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## A New Hydroid Species *Campanularia (Orthopyxis) compressima* (Hydrozoa, Cnidaria) from Northern Japan

Shin KUBOTA<sup>1)</sup> and Mayumi YAMADA<sup>2)</sup>

<sup>1)</sup> *Seto Marine Biological Laboratory, Kyoto University, Shirahama,  
Wakayama 649-22, Japan*

<sup>2)</sup> *Oshamanbe School, Science University of Tokyo, Oshamanbe,  
Hokkaido 049-35, Japan*

**ABSTRACT** A new hydroid species, *Campanularia (Orthopyxis) compressima*, (Thecata, Campanulariidae) is described. The material is based on a female colony attached onto a boulder just below the intertidal zone of Daikoku Island, Akkeshi, Hokkaido, northern Japan. The species resembles *C. (O.) norvegiae* BROCH, 1948 from the sea around Antarctica, but is distinguishable from the antarctic species in having a more strongly compressed gonotheca and in lacking a tubular neck in the gonotheca.

Japanese hydroids having a compressed hydrotheca with asymmetrically thickened periderm, an unbranched pedicel, and gonophores of sporosacs forming or not forming acrocysts, have been referred to the genus *Orthopyxis*. In his comprehensive review of the Japanese hydroids, YAMADA (1959) recognized *O. caliculata* (HINCKS, 1853) and *O. platicarpa* BALE, 1914. In 1969, H. M. the Showa Emperor HIROHITO transferred *O. caliculata* to the genus *Eucopeella*, when he reported a similar, but medusoid producing hydroid, *E. crenata* HARTLAUB, 1901 from the Amakusa Islands, Kyushu. On the other hand, he (1969) did not fully synonymize the two genera, mentioning *O. platicarpa* and recording *Orthopyxis(?) australis* (STECHOW, 1924). The present paper deals with a new species bearing all the above-mentioned characteristics, which has been so far recorded only in northeastern Hokkaido, Japan.

### *Campanularia (Orthopyxis) compressima* sp. nov.

(Figs. 1–6)

*Material examined and type depository.* One female colony, growing on a boulder of several tens of centimeters in diameter, was collected on July 13, 1976 just below the intertidal zone of the exposed side of Daikoku Island, which lies at the entrance of Akkeshi Bay, Hokkaido, northern Japan. The colony was examined in the living state immediately after collection under a dissecting microscope and under phase-contrast one. The colony designated as the holotype was divided into three parts and each of them is separately deposited in the collection of the Zoological Institute, Faculty of Science, Hokkaido University, Sapporo (ZIHU-500), Japan, Natural History Museum, London, UK (1992. 1. 10. 1), and Nationaal Natuurhistorisch Museum, Leiden, the Netherlands (Coel. no. 25348).

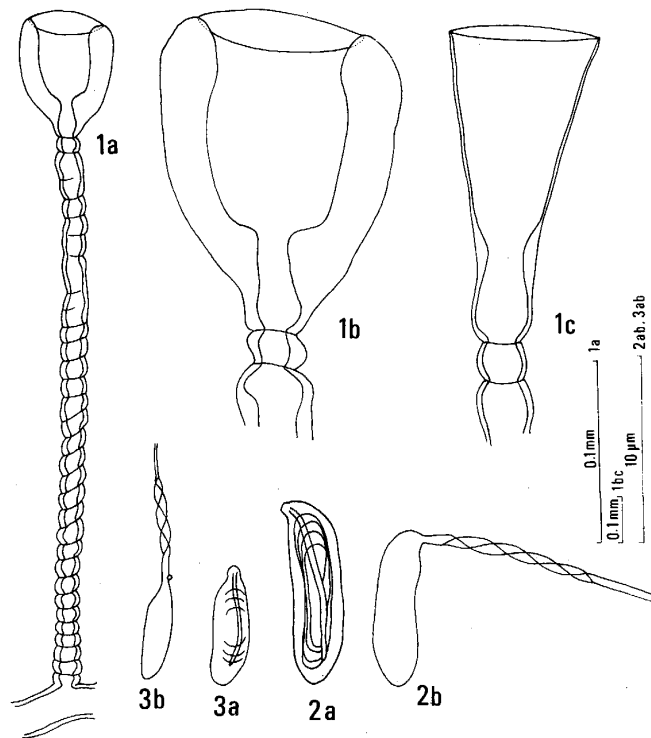
**Etymology.** The specific name *compressima* is derived from the large, compressed gonangium.

**Description of the holotype.** Hydrorhiza creeping, reticulate, on a boulder; trophozooids and gonothecae unbranched, and erected vertically. Hydrothecal pedicel twisted spirally along nearly whole length, and constricted at distal end demarcating a distinct thick-walled spherule (Fig. 1a).

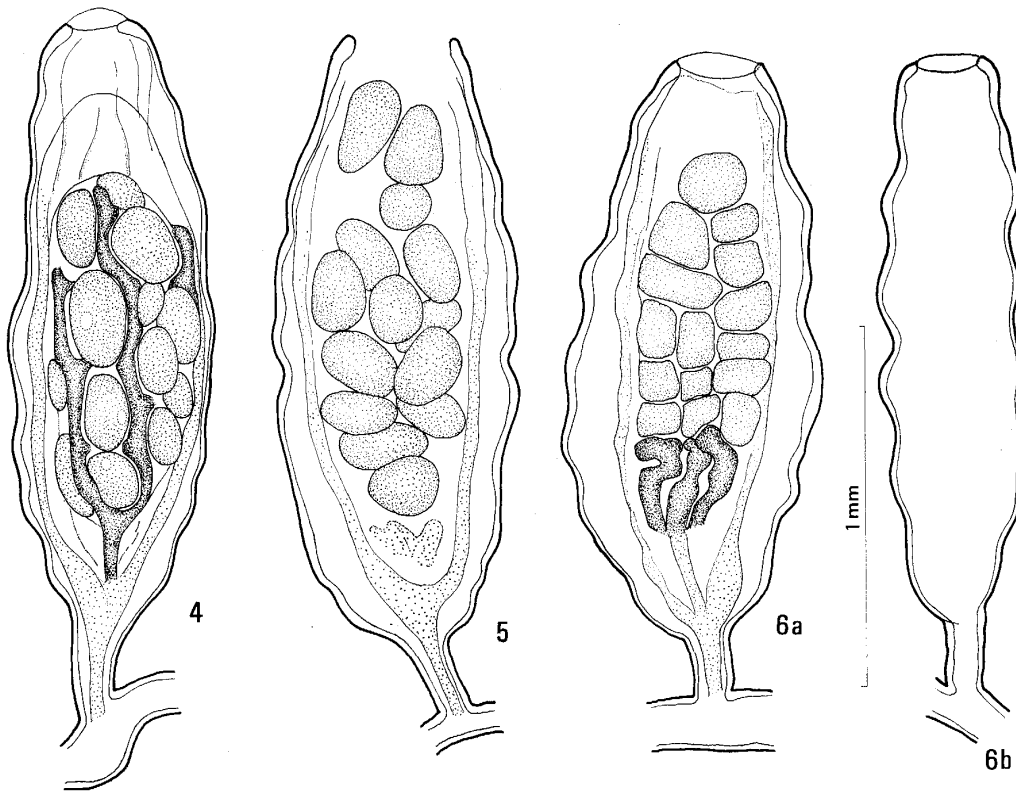
Hydrotheca campanulate, strongly flattened laterally; rim smooth. Periderm thickened on two opposite sides, and proximal annular peridermal thickening forming a basal chamber (Figs. 1a–1c).

Gonotheca borne on hydrorhiza through short pedicel that has no annulation (Figs. 4–6ab). Whole body oblong-ellipsoidal in shape, and strongly compressed. Small oval orifice found distally. Periderm slightly wavy, but showing no corrugation. Middle part of gonotheca widest, viewed from the broad side. Gonophore with a fixed sporosac. Gonotheca containing at least 14 developing embryos, nearly at the same developmental stage (Fig. 5).

Measurements (mean $\pm$ SD, range, and sample size) and ratios (*ditto*) of the body as follow (trophozooids and gonothecae, in mm; nematocysts of



**Figs. 1–3.** *Campanularia (Orthopyxis) compressima* sp. nov. 1a–c: A trophozooid (a) and its hydrotheca from the broad side (b) and from the narrow side (c); 2ab, 3ab: Two types of microbasic mastigophores in trophozooids in undischarged (a) and discharged states (b); 2ab: A large type; 3ab: A small type.



Figs. 4–6. Three female gonothecae of *Campanularia (Orthopyxis) compressima* sp. nov. 4: A well developed gonozoid containing unfertilized eggs, viewed from the broad side; 5: A gonotheca containing developing embryos, viewed from the broad side; 6: A gonozoid intermediate in developmental stage between those shown in figs. 4 and 5, viewed from the broad side (a) and the narrow side, showing only the gonotheca (b).

trophozooids, length (L) × maximum width (W) of undischarged capsules, in  $\mu\text{m}$ ):

1) Trophozooids.

Total length:  $3.17 \pm 0.93$ , 1.67–4.92, 20.

[Hydrotheca]

Depth (HD):  $0.62 \pm 0.08$ , 0.44–0.75, 20;

Diameter from the broad side (HDb):  $0.47 \pm 0.06$ , 0.30–0.56, 20;

Diameter from the narrow side (HDn):  $0.32 \pm 0.03$ , 0.28–0.38, 20;

HDb/HDn:  $1.5 \pm 0.1$ , 1.2–1.6, 20;

HD/HDb:  $1.3 \pm 0.2$ , 1.0–1.8, 20;

Pedicel, length:  $1.60 \pm 0.83$ , 0.56–3.33, 20;

Pedicel, maximum diameter:  $0.13 \pm 0.01$ , 0.11–0.16, 20.

[Microbasic mastigophores]

Large type (Figs. 2ab):  $9.9 \pm 0.4$ , (9.1–10.5) ×  $2.6 \pm 0.1$ , 2.3–2.8, L/W =  $3.8 \pm 0.2$ , 3.5–4.2, 30 (examined in 6 zooids);

Small type (Figs. 3ab):  $5.9 \pm 0.2$ , (5.6–6.3) ×  $1.8 \pm 0.1$ , 1.7–1.9, L/W =  $3.3 \pm 0.1$ , 3.1–3.6, 30 (examined in 3 zooids).

2) Gonothecae.

Length including pedicel:  $1.62 \pm 0.15$ , 1.38–1.81, 20;  
 Length (GL):  $1.45 \pm 0.14$ , 1.25–1.66, 20;  
 Maximum width from the broad side (GDb):  $0.64 \pm 0.04$ , 0.50–0.69, 20;  
 Maximum width from the narrow side (GDn):  $0.37 \pm 0.03$ , 0.31–0.44, 20;  
 GDb/GDn:  $1.7 \pm 0.2$ , 1.4–2.0, 20;  
 GL/GDb:  $2.3 \pm 0.2$ , 1.9–2.6, 20;  
 Pedicel, length:  $0.16 \pm 0.04$ , 0.13–0.25, 20;  
 Pedicel, maximum diameter:  $0.12 \pm 0.01$ , 0.09–0.13, 20.

*Remarks.* The present new species is clearly distinguishable from all the other species of the Campanulariidae in having a long and much compressed gonotheca (cf. YAMADA, 1959; NAUMOV, 1960; H. M. the Emperor Showa HIROHITO, 1969; RHO and PARK, 1980; ANTSULEVICH, 1987). The new species resembles only *Campanularia (Orthopyxis) norvegiae* BROCH, 1948, described from the sea around Antarctica in having a large gonotheca containing a fixed sporosac (BROCH, 1948; MILLARD, 1977; STEPANJANTS, 1979), but is distinguished from the latter in having a strongly compressed gonotheca without a tubular neck (the gonotheca of *C. (O.) norvegiae* is not compressed, but circular in section). Further, the hydrothecal rim of the new species is not so much swollen as that of the original material of *C. (O.) norvegiae* (see BROCH 1948: Fig. 5, a–d).

In this paper, the present new species is treated as a member of the subgenus *Orthopyxis* of the genus *Campanularia*. However, some recent workers have treated *Orthopyxis* as separable from *Campanularia* proper at the genus level (CORNELIUS, 1982; BOUILLON, 1985; CALDER, 1991), mainly based on a difference in the gonozooid, namely *Orthopyxis* producing medusoids (although sometimes retained) while *Campanularia* forms sporosacs.

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### 摘 要

久保田信 (京都大学瀬戸臨海実験所)・山田真弓 (東京理科大学長万部校舎)——北日本産ヒドロ虫類の1新種, オオヒラタアシナガコップガヤ *Campanularia (Orthopyxis) compressima* (ヒドロ虫綱, 刺胞動物門)。

ヒドロ虫綱, 有鞘目, ウミサカヅキガヤ科に属する1新種, *Campanularia (Orthopyxis) compressima* (オオヒラタアシナガコップガヤ: 新称) を, 北日本, 北海道厚岸の潮間帯直下の転石に付着する1雌群体をもとに記載した。本新種は, 南極大陸周辺海域

より報告されている *C. (O.) norvegiae* BROCH, 1948 に類似するが、生殖莢が強度に扁平である点および生殖莢に円筒状の襟部がない点で区別される。

### References

- ANTSULEVICH, A. E. 1987. Hydroids from the shelf waters of Kurile Islands. 166 pp. Zool. Inst. USSR Acad. Sci., Leningrad. (In Russian.)
- BOUILLON, J. 1985. Essai de classification des hydropolypes-hydromedusés (Hydrozoa-Cnidaria). *Indo-Malayan Zool.*, **1**: 29-243.
- BROCH, H. 1948. Antarctic hydroids. Sci. Res. Norwegian Antarct. Exped. 1927-1928. *Norske Vidensk. Akad. Oslo*, (28): 1-23.
- CALDER, D. R. 1991. Shallow-water hydroids of Bermuda. The Thecatae, exclusive of Plumularioidea. *Roy. Ontario Mus. Life Sci. Contr.*, **148**: 1-107.
- CORNELIUS, P. F. S. 1982. Hydroids and medusae of the family Campanulariidae recorded from the eastern North Atlantic, with a world synopsis of genera. *Bull. Br. Mus. nat. Hist. (Zool.)*, **42**: 37-148.
- HIROHITO, H. M. the Emperor Showa 1969. Some hydroids of the Amakusa Islands. 32 pp. Publ. Biol. Lab. Imp. Household, Tokyo.
- MILLARD, N. A. H. 1975. Monograph of the Hydroida of southern Africa. *Ann. S. Afr. Mus.*, **68**: 1-513.
- 1977. Hydroids from the Kerguelen and Crozet shelves, collected by the cruise MD.03 of the Marion-Dufresne. *Ibid.*, **73**: 1-47.
- NAUMOV, D. V. 1960. Hydroids and Hydromedusae of the USSR. *Opred. Faune SSSR*, **70**, 626 pp. (In Russian.) (Translated by the Israel Program for Scientific Translations, Jerusalem, 1969).
- RHO, B.-J. and J.-H. PARK 1980. A systematic study on the marine hydroids in Korea 6. Thecata. *J. Kor. Res. Inst. Liv., Ewha Womans Univ.*, **25**: 15-43.
- STEPANJANTS, S. D. 1979. Explorations of the fauna of the seas. Biological results of the Soviet Antarctic Expeditions 6. Hydroids of the Antarctic and Subantarctic waters. *Issledovaniya Fauny Morei*, **22**(30), 200 pp.
- VERVOORT, W. 1972. Hydroids from the Theta, Vema and Yelcho cruises of the Lamont-Doherty Geological Observatory. *Zool. Verh. Leiden*, **120**: 1-247.
- YAMADA, M. 1959. Hydroid fauna of Japanese and its adjacent waters. *Publs. Akkeshi mar. biol. Stn.*, **9**: 1-101.