

A new species of *Eudendrium* (Hydrozoa: Anthomedusae: Eudendriidae) from the Netherlands

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Eudendrium vervoorti spec. nov. is described from the coast of Zeeland, the Netherlands. A key to Dutch species of *Eudendrium* is included.

Introduction

The Dutch hydrozoan fauna (as most of the European marine fauna) is among the best known in the world (cf. Cornelius, 1992), especially due to the extensive studies by Hummelinck (1930; 1936; 1938; 1939; 1941) and Vervoort (1946; 1964).

The family Eudendriidae is represented in Dutch waters only by the cosmopolitan genus *Eudendrium*, with five species recorded hitherto: *Eudendrium arbuscula* Wright, 1859 [non *E. arbuscula* (D'Orbigny, 1839); see Marques & Vervoort, submitted]; *E. capillare* Alder, 1856; *E. rameum* (Pallas, 1766); *E. ramosum* (Linnaeus, 1758); and *E. tenellum* Allman, 1877 (cf. Vervoort, 1946, and his references).

The record of *E. rameum* (Vervoort, 1946) was based on badly preserved material, probably RMNH Coel. number 1715. Indeed, the trophosoma of this material, re-examined by us, shows the characteristic habit of *E. rameum*, but the lack of polyps in the colony does not permit a reliable identification, and the same applies to *E. tenellum*, briefly described from a colony without gonophores (cf. Vervoort, 1946, and his references).

In 1997, one of us (ACM) had the opportunity to study in detail the Eudendriidae collection of the Nationaal Natuurhistorisch Museum in Leiden (NNM). In this collection was found a colony of *Eudendrium*, previously identified as *E. insigne* Hincks, 1861, that appeared to represent a new species, here described as *E. vervoorti*. Despite the scarce material available, this species is remarkably different from other known species of *Eudendrium*. The colony was collected on the south coast of the island of Schouwen-Duiveland, province of Zeeland, near the village of Ouwerkerk in a deep saltwater pool known as 'Inlaag 1953', 'Diepe gat' or 'gat van Ouwerkerk'. This pool was formed by a dike-burst in February 1953 during a disastrous gale, coinciding with a spring-tide, which caused large areas in the south-western Netherlands to be inundated. This dike at Ouwerkerk was repaired in December of the same year, so that the "gat van Ouwerkerk" was separated from the sea. The pool is still there and

has some fame in the Netherlands for its unique fauna and flora (Wolff, 1966; 1967; Biersteker & Wolff, 1967; Nienhuis, 1967).

Other Dutch *Eudendrium* species from the NNM collection, not new to science, will be described elsewhere (Marques, in prep.).

Methods

Specimens were studied with a dissecting microscope and a high power microscope (magnifications up to 1000 ×). Drawings were made with the aid of a camera lucida. The cnidome terminology follows Weill (1934) and Mariscal (1974). Measurements of nematocysts were made on undischarged capsules. Other study methods for Eudendriidae are from Marques (1995).

Key to the Dutch species of *Eudendrium*

1. Nematocysts euryteles of only one size-class 2
- Nematocysts euryteles in two size-classes 3
2. Female gonophore(s) on completely reduced blastostyle; spadix simple and curved over the single egg; mature egg not linked to blastostyle by peduncle *E. capillare*
- Female gonophore(s) on unreduced blastostyle; spadix not as above; mature egg linked to blastostyle by long peduncle *E. vervoorti*
3. Largest size-class of euryteles present in body of hydranth but arranged in a continuous ring, colony unfascicled, male blastostyle not reduced *E. ramosum*
- Largest size-class of euryteles arranged in a ring around body of hydranth, colony fascicled, male blastostyle completely reduced *E. arbuscula*

Systematics

Eudendrium vervoorti spec. nov. (figs 1a-d)

Material.—RMNH Coel. 4115, holotype, one female colony with contracted polyps preserved in alc. 70%; Netherlands, Zeeland, Schouwen-Duiveland, Ouwkerk, "Inlaag 1953", 51°38'N 3°59'E, 26.vi.1962, leg. Hydrobiological Institute, Yerseke.

Description.— Colony dioecious, fragile, up to 6.6 mm in height; main stem unfascicled. No hydrorhiza present. Hydrocaulus with few branches; branching irregular, up to the second order, in radiate planes; pedicels arising from main stem or from branches of first order. Perisarc of main stem developed, single tubes c. 0.15 mm in diameter, covered by sediment and debris (as is the whole colony), completely smooth or with indistinct rings (often obscured by debris). Branches not annulated, c. 0.13 mm in diameter. Pedicels not annulated, very delicate, 0.04–0.06 mm in diameter.

Hydranths few, slender, c. 0.57 mm in height (only one measurement), 0.17 mm in diameter (only one measurement taken just below the tentacles), without a distinct groove in the aboral region; 15–20 tentacles, occurring in a whorl below the hypostome.

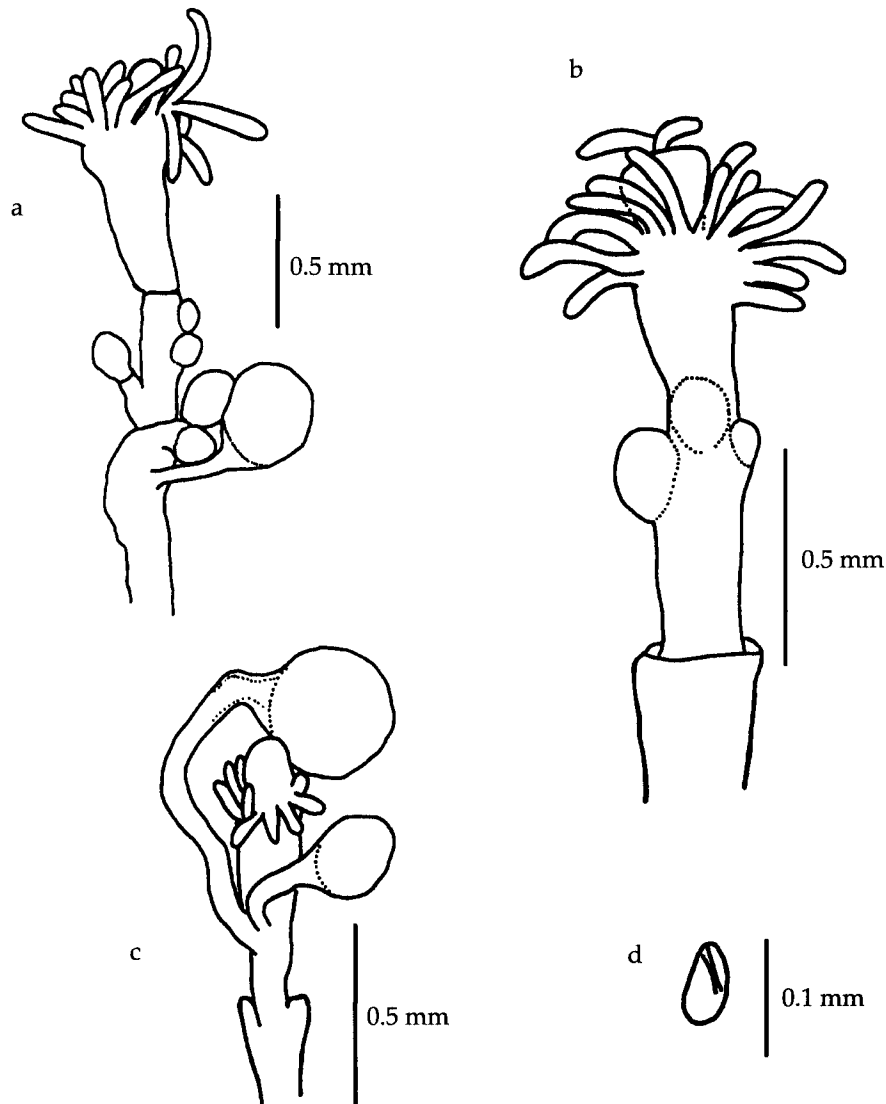


Fig. 1. a-d, *Eudendrium vervooriti* spec. nov., a. blastostyle with eggs in different stages of development; b. hydranth with developing eggs (?); c. hydranth with mature pedunculated eggs; d. microbasic eurytele, undischarged.

Gonophores styloids, arising from body of hydranth. Immature styloids placed in a circle around body of hydranth. Female blastostyles styloids without a characteristic spadix over a single egg. Tentacles and hypostome do not reduce during ontogeny of female blastostyles. Mature eggs almost circular, encapsulated by a perisarc layer, linked by long peduncles to basal part of hydranth body or directly to pedicel; distal part of peduncle broadened contiguous to egg, concave; 2-6 eggs, 0.22-0.28 mm in diameter. Male gonophores unknown.

Nematocysts: microbasic euryteles in one size class, $5.3\text{--}5.8 \times 3.3\text{--}3.6$ mm, L/W c. 1.6:1, abundantly distributed over hydranth body, coenosarc of peduncle of female gonophores, and tentacles.

Etymology.— As the material is from the Netherlands, the specific name was given in honour of Professor Wim Vervoort (Nationaal Natuurhistorisch Museum, Leiden), Dutch expert on the hydrozoans, for his extensive and important work on the group.

Remarks.— The characteristic features of this species are the female gonophore, without a typical spadix over the egg, and the mature eggs linked by a concave peduncle to the body of the hydranth or pedicel. The peduncle can be short or long, up to twice the size of the egg, and sometimes slightly broadened. The other important characters of the species are the slender hydranth body, the presence of one size class microbasic eurytele, and the small size of the whole colony.

The gonophore of *E. cyathiferum* Jäderholm, 1904 (see also Jäderholm, 1905, Stepan'yants, 1979) very much resembles the gonophore of *E. vervoorti*, both in its position along the blastostyle and pedicel, and in the concave shape of the peduncle. The main difference between these gonophores is the length of the peduncle, always recorded as short in *E. cyathiferum* (Jäderholm, 1905, figs 1-3). Nevertheless, practically nothing is known of the morphological variation of *E. cyathiferum*, as only one colony has been studied so far. Therefore, it could also have gonophores with long peduncles. Our examination of the holotype (BMNH 1960.8.29.4 and RMNH 28479) only corroborated the present knowledge about the female spadix feature.

Other differences between *E. cyathiferum* and *E. vervoorti* are the following: the colonies of *E. cyathiferum* are larger (120-150 mm), fascicled at the base; their hydranths are shorter, the pedicels larger and annulated, and the eggs bigger (Jäderholm, 1904, 1905). *E. vervoorti* has a minute, unfascicled trophosoma, slender hydranths, and no annulation in the pedicel or even in the branches. Furthermore, Jäderholm (1904, 1905) considered the spiral arrangement of the branches as a distinctive character of *E. cyathiferum*, a type of ramification absent in *E. vervoorti*.

Besides the differences given above, the known geographical records of *E. cyathiferum* and *E. vervoorti* are very disjunct: the first is recorded exclusively from off Cumberland, South Georgia, Antarctic (Stepan'yants, 1979), and the second from the Dutch coast.

Despite these differences, both species share the primary homology of the peduncles with concave end of the female gonophore, more developed in *E. vervoorti*.

There are a few species of *Eudendrium* with the same general diminutive habit of *E. vervoorti*, that can be quite similar when comparing the general trophosoma. From this group, *E. album* Nutting, 1896 (that has also a similar distribution, occurring in the European North Atlantic) differs from the new Dutch species both in the shape of the female gonophore and cnidome (Watson, 1985; pers. obs.); *E. fragile* Motz-Kossowska, 1905 (Marinopoulos, 1992), *E. generale* von Lendenfeld, 1885 (Watson, 1985; pers. obs.) and *E. tottoni* Stechow, 1932 (= *E. antarcticum* Totton, 1930; see Stechow, 1932; pers. obs.) have two size classes of nematocysts and, finally, *E. motzkossowskiae* Picard, 1951, has two types of nematocysts and different shape of the female gonophores (Picard, 1951; Marques, 1996; pers. obs.).

The cnidome of *E. vervoorti*, composed of only one size-class of microbasic eurytele, is similar to that of several other species of *Eudendrium*, viz.: *E. antarcticum* Ste-

chow, 1921; *E. armatum* Tichomiroff, 1890; *E. capillare* Alder, 1856; *E. corrugatum* Watson, 1985; *E. deciduum* Millard, 1957; *E. japonicum* Yamada, 1954; *E. nambuccense* Watson, 1985; *E. pennycuikae* Watson, 1985; *E. terranova* Watson, 1985. From these species, *E. antarcticum* (Stechow, 1921, 1925; Millard, 1975; pers. obs.), *E. capillare* and *E. nambuccense* (Watson, 1985; Marques, 1993; pers. obs.) also have tiny colonies. However, the morphology of the female gonophore of *E. vervoorti* is remarkably different from any other species of *Eudendrium*.

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