Korean Cold Current. So that the tropical and boreal hydroid forms are also inhabited with other temperate forms in it.

So far any studies on hydroids were never done in Dokdo Islands. As a part of its ecological survey hydroid collections were made in their intertidal and subtidal zones (Fig. 1) by the one of present authors and others during the period of March 1993 and May 1999. The hydroid specimens were identified into 15 species in 11 families (Corymorphidae, Corynidae, Eudendriidae,

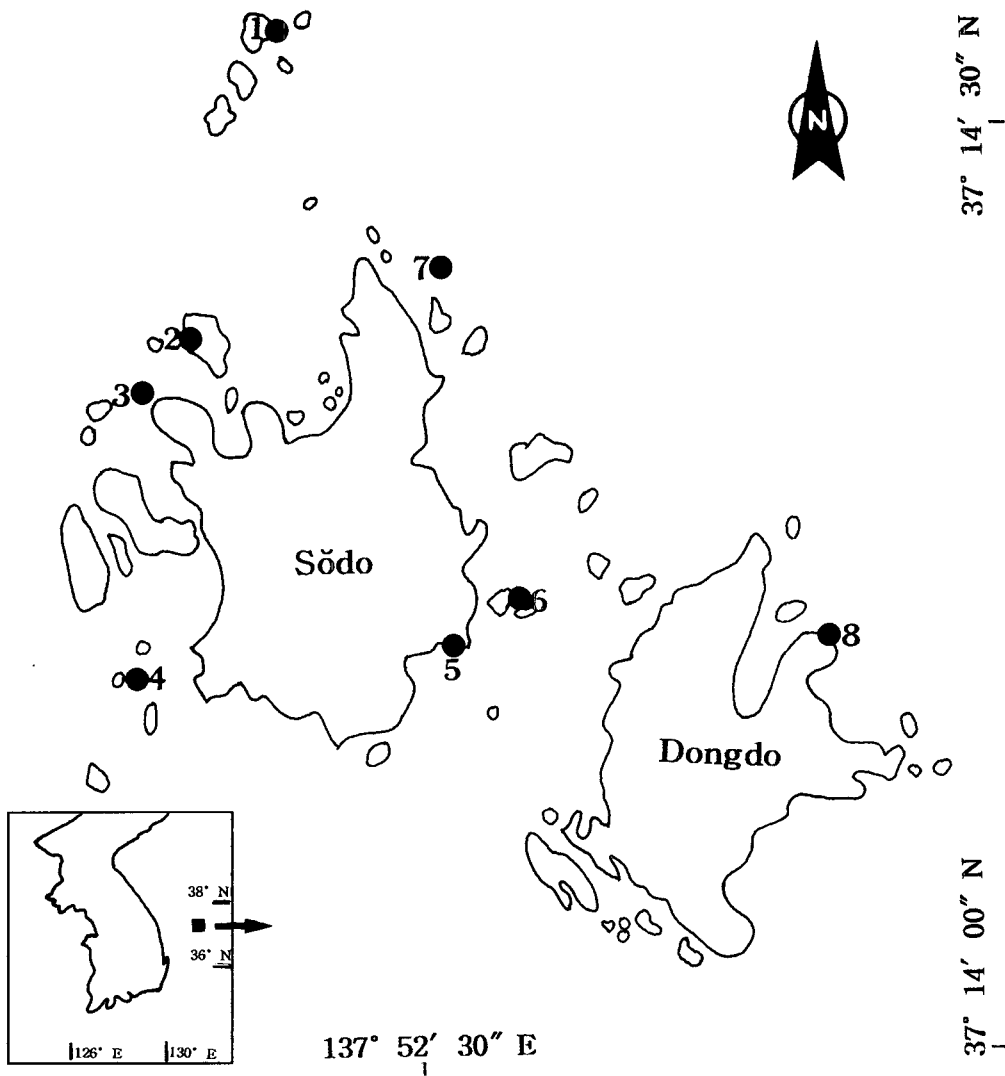


Fig. 1. Dokdo Islands showing the sampling sites. 1, Mulgae Rock; 2, St. 1; 3, Ji-nae Rock; 4, St. 2; 5, St. 3; 6, Sujung Cave; 7, St. 4; 8, St. 5.

Solanderiidae, Bougainvilliidae, Tubulariidae, Lafoeidae, Haleciidae, Campanulariidae, Sertulariidae and Plumulariidae) of two orders (Athecatae and Thecatae). Two species of them, *Fukaurahydra anthoformis* Yamada, 1977 in Corymorphidae and *Rhizorhagium sagamiense* Hirohito, 1988 of the family Bougainvilliidae were turned out to be new to the Korean fauna.

The redescrptions and illustrations on new records in Korea and the previous records on the already known species in Korea are given. Overlooking the species, *F. anthoformis* it looks like a actinians. The family Corymorphidae is the first record in Korea.

SYSTEMATIC ACCOUNTS

Class Hydrozoa 히드라충강

Order Athecatae 민첩히드라충목

Family 1. Corymorphidae 의곤봉히드라과 (신칭)

1. *Fukaurahydra anthoformis* Yamada, Konno and Kubota, 1977

말미잘후카무라히드라 (신칭) (Fig. 2A-D)

Fukaurahydra anthoformis Yamada, Konno and Kubota, 1977, p. 151, figs. 1A-E. 2A-E; Kubota, 1998, p. 13.

Material examined. Sts. 1, 2, 3, 14 May 1999.

Description. Hydroid solitary, like as actinians, about below 2 cm in height. Hydranth disc-shaped, with tubular hypostome at its center and below 10 mm in diameter, mouth at top of hypostome. Oral tentacles arranged in several closely sets of whorls surrounded mouth, short and slender filiform. Aboral tentacles longer and thicker than oral ones, arranged in two or more whorls alternately, and filiform. Tentacles creamy color at base of aboral tentacles. Eight radial canals rising from base of tubular hypostome toward margin of hydranth disc, branched dichotomously on two time in common. Blastostyles arising on radial canals in hydranth disc, with short stalk, branched two or more, each branch a cluster of several gonophores. Male gonophore club-shaped, light orange colored, with dark green spots on its above or below, and some one with dark orange spot on its top. Female gonophore spindle-shaped, little depressed, and eggs produced at its basal part (Yamada, Konno and Kubota, 1977). Hydrocaulus more or less cylinder-shaped, tapering down toward, covered with thin membranous periderm reached to hydranth, and longitudinal lows. Hydrorhiza composed of many rooting processes at basal part of hydrocaulus, and adhered to substratum.

Remarks. *Fukaurahydra anthoformis* looks like a actinians. But it is a athecate hydroids of the family Corymorphidae and first recorded in Korea. They inhabit below the low tidal line where surging waves are washing and attached on seaweeds and bryozoans on rocks. While the one from Japan (Yamada, Konno and Kubota 1977) attached on rocks, banacles and mussel-shells placed in the same place with ours.

Distribution. Korea (Dokdo Islands), Japan (Fukaura, northern Japan).

Family 2. Corynidae 곤봉히드라과

2. *Coryne pusilla* Gaertner, 1774 곤봉히드라

Previous records in Korea. Rho, 1969; Rho and Chang, 1972; 1974; Park, 1993.

Material examined. St. 2, 14 May 1999.

Distribution. Korea, Japan, Indian Ocean, Mediterranean, South Africa, Arctic Sea.

Family 3. Solanderiidae 산호불이히드라과

3. *Solanderia misakinensis* (Inaba, 1892) 큰산호불이히드라

Previous records in Korea. Rho and Park, 1979; Park, 1993.

Material examined. Ji-nae Rock, 13 May 1999; Mulgae Rock, 15 May 1999.

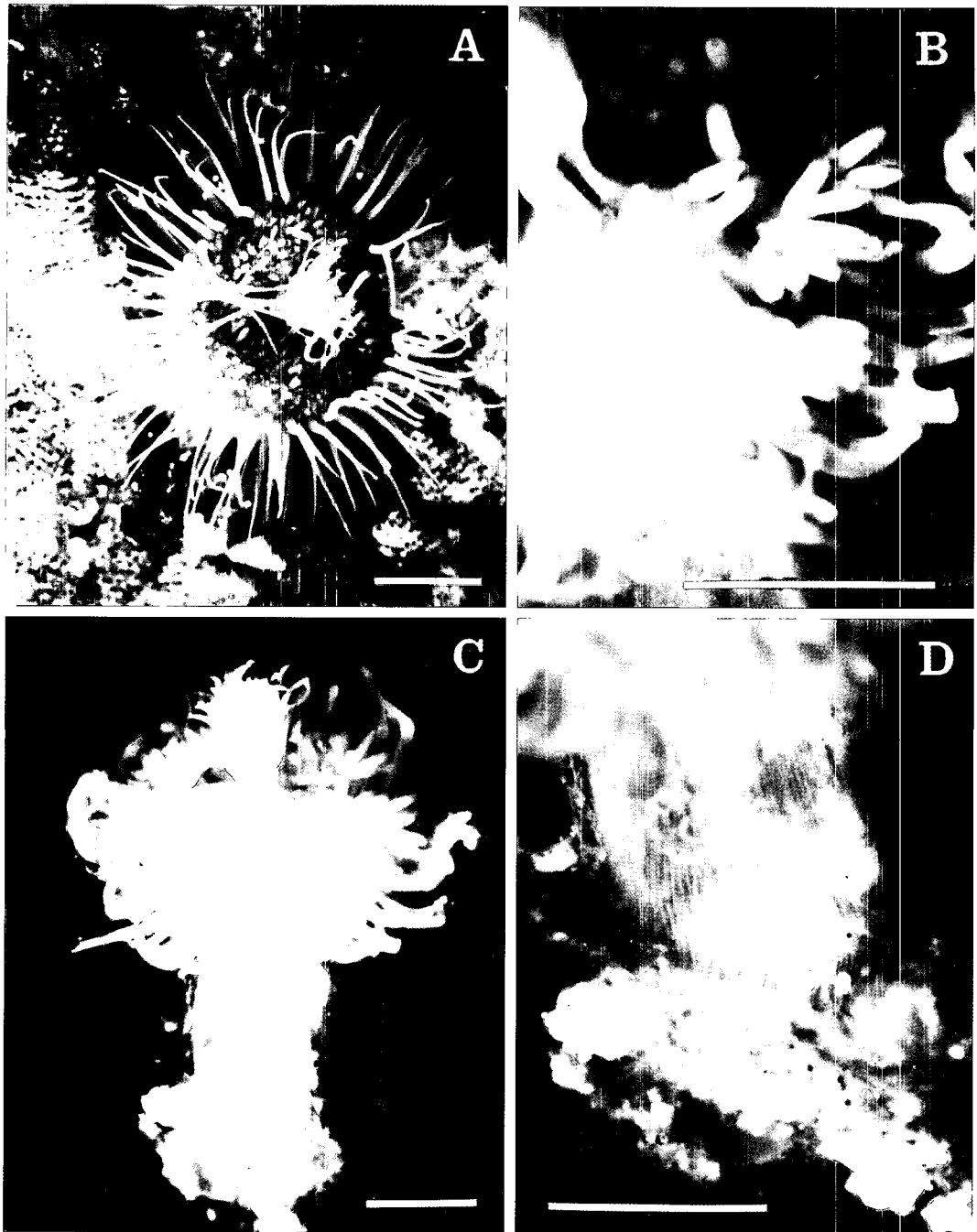


Fig. 2. *Fokaurahydra anthoformis*. A, hydranth disc in live showing the oral, aboral tentacles and gonophores; B, clusters of male gonophores; C, solitary polyp; D, hydrorhiza composed of many rooting processes attached to substratum. Scale bars = 2 mm (A), 3 mm (B-D).

Distribution. Korea, Japan.

Family 4. Bougainvilliidae 보우겐빌히드라과

4. *Rhizorhagium sagamiense* Hirohito, 1988 사가미포도뿌리히드라 (신칭) (Fig. 3A-E)

Rhizorhagium sagamiense Hirohito, 1988, p. 101, fig. 36a-c.

Material examined. Sujung Cave, 15 May 1999.

Description. Colonies small, below 5 mm in height, erect unbranched or rarely branched. Hydrorhiza like as reticular stolonial mat. Stem simple, with thin two layers of periderm, which connected by oblique lamellae or irregular ones, and with hydranth at terminal portion. Hydranth with conical hypostome and one whorl of filiform tentacles, up to 12, which enclosed with infundibular periderm on base. Gonophore with short stalk, arising from below portion of stem, oval-shaped.

Remarks. The two-layered thin periderm connected by oblique lamellae or irregular ones is the distinct characteristic of this species. It is very small and attached on eudendriid hydroids.

Distribution. Korea, Japan.

Family 5. Eudendriidae 꽃히드라과

5. *Eudendrium* sp.

Material examined. Sujung Cave 15 May 1999.

Family 6. Tubulariidae 관히드라과

6. *Tubularia mesembryanthemum* Allman, 1871 관히드라

Previous records in Korea. Rho, 1969; Park, 1995.

Material examined. Mulgae Rock, 13 May 1999.

Distribution. Korea, Japan, Mediterranean, west coasts of Europe.

Order Thecatae 컵히드라총목

Family 7. Haleciidae 무늬히드라과

7. *Halecium delicatulum* Coughtrey, 1876 매혹무늬히드라

Previous records in Korea. Rho and Park, 1983; Park, 1993; 1995.

Material examined. St. 5, 23 March 1993; Mulgae Rock, 13 May 1999.

Distribution. World-wide distribution.

Family 8. Lafoëidae 바위불이히드라과

8. *Filellum serratum* (Clarke, 1879) 톱니실히드라

Previous records in Korea. Rho and Chang, 1974; Park, 1990; 1991; 1993.

Material examined. Sujung Cave, 15 May 1999.

Distribution. Korea, Japan, Philippines, Indo-China, New Zealand, East and West Indies, Red Sea, Mediterranean.

9. *Lafoea fruticosa* (M. Sars, 1851) 덩불바위불이히드라

Previous records in Korea. Rho and Chang, 1974; Park, 1990; 1991; 1993; 1995; 1997.

Material examined. St. 5, 23 March 1993; Sujung Cave, 15 May 1999.

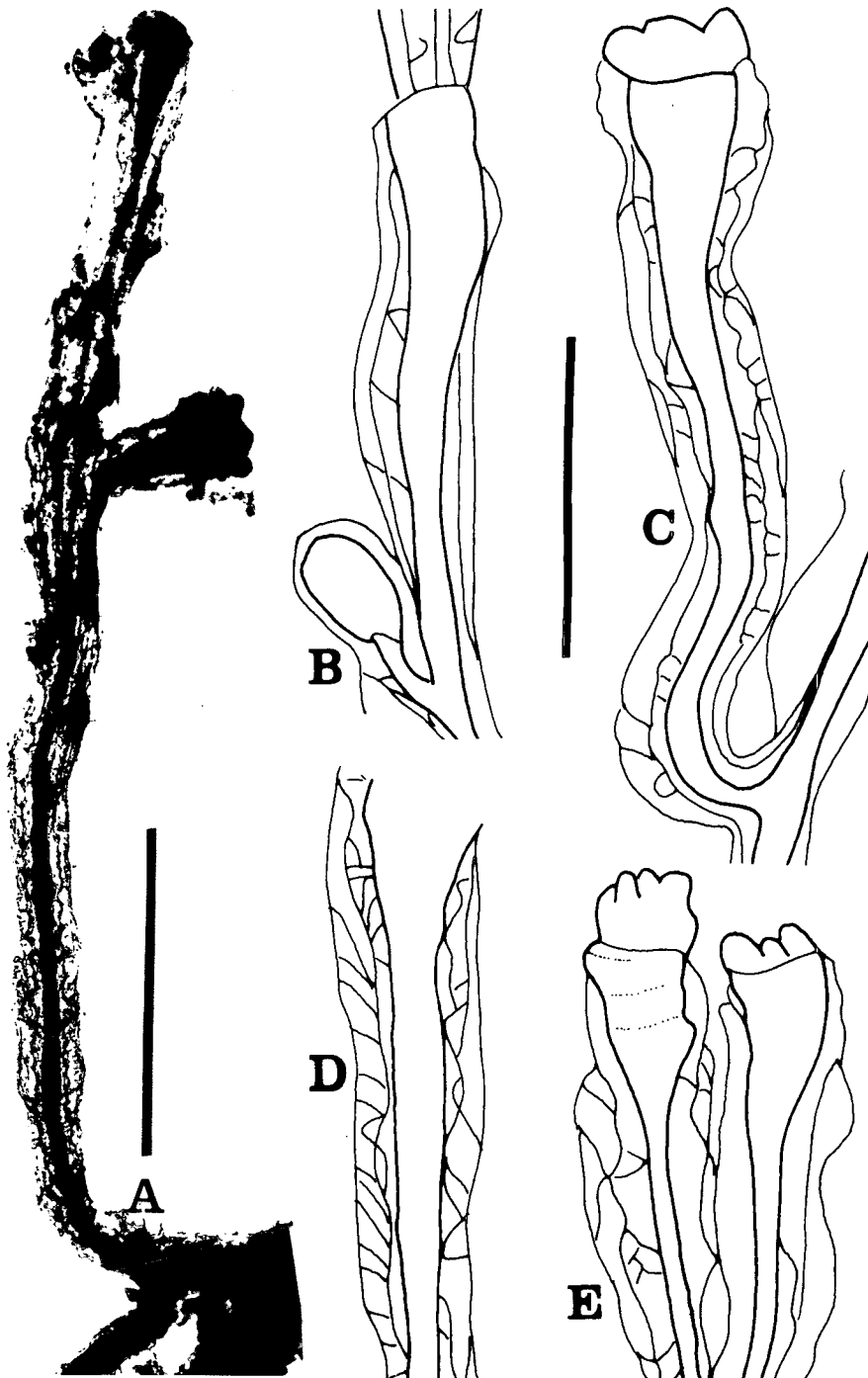


Fig. 3. *Rhizorhagium sagamiense*. A, colony with hydranths and branch; B, below portion of stem with gonophore; C, branch with hydranth; D, thin two layers of periderm connected by oblique lamellae or irregular ones; E, below portions of hydranths enclosed with infundibular periderms. Scale bars = 0.5 mm (B-E), 1 mm (A).

Distribution. Korea, Japan, Arctic Sea, Northern Hemisphere.

Family 9. Campanulariidae 종히드라과

10. *Eucalix paradoxus* Stechow, 1923 컵히드라

Previous records in Korea. Rho, 1967; Rho and Chang, 1974; Park, 1993.

Material examined. St. 2, 14 May 1999.

Distribution. Korea, South Africa.

11. *Campanularia platycarpa* (Bale, 1914) 입넓은종히드라

Previous records in Korea. Rho, 1967; Rho and Chang, 1974; Park, 1990.

Material examined. St. 4, 12 May 1999.

Distribution. Korea, Japan, Australia.

Family 10. Sertulariidae 테히드라과

12. *Sertularella levigata* Stechow, 1931 테히드라

Previous records in Korea. Rho, 1967; 1969; Rho and Chang, 1972; Park and Rho, 1986; Park, 1990; 1993; 1997.

Material examined. St. 5, 23 March 1993.

Distribution. Korea, Japan.

13. *Sertularella sagamina* Stechow, 1921 사가미테히드라

Previous records in Korea. Park, 1998.

Material examined. St. 4, 12 May 1999.

Distribution. Korea, Japan.

14. *Symplectoscyphus hozawai* Stechow, 1931 호자와테히드라

Previous records in Korea. Rho, 1967; 1969; Rho and Chang, 1974; Park and Rho, 1986; Park, 1990; 1997.

Material examined. Mulgae Rock, 23 Mar. 1993.

Distribution. Korea, Japan.

Family 11. Plumulariidae 깃히드라과

15. *Plumularia filicaufilicaulis japonica* Jaderholm, 1919 왜고비깃히드라

Previous records in Korea. Rho and Park, 1980; 1986; 1993; Park, 1997.

Material examined. Mulgae Rock, 13 May 1999.

Distribution. Korea, Japan, Australia, Chile, South Africa.

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독도산 히드라충류(자포동물문, 히드라충강)의 분류

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요 약

독도 생태연구의 일환으로 1993년 3월 23일과 1999년 5월 12-15일 두 차례에 걸쳐 히드라충류 채집을 실시하였다. 채집한 히드라충류는 2 목 11과 15종으로 동정 분류되었고 이들 중 2종, 말미잘후카무라히드라 (*Fukaurahydra anthoformis*)와 사가미포도뿌리히드라(*Rhizorhagium sagamiense*)가 한국미기록종으로 밝혀져 재기재하고 보고한다.