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ORIGINAL PAPER

Benthic hydroids (Cnidaria: Hydrozoa) from the Bransfield Strait area (Antarctica) collected by Brazilian expeditions, with the description of a new species

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Abstract A total of 36 species of benthic hydroids, belonging to nine families and 16 genera, were found in the hydroid collection gathered during the Brazilian Antarctic expeditions PROANTAR III and IV. Seven of the species were identified only to generic level. There is a clear dominance of the subclass Leptothecatae with 33 species. By far the most diversified family was the Sertulariidae, with 16 species (44%). *Symplectoscyphus* with eight species, including *Symplectoscyphus magnificus* sp. nov., is the most diversified genus. Almost 70% of the species diversity is restricted to just six genera (38%). Sixty-eight percent of the species is Antarctic endemics and 86% is restricted to Antarctic or Antarctic/sub-Antarctic waters. *Eudendrium antarcticum* and *Amphisbetia operculata* are recorded for the first time from Antarctic waters.

Keywords Biodiversity · New species · New records · Ecology · Biogeography

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Introduction

During the Brazilian Antarctic expeditions PROANTAR III and IV, a benthos sampling survey in the Bransfield Strait area was carried out. Although the number of samples was relatively low, an important collection of hydroids was present. A total of 36 species, referable to nine families and sixteen genera, has been recorded. Seven species were identified only to generic level. The present collection increases the scientific knowledge of the group in this interesting area of the Antarctic, with new information on the autecology and distribution of the species, including new records from Antarctic waters and the description of a species new to science.

Material and methods

The material was collected during the Brazilian Antarctic expeditions PROANTAR III and IV carried out between January and March in the years 1985 and 1986, respectively (cf. Table 1). During PROANTAR III, three samples of benthic fauna were collected using a beam-trawl in the Bransfield Strait area and another using a trap nearby the Brazilian Antarctic base 'Comandante Ferraz.' During the expedition PROANTAR IV, samples were obtained using several sampling gears (beam-trawl, otter-trawl and traps) in the Bransfield Strait area and off Elephant Island. Samples were fixed in 10% formalin on board and later sorted in main zoological groups and preserved in 70% ethanol in the Laboratory of Antarctic Biology, Instituto Oceanográfico of the Universidade de São Paulo (IOUSP).

The materials obtained are mainly deposited at the collections of the National Museum of Natural History of Leiden, The Netherlands (RMNH).

Table 1 Sampling stations with hydroids

Station	Date	Latitude	Longitude	Locality	Sampling gear	Depth (m)
4743	28 January 1985	62°30′S	54°16′W	Bransfield Island	Beam trawl	412
4756	2 February 1985	62°58′S	57°10′W	Bransfield Island	Beam trawl	70
Ferraz	3 February 1985	62°05′S	58°23.5′W	King George Island	Trap	20
4861	1 February 1986	61°02′S	54°55′W	Elephant Island	Otter trawl	362
4862	1 February 1986	61°08′S	54°34′W	Elephant Island	Beam trawl	240
4863	2 February 1986	61°17′S	54°53′W	Elephant Island	Beam trawl	180
4864	2 February 1986	63°01′S	54°49′W	Bransfield Island	Beam trawl	275
4866	3 February 1986	62°53′S	56°27′W	Bransfield Island	Beam trawl	194
4868	8 February 1986	63°24′S	59°04′W	Bransfield Strait	Beam trawl	96
4870	8 February 1986	63°26′S	59°32′W	Bransfield Strait	Beam trawl	135
4871	8 February 1986	63°16′S	59°55′W	Bransfield Strait	Beam trawl	264
4872	13 February 1986	63°28′S	62°31′W	Low Island	Beam trawl	168
4873	13 February 1986	63°25′S	62°05′W	Low Island	Beam trawl	66
4874	14 February 1986	63°25′S	62°19′W	Low Island	Beam trawl	135

Results and discussion

Taxonomic account

Family Bougainvilliidae Lütken, 1850

'Bougainvilliidae undetermined' (Fig. 1a)

Material examined Stn 4862, a few stems up to 3 mm high, on *Symplectoscyphus glacialis.*

*Remark*s The colony has an almost stolonal development, with a single polyp at the end of a basally strongly annulated pedicel, yet stems up to 3 mm high with up to three polyps are present too. The polyp is ca. 400 μm high and is provided with ca. 12 tentacles.

The scarcity of material and its infertile condition prevent us from identifying this species, even to the generic level.

Family Eudendriidae L. Agassiz, 1862

***Eudendrium antarcticum* Stechow, 1921**

Material examined Stn 4862, a few tiny stems up to 5 mm high, with female gonophores, on *Halecium delicatulum*.

*Remark*s Stems with one or two polyps with ca. 16 tentacles. Up to four female gonophores per polyp observed, apparently on unreduced hydranths, though these are badly preserved. Spadix simple. Gonophores situated at approximately the same level and in different developmental stages; e.g. one gonozooid with four gonophores of which two are less developed with spadix, another is well developed with spadix too and the fourth is a mature egg lacking a spadix. Cnidome: only one size category of nematocysts 6.5–7 × 3–3.5 μm.

***Eudendrium scotti* Puce, Cerrano and Bavestrello, 2002**

Materials examined Stn 4870, several stems up to 40 mm high, with male gonophores, on bryozoans, basibiont of *Lafoea dumosa* and *Lafoeina longitheca*; Stn 4873, several stems up to 8 mm high, with male gonophores, on *Symplectoscyphus curvatus*.

*Remark*s The largest stems are slightly polysiphonic basally. Only a few polyps are present, with ca. 18 tentacles. Up to three one-chambered male gonophores are observed on unreduced hydranths. Cnidome: large nematocysts 21.5–23 × 10–10.5 μm, smaller ones 7 × 2.5 μm. The material from Stn 4873 consists of smaller, monosiphonic stems with up to six one- or two-chambered gonophores on unreduced polyps.

Family Campanulinidae Hincks, 1868

***Lafoeina longitheca* Jäderholm, 1904 (Fig. 1b, c)**

Material examined Stn 4870, several hydrothecae on *Eudendrium scotti*, *Lafoea dumosa* and bryozoans.

*Remark*s There is a considerable variation in the size of the hydrotheca, its height ranging from 200 to 930 μm and its diameter at aperture from 120 to 200 μm.

Family Lafoeidae Hincks, 1868

***Abietinella operculata* (Jäderholm, 1903)**

Material examined Stn 4874, several stems up to 25 mm high, on *Billardia subrufa*.

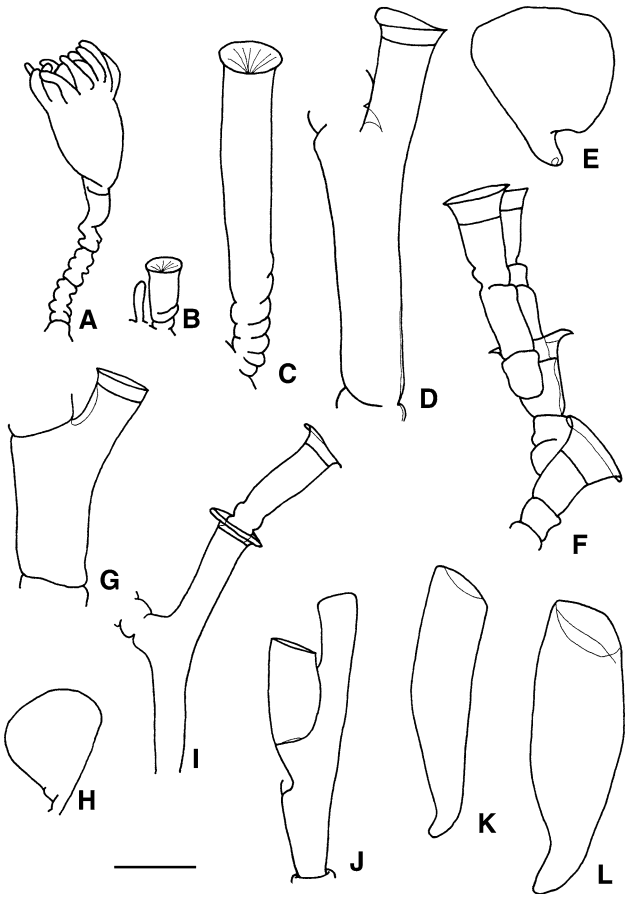

Fig. 1 **a** 'Bougainvilliidae undetermined': stem with distal polyp. **b**, **c** *Lafoeina longitheca*: **b** tiny hydrotheca and nematotheca; **c** large hydrotheca. **d**, **e** *Halecium delicatulum*: **d** internode with hydrotheca; **e** female gonotheca. **f** *H. ovatum*: paired branching and hydrothecae. **g**, **h** *H. pallens*: **g** internode with hydrotheca; **h** female gonotheca. **i** *Halecium* sp.: distal part of internode with primary and secondary hydrothecae. **j–l** *Oswaldella* sp.: **j** internode showing hydrotheca and mesial inferior nematotheca; **k** male gonotheca; **l** female gonotheca. *Scale bar* 250 μm (**a–d**, **f**, **g**, **i**, **j**), 500 μm (**e**, **h**, **k–l**)

Filellum sp.

Materials examined Stn 4862, a few hydrothecae on *Symplectoscyphus glacialis*; Stn 4866, a few hydrothecae on *Billardia subrufa*; Stn 4871, several hydrothecae on *Symplectoscyphus magnificus* sp. nov.; Stn 4873, several hydrothecae on tube of benthic organism; Stn 4874, a few hydrothecae on *Billardia subrufa*.

*Remark*s The absence of coppiniae prevents us from providing a proper identification. The hydrothecae are provided with striae, and the hydrothecal diameter at the aperture ranges from 115 to 140 μm.

Lafoea dumosa (Fleming, 1820)

Materials examined Stn 4861, five hydrothecae on *Symplectoscyphus glacialis*; Stn 4866, three stems up to 5 mm long on tube of benthic organism (RMNH-Coel. 30894); Stn 4874, one stem ca. 35 mm high, basibiont of *Symplectoscyphus exochus* (RMNH-Coel. 30893); Stn 4870, several stems up to 10 mm high, on *Eudendrium scotti* and bryozoans; Stn 4873, two small stems on *Symplectoscyphus curvatus*.

Family Haleciidae Hincks, 1868

Halecium delicatulum (Coughtrey, 1876) (Fig. 1d, e)

Material examined Stn 4862, one colony with two stems 32 and 15 mm high on a barnacle, with gonothecae, basibiont of *Eudendrium antarcticum* (RMNH-Coel. 30857).

Halecium ovatum Totton, 1930 (Fig. 1f)

Material examined Stn 4873, several stems up to 9 mm high, on *Schizotricha vervoorti* (RMNH-Coel. 30883).

Halecium pallens Jäderholm, 1904 (Fig. 1g, h)

Material examined Stn 4864, one stem ca. 170 mm high, with gonothecae (RMNH-Coel. 30862).

Halecium sp. (Fig. 1i)

Material examined Stn 4864, one colony with three incipient stems and another ca. 8 mm high, on *Symplectoscyphus plectilis*.

*Remark*s The scarcity of material and absence of gonothecae prevent us from accurately identifying this species. It is remarkable by the long hydrophores and the long and thin internodes (ca. 2,000 μm long and 100 μm wide). It could be conspecific with the material described as *Halecium* sp.1 by Peña Cantero (2008).

Family Halopteriddidae Millard, 1962

Schizotricha crassa Peña Cantero and Vervoort, 2004

Material examined Stn 4874, one stem fragment ca. 52 mm long, with female gonothecae (RMNH-Coel. 30891).

*Remark*s The material studied agrees with *Schizotricha crassa* in most features. It differs only in the presence of a single nematotheca on the hydrocladial apophyses (two to three have been reported in *S. crassa*). The number of cauline nematothecae could not be determined. The gonothecae are slightly larger (ca. 1,500 μm high and 580 μm wide).

Schizotricha turqueti Billard, 1906

Materials examined Stn 4863, one stem ca. 40 mm high (RMNH-Coel. 30860); Stn 4868, one stem ca. 85 mm high, with gonothecae (RMNH-Coel. 30870); Stn 4870, a stem

fragment ca. 40 mm length, with gonothecae (RMNH-Coel. 30872).

Remarks Double unforked hydrocladial internodes are also present in the material from Stn 4868 and Stn 4870. These had already been observed in material studied by Peña Cantero and Vervoort (2005). The material from Stn 4870 differs from the concept of this species in the presence of two to four infrathecal nematothecae on the forked hydrocladial internodes (it usually has one or two).

***Schizotricha vervoorti* Peña Cantero, 1998**

Material examined Stn 4873, eight stems up to 120 mm high, the majority distally truncated, and several stem fragments, with gonothecae, basibiont of *Symplectoscyphus curvatus* and *Halecium ovatum* (RMNH-Coel. 30880).

Remarks The material studied differs from *Schizotricha vervoorti* in the generally unbranched stems, though two of them have a secondary stem at the basal part. It also has smaller gonothecae (up to 1,000 μm high and 350 μm wide).

Family Kirchenpaueriidae Stechow, 1921

***Oswaldella grandis* Peña Cantero, Svoboda and Vervoort, 1997**

Material examined Stn FERRAZ, one basally and distally truncated stem fragment ca. 55 mm, with male gonothecae (RMNH-Coel. 30854).

***Oswaldella incognita* Peña Cantero, Svoboda and Vervoort, 1997**

Materials examined Stn 4756, three stem fragments (100, 90 and 20 mm long) belonging to two stems, with male and female gonothecae (RMNH-Coel. 30851); Stn FERRAZ, several fragmented stems up to 60 mm high, with gonothecae (RMNH-Coel. 30852).

Remarks Usually, only secondary hydrocladia are present, though one or two third-order hydrocladia are occasionally observed. Although the cauline apophyses form an angle of ca. 45° with the longitudinal axis of the stem, the hydrocladia bend upwards distally, thus becoming almost parallel to it. Male gonothecae are almost cylindrical, with a circular distal aperture. Female gonothecae are larger with a large subterminal aperture.

***Oswaldella shetlandica* Stepan'yants, 1979**

Materials examined Stn FERRAZ, two basally broken stems 87 and 40 mm high, with female gonothecae (RMNH-Coel. 30853); Stn 4743, three stem fragments 50, 50 and 10 mm long, with female gonothecae (RMNH-Coel. 30855); Stn 4874, two distal stem fragments ca. 10 and 5 mm long (RMNH-Coel. 30887).

***Oswaldella* sp. (Fig. 1j–l)**

Material examined Stn 4863, five stems up to 55 mm high, with male and female gonothecae (RMNH-Coel. 30859).

Remarks The stems are irregularly divided into internodes by unconspicuous nodes, one to five apophyses per internode, with a distinct node between cauline apophyses and hydrocladia, and apparently with two axillary nematophores on the cauline apophyses. The hydrothecae are high with a distinct free portion, with the length of hydrotheca increasing along hydrocladia (e.g. 220 μm in the first hydrotheca and 330 μm in the sixth hydrotheca). Hydrothecal diameter is 180–190 μm. Male gonothecae are long and thin with an oblique distal aperture; female gonothecae, though incomplete, are clearly larger, particularly wider, than male gonothecae.

Oswaldella sp. is close to *O. delicata* Peña Cantero et al., 1997, and *Oswaldella* sp.1 Peña Cantero and Vervoort, 2004. It differs from *O. delicata* in the number of axillary nematophores, as only one has been reported in that species. By contrast, in *Oswaldella* sp.1, though two axillary nematophores have also been described, the hydrothecae have a much larger free portion. A critical re-examination of all these materials is necessary before reaching a conclusion about its systematic position.

Family Sertulariidae Lamouroux, 1812

***Amphisbetia operculata* (Linnaeus, 1758) (Fig. 2a)**

Material examined Stn 4871, several stem fragments up to 65 mm long, with gonothecae (RMNH-Coel. 30875), basibiont of *Sertularella* sp.1.

Remarks This is the first record for the Antarctic waters of this common species.

***Antarctoscyphus asymmetricus* Peña Cantero, García Carrascosa and Vervoort, 1997**

Materials examined Stn 4862, one fragment ca. 15 mm long, with one female gonotheca; Stn 4866, several fragmented stems up to 80 mm long, with female gonothecae (RMNH-Coel. 30868).

***Antarctoscyphus grandis* (Blanco, 1977)**

Materials examined Stn 4863, two stem fragments 22 and 7 mm long, with gonothecae (RMNH-Coel. 30861); Stn 4866, two fragmented stems (largest fragment ca. 15 mm long), with gonothecae (RMNH-Coel. 30869); Stn 4870,

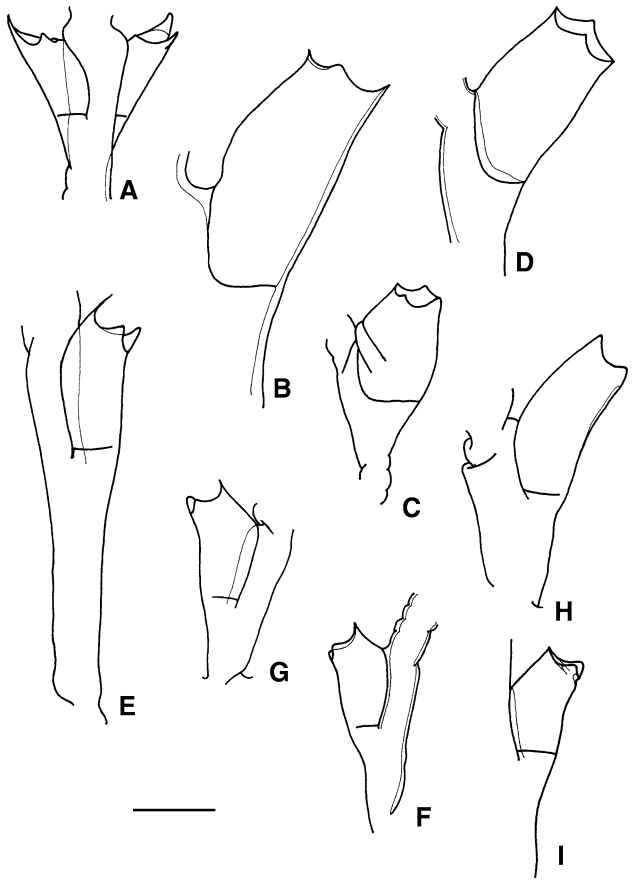

Fig. 2 **a** *Amphisbetia operculata*: paired hydrotheca. **b** *Sertularella sanmatiasensis*: hydrotheca. **c** *Sertularella* sp.1: hydrotheca. **d** *Sertularella* sp.2: hydrotheca. **e** *Symplectoscyphus cumberlandicus*: internode with hydrotheca. **f** *S. exochus*: internode with hydrotheca. **g** *S. glacialis*: internode with hydrotheca. **h** *S. hero*: internode with hydrotheca. **i** *Symplectoscyphus* sp.: hydrotheca. *Scale bar* 250 μm

one stem fragment ca. 14 mm long, with gonothecae (RMNH-Coel. 30874).

***Antarctoscyphus spiralis* (Hickson and Gravely, 1907)**

Materials examined Stn 4873, two fragments ca. 24 and 12 mm long; Stn 4874, one stem ca. 45 mm high, with female gonothecae (RMNH-Coel. 30889).

***Sertularella sanmatiasensis* El Beshbeeshy, 1991 (Fig. 2b)**

Materials examined ?Stn 4871, one basally broken stem ca. 50 mm high and a few fragments (RMNH-Coel. 30878); Stn 4873, several stems up to 50 mm high, with gonothecae, basibiont of *Obelia bidentata* (RMNH-Coel. 30881); Stn 4874, three stems up to 60 mm high (RMNH-Coel. 30886).

Remarks Erect and monosiphonic stems with scarce irregular branching. Hydrothecae usually in two planes, sometimes forming an angle of ca. 90°. Gonothecae with four blunt distal cusps and slightly undulated at distal third. There are some doubts on the assignation of the material from Stn 4871.

***Sertularella* sp.1 (Fig. 2c)**

Material examined Stn 4871, several stems up to 4 mm high and up to seven hydrothecae on *Amphisbetia operculata* and *Symplectoscyphus magnificus* sp. nov.

Remarks Free part of adcauline hydrothecal wall with three marked ridges. Hydrotheca without internal cusps. The scarcity of material and its infertile condition prevent us from providing a proper identification. It is close to *Sertularella robusta* Coughtrey, 1876, but this species has much more elongated hydrothecae provided with internal cusps.

***Sertularella* sp.2 (Fig. 2d)**

Material examined Stn 4872, three small fragments up to 13 mm long.

Remarks The scarcity of material and its infertile condition prevent us from identifying this species, though it seems to be conspecific with the material described as *Sertularella* sp. by Peña Cantero (2008). This author indicated that it is close to *S. conica* Allman, 1877.

***Staurotheca compressa* Briggs, 1938**

Materials examined Stn 4864, three stem fragments up to 10 mm long, with stolons attached to bryozoans and gravel (RMNH-Coel. 30863); Stn 4870, several stem fragments and a mass of stems ca. 45 mm long (RMNH-Coel. 30873); Stn 4873, one stem fragment ca. 11 mm long, with male gonothecae; Stn 4874, a mass of stems and branches ca. 25 mm in diameter, with male and female gonothecae (RMNH-Coel. 30884).

***Symplectoscyphus cumberlandicus* (Jäderholm, 1905) (Fig. 2e)**

Material examined Stn 4864, one fragment ca. 7 mm long, with one immature gonotheca (RMNH-Coel. 30864).

Remarks The gonotheca, not fully developed, is provided with 10 rings.

***Symplectoscyphus curvatus* (Jäderholm, 1917)**

Materials examined Stn 4866, two fragments ca. 16 and 12 mm long (RMNH-Coel. 30867); Stn 4870, on stem fragment ca. 18 mm long; Stn 4873, a few stems up to 15 mm high on *Schizotricha vervoorti* and tube of benthic organism, basibiont of *Eudendrium scotti* and *Lafoea dumosa* (RMNH-Coel. 30882); Stn 4874, several stems up to 40 mm high, with gonothecae (RMNH-Coel. 30885).

Symplectoscyphus exochus Blanco, 1982 (Fig. 2f)

Materials examined Stn 4866, a mass of stems and branches ca. 55 mm long, with gonothecae (RMNH-Coel. 30865); Stn 4870, a mass of stems and branches, with gonothecae (RMNH-Coel. 30871); Stn 4874, a mass of stems and branches ca. 50 mm in diameter, with gonothecae (RMNH-Coel. 30892).

Remarks The gonothecae have six to eight spirally arranged rings. They are 780–1,050 μm high and 640–780 μm wide and are provided with a distal funnel-shaped neck 120–230 μm high with a distal circular aperture 130–200 μm in diameter.

Symplectoscyphus glacialis (Jäderholm, 1904) (Fig. 2g)

Materials examined ?Stn 4861, two stems ca. 35 and 20 mm long, joined by an anastomosis; ?Stn 4862, numerous stem fragments up to 30 mm long, basibiont of undetermined Bougainvilliidae and *Filellum* sp. (RMNH-Coel. 30858); Stn 4866, three stem fragments up to 7 mm long, one with gonothecae; ?Stn 4874, a small stem ca. 5 mm high on *Billardia subrufa*.

Remarks There are some doubts concerning the assignation of part of the material studied because of the difficulty in separating *S. glacialis* from *S. exochus* in the absence of gonothecae; both species may have very similar hydrothecae.

Symplectoscyphus hero Blanco, 1977 (Fig. 2h)

Material examined Stn 4874, numerous small stems on a gorgonian, with gonothecae (RMNH-Coel. 30890).

Remarks Although the hydrothecae are in bad condition, their general appearance and dimensions are in agreement with Blanco's species, as are the gonothecae. These are ca. 1,300 μm high and ca. 650 μm wide; the diameter at the aperture is ca. 220 μm.

Symplectoscyphus plectilis (Hickson and Gravely, 1907)

Material examined Stn 4864, a few fragments up to 6 mm long with hydrothecae in bad condition (RMNH-Coel. 30864).

Symplectoscyphus magnificus sp. nov. (Fig. 3, Table 2)

Material examined Stn 4871, three basally broken stems ca. 25, 35 and 55 mm high, and an extra stem fragment ca. 12 mm long with one gonotheca, basibiont of *Sertularella* sp.1 and *Filellum* sp. (stem ca. 25 mm high is the holotype, RMNH-Coel. 30876; remaining stems are paratypes).

Description Stems at least 55 mm high, monosiphonic and irregularly divided into internodes marked by strong constrictions of perisarc; four to ten hydrothecae per internode.

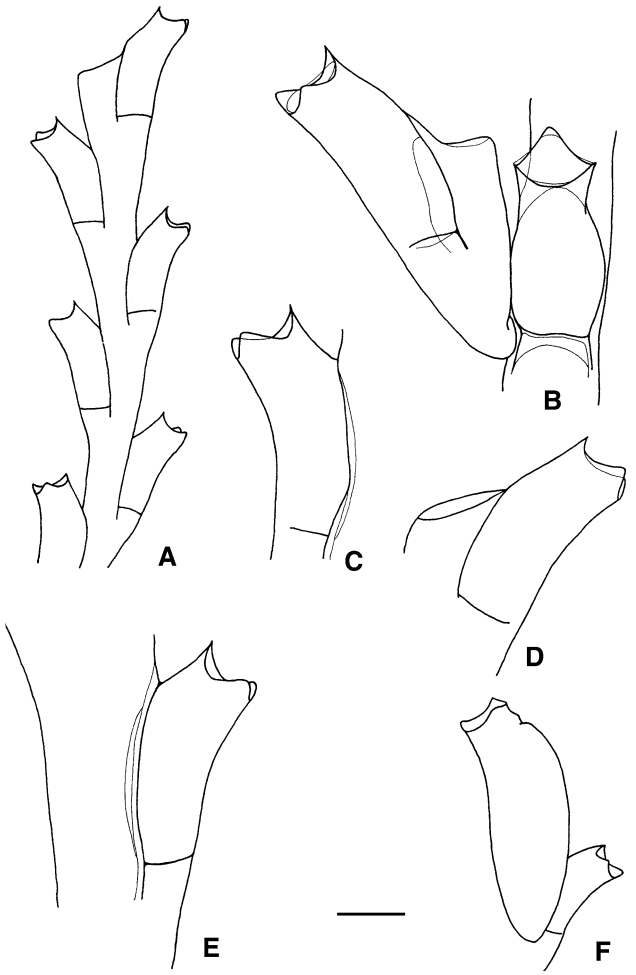

Fig. 3 **a**–**f** *Symplectoscyphus magnificus* sp. nov.: **a** hydrothecal arrangement; **b** accessory branch and hydrothecae; **c**–**e** hydrothecae; **f** gonotheca. *Scale bar* 250 μm (**b**–**e**), 500 μm (**a**, **f**)

Table 2 Measurements in *Symplectoscyphus magnificus* sp. nov. (in μm)

Hydrothecae	
Length abcauline wall	690–760
Length free part of adcauline wall	250–330
Length adnate part of adcauline wall	550–650
Length adcauline wall	760–930
Maximal diameter	290–300
Diameter at aperture	240–270
Gonothecae	
Length	1,700
Maximal diameter	580
Aperture	380

Main branching irregular, taking place below the last hydrotheca of internodes, where there is a distinct, short and wide apophysis supporting the secondary branch; both

separated by a node marked by a strong perisarc constriction. Occasionally, at the basal part of stem, some internodes are without branches. Secondary branches of approximately the same length (usually ca. 7 mm, but up to 12 mm long), unbranched and not divided into internodes. The stems 55 mm and 35 mm high with six and four secondary branches, respectively.

The 25 mm high stem is deprived of branches in the first 9 mm and gives rise to five secondary branches and five accessory branches, which form in a different way, originating at the position usually occupied by the gonothecae, either directly (Fig. 3b) or supported by an inconspicuous apophysis. Some of these accessory branches are much developed and also bear lower-order accessory branches. The first, third and fourth secondary branches, not divided into internodes, are strongly laterally flattened and support four accessory branches, all on the same side. Some of these accessory branches in turn bear up to four lower-order accessory branches, all on the same side.

Hydrothecae alternately arranged in approximately one plane (Fig. 3a), though there is a shift in that plane along the stem, due to the displacement of the hydrotheca supporting a secondary branch. Hydrothecae of both secondary and accessory branches arranged in a different plane, almost perpendicular to that present in supporting stem or branch. Hydrothecae rather closely packed, usually each hydrotheca overpassing basal part of the opposite hydrotheca.

Hydrothecae are remarkably large, almost cylindrical and adnate to internode for approximately two-thirds of its adcauline wall (Fig. 3a, c–e); only those hydrothecae at the end of the branches with a shorter adnate part (Fig. 3b). Free portion of adcauline hydrothecal wall straight or slightly concave. Abcauline hydrothecal wall slightly concave. Hydrothecal aperture directed upwards and provided with three blunt cusps separated by deep embayments.

Only one gonotheca was present, originating at the base of a hydrotheca (Fig. 3f). It is fusiform, tapering basally, but ending abruptly in a short and wide distal neck provided with three bunt cusps; gonothecal wall smooth.

Remarks *Symplectoscyphus magnificus* sp. nov. is characterized by the large size of the hydrothecae, the shape of the gonotheca and the peculiar way of branching.

Symplectoscyphus magnificus sp. nov. is clearly distinguishable from the remaining known Antarctic species of the genus. The size of the hydrothecae is distinctly larger than in any other species, with the exception of *S. curvatus*. Nevertheless, both species are easy to distinguish; in *S. curvatus*, the stems are regularly divided into internodes bearing a single hydrotheca, the hydrothecae are larger, with a much larger portion of the adcauline wall free (up to 750 μm) and the hydrothecal diameter is larger too (up to 380 μm reported). Moreover, the gonothecae are completely different, since in *S. curvatus* the gonothecal wall forms a distinct descending keel of approximately ten turns and the gonothecal aperture is situated at the end of a short neck hidden by the first turn of the keel.

Symplectoscyphus magnificus sp. nov. approaches *S. milneanus* (d'Orbigny, 1846) in the presence of flattened branches, the irregular presence of nodes delimiting internodes and the size and shape of the hydrothecae. However, they differ in important features, such as the branching pattern (irregular but in one plane in *S. milneanus*) and the gonothecal shape. In *S. milneanus*, the gonotheca is provided with several distal ribs and a short, flaring, funnel-shaped neck.

Etymology The specific name *magnificus* refers to the large size of the hydrothecae.

Symplectoscyphus sp. (Fig. 2i)

Material examined Stn 4871, several stems up to 30 mm long (RMNH-Coel. 30877).

Remarks The branching is alternate in the same plane. The hydrothecae are small and characterized by a kind of abcauline cusp situated just below the abcauline embayment, which is directed toward the hydrothecal lumen. The absence of gonothecae, however, impedes a further identification.

Family Campanulariidae Johnston, 1836

Billardia subrufa (Jäderholm, 1904)

Materials examined Stn 4866, several stem fragments up to 50 mm long, with immature gonothecae, basibiont of *Filellum* sp. (RMNH-Coel. 30866); Stn 4872, several stems up to 50 mm high (RMNH-Coel. 30879); Stn 4874, one basally broken stem ca. 40 mm high (RMNH-Coel. 30888), basibiont of *Abietinella operculata*, *Filellum* sp. and *Symplectoscyphus glacialis*.

Obelia bidentata Clark, 1875

Material examined Stn 4873, one stem ca. 5 mm, with three hydrothecae, on *Sertularella sanmatiasensis*.

General remarks

As shown before, the 36 species studied belong to nine families and sixteen genera. Most are members of the subclass Leptothecata Cornelius, 1992. The subclass Anthoathecata Cornelius, 1992 is only represented by two

Table 3 Main ecological characteristics and biogeographical distribution of the species studied

	Depth	Substrate	Epibionts	Distribution
'Bougainvilliidae undetermined'	240	*S. glacialis*		–
Eudendrium antarcticum	240	*H. delicatulum*		?
E. scotti	66–135	*S. curvatus*, bryozoans	*L. longitheca*, *L. dumosa*	CA
Lafoeina longitheca	135	*E. scotti*, *L. dumosa*, bryozoans		PA
Abietinella operculata	135	*B. subrufa*		AP
Filellum sp.	66–264	*S. glacialis*, *S. magnificus* sp. nov., *B. subrufa*, tube of benthic organism		–
Lafoea dumosa	66–362	*E. scotti*, *S. curvatus*, *S. exochus*, *S. glacialis*, bryozoans, tube of benthic organism		W
Halecium delicatulum	240	barnacle	*E. antarcticum*	W
H. pallens	275			CA
H. ovatum	66	*S. vervoorti*		CA
Halecium sp.	275	*S. plectilis*		CA
Schizotricha crassa	135			WA
S. turqueti	96–180			CA
S. vervoorti	66		*H. ovatum*, *S. curvatus*	WA[a]
Oswaldella grandis	20			WA
O. incognita	20–70			WA
O. shetlandica	20–412			WA
Oswaldella sp.	180			–
Amphisbetia operculata	264		*Sertularella* sp.1	W
Antarctoscyphus asymmetricus	240			WA
A. grandis	135–194			CA
A. spiralis	66–135			CA
Sertularella sanmatiasensis	66–264		*O. bidentata*	WAP
Sertularella sp.1	264	*Amphisbetia operculata*, *S. magnificus* sp. nov.		WA
Sertularella sp.2	168			–
Staurotheca compressa	66–275	bryozoans, gravel		CA
Symplectoscyphus cumberlandicus	275			CA
S. curvatus	66–194	*S. vervoorti*	*E. scotti*, *L. dumosa*	CA
S. exochus	135–194	*L. dumosa*		WA
S. glacialis	135–362	*B. subrufa*	'Bougainvilliidae', *Filellum* sp., *L. dumosa*	AK
S. hero	135			WA
S. plectilis	275			CA
S. magnificus sp. nov.	264		*Filellum* sp., *Sertularella* sp.1	WA
Symplectoscyphus sp.	264			–
Billardia subrufa	135–194		*Filellum* sp., *A. operculata*, *S. glacialis*	AP
Obelia bidentata	66	*S. sanmatiasensis*		W

AK Antarctic-Kerguélen, *AP* Antarctic-Patagonian, *CA* circum-Antarctic, *PA* Pan-Antarctic, *W* worlwide, *WA* West Antarctic, *WAP* West Antarctic-Patagonian, (?) the scarcity of records prevents the assignation of a distribution model

[a] Present in the South Pacific Ocean too

species of *Eudendrium* and one species of the family Bougainvilliidae. Sertulariidae forms by far the most extensive family in the collection, encompassing 16 species (44%), followed by Haleciidae and Kirchenpaueriidae with four species (11%) each. At the generic level, the predominant genera are *Symplectoscyphus* with eight species

(22%), *Halecium* and *Oswaldella* with four (11%) and *Antarctoscyphus*, *Sertularella* and *Schizotricha* with three each (8%). It is remarkable that 25 species (69%) belong to just these six genera, which represent ca. 38% of the whole. The concentration of the Antarctic hydrozoan diversity in just a few genera has been noticed before (cf. Peña Cantero and García Carrascosa 1999; Peña Cantero 2008).

Although the present collection embraces a typical Antarctic hydroid fauna, it has some striking peculiarities. This is because of the scant representation of the genus *Staurotheca*, one of the most diversified and widespread genera of Antarctic benthic hydroids (there are 24 known Antarctic species), represented in the collection by just one species (*S. compressa*), and the relatively high representation of the genus *Sertularella*, little diversified in the Antarctic, where it has, moreover, a restricted distribution (i.e. West Antarctic waters). Also noteworthy is the presence of *Amphisbetia operculata*, a widespread species, never recorded from Antarctic waters before, though widely known from sub-Antarctic waters, and of *Eudendrium antarcticum*, a little recorded species, only known from off South Africa and Bouvet Island (cf. Peña Cantero and Gili 2006).

Only a few insights can be obtained in relation to the substrata employed by the species studied, due to the indirect sampling methods used to obtain the material. Indirect sampling gives a partial picture of the reality, since many colonies of the larger species, which live attached to the bottom, come on board broken at their base and consequently detached from the substratum. Thus, the majority of species that have large colonies were found detached, and no information concerning the substratum employed could be obtained. This is the situation, for instance, in the species of *Schizotricha* and *Oswaldella*, in *Antarctoscyphus grandis* and in *Billardia subrufa* (cf. Table 3). On the other hand, several species, which form smaller colonies, were observed growing epibiotic on other organisms. With the exception of *Staurotheca compressa*, which was also found on an inorganic substratum (i.e. gravel), the remaining species were found on organic substrata (tubes of benthic organisms, bryozoans, barnacles and, especially, other species of hydroids). The species showing a broader spectrum was *Lafoea dumosa*, which was found on bryozoans, tubes of benthic organisms and four species of hydroids (cf. Table 3). In contrast, some species were observed on a single substratum (e.g. *E. antarcticum*, *H. ovatum*, *O. bidentata*). A few epibiotic species were used in turn as basibiont by other species of hydroids; for example, *E. scotti*, epibiotic on *S. curvatus*, was used as substratum by *L. longitheca* and *L. dumosa* (cf. Table 3).

In relation to the bathymetric distribution of the species studied, four of the six bathymetric groups established by Peña Cantero (2004) could be recognized. All the samples came from continental shelf waters, ranging from 20 to 412 m. Four species (*H. pallens*, *S. crassa*, *A. asymmetricus* and *S. hero*) belong to the group of continental shelf species absent from the shallowest waters. Nine (*E. scotti*, *L. longitheca*, *L. dumosa*, *H. delicatulum*, *H. ovatum*, *A. grandis*, *S. sanmatiasensis*, *S. cumberlandicus* and *O. bidentata*) are in the group of species distributed over the whole continental shelf. Four species (*Abietinella operculata*, *S. vervoorti*, *S. compressa* and *S. curvatus*) belong to the group embracing those species that are distributed from below the shallowest waters of the continental shelf to bathyal or abyssal depths. Finally, in the group extending through the whole range (i.e. from the shallowest sublittoral to beyond the shelf-break) are included 11 species (*E. antarcticum*, *S. turqueti*, *O. grandis*, *O. incognita*, *O. shetlandica*, *Amphisbetia operculata*, *A. spiralis*, *S. exochus*, *S. glacialis*, *S. plectilis* and *B. subrufa*). Most species are kept in the original grouping presented by Peña Cantero (2004). Only *O. grandis* and *O. incognita*, previously considered in the group of species extending from below the shallowest sublittoral to beyond the shelf-break, are now transferred to the group of species distributed through the whole range, because they have been found at just 20 m depth. Other two species, *E. antarcticum* and *Amphisbetia operculata* were not considered in that publication, because they had not been recorded in Antarctic waters at that time. Both are included in the group of species distributed through the whole range, since they have been reported from shallow waters to beyond the shelf-break.

Concerning the biogeographical distribution models assigned (Table 3), the circum-Antarctic (ten species, 36%) and West Antarctic (nine species, 32%) groups are dominant, altogether representing the contingent of endemic species (68%). If those species restricted to Antarctic/sub-Antarctic waters, namely the Pan-Antarctic (one species, 4%), the Antarctic-Patagonian (two species, 7%), the West Antarctic-Patagonian (one species, 4%) and the Antarctic-Kerguélen (one species, 4%), are also considered, most species (24 species, 86%) are found to be restricted to either Antarctic or Antarctic/sub-Antarctic waters. Only four species are also found outside those waters, having a wider distribution.

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