

A Systematic Study on the Marine Hydroids in Korea

8. On Two New Species belonging to Family Plumulariidae

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韓國 海産 히드라蟲類의 系統分類學的 研究

8. 깃히드라科에 속하는 二新種에 관하여

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摘 要

韓國 海産 깃히드라蟲類 (Plumulariidae)는 지금까지 13屬에 속하는 21種이 밝혀져 있다. 著者들은 韓國 海産 히드라蟲類의 系統分類學的 研究의 一環으로서 1969년부터 1982년까지 鬱陵島, 釜山, 尾浦 그리고 西歸浦에서 採集된 깃히드라 蟲類를 同定한 결과 두種이 新種으로 判明되었으며 이들은 다음과 같다. *Nemertesia polygeniculata* sp. nov. and *Halicornaria twista* sp. nov.

이들의 完模式 標本들과 副模式 標本들은 梨花女子大學校 自然大 生物學科에 보관되어 있다.

INTRODUCTION

The plumularian hydroids are the second largest taxon in Korean waters. They attach on algae, shells, stones and other hardened substrata or take root into muddy bottom during the polyp stage of their life cycle. In 1941, the only one species *Aglaophenia whiteleggei* belonging to family Plumulariidae is preliminary reported by Kamita & Sato in the paper entitled "Marine fauna at Jinsen (Incheon) Bay". And then in 1967 and 1969, 11 species are reported by the one of the present authors Rho, two species by Rho & Chang in 1972 and seven species by the authors Rho & Park in 1980 and 1983. Therefore the plumularian fauna of Korean marine hydroids are 21 species belonging to 13 genera:

Antennella (3 species), *Plumularia* (6 species), *Antennellopsis* (1 species), *Nemertesia*

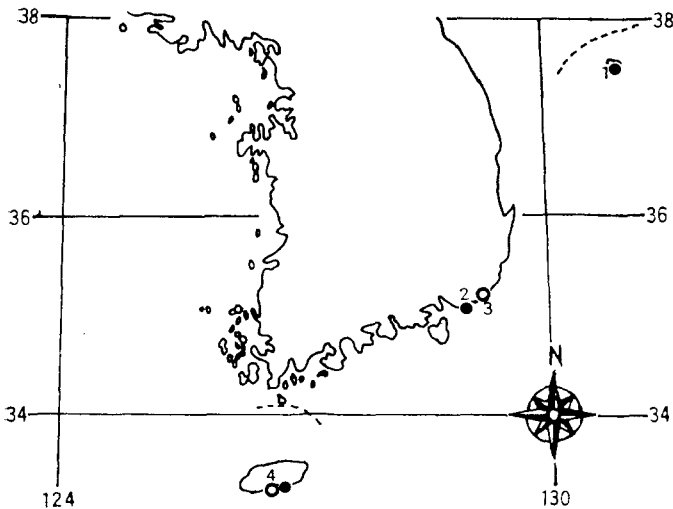


Fig. 1. The distribution of two new species in South Korea

1. Ullungdo

2. Mip'o

3. Busan

4. Sögwip'o

● *Nemertesia polygeniculata* sp. nov.

○ *Halicornaria twistata* sp. nov.

(1 species), *Monostachae* (1 species), *Pycnotheca* (1 species), *Gymnangium* (1 species), *Macrorhynchia* (1 species), *Halicetta* (1 species), *Monotheca* (1 species), *Lytocarpia* (1 species), *Lytocarpus* (1 species) and *Aglaophenia* (1 species).

This investigation is a part of an extensive work for the study on faunistic and ecological accounts of the Korean marine hydroids.

The authors examined the plumularian hydroids collected at four localities (Ullungdo, Pusan, Mip'o and Sögwip'o) in South Korea during 1969 to 1982 (Fig. 1). Materials were sampled chiefly from the coasts during low tide with hand, forceps, driver and from about 50 m in depth with fishing reel with longline.

Among the species identified two species are turned out to be new species; *Nemertesia polygeniculata* sp. nov. and *Halicornaria twistata* sp. nov.

This paper includes only the detail descriptions, size measurements and figures of two new species.

The holotypes and paratypes are deposited in the Department of Biology, College of Natural Sciences, Ewha Womans University.

SYSTEMATIC ACCOUNT

Phylum Cnidaria

Class Hydrozoa

Order Hydroida

Suborder Thecata

Family Plumulariidae L. Agassiz, 1862

Genus *Nemertesia* Lamouroux, 1816

***Nemertesia polygeniculata* sp. nov.**

(Fig. 2, 3)

Material examined: Holotype: 1 colony, Ullüngdo (Todong), July 24, 1976, J.I. Song, Hyd. 760724. Paratypes: 6 colonies, Sögwip'o, Feb. 8, 1971, B.J. Rho, Hyd. 710208; 4 colonies, Sögwip'o, Dec. 25, 1971, B.J. Rho, Hyd. 711225; 2 colonies, Sögwip'o, May 22, 1982, J.I. Song, Hyd. 820522; 2 colonies, Mip'o May 12, 1974, B.J. Rho, Hyd. 740512; 5 colonies, Ullüngdo (Todong), July 24, 1976, J.I. Song, Hyd. 760724-1.

Size measurements of Holotype and Paratype (Sögwip'o, Feb. 8, 1971) in millimeters:

	Holotype	Paratypes
Main stem, length of internode	10.00~12.00	4.00~ 6.00
idem, diameter of internode	0.57~10.00	0.47~10.00
Hydrocladia, athecate internode, length	0.15~ 0.19	0.12~ 0.14
idem, thecate internode, length.....	0.37~ 0.42	0.29~ 0.35
idem, diameter at node	0.04~ 0.05	0.03~ 0.05
Hydrotheca, length of abcauline wall	0.04~ 0.05	0.03~ 0.05
idem, diameter at aperture	0.06~ 0.07	0.05~ 0.07
idem, diameter at base.....	0.03~ 0.04	0.03
Nematotheca, lateral nematotheca, length	0.08~ 0.09	0.07~ 0.08
idem, diameter at aperture	0.04~ 0.05	0.03~ 0.05
idem, mesial nematotheca, length.....	0.06~ 0.08	0.04~ 0.06
idem, diameter at aperture	0.03	0.03
Gonotheca, total length	0.18	0.20
idem, maximum diameter.....	0.13	0.10~ 0.13
Colony size	100.00	43.00~88.00

Description of Holotype: The main stem arising from a tangled mass of short filamentous rootlets are fascicled, zigzag-shaped and they are divided into regular internodes, but there are no distinct nodes between each internode. Each internode is alternately curved from the axis at the angled about 15° , so that the whole stem is zigzag fashion. The main stem is also diverged into regular second and third stems from each other at angles of about 30° .

The branches with hydrocladiae are monosiphonic, but sometimes the bases of branches are polysiphonic. They arise straightly from between the stems and the monosiphonic distal parts of stems are also give rise to the branches. The monosiphonic branches are relatively divided into regular internodes.

The hydrocladiae arise from on the apophyses of the hydrocladial tubes of polysiphonic stems, branches and monosiphonic branches. The one hydrocladiae are arranged opposite two rows in one plane, the others are arranged four rows in two perpendicular planes. But in the distal parts of branches the three hydrocladiae are arranged in verticil on an apophyses of branches.

The hydrocladiae consist of the long hydrothecal internodes with one hydrotheca, two

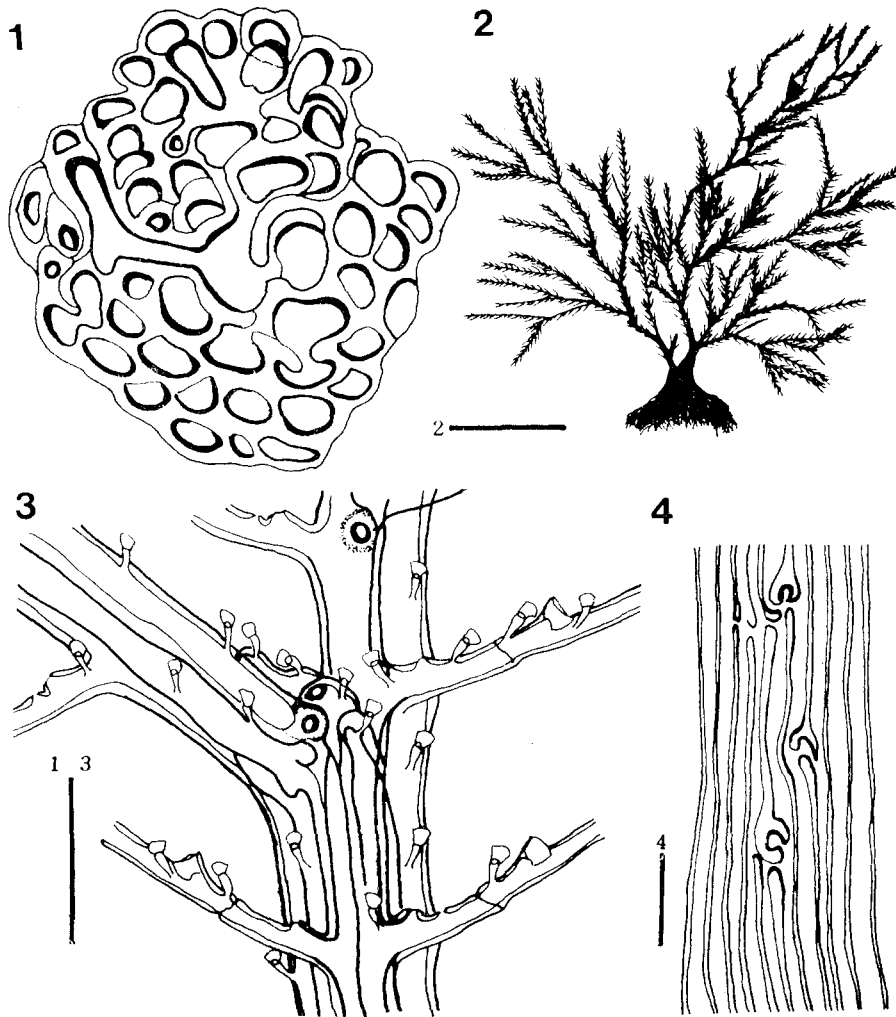


Fig. 2. *Nemertesia polygeniculata* sp. nov.

1. Cross section of polysiphonic stem. Scale in 0.3 [mm].
2. Colony. Scale in 25 mm.
3. Polysiphonic stem with branch and hydrocladiae. Scale in 0.3 mm.
4. Longitudinal section of polysiphonic stem. Scale in 0.6 mm.

lateral nematothecae on the above of the hydrotheca, one mesial nematotheca on the below of the hydrotheca and the short nematothecal internode with only one mesial nematotheca.

The hydrothecae are very small, low cup-shaped and the aperture smooth. The nematothecae are trumpet-shaped and bithalamic. The lateral nematothecae are larger than the mesial nematothecae. There are many nematothecae on the tubes of polysiphonic portions.

The gonothecae arise from the bases of apophyses of the branches, small oval-shaped and the above of gonothecae dome-shaped or truncate.

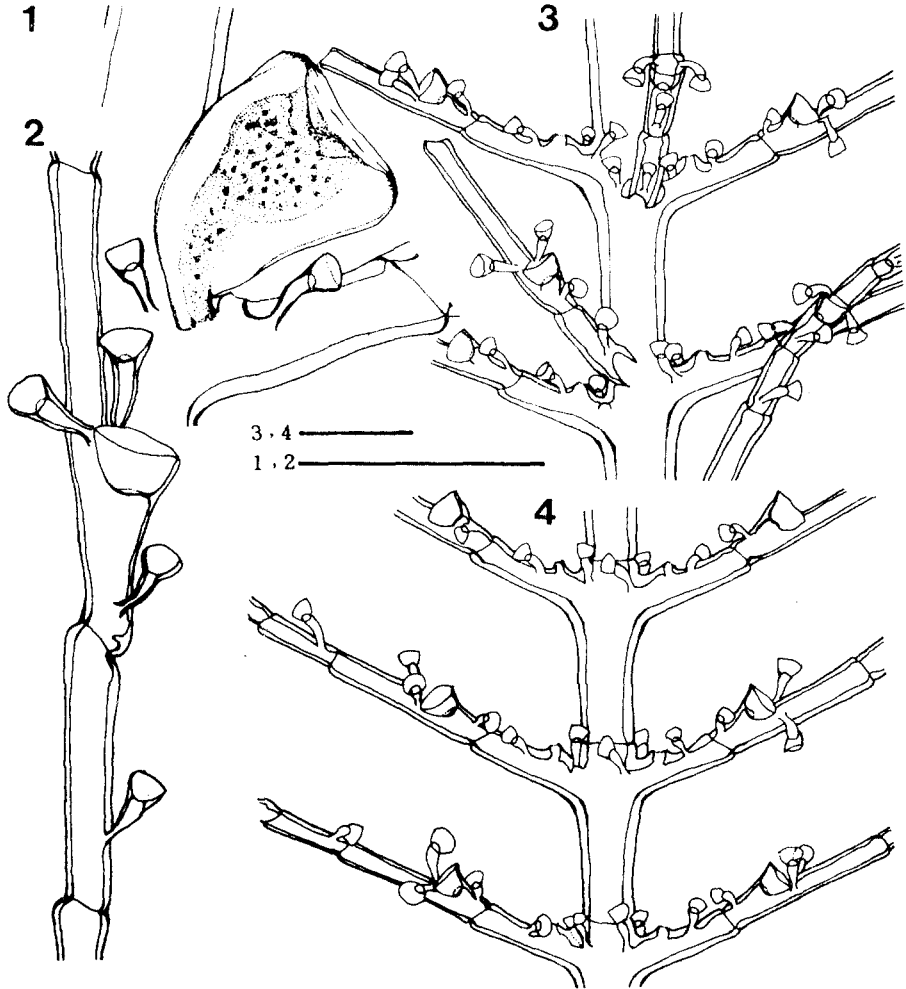


Fig. 3. *Nemertesia polygeniculata* sp. nov.

- 1. Gonotheca.
 - 2. Enlarged hydrotheca and nematothecae.
 - 3. Hydrocladiae arranged in verticil.
 - 4. Hydrocladiae arranged in opposite.
- Each scale in 0.2 mm.

Remarks: In the external features of hydrocladiae, hydrothecae, nematothecae and gonothecae, this proposed new species is similar to *N. antennina* (Linnaeus, 1758), (Nutting, 1900; Ralph, 1961; Vervoort, 1972; Hughes, 1979 and Rho & Park, 1983). But *N. antennina* is that the main stem is not branched, monosiphonic, canaliculate and strait, whereas that of *N. polygeniculata* sp. nov. is branched, polysiphonic and geniculate. Also this new species differs *N. dissimilis* Fraser, 1943, (Fraser, 1944) by unbranched strait polysiphonic stem. The zigzag-shaped stem and graceous colony structure of this new spe-

cies are unique characteristics. Although the holotype is light brown color, the paratypes from Sögwip'o and Mip'o are dark brown color. In the size, there are distinct differences between holotype and paratypes. These differences of size and color are considered as a geographical variations.

The name *polygeniculata* [poly (polys, Gk.: many)+geniculata (geniculum, L.: little knee)] is based upon "The main stem is polysiphonic and zigzag-shaped.

Genus *Halicornaria* Busk, 1852

***Halicornaria twistata* sp. nov.**

(Fig. 4)

Material examined: Holotype: 1 colony, Sögwip'o, Dec. 24, 1971, B.J. Rho, Hyd. 711224. Paratypes: 5 colonies, Sögwip'o, Dec. 15 1969, B.J. Rho, Hyd. 691215; 9 colonies, Sögwip'o, Dec. 24, 1971, B.J. Rho, Hyd. 711224-1; 1 colony, Sögwip'o, April 15, 1974, B.J. Rho, Hyd. 740415; 3 colonies, Pusan, Nov. 12, 1977, B.J. Rho, Hyd. 771112.

Size measurements of Holotype in millimeters:

Hydrocaulus, total length	63.00~85.00
idem, internode, length	0.38~ 0.42
idem, diameter with periderm at node	0.36~ 0.49
Hydrocladia, internode, length.....	0.49~ 0.53
idem, diameter with periderm at node	0.13~ 0.23
Hydrotheca, total length without frontal tooth	0.45~ 0.47
idem, adcauline wall, length of free portion	0.10~ 0.16
idem, length of adnate portion	0.36~ 0.41
idem, length of abcauline wall	0.42~ 0.43
idem, diameter at aperture	0.30~ 0.31
Mesial nematotheca, total length	0.19~ 0.22
idem, diameter at large aperture.....	0.03~ 0.04
idem, diameter at small aperture.....	0.02~ 0.03
Gonotheca, total length	0.76~ 0.83
idem, diameter at aperture	0.50~ 0.59
Colony size	49.00

Description of Holotype: Twisted and fascicled main stems arise from the hydrorhiza that consists of many fine filamentous rootlets. The tubes of main stems are continued on the upper thicker rootlets. The rootlets are diverged in below portion decreasing in diameter and increasing in numbers of them. So that the hydrorhiza looks like rootlets of plants. The branches dichotomously arise from the only one tube of fascicled stem and are curved below making an arch forms. We will term this tube hydrocaulusal tube. The hydrocaulusal tube is not divided into regular internodes, relatively geniculated and thicker than another accessory tubes.

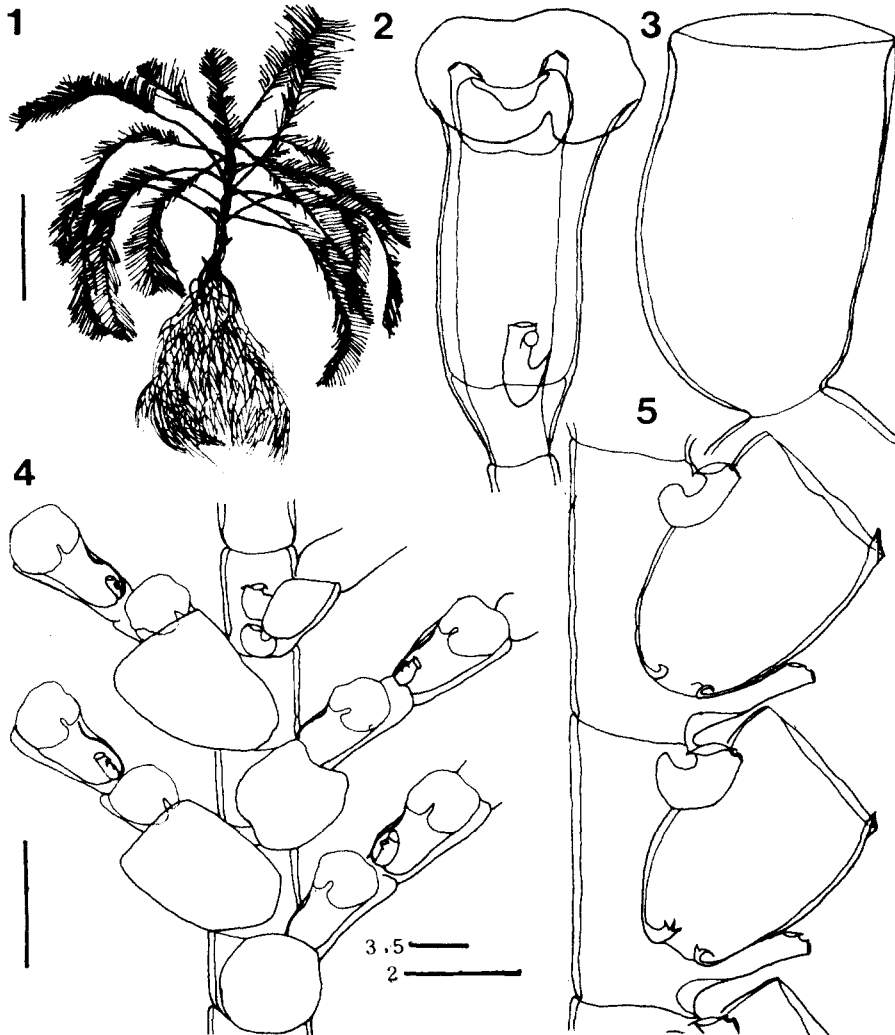


Fig. 4. *Halicornaria twista* sp. nov.

1. Colony. Scale in 40 mm.
2. Frontal view of hydrotheca. Scale in 0.1 mm.
3. Gonotheca. Scale in 0.1 mm.
4. Hydrocaulus with hydrocladiae and gonothecae. Scale in 0.8 mm.
5. Lateral view of hydrotheca. Scale in 0.1 mm.

The branches are not fascicled, divided into regular internodes. The hydrocladiae arise alternately on the prominent processes of hydrocaulus and are arranged pinnately, monosiphonic and divided into regular internodes.

The hydrothecae, one on each internode of hydrocladia, are fairly deep cup-shaped as if tumbler, margin with one distinct pointing frontal tooth, being the continuation of the

slightly thickened abcauline wall, the rest of margin is sinuous. The about one-third of adcauline wall is free. There are no any intrathecal ridge.

The paired lateral nematothecae are slightly swollen, not reached to the hydrothecal margin and have two openings, of which the one flaired margin inclines the hydrotheca and is larger than the others towards the outward. The one mesial nematotheca has also two openings. The larger flaired opening inclines the hydrotheca and the small opening is not flaired margin, toward the outward.

The gonothecae arise on the apophyses of hydrocaulus, deep cup-shaped, margin smooth and have no pedicels.

Remarks: It is very noticeable that the tubes building up the main stem are strongly twisted. Such a stem up to date is not known in any halicornarans.

H. twista sp. nov. resembled with *H. speciosa* Allman, 1877, (Nutting, 1900) in the feature of gonotheca, but it is distinguished from the latter by the structures of colony and hydrotheca. This new species is also similar to *H. regalis* Totton, 1930, (Ralph, 1961) by the feature of hydrotheca without any intrathecal ridge, but the mesial nematotheca of this new species is not reached to the hydrothecal margin, while that of *H. regalis* is very long and reached beyond the hydrothecal margin.

The name *twista* (torguis, L.: twist) based upon. The tubes of stem are strongly twisted.

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