

***Oswaldella vervoorti* spec. nov. (Cnidaria: Hydrozoa), a new benthic hydroid from the South Shetland Islands, Antarctica**

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Oswaldella vervoorti spec. nov., a new antarctic hydroid is described and depicted. The differences and similarities with allied species in the genus, known only from the antarctic region, are discussed.

Introduction

In this paper we introduce the first results of the study of the antarctic benthic hydroid collection obtained during the Spanish Antarctic Expedition BENTART 95, which is part of a Spanish scientific project to study the marine benthic biocoenosis of the southern part of Livingston Island (South Shetland Islands). Among the many hydroid species present in the samples we found one colony of a species, referable to the genus *Oswaldella* Stechow, 1919 (Kirchenpaueriidae), that we consider new to science and that we describe below as *Oswaldella vervoorti*.

Material and methods

The material examined comes from the South Shetland Islands area (just North of the Antarctic Peninsula) and was collected in the austral summer of 1994-95, using a box corer grab.

The holotype colony has been deposited in the collection of the Department of Animal Biology, University of Valencia, Spain (Coel no. 30/ANT BOX 13-1). The paratype has been deposited in the National Museum of Natural History, Leiden, The Netherlands (RMNH Coel. no. 28868, 1 slide no. 4364).

Description of the species

Oswaldella vervoorti spec. nov.
(fig. 1)

? *Oswaldella* spec. 2 Peña Cantero & Vervoort, 1995: 336-339, fig. 3.

Material.— Holotype: Spanish Antarctic Expedition BENTART 95, sta BOX 13-1, 62°38.6'S-60°41.7'W, 46 m, 21.i.1995, muddy bottom; one colony 95 mm high, attached to ascidians; with gonothecae.

Description.— The colony consists of one delicate, 95 mm high, unbranched and

monosiphonic stem. Basal part of stem bearing hydrorhizal stolons, growing on ascidians.

Stem with basalmost 20 mm divided into internodes of varied length, without apophyses, but giving rise to hydrorhizal stolons directed downwards and repeatedly branched. Remaining stem divided into internodes having apophyses.

Cauline apophyses alternately arranged, in one plane, directed upwards at c. 45° (fig. 1c). Typically one apophysis per internode, but internodes with two apophyses also present. Each apophysis with three nematophores (fig. 1c): two emerging through perisarc holes situated in axil between apophysis and stem; third nematophore emerging through a raised, perforated part of perisarc ('mamelon') situated on one side of upper dorsal part.

Cauline apophyses giving rise to hydrocladia, with distinct separation between them (fig. 1c). Hydrocladia typically much branched (fig. 1a-b); hydrocladia up to fourth order observed. Primary hydrocladium giving rise to up to six secondary hydrocladia. First second-order hydrocladium in turn giving rise to up to three tertiary hydrocladia. First tertiary hydrocladium sometimes bearing one hydrocladium of fourth order. Typically lower-order hydrocladia arising from first internodes; in many, however, with unforked hydrothecate internodes preceding lower-order hydrocladia (fig. 1a).

Hydrocladia divided into hydrothecate internodes (fig. 1a-b). Each internode with one hydrotheca, situated on distal half, and two nematophores: one mesial superior, emerging through a circular hole situated behind free part of adcauline hydrothecal wall, and one mesial inferior nematophore, emerging through a perisarc hole situated on slight elevation of internode and provided with a rudimentary scale-shaped nematotheca (fig. 1d-i).

Forked hydrocladial internodes (fig. 1c) with one hydrotheca in axil of bifurcation and three nematophores: one mesial inferior, situated on slight elevation of internode and having a scale-shaped nematotheca (in some absent from first internode of primary hydrocladium), and two superior nematophores, one on each fork behind free part of adcauline hydrothecal wall.

Measurements (in μm).

Hydrothecae

length of abcauline wall	168-264
length of free part of adcauline wall	32-40
diameter at rim (lateral view)	176-224
diameter at rim (frontal view)	184-224

Length of nematothecae

c. 40

Hydrocladial internodes

length	780-1380
diameter below hydrothecae	160-200
diameter below nematophore	140-160

Diameter of stem

c. 200

Gonothecae

length	680-1060
maximum diameter	400-660

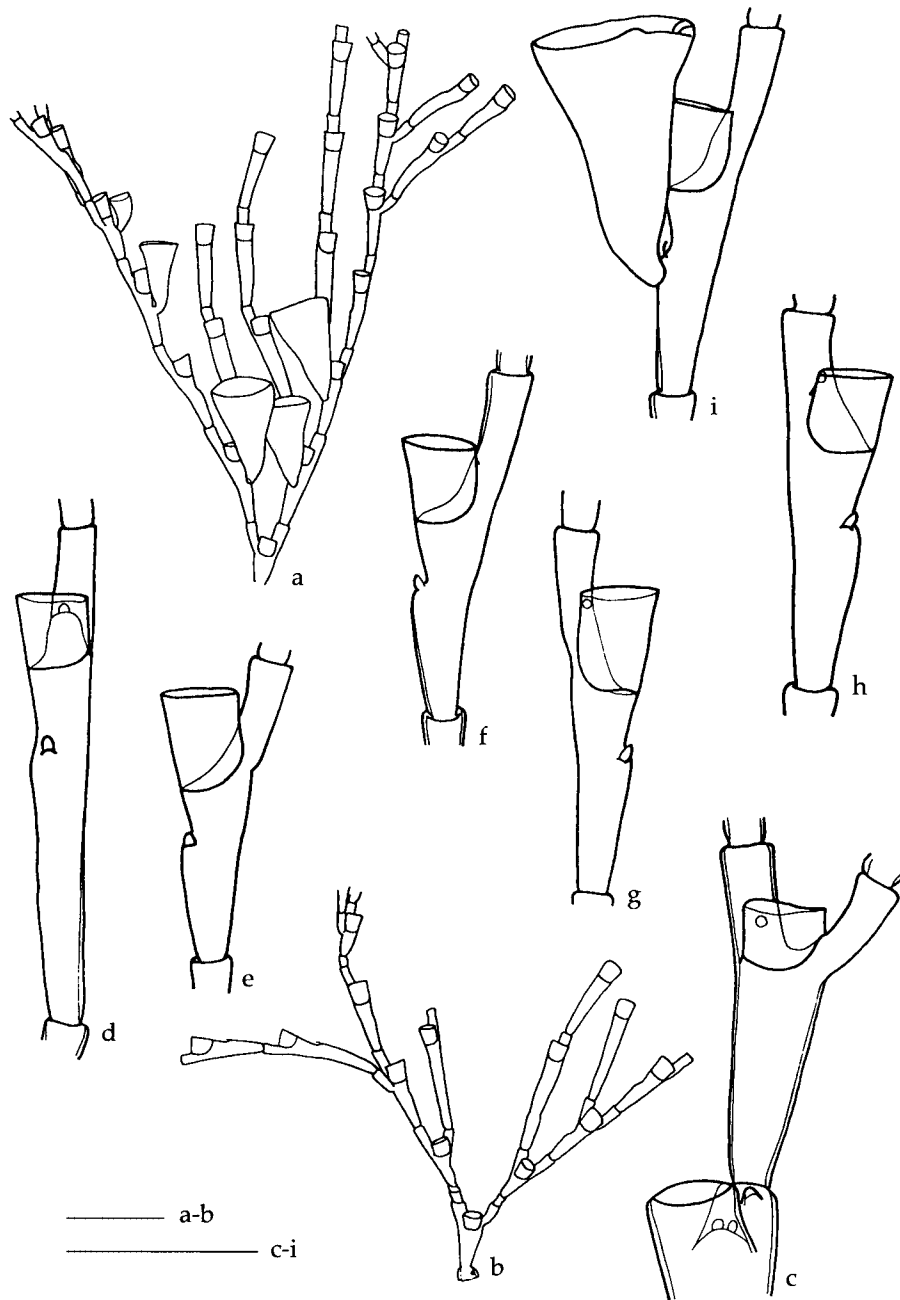


Fig. 1. *Oswaldella vervoorti* spec. nov., holotype; a-b, branches showing hydrocladial branching and hydrothecal disposition (a, with gonothecae); c, cauline apophysis, with two axillary nematophores and a 'mamelon', and first hydrocladial internode; d-h, hydrocladial internodes with hydrotheca and mesial superior and inferior nematophores (the latter with scale-shaped nematotheca); i, hydrocladial internode with gonotheca. Scale bars: a-b, 1 mm; c-i, 500 μm.

Hydrotheca short, as high as wide (fig. 1c-i). However, hydrothecal length slightly increasing along hydrocladia; for example, length of abcauline wall along one hydrocladium measured as 168 μm in first hydrocladial internode and 264 μm in seventh. Abcauline wall straight and slightly directed abcaudally. Adcauline wall with distinct free portion. Hydrothecal aperture circular; rim even.

Gonothecae inverted cone-shaped, borne on hydrocladial internodes just below mesial inferior nematophore (fig. 1a, i).

Remarks.— *Oswaldella vervoorti* spec. nov. is clearly distinguishable from the known species of the genus, though it has features in common with several.

Peña Cantero & Vervoort (1995) described as *Oswaldella* spec. 2 the colony of a species that has many features in common with *O. vervoorti* and they could be conspecific. They share the monosiphonic and unbranched stem, divided into internodes bearing apophyses clearly separated from the hydrocladia. They also have in common the low hydrothecae, the presence of an infrathecal scale-shaped nematotheca, and the position of the hydrotheca on the distal half of the internode. However, in *Oswaldella* spec. 2 the cauline apophyses have only two nematophores, one emerging through an axillary perisarc hole and another through a 'mamelon', and there are only secondary hydrocladia. It is not possible, therefore, to be sure of their conspecificity, though the last difference could be due to the available material of *Oswaldella* spec. 2 being too limited for a complete description, since only the remains of three hydrocladia are present.

In having three nematophores on the cauline apophyses (two nematophores emerging through axillary perisarc holes and another through a 'mamelon'), an angle of 45° between the cauline apophyses and the stem, and a distinct separation between the cauline apophyses and the hydrocladia, the new species is allied to *O. antarctica* (Jäderholm, 1904), *O. garciacarrascosai* Peña Cantero et al., 1997, *O. obscura* Peña Cantero et al., 1997, and *O. crassa* Peña Cantero & Vervoort, 1998. Even so, there are important differences:

Oswaldella antarctica, though sharing with *O. vervoorti* the monosiphonic and unbranched stem, divided into internodes, and the presence of hydrocladia up to the fourth order, differs mainly in hydrothecal shape (the hydrotheca is high) and the position of the hydrotheca on the middle of the internode. Moreover, though *O. antarctica* also has infrathecal nematothecae, this is inconspicuous.

Oswaldella garciacarrascosai also shares with *O. vervoorti* the monosiphonic and unbranched stem, divided into internodes. However, in *O. garciacarrascosai* there are only secondary hydrocladia, there is no infrathecal nematotheca, and the hydrotheca is tall and situated on the middle of the internode.

Oswaldella obscura, though sharing with *O. vervoorti* the presence of a scale-shaped infrathecal nematotheca, clearly differs from it in having branched and polysiphonic stems, only secondary hydrocladia, and a high hydrotheca situated on the middle of the internode.

Oswaldella crassa is easily distinguishable from *O. vervoorti* by the undivided stem, the absence of a node between the cauline apophyses and the hydrocladia, the absence of infrathecal nematothecae, and the tall hydrothecae, adcaudally directed and situated on the middle of the internodes.

In presence of short hydrothecae, *Oswaldella vervoorti* is similar to *O. bifurca* (Hartlaub, 1904), *O. blanconae* El Beshbeeshy, 1991, *O. encarnae* Peña Cantero et al., 1997, *O.*

gracilis Peña Cantero et al., 1997, *O. grandis* Peña Cantero et al., 1997, *O. herwigi* El Beshbeeshy, 1991, and *O. tottoni* Peña Cantero & Vervoort, 1996. Nevertheless it differs significantly from those species:

Oswaldella bifurca is easily distinguished from *O. vervoorti* by the angle of c. 70° formed between the cauline apophyses and the stem, the absence of an infrathecal nematotheca, the presence of a single nematophore, emerging through a perisarc hole, in the cauline apophyses, the absence of a node between the cauline apophyses and the hydrocladia, the hydrothecal shape (the hydrotheca is frontally depressed), and the position of the hydrotheca on the basal half of the internode.

Oswaldella blanconae differs from *O. vervoorti* mainly in the absence of an infrathecal nematotheca, the presence of only secondary hydrocladia, the presence of two nematophores on the cauline apophyses (one nematophore emerging through a single axillary perisarc hole and another through a 'mamelon'), and the position of the hydrotheca on the basal half of the internode.

Oswaldella encarnae differs from *O. vervoorti* mainly in the presence of only two nematophores on the cauline apophyses, emerging through two axillary perisarc holes, in the presence of only primary hydrocladia, and in the position of the hydrotheca on the middle of the internode.

Oswaldella gracilis differs from *O. vervoorti* mainly in the presence of a single axillary nematophore, emerging through a perisarc hole, the unbranched hydrocladia, and the shape and position of the hydrotheca, which is laterally depressed and is situated on the middle of the internode.

Oswaldella grandis, though sharing with *O. vervoorti* the position of the hydrothecae on the distal half of the internodes, differs from it basically in having polysiphonic stems and in the presence of four nematophores on the cauline apophyses: two axillary nematophores emerging through two perisarc holes and two emerging through 'mamelons'.

Oswaldella herwigi also has in common with *O. vervoorti* the position of the hydrothecae on the distal half of the internodes. However, in *O. herwigi* the stems are branched, there are only two nematophores in the cauline apophyses (one nematophore emerging through an axillary perisarc hole and another emerging through a 'mamelon'), there are only secondary hydrocladia, and there is an alternate series of thecate and athecate hydrocladial internodes.

Oswaldella tottoni also shares with *O. vervoorti* the position of the hydrothecae on the distal half of the internodes. However, it differs mainly in the presence of only two nematophores on the cauline apophyses, emerging through two axillary perisarc holes, and in the presence of only secondary hydrocladia.

The differences from the remaining species of the genus are greater.

Habitat and distribution.— The colony of *Oswaldella vervoorti* spec. nov. was collected at 46 m depth on a muddy bottom, off Livingston Island (South Shetland Islands). It was found epizoic on ascidians.

Etymology.— The specific name, *vervoorti*, is a tribute to Prof. Dr Wim Vervoort, for his invaluable contribution to knowledge of hydroid taxonomy and for his kind disposition and readiness to help everyone interested in the taxonomy and biology of hydroids.

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