

***Sertularia vervoorti* (Hydrozoa: Sertulariidae), an undescribed species of hydroid from Brazil**

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An account is given of *Sertularia vervoorti* spec. nov., a small leptothecate species collected in coastal waters of southeastern Brazil. Specimens were found on brown algae, collected at depths of 15-20 m on the inner continental shelf off Espírito Santo state. This hydroid resembles *Sertularia tumida* Allman, 1877, *S. linealis* Warren, 1908, and *S. longa* Millard, 1958, but differs from these and other species of the genus in having an unusual bulge around the hydrothecal wall just distal to its insertion with the hydrocaulus. The colony form of *S. vervoorti* is more compact than in these species, and gonothecae are annulated rather than smooth as in *S. linealis* and *S. longa*.

Introduction

Surveys of the biota of the inner continental shelf off southern Espírito Santo state, Brazil, have been carried out over the past decade by staff of the Universidade de São Paulo. In samples collected during February 1987, a leptothecate hydroid referable to *Sertularia* (*Tridentata* sensu Calder, 1991), but corresponding in morphology with no other known species, was found. The specimens were initially overlooked as unusual because they resembled several other species of *Sertularia* known from the coast of Brazil (see Migotto, 1996). Moreover, they were easily missed in being small and relatively scarce in the samples. During a recent re-examination of these hydroids, a distinctive bulge was noted in the distal wall of the hydrotheca at its insertion with the stem internode. This attribute, in combination with the unusual compactness of the colony and the annulated form of the gonothecae, indicated that the hydroid represented an undescribed species. An account of the species is provided here.

Methods

Substrates, including calcareous nodules with foliaceous algae, were collected by SCUBA diving on the continental shelf about 20 km from the coast (21°10.7'S 40°27.2'W) of Espírito Santo state, Brazil. Materials were fixed in sea water formalin (4%) and sorted in the laboratory. Stems of *Sertularia vervoorti* for scanning electron microscopy (SEM) were post-fixed in 1% OsO₄, dehydrated in a graded series of ethanol, dried in a critical-point drier, and sputter-coated with gold.

Taxonomic part

Sertularia verwoorti spec. nov.
(figs 1-3)

Material.— Brazil, continental shelf off Espírito Santo state, 21°10.7'S 40°27.2'W, 15-20 m, on Phaeophyta, Sta 12, 24.ii.1987, several stems, with gonothecae, coll. F.L. da Silveira (holotype colony deposited at the cnidarian collection of the Museu Nacional, Universidade Federal do Rio de Janeiro, MNRJ 3211; one paratype at the Royal Ontario Museum, ROMIZ B3010).

Idem, Sta 5, 24.ii.1987, a few stems detached from the substrate, no gonothecae, coll. F.L. da Silveira (AM1252). AM = private collection of A. E. Migotto.

Description.— Colonies developing by stolonial growth of hydrorhiza over blades and stems of a brown alga; hydrorhizal perisarc moderately thick, without internal septa; hydrorhiza giving rise to erect, unbranched, monosiphonic hydrocauli at regular intervals. Hydrocauli up to 2 mm high; short athecate basal part usually separated by two oblique nodes from distal hydrothecate part (figs 1b, 2b); main region of hydrocaulus with 2-4 thecate internodes divided by oblique nodes; each thecate internode short, with a single opposite pair of frontally-placed hydrothecae (fig. 1a). Hydrothecal pairs contiguous frontally for a varying distance, separated in back; proximalmost pair of hydrothecae more robust and more strongly curved outwards than others, and with less of their adcauline walls contiguous (fig. 1a). Hydrothecae swollen, widest across middle region, narrowing towards orifice; facing outwards and obliquely upwards; abcauline walls sinuous, convex basally, concave distally; adcauline walls adnate to hydrocaulus for about half their length, adnate part straight, free part at first convex, then nearly straight, distal end approaching an angle of nearly 90° to the longitudinal axis of stem (fig. 1a). Hydrothecal orifice oval; margin with two pointed lateral cusps and a smaller, adcauline cusp (fig. 2c). Operculum composed of two valves; adcauline flap smaller and frequently divided in the middle (figs 1b, 2c). Hydrothecal wall with a circumferential bulge about 1/3 of distance back from orifice (figs 2-3), bulge usually more developed on back side of

Table 1. Measurements of *Sertularia verwoorti* spec. nov., in μm .

Diameter of hydrorhiza	90-125
Length of stem internode	335.4-405.6
Hydrotheca	
length abcauline wall	148-249.6
length free part adcauline wall	101-156
length adnate part adcauline wall	156-218.4
length contiguous part adcauline wall	63-175.5
diameter at margin	81.9-109.2
maximum diameter	
diameter at base of pair	85.8-124.8
Gonotheca	
length	1118-1166
maximum diameter	595-619
diameter at aperture	380-452

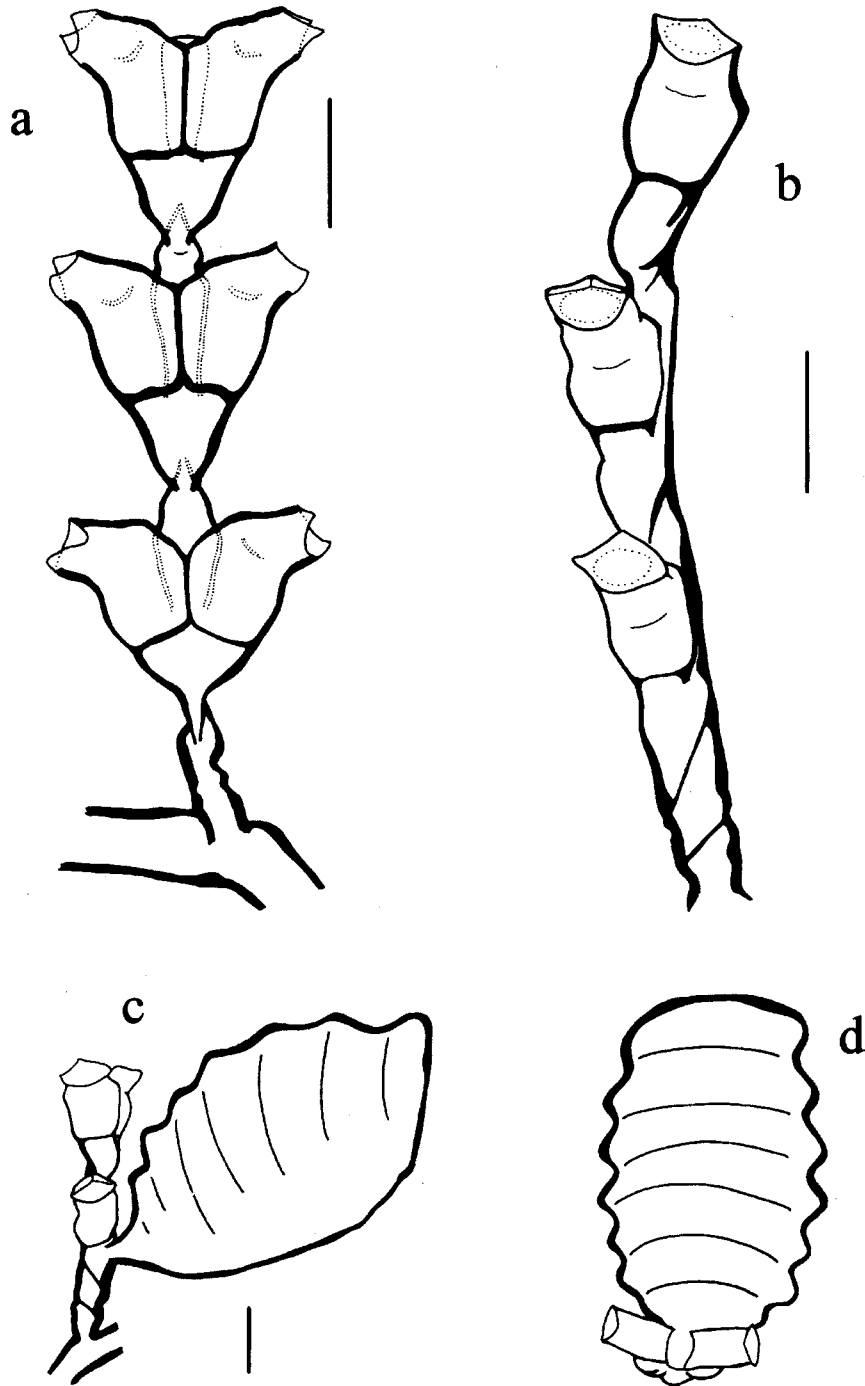


Fig. 1. *Sertularia vervoorti* spec. nov. a, stem in frontal view; b, stem in lateral view; c, stem with gonotheca, lateral view; d, same stem of c, upper view. Scales 200 μ m.

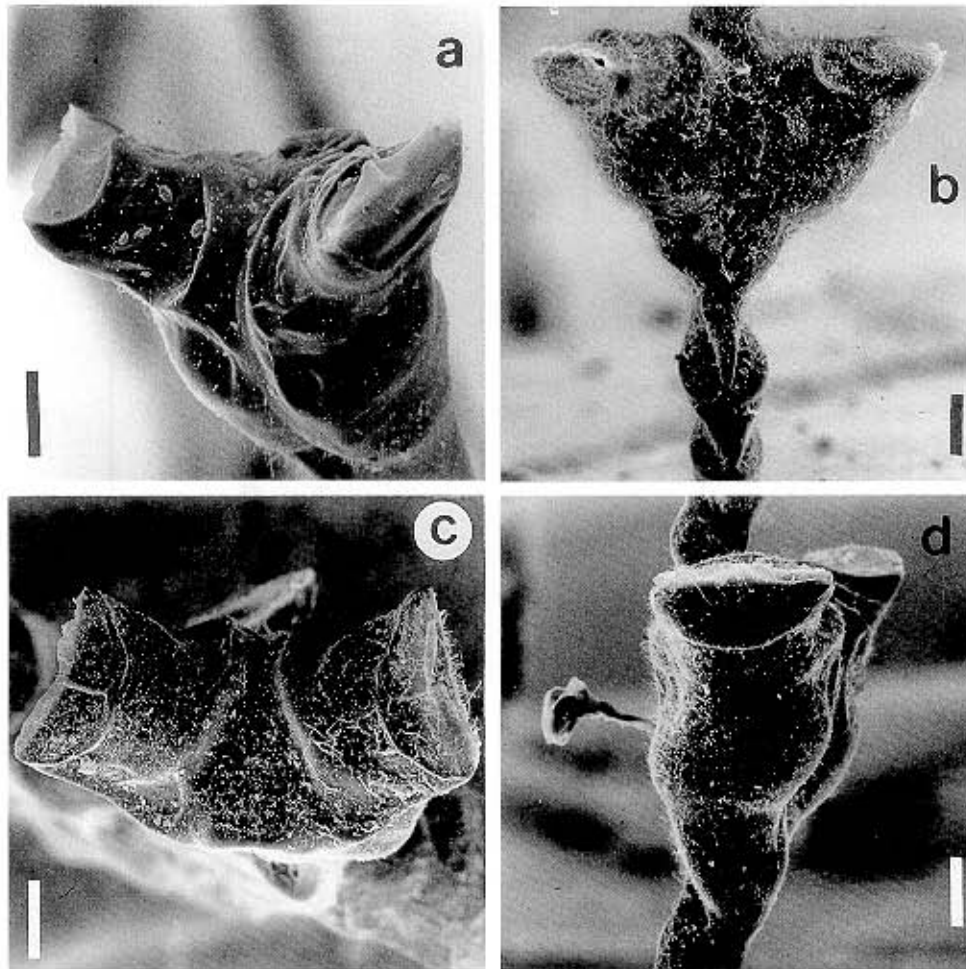


Fig. 2. Scanning electron micrographs of *Sertularia verwoorti* spec. nov., a. distal pair of hydrothecae, frontal view; b. proximal pair of hydrothecae, frontal view; c. distal pair of hydrothecae, view from above, note the adcauline marginal cusp; d. proximal pair of hydrothecae, lateral view. Scales 50 μ m.

hydrotheca, appearing as a single protuberance in standard microslide preparations; frontal wall of hydrotheca sometimes with a ridge originating from circular bulge and running down parallel to longitudinal axis of stem (fig. 2a); ridges frequently not continuous, or obscured by debris and epizoic organisms. Hydrothecal perisarc slightly and evenly thickened near hydrothecal margin (fig. 1a); intrathecal cusps and intrathecal septum lacking; hydrothecal floor thickened, frequently with projections into hydrothecal cavity. Hydranth with abcauline caecum clearly visible in some retracted hydranths; tentacle number indeterminable.

Gonothecae (fig. 1c-d) present on three stems, arising just below proximal hydrothecal pair by a short, smooth pedicel; gonothecal walls compressed, with 6 broad transverse annulations. Adcauline wall convex; abcauline more straight, with less

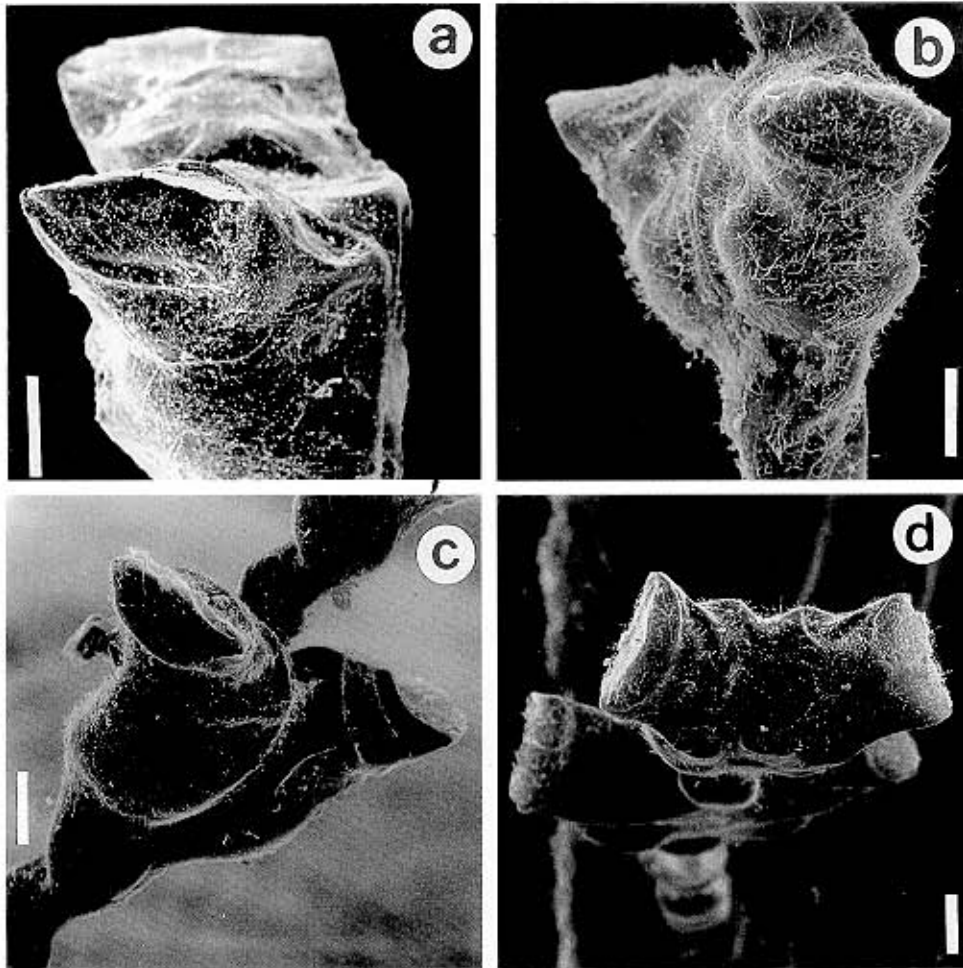


Fig. 3. Scanning electron micrographs of *Sertularia verwoorti* spec. nov., a. distal pair of hydrothecae, lateral view; b-c. middle pair of hydrothecae, frontal view; d. stem with two pairs of hydrothecae, view from above. Scales 50 μ m.

conspicuous annulations. Aperture oval, oblique to longitudinal axis of gonothecae.

Etymology.— The specific name honours Dr Willem Vervoort (Nationaal Natuurhistorisch Museum, Leiden, The Netherlands), for his extensive, thorough, and important works on the Hydrozoa.

Remarks.— The form of the distal hydrothecal bulge, a distinctive attribute of this species, is somewhat difficult to perceive under routine light microscopy. When a standard microslide preparation is examined, the bulge on the hydrothecal wall appears as a thickening of the perisarc. The bulge is most apparent in material lacking coenosarc, and is visible whether back or front of the colony is examined. Its actual shape is more readily apparent when hydrothecae are viewed from the side. From that angle, it is apparent that the bulge is more pronounced on the posterior side of

the hydrotheca than on the front. The greater swelling of the bulge on the posterior hydrothecal wall gives the impression, in frontal view, that there is a single projection of perisarc only rather than one encircling the hydrotheca.

SEM preparations showed that the shape of the hydrothecal bulges varies, and that its form greatly influences the general shape of the hydrotheca. The position of the bulge and its degree of development are not always the same, so that some hydrothecae are more inflated than others.

Sertularia vervoorti resembles *Sertularia tumida* Allman, 1877, *S. linealis* Warren, 1908, and *S. longa* Millard, 1958, in colony form and hydrothecal shape. Hydrothecae of all four species lack an intrathecal ridge. The colony form in hydroids of *S. vervoorti* is more compact, and internodes of the hydrocaulus are much shorter than in similar species. More importantly, a bulge encircling the hydrotheca, adjacent to its insertion with the stem internode, sets *S. vervoorti* apart from these and other species of the genus. Gonothecae of *S. vervoorti* are transversely annulated and distinct from the smooth ones of *S. linealis* and *S. longa*. *Sertularia longa*, unlike *S. vervoorti*, has long stems, and internal pegs of perisarc are present in the hydrorhiza (Millard, 1958, 1975). Hydrothecae of *S. vervoorti* lack distinct internal marginal cusps, such as those in *S. linealis* (Warren, 1908). Colonies of *S. vervoorti* are smaller than in *S. tumida*, hydrocladia are unbranched instead of occasionally branched, and internodes of the hydrocaulus are much shorter (up to 0.4 mm instead of 1 mm or more).

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