Report on the Haleciidae and Plumularioidea (Cnidaria, Hydrozoa) collected by the French SEAMOUNT 1 expedition

F. Ramil, W. Vervoort & J.A. Ansín

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F. Ramil & J.A. Ansín, Departamento de Ecoloxía e Bioloxía Animal, Facultade de Ciencias, Universidade de Vigo, Apartado 874, 36200 Vigo, Spain.
W. Vervoort, National Museum of Natural History, P.O. Box 9517, 2300 RA Leiden, The Netherlands.

Key words: Cnidaria; Hydrozoa; Haleciidae; Plumularioidea; SEAMOUNT 1; North-Eastern Atlantic.
The study of a part of the material collected by the French oceanographic expedition "SEAMOUNT 1" made it possible to identify 21 species and one subspecies of hydroids of the families Haleciidae (4 species), Aglaopheniidae (7 species), Halopteridídae (3 species), Kirchenpaueriidae (2 species and one subspecies) and Plumulariidae (5 species). Of these species, 10 have an Atlantic-Mediterranean distribution, 6 are cosmopolites, 4 are known from the north-eastern Atlantic, near to the area studied, and only one, *Pseudoplumaria sabinae* Ramil & Vervoort, 1992, is momentarily only known from Gorringe and Ampère Banks.

Contents

Resumen

El estudio de una parte del material recolectado por la expedición oceanográfica francesa "SEAMOUNT 1" nos ha permitido la identificación de 21 especies y una subespecie de hidroideos pertenecientes a las familias Haleciidae (4 especies), Aglaopheniidae (7 especies)), Halopteridídae (3 especies), Kirchenpaueriidae (2 especies y una subespecie) y Plumulariidae (5 species). De las especies estudiadas, 10 de ellas presentan una distribución geográfica atlántico-mediterránea, 6 son especies cosmopolitas o de amplia distribución, 4 son conocidas en el Océano Atlántico nor-oriental de zonas próximas al área de estudio y solamente una, *Pseudoplumaria sabinae* Ramil & Vervoort, 1992, presenta una distribución geográfica restringida, hasta el momento, a los bancos Gorringe y Ampère.

Introduction

During the French oceanographic expedition "SEAMOUNT 1", carried out in September-October 1987 on board R.V. 'Le Noroit' under the direction of Dr P. Bouchet, Muséum National d'Histoire naturelle, Paris, the lusitanian seamounts Gorringe, Josephine, Lion, Seine, Ampère and Galicia Banks (fig. 22) were explored. The material collected was sorted by the 'Centre National de Tri d'Océanographie Biologique' (CENTOB, Plouzane) and 'Zootax' (Swedish Museum of Natural History, Stockholm).

The collection of hydroids was sent to the second author for further study; this

report is based on material of the families Haleciidae, Aglaopheniidae, Halopteridi-dae, Kirchenpaueriidae and Plumulariidae. The material studied has been largely deposited in the Muséum National d'Histoire naturelle, Paris (indicated by MNHN-Hy and a number); a reference collection is in the National Museum of Natural History [Nationaal Natuurhistorisch Museum (formely Rijksmuseum van Natuurlijke Historie), Leiden, The Netherlands (indicated by RMNH-Coel. and a number)] and in the Departamento de Ecoloxía e Bioloxía Animal, Universidade de Vigo, Spain (indicated by DEBA-UV and a number).

List of stations and species collected

SEAMOUNT 1, Stn DW 04, Gorringe Bank, 36°32.5'N 11°34.4'W, 93-96 m, 22.ix.1987:
Halecium spec.

SEAMOUNT 1, Stn DW 06, Gorringe Bank, 36°30.2'N 11°37.9'W, 250 m, 22.ix.1987:
Lytocarpia myriophyllum (Linnaeus, 1758), *Streptocaulus corneliusi* (Ramil & Vervoort, 1992), *Antennella secundaria* (Gmelin, 1791), *Nemertesia antennina* (Linnaeus, 1758), *Plumularia setacea* (Linnaeus, 1758).

SEAMOUNT 1, Stn DW 07, Gorringe Bank, 36°28.5'N 11°33.7'W, 350-355 m, 22.ix.1987:
Lytocarpia myriophyllum (Linnaeus, 1758), *Streptocaulus corneliusi* (Ramil & Vervoort, 1992).

SEAMOUNT 1, Stn DE 09, Gorringe Bank, 36°31.5'N 11°38.0'W, 350-360 m, 23.09.1987:
Streptocaulus corneliusi (Ramil & Vervoort, 1992), *Pseudoplumaria sabinae* Ramil & Vervoort, 1992.

SEAMOUNT 1, Stn CP 11, Gorringe Bank, 36°26.4'N 11°40.2'W, 805-830 m, 23.ix.1987:
Halecium beanii (Johnston, 1838), *Halecium sessile* Norman, 1867, *Cladocarpus elongatus* Bedot, 1921, *Pseudoplumaria sabinae* Ramil & Vervoort, 1992.

SEAMOUNT 1, Stn CP 12, Gorringe Bank, 36°24.2'N 11°43.2'W, 1005-1040 m, 23.ix.1987:
Cladocarpus elongatus Bedot, 1921, *Streptocaulus corneliusi* (Ramil & Vervoort, 1992), *Pseudoplumaria sabinae* Ramil & Vervoort, 1992.

SEAMOUNT 1, Stn DW 15, Gorringe Bank, 36°33.4'N 11°28.8'W, 300-330 m, 24.ix.1987:
Aglaophenia tubulifera (Hincks, 1861), *Streptocaulus corneliusi* (Ramil & Vervoort, 1992), *Kirchenpaueria bonnevieae simplex* Billard, 1930, *Pseudoplumaria sabinae* Ramil & Vervoort, 1992.

SEAMOUNT 1, Stn DW 16, Gorringe Bank, 36°31.1'N 11°32.5'W, 255-265 m, 24.ix.1987:
Aglaophenia tubulifera (Hincks, 1861), *Lytocarpia myriophyllum* (Linnaeus, 1758), *Pseudoplumaria sabinae* Ramil & Vervoort, 1992.

SEAMOUNT 1, Stn DW 17, Gorringe Bank, 36°30.2'N 11°31.0'W, 155 m, 24.ix.1987:
Aglaophenia tubulifera (Hincks, 1861), *Lytocarpia myriophyllum* (Linnaeus, 1758).

SEAMOUNT 1, Stn DE 20, Gorringe Bank, 36°33.7'N 11° 30.1'W, 305-320 m, 24.ix.1987:
Aglaophenia tubulifera (Hincks,1861), *Antennella secundaria* (Gmelin, 1791), *Pseudoplumaria sabinae* Ramil & Vervoort, 1992.

SEAMOUNT 1, Stn DW 21, Gorringe Bank, 36°34.9'N 11°28.4'W, 460-480 m, 24.ix.1987:
Pseudoplumaria sabinae Ramil & Vervoort, 1992.

SEAMOUNT 1, Stn CP 28, Gorringe Bank, 36°38.0'N 11° 29.8'W, 605-675 m, 26.ix.1987:
Kirchenpaueria pinnata (Linnaeus, 1758).

SEAMOUNT 1, Stn CP 30, Gorringe Bank, 36°44.3'N 11°23.0'W, 1940-2075 m, 26.ix.1987:
Streptocaulus corneliusi (Ramil & Vervoort, 1992).

SEAMOUNT 1, Stn DW 32, Gorringe Bank, 36°31.0'N 11°34.6'W, 54-62 m, 03.x.1987:
Halecium tenellum Hincks, 1861, *Aglaophenia tubiformis* Marktanner-Turneretscher, 1890.

SEAMOUNT 1, Stn DW 37, Josephine Bank, 36°42.0'N 14°17.7'W, 255-270 m, 04.x.1987:
Aglaophenia tubulifera (Hincks, 1861), *Streptocaulus corneliusi* (Ramil & Vervoort, 1992).

SEAMOUNT 1, Stn DW 38, Josephine Bank, 36°41.5'N 14°17.0'W, 235-245 m, 04.x.1987:
Aglaophenia lophocarpa Allman, 1877, *Streptocaulus corneliusi* (Ramil & Vervoort, 1992).

SEAMOUNT 1, Stn DW 43, Josephine Bank, 36°44.9'N 14°17.3'W, 260-285 m, 04.x.1987:
Aglaophenia tubulifera (Hincks, 1861), *Streptocaulus corneliusi* (Ramil & Vervoort, 1992).

SEAMOUNT 1, Stn DW 45, Josephine Bank, 36°45.8'N 14°17.5'W, 315-335 m, 05.x.1987: *Streptocaulus corneliusi* (Ramil & Vervoort, 1992).
SEAMOUNT 1, Stn DW 56, Josephine Bank, 36°42.3'N 14°21.6'W, 360-425 m, 07.x.1987: *Aglaophenia tubulifera* (Hincks, 1861).
SEAMOUNT 1, Stn DW 60, Josephine Bank, 36°43.1'N 14°17.3'W, 240-255 m, 07.x.1987: *Streptocaulus corneliusi* (Ramil & Vervoort, 1992).
SEAMOUNT 1, Stn DE 72, Seine Bank, 33°45.2'N 14°21.0'W, 165 m, 09.x.1987: *Halecium tenellum* Hincks, 1861.
SEAMOUNT 1, Stn DW 78, Seine Bank, 33°48.7'N 14°22.6'W, 235 m, 10.x.1987: *Streptocaulus pectiniferus* (Allman, 1883).
SEAMOUNT 1, Stn CP 79, Seine Bank, 33°49.0'N 14°22.6'W, 242-260 m, 10.x.1987: *Streptocaulus pectiniferus* (Allman, 1883).
SEAMOUNT 1, Stn DE 80, Seine Bank, 33°48.5'N 14°22.6'W, 250-256 m, 10.x.1987: *Streptocaulus pectiniferus* (Allman, 1883).
SEAMOUNT 1, Stn DW 81, Seine Bank, 33°48.6'N 14°23.5'W, 270-310 m, 10.x.1987: *Nemertesia antennina* (Linnaeus, 1758).
SEAMOUNT 1, Stn CP 93, Ampère Bank, 35°03.7'N 12°54.0'W, 140-230 m, 11.x.1987: *Lytocarpia myriophyllum* (Linnaeus, 1758), *Antennella secundaria* (Gmelin, 1791), *Nemertesia antennina* (Linnaeus, 1758), *Nemertesia ramosa* (Lamarck, 1816).
SEAMOUNT 1, Stn DW 94, Ampère Bank, 35°04.4'N 12°55.2'W, 185-205 m, 11.x.1987: *Lytocarpia myriophyllum* (Linnaeus, 1758), *Nemertesia ramosa* (Lamarck, 1816).
SEAMOUNT 1, Stn DE 95, Ampère Bank, 35°04.6'N 12°55.3'W, 197-210 m, 11.x.1987: *Aglaophenia tubulifera* (Hincks, 1861), *Antennella secundaria* (Gmelin, 1791), *Nemertesia antennina* (Linnaeus, 1758), *Nemertesia ramosa* (Lamarck, 1816), *Plumularia setacea* (Linnaeus, 1758).
SEAMOUNT 1, Stn DW 97, Ampère Bank, 35°05.5'N 12°54.1'W, 204-250 m, 12.x.1987: *Nemertesia ramosa* (Lamarck, 1816), *Plumularia setacea* (Linnaeus, 1758), *Pseudoplumaria marocana* (Billard, 1930).
SEAMOUNT 1, Stn DE 98, Ampère Bank, 35°03.2'N 12°55.4'W, 300-325 m, 12.x.1987: *Streptocaulus corneliusi* (Ramil & Vervoort, 1992), *Antennella secundaria* (Gmelin, 1791), *Nemertesia ramosa* (Lamarck, 1816), *Pseudoplumaria sabinae* Ramil & Vervoort, 1992.
SEAMOUNT 1, Stn CP 99, Ampère Bank, 35°03.8'N 12° 55.4'W, 225-280 m, 12.x.1987: *Halecium tenellum* Hincks, 1861, *Halecium* spec., *Aglaophenia tubulifera* (Hincks, 1861), *Lytocarpia myriophyllum* (Linnaeus, 1758), *Streptocaulus corneliusi* (Ramil & Vervoort, 1992), *Antennella secundaria* (Gmelin, 1791), *Antennella siliquosa* (Hincks, 1877), *Kirchenpaueria bonnevieae* (Billard, 1906), *Nemertesia ramosa* (Lamarck, 1816), *Plumularia setacea* (Linnaeus, 1758), *Pseudoplumaria sabinae* Ramil & Vervoort,1992.
SEAMOUNT 1, Stn CP 100, Ampère Bank, 35°03.6'N 12°55.3'W, 182-207 m, 12.x.1987: *Aglaophenia tubulifera* (Hincks, 1861), *Lytocarpia myriophyllum* (Linnaeus, 1758), *Streptocaulus corneliusi* (Ramil & Vervoort, 1992), *Antennella secundaria* (Gmelin, 1791), *Antennella siliquosa* Hincks, 1877, *Kirchenpaueria bonnevieae* (Billard, 1906), *Nemertesia ramosa* (Lamarck, 1816), *Plumularia setacea* (Linnaeus, 1758), *Pseudoplumaria sabinae* Ramil & Vervoort, 1992.
SEAMOUNT 1, Stn DW 106, Galice Bank, 42°41.6'N 11°48.5'W, 765 m, 18.x.1987: *Halecium sibogae marocanum* Billard, 1934, *Halecium* spec., *Kirchenpaueria pinnata* (Linnaeus, 1758).
SEAMOUNT 1, Stn DW 108, Galice Bank, 42°50.9'N 11°53.1'W, 1110-1125 m, 19.x.1987: *Cladocarpus elongatus* Bedot, 1921.
SEAMOUNT 1, Stn DW 111, Galice Bank, 42°39.9'N 11°35.8'W, 675-685 mm, 19.x.1987: *Halecium* spec.
SEAMOUNT 1, Stn CP 117, Galice Bank, 42°43.4'N 11°45.1'W, 770 m, 20.x.1987: *Schizotricha frutescens* (Ellis & Solander, 1786).

Taxonomic report

Family Haleciidae Hincks, 1868
Genus *Halecium* Oken, 1815

Halecium beanii (Johnston, 1838)

Thoa Beanii Johnston, 1838: 120-121, pl. 7 figs 1-2.
Halecium Beanii; Hincks, 1868: 224-225, pl. 43 figs 2, 2a-c.
Halecium beanii; Vervoort, 1946b: 161-163, figs 29b, 65, 66a-d; 1966: 103, figs 3a-d; Cornelius, 1975: 391-393, figs 5a-d; Millard, 1975: 144-145, figs 47a-e; Cornelius, 1995a: 276-278, figs 62a-f.

Material.— SEAMOUNT 1, Stn CP 11, Gorringe Bank, 36°26.4'N 11°40.2'W, 805-830 m, 23.ix.1987: one colony 25 mm high, with female gonothecae (all in slide 1376A, RMNH-Coel. 27870).

Distribution.— Cornelius (1995a) considered *Halecium beanii* one of the most widespread coastal invertebrates, recorded off all continents, with the exception possibly of the Antarctic, but known from the Artic Ocean. In the eastern Atlantic the species has been recorded from the littoral zone of Norway (Naumov, 1960; Cornelius, 1975) to South Africa (Millard, 1975). The SEAMOUNT 1 material originates from Gorringe Bank (Stn CP 11), 805-830 m depth.

Halecium sessile Norman, 1867

Halecium sessile Norman, 1867: 196, 199, 205, 206; Hincks, 1868: 229-230, pl. 44 fig. 2; Vervoort, 1966: 100-102, fig. 1; Cornelius, 1975: 406-409, fig. 11; Cornelius, 1995a: 292-294, figs 68a-e; Ramil & Vervoort, 1992a: 85-86, fig. 20d.

Material.— SEAMOUNT 1, Stn CP 11, Gorringe Bank, 36°26.4'N 11°40.2'W, 805-830 m, 23.ix.1987: one colony, 55 mm high, no gonothecae [all in slide 1376B, RMNH-Coel. 27871, with *Modeeria rotunda* (Quoy & Gaimard, 1827) and *Filellum serratum* (Clarke, 1879)].

Distribution.— The worldwide distribution of *Halecium sessile* was discussed by Vervoort (1966). Ralph (1958) considered *Halecium sessile* to be a cosmopolitan species, but Cornelius (1995a) indicates that some records of this species need confirmation. The SEAMOUNT 1 material originates from Gorringe Bank (Stn CP 11), depth 805-830 m.

Discussion.— Differences between Atlantic and Indo-Pacific material described as *Halecium sessile* have been discussed by Vervoort (1966) and Ramil & Vervoort (1992a). The SEAMOUNT 1 material agrees with the material from the Atlantic coast of Morocco recently described by Ramil & Vervoort (1992a).

Halecium sibogae marocanum Billard, 1934
(fig. 1)

Halecium Sibogae marocanum Billard, 1934: 229, fig. 2.
Halecium sibogae marocanum; Van Praët, 1979: 880; Ramil & Vervoort, 1992a: 86-90, figs 21a-e, 22a-b.
Halecium sibogae var. *marocanum*; Patriti, 1970: 25, fig. 23.

Material.— SEAMOUNT 1, Stn DW 106, Galice Bank, 42°41.6'N 11°48.5'W, 765 m, 18.x.1987: one polysiphonic colony 65 mm high, no gonothecae (MNHN-Hy 1225; slide 1136, RMNH-Coel. 27872).

Table 1. Measurements of *Halecium sibogae marocanum* in μm.

	SEAMOUNT 1, Stn DW 106.
Internode, length	150-1190
diameter	140-210
Primary hydranthophore plus hydrotheca, heigth	100-230
Primary hydrotheca, length diaphragm-rim	40-60
diameter at diaphragm	200-240
diameter at rim	260-330

Distribution.— *Halecium sibogae marocanum* so far is only known from the Alboran Sea, western Mediterranean, the Strait of Gibraltar, and several localities off the Atlantic coast of Morocco, between 110 and 580 m depth (Ramil & Vervoort, 1992a). The SEAMOUNT 1 material originates from a locality on the Galice Bank (Stn DW 106), off the north-west coast of the Iberian Peninsula, 765 m depth.

Discussion.— *Halecium sibogae marocanum* was re-described by Ramil & Vervoort (1992a) from the type material and material collected by the BALGIM expedition in the Ibero-Moroccan Gulf. The differences with the nominate subspecies and others species of *Halecium* were also discussed. The presence of a perisarc fold at the base of the adcauline wall of the hydranthophore and the widening hydrothecae with strongly everted rim make it possible to refer our material to *H. sibogae marocanum*.

Halecium tenellum Hincks, 1861

Halecium tenellum Hincks, 1861: 252, pl. 6 figs 1-4; 1868: 226-227, pl. 45 fig. 1; Vervoort, 1946b: 164-165, fig. 68; 1959: 229-231, fig. 8; 1966: 102, fig. 2; Cornelius, 1975: 409-411, fig. 12; Millard, 1975: 156-157, fig. 50F-L; Calder, 1991: 22-24, fig. 14; Ramil & Vervoort, 1992a: 90-91, figs 21f-g; Cornelius, 1995a: 296, figs 69a-e.

Material.— SEAMOUNT 1, Stn DW 32, Gorringe Bank, 36°31.0'N 11°34.6'W, 54-62 m, 03.x.1987: one colony 10 mm high, no gonothecae (slide 1190, RMNH Coel. 27967); Stn DE 72, Seine Bank, 33°45.2'N-14°21.0'W, 165 m, 09.x.1987: isolated unbranched stems, up to 1 mm high, rising from stolon creeping on axis and branches of *Eudendrium* spec.; Stn CP 99, Ampère Bank, 35°03.8'N 12°55.4'W, 225-280 m, 12.x.1987: some stems, 1-5 mm high, reptant on *Sertularella ellisii* (Deshayes & Milne-Edwards, 1836).

Distribution.— *Halecium tenellum* has a wide geographical distribution; it is considered a cosmopolitan species by Millard (1975), and near-cosmopolitan in coastal waters by Cornelius (1995a). However, Calder (1991) considers *H. tenellum* a species with a large distribution in temperate and tropical waters; the records of this species from polar areas he considered doubtful. The SEAMOUNT 1 material originates from three localities: Gorringe Bank (Stn DW 32), Seine Bank (Stn DE 72) and Ampère Bank (Stn CP 99). The depth records are 54-280 m.

Halecium spec.

Material.— SEAMOUNT 1, Stn DW 04, Gorringe Bank, 36°32.5'N 11°34.4'W, 93-96 m, 22.ix.1987: two mutilated colonies c. 120 mm high and a few fragments, no gonothecae (one MNHN-Hy 1227, one RMNH-Coel. 27873 and 3 slides 1097), with *Clytia hemisphaerica* (Linnaeus, 1767); Stn CP 99, Ampère Bank, 35°03.8'N 12° 55.4'W, 225-280 m, 12.x.1987: one colony 25 mm high, no gonothecae (RMNH-Coel. 27874); Stn DW 106, Galice Bank, 42°41.6'N 11°48.5'W, 765 m, 18.x.1987: one polysiphonic colony 65 mm high (MNHN-Hy 1226) and two colonies 20 mm high attached to a small stone, with male gonothecae (RMNH-Coel. 27875); Stn DW 111, Galice Bank, 42°39.9'N 11° 35.8'W, 675-685 m, 19.x.1987: two mutilated fragments, 12 and 22 mm high, no gonothecae.

Discussion.— This material, sterile or with male gonothecae, probably belongs to *Halecium beanii* (Johnston, 1838) but the principal difference between *H. beanii* and *Halecium halecinum* (Linnaeus, 1758) concerns the structure of female gonothecae. Consequently, the colonies cannot be identified with certainty.

Family Aglaopheniidae Broch, 1918
Genus *Aglaophenia* Lamouroux, 1812

Aglaophenia lophocarpa Allman, 1877

Aglaophenia lophocarpa Allman, 1877: 41, pl. 24 figs 1-4; Svoboda, 1979: 82-86, figs 12e, 13e, 15e, 16e; Gili, Vervoort & Pagès, 1989: 92-94, fig. 20a; Svoboda & Cornelius, 1991: 22-23, figs 5a-j.
Aglaophenia apocarpa Allman, 1877: 41-42, pl. 24 figs 5-9.

Material.— SEAMOUNT 1, Stn DW 38, Josephine Bank, 36°41.5'N 14°17.0'W, 235-245 m, 04.x.1987: single colony 10 mm high, without corbulae (slide 1077, RMNH-Coel. 27881).

Distribution.— *Aglaophenia lophocarpa* is known from the Mediterranean, the Azores, the Caribbean and Guinea Bissau (Gili, Vervoort & Pagès, 1989; Svoboda & Cornelius

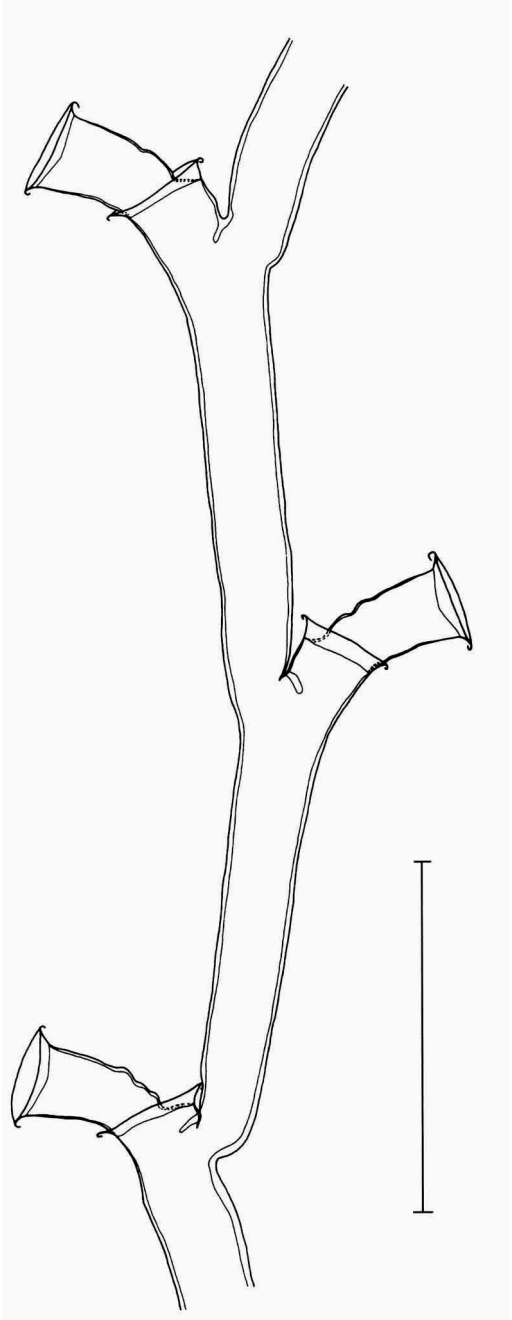

Fig. 1. *Halecium sibogae marocanum* Billard, 1934, SEAMOUNT 1, Stn DW 106, slide 1136, monosiphonic part of stem. Scale 1 mm.

1991). Small, juvenile colonies cited as *Aglaophenia* cf. *lophocarpa* were recorded from the Strait of Gibraltar and the Ibero-Moroccan Gulf by Ramil & Vervoort (1992a). A single small colony was taken at Josephine Bank, Stn DW 38, depth 245 m.

Aglaophenia tubiformis Marktanner-Turneretscher, 1890

Aglaophenia tubiformis Marktanner-Turneretscher, 1890: 269-270, pl. 7 figs 4-6, 17; Svoboda, 1979: 90-95, figs 12h, 13h, 14d, 15h, 16h, pl. 5a-b, 6, 8, 9a(1,2); Svoboda & Cornelius, 1991: 34-36, figs 14a-q, 25a.

Material.— SEAMOUNT 1, Stn DW 32, Gorringe Bank, 36°31.0'N 11°34.6'W, 54-62 m, 03.x.1987: fragment of a colony, 55 mm high, dichotomously branched, with corbulae. In addition three small fragments, 7-25 mm high, without corbulae (RMNH-Coel. 27878, 2 slides 1189; 2 slides DEBA-UV with *Sertularella* spec. and *Clytia* spec.)

Distribution.— This species is known to occur in the Mediterranean and in the eastern Atlantic from Morocco to Brittany (Svoboda & Cornelius, 1991). SEAMOUNT 1 material was collected at one locality on Gorringe Bank (Stn DW 32), at 54-62 m depth.

Discussion.— The depth record (54-62 m) is unusual for this species, but the presence of zooxanthellae in the tissues makes it possible to identify it as *Aglaophenia tubiformis*. The presence of *A. tubiformis* deeper than 40 m is related by Svoboda (1979) and Svoboda & Cornelius (1991) with the presence of clear water.

Aglaophenia tubulifera (Hincks, 1861)
(figs 2-4)

Plumularia tubulifera Hincks, 1861: 256, pl. 7 figs 1-2.

Aglaophenia tubulifera; Hincks, 1868: 288-289, pl. 63 fig. 2; Svoboda, 1979: 86-87, figs 12f, 13f, 15f, 16f, pl. 5g-i; Svoboda & Cornelius, 1991: 36-38, figs 15a-d, 16a-f, 19c-d, 24c-d; Ramil & Vervoort, 1992a: 97-98, figs 23e-i; Cornelius, 1995b: 197-198, figs 46a-d.

Material.— SEAMOUNT 1, Stn DW 15, Gorringe Bank, 36°33.4'N 11°28.8'W, 300-330 m, 24.ix.1987: two fragmented colonies 45-46 mm high, one with a corbula and with *Lafoea dumosa* (Fleming, 1820) (MNHN-Hy 1232), the second with *Kirchenpaueria bonnevieae simplex* Billard, 1930 (RMNH-Coel. 27965). In addition two colonies 18 and 25 mm high without corbulae, on *Pseudoplumaria sabinae* Ramil & Vervoort, 1992 (RMNH-Coel. 27889); Stn DW 16, Gorringe Bank, 36°31.1'N 11°32.5'W, 255-265 m, 24.ix.1987: c. 50 stems up to 45 mm high, from stolons invested by sponge; one with a corbula. In addition four stems, 17-22 mm high on a fragment of antipatharian, without corbulae and a colony 6 mm high without corbula on *Cryptolaria* spec. [MNHN-Hy 1233, with *Diphasia margareta* (Hassall, 1841); RMNH-Coel. 27879]; Stn DW 17, Gorringe Bank, 36°30.2'N 11°31.0'W, 155 m, 24.ix.1987: three colonies 40-45 mm high with corbulae and seven fragments 10-20 mm high, without corbulae (MNHN-Hy 1230; RMNH-Coel. 27880, slide no. 1150); Stn DE 20, Gorringe Bank, 36°33.7'N 11°30.1'W, 305-320 m, 24.ix.1987: three mutilated colonies and seven fragments, 8-30 mm high, one with a corbula (MNHN-Hy 1239, with *Zygophylax biarmata* Billard, 1905; RMNH-Coel. 27890). In addition two colonies 15 mm high on stem of *Pseudoplumaria sabinae* Ramil & Vervoort, 1992, no corbulae (slide 1379, RMNH-Coel. 27891); Stn DW 37, Josephine Bank, 36°42.0'N 14° 17.7'W, 255-270 m, 04.x.1987: two colonies 18 and 50 mm high, one with a corbula (MNHN-Hy 1231). In addition one colony 20 mm high on *Streptocaulus corneliusi* (Ramil & Vervoort, 1992), with *Diphasia margareta* (Hassall, 1841), no corbulae (slide 1143, RMNH Coel. 27882); Stn DW 43, Josephine Bank, 36°44.9'N 14°17.3'W, 260-285 m,

04.x.1987: one colony 10 mm high, no corbulae (slide 1078, RMNH-Coel. 27927); Stn DW 56, Josephine Bank, 36°42.3'N 14°21.6'W, 360-425 m, 07.x.1987: one colony 35 mm high and some detached hydrocladia, no corbulae; Stn DE 95, Ampère Bank, 35°04.6'N 12°55.3'W, 197-210 m, 11.x.1987: two stems 40 mm high, no corbulae [MNHN-Hy 1234, with *Diphasia margareta* (Hassall, 1841)]. In addition two colonies 5 and 17 mm high on *Nemertesia ramosa* (Lamarck, 1816) without corbulae and four fragments 10-17 mm with corbulae (DEBA-UV, slides R203, R204; RMNH-Coel. 27887); Stn CP 99, Ampère Bank, 35°03.8'N 12°55.4'W, 225-280 m, 12.x.1987: very numerous colonies and many fragments up to 90 mm high with corbulae [DEBA-UV, slides R205, R206, R239, R244; MNHN-Hy 1228; RMNH-Coel. 27877, 3 slides 1152, with *Antennella secundaria* (Gmelin, 1791), *A. siliquosa* (Hincks, 1877), *Plumularia setacea* (Linnaeus, 1758), *Diphasia margareta* (Hassall, 1841), *Campanularia hincksii* Alder, 1856, *Modeeria rotunda* (Quoy & Gaimard, 1827), *Filellum serratum* (Clarke, 1879) and *Zygophylax biarmata* Billard, 1905, and 2 slides 1196A]; Stn CP 100, Ampère Bank, 35°03.6'N 12°55.3'W, 182-207 m, 12.x.1987: numerous colonies and fragments up to 80 mm high, on stems of other hydroids and antipatharians, with corbulae [DEBA-UV, slides R207-R211, 245; MNHN-Hy 1229; RMNH-Coel. 27883, with *Antennella secundaria* (Gmelin, 1791), *Plumularia setacea* (Linnaeus, 1758), *Diphasia margareta* (Hassall, 1841), *Modeeria rotunda* (Quoy & Gaimard, 1827), *Zygophylax biarmata* Billard, 1905, *Cryptolaria* spec., *Campanularia hincksii* Alder, 1856 and *Obelia bidentata* Clarke, 1879].

Remarks.— Most of the colonies in the present material have an elongated and narrow hydrotheca, with the mesial infracalycine nematotheca poorly developed, not reaching the hydrothecal rim. These infracalycine nematothecae, as is distinctive for *Aglaophenia tubulifera*, are normally tubular, with two apertures, one distal and one proximal, and with the characteristic annular thickening in their distal part.

Some of the colonies have hydrocladia of which the first 3-4 cormidia had the infracalycine nematotheca gutter-shaped but with the subsequent infracalycine nematothecae along the hydrocladia being tubular (figs 3-4).

The colonies are dioecious. Female corbulae with fused ribs overreaching the corbula and commonly with one free proximal rib. Male corbulae have unfused ribs even in maturity.

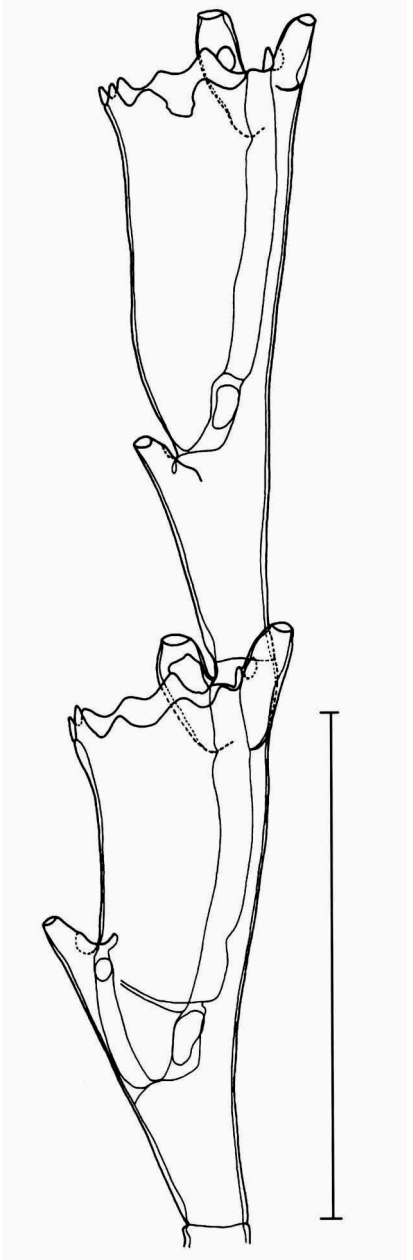

Fig. 2. *Aglaophenia tubulifera* (Hincks, 1861), SEAMOUNT 1, Stn DW 56, slide 1103, two cormidia of which upper has mesial infracalycine nematotheca free from basal part of hydrotheca. Scale 0.5 mm.

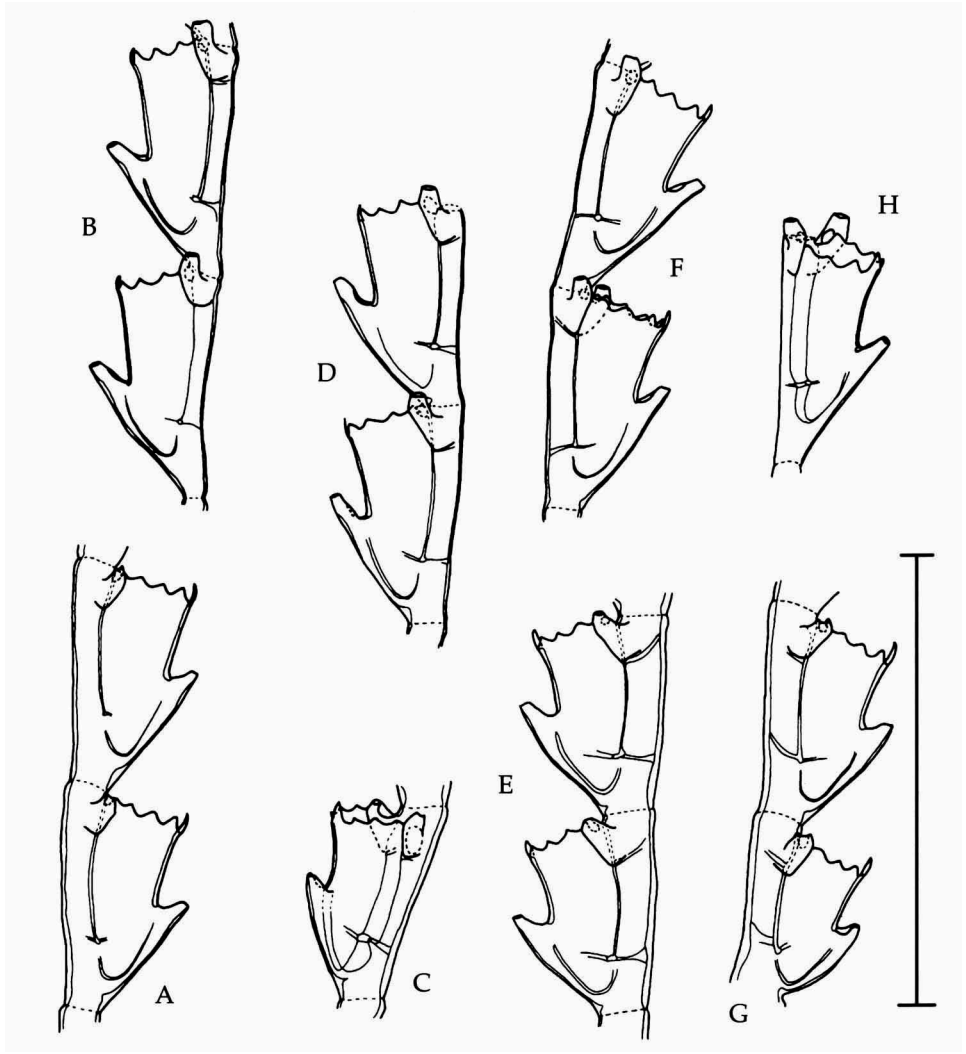

Fig. 3. *Aglaophenia tubulifera* (Hincks, 1861) from Seamount 1, with differently developed mesial infracalycine nematothecae. A, Stn DE 95, slide R203, from basal part of hydrocladium; B, idem, from distal part of hydrocladium. C-F, Stn CP 99, slide R206; C, hydrotheca from third cormidium; D, hydrothecae from distal cormidium; E, F, hydrothecae from various cormidia in same colony. G, H, Stn CP 100, slide R208; G, hydrotheca from first and second cormidium; H, hydrotheca from last cormidium of same hydrocladium. Scale 1 mm.

Fig. 4. *Aglaophenia tubulifera* (Hincks, 1861) from SEAMOUNT 1, Stn CP 99, slide R244, hydrothecae with open, gutter-shaped and with closed, tubular infracalycine nematothecae. Scale 0.5 mm.

The primary colony developing from the planula had no axial hydrotheca.

One colony, recorded from Stn DW 56, has a short mesial infracalycine nematothecae and in one cormidium the mesial infracalycine nematotheca is not adnate with the basal part of the hydrotheca (fig. 2).

Table 2. Measurements of *Aglaophenia tubulifera* in μm.

	SEAMOUNT 1 Stn CP 99	SEAMOUNT 1 Stn CP 100	BALGIM Stn DW 114 (Ramil & Vervoort, 1992a)
Axial segment, length	240-400	520-650	320-360
diameter at node	190-310	200-360	160-250
Hydrocladial internode,			
length	439-470	450-500	355-390
diameter at node	90-120	70-140	90-110
Hydrotheca, total depth	370-420	380-440	300-325
diameter at rim	190-210	200-220	150-170
length free part			
adcauline wall	170-210	180-230	140-160
Male corbula, length	2500-4000	4000-5000	
Female corbula length	3500-4000	3000-3500	

Distribution.— *Aglaophenia tubulifera* has a wide distribution in the eastern Atlantic, extending from the Irish Sea in the North to the coasts of Guinea Bissau (Gili, Vervoort & Pagés, 1989) in the South. Mediterranean records are scarce, being restricted to the Alboran Sea (Ramil & Vervoort, 1992a). SEAMOUNT 1 material originates from Gorringe, Josephine and Ampère Banks, 155-425 m depth.

Discussion.— The previous descriptions of *Aglaophenia tubulifera* (cf. Svoboda, 1979; Svoboda & Cornelius, 1991) indicate that only the most proximal cormidia have the infracalyine nematotheca gutter-shaped. The presence of hydrocladia with the infracalycine nematotheca gutter-shaped in more cormidia than the most proximal is recorded here for first time in *Aglaophenia tubulifera*, but we consider our material to belong to this species because the same hydrocladia in the distal region present the characteristic structure of *A. tubulifera*, while the corbulae, male and female, are also identical and the primary colony developing from the planula agrees with the description given by Ramil & Vervoort (1992a).

Genus *Cladocarpus* Allman, 1877

Cladocarpus elongatus Bedot, 1921
(figs 5-8)

Cladocarpus sigma var. *elongata* Bedot, 1921a: 326 (nomen nudum).

Cladocarpus sigma var. *elongata* Bedot, 1921c: 53, pl. 6 figs 48-49; Vervoort, 1966: 149; Patriti, 1970: 52, fig. 73; Ramil & Vervoort, 1992a: 124-128, figs 31d-f, 32a-e.

Material.— SEAMOUNT 1, Stn CP 11, Gorringe Bank, 36°26.4'N 11°40.2'W, 805-830 m, 23.ix.1987: top part of a colony 50 mm high with phylactocarp and gonothecae, and a small colony, 30 mm high, attached to a sponge (DEBA-UV, slide R230; RMNH-Coel. 27962); Stn CP 12, Gorringe Bank, 36°24.2'N 11°43.2'W, 1005-1040 m, 23.ix.1987: one forked and one unbranched colony, 9-150 mm high, with phylactocarps and gonothecae (DEBA-UV, slides R231, R246; RMNH-Coel. 27892). In addition one colony 45 mm high and a fragment 15 mm high, without phylactocarps (MNHN-Hy 1240); Stn DW 108, Galice Bank, 42°50.9'N 11°53.1'W, 1110-1125 m, 19.x.1987: three colonies 60-100 mm high, largest forked, and some fragments 15-26 mm high, majority with phylactocarps and some with gonothecae (DEBA-UV, slide R250; MNHN-Hy 1241; RMNH-Coel. 27893, 2 slides 1106).

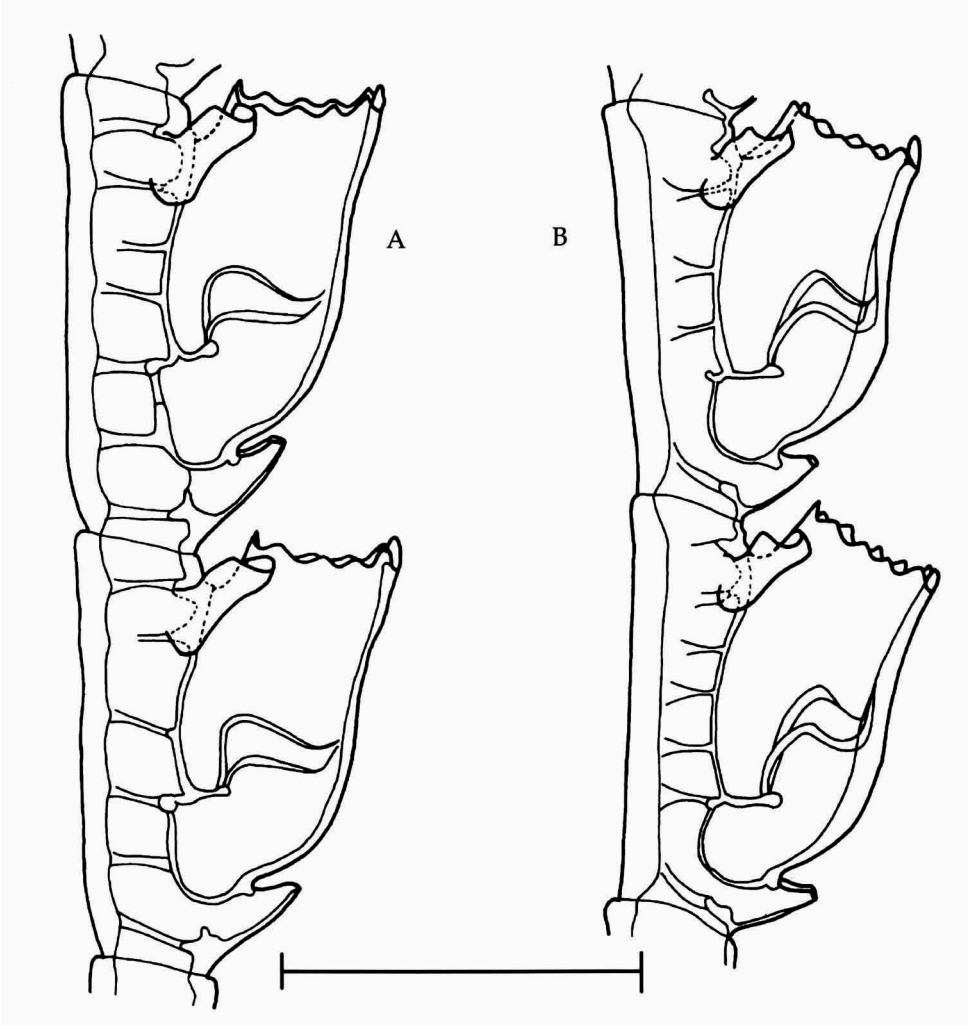

Fig. 5. A, *Cladocarpus sigma sigma* (Allman, 1877), BIBB, Stn 189-P, off Aligator Reef, 24°44'45"N 80°31'30"W, 201 m, 08.v.1869, two cormidia with hydro- and nematothecae. B, *Cladocarpus sigma folini* Billard, 1906, Campagne Monaco 1886, Stn 58, 43°40'N 08°55'W, 134 m, 07.viii.1886, two cormidia with hydro- and nematothecae. Scale 0.5 mm.

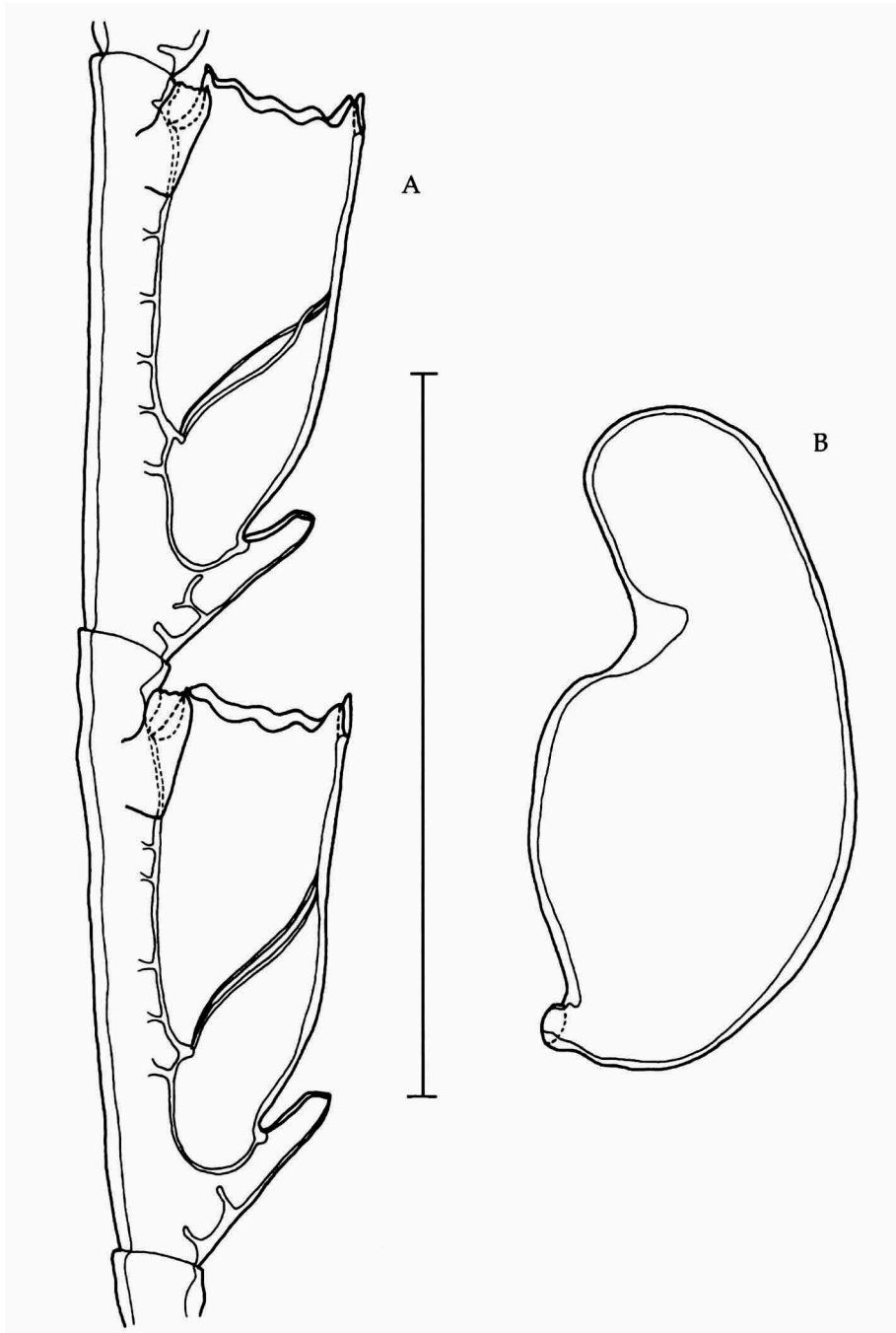

Fig. 6. *Cladocarpus elongatus* Bedot, 1921, from SEAMOUNT 1, Stn DW 108, slide 1106. A, two cormidia with hydro- and nematothecae; B, female gonotheca. Scale 0.5 mm.

Description.— Axis single or forked, polysiphonic, rising from matting of perisarc tubules. Secondary axial tubes not segmented and with a succession of nematothecae arranged longitudinally. Primary axial tube basally unsegmented and without nematothecae; rest of axis segmented. The first segments with only a single nematotheca (prosegments), following segments each bearing an apophysis alternately directed left or right and three nematothecae: one under apophysis and two axillaries; no hydrothecae on axis.

Morphology of hydrocladia, hydrothecae and nematothecae agrees with specimens described by Ramil & Vervoort (1992a).

Phylactocarp (fig. 8) inserting on first hydrocladial internode, at hydrothecal base. Axis of phylactocarp simple, formed by regular succession of segments separated by transverse nodes, each with one lateral apophysis and three nematothecae: 1 under apophysis and two axillaries. Apophyses alternately directed left or right in same plane, supporting lateral ramifications bearing numerous nematothecae. Lateral branches unsegmented and nematothecae disposed unpaired, opposite or subopposite. Gonothecae borne on apophyses, one to three gonothecae per apophysis. Colonies dioecious; male gonothecae ovoid, slightly swollen, with circular aperture opening laterally in distal portion of gonotheca, and closed by a lid (figs 7B, 8). Female gonothecae ovoid with sub-terminal, curving aperture on one side (fig. 6B and fig. 7C-D).

Table 3. Measurements of *Cladocarpus elongatus* in μm.

	SEAMOUNT 1 Stn CP 12	*Cladocarpus sigma* Schizoholotype Ramil & Vervoort, 1992	*Cladocarpus sigma folini* own measurements
Hydrocladial internode,			
length	790-890	90-710	510-560
diameter at node	120-160	90-95	110-150
Hydrotheca, total depth	680-740	540-560	460-490
diameter at rim	260-280	210-220	210-230
Median nematotheca,			
length abcauline wall	190-240	125-135	120-140
length free			
adcauline part	30-40	50-60	30-40
diameter at rim	70-90	30-45	30-50
Lateral nematotheca,			
depth	150-180	120-125	130-150
diameter at rim	40-50	30-45	40-60
Male gonothecae,			
total length	600-680		
maximal diameter	240-310		
Female gonothecae,			
total length	850-900		
maximal diameter	420-480		

Distribution.— *Cladocarpus elongatus* has so far been recorded from two localities

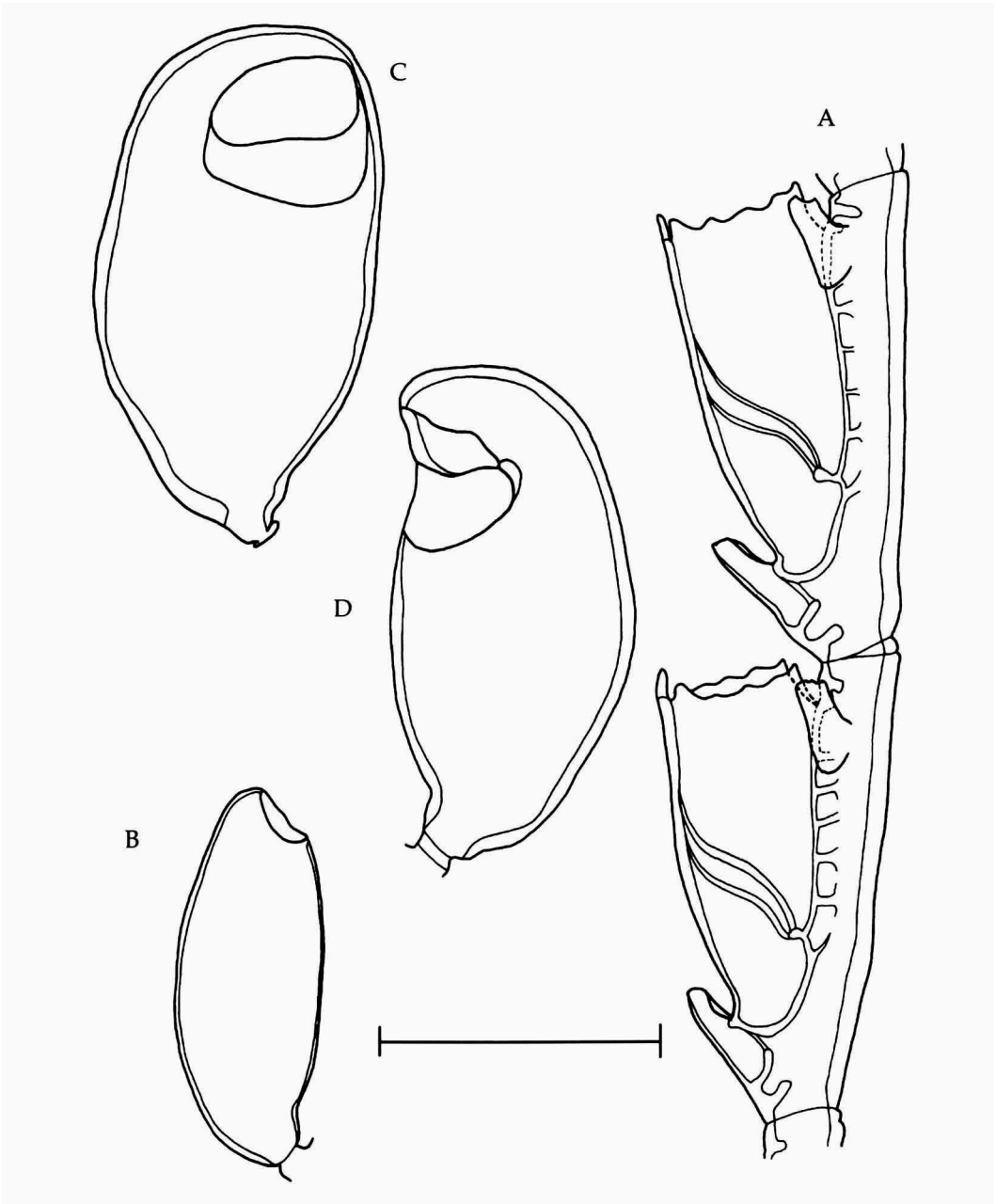

Fig. 7. *Cladocarpus elongatus* Bedot, 1921, from SEAMOUNT 1. A, Stn DW 108, slide 1106, two cormidia with their hydro- and nematothecae; B, Stn CP 12, male gonotheca; C, D, Stn CP 12, female gonothecae. Scale 0.5 mm.

off the Atlantic coast of Morocco, one close to Essaouira (Mogador) at 2165 m depth (Bedot, 1921, as *C. sigma* var. *elongata*) and the other off Rabat at 1175 m depth (Ramil & Vervoort, 1992a, as *C. sigma* var. *elongata*). Patriti (1970) refers to the locality given by Bedot. SEAMOUNT 1 material originates from Gorringe Bank (Stns CP 11, CP 12) and from Galice Bank (Stn DW 108), depth 805-1125 m.

Discussion.– *Cladocarpus sigma* s.l. so far included three different subspecies: the nominal subspecies, *C. sigma folini* Billard, 1906, and *C. sigma elongata* Bedot 1921c. The structure of phylactocarps and probably also of the gonothecae is similar in all three subspecies (fig. 8). Sexual dimorphism in the shape of the gonothecae is, at the moment, undescribed in the nominal subspecies and ssp. *folini*. The hydrothecae in *C. sigma* and *C. sigma folini* are quite similar (fig. 5A and fig. 5B), with minor differences in the hydrothecal rim (oblique in ssp. *folini*), in the abcauline wall (with thickened perisarc in ssp. *folini*), and in the number of internodal septa. Nevertheless, the differences with ssp. *elongata* in shape and structure of the hydrothecae and their intrathecal septum (figs 6, 7) are considerable, and we consider these differences to be sufficient to separate this subspecies at the specific level, under the name *Cladocapus elongatus* Bedot, 1921c.

Genus *Lytocarpia* Kirchenpauer, 1872

Lytocarpia myriophyllum (Linnaeus, 1758) (figs 9-12)

Sertularia myriophyllum Linnaeus, 1758: 810.
Aglaophenia myriophyllum; Hincks, 1868: 290-292, pl. 64 fig. 2; Pictet & Bedot, 1900: 34-41, pl. 8, pl. 9 figs 1-10.
Lytocarpus myriophyllum; Marktanner-Turneretscher, 1890: 277, pl. 7 figs 10-11.
Lytocarpia myriophyllum; Stechow, 1923: 246; Ramil & Vervoort, 1992a: 137-143, figs 35b-d, 36a-j;

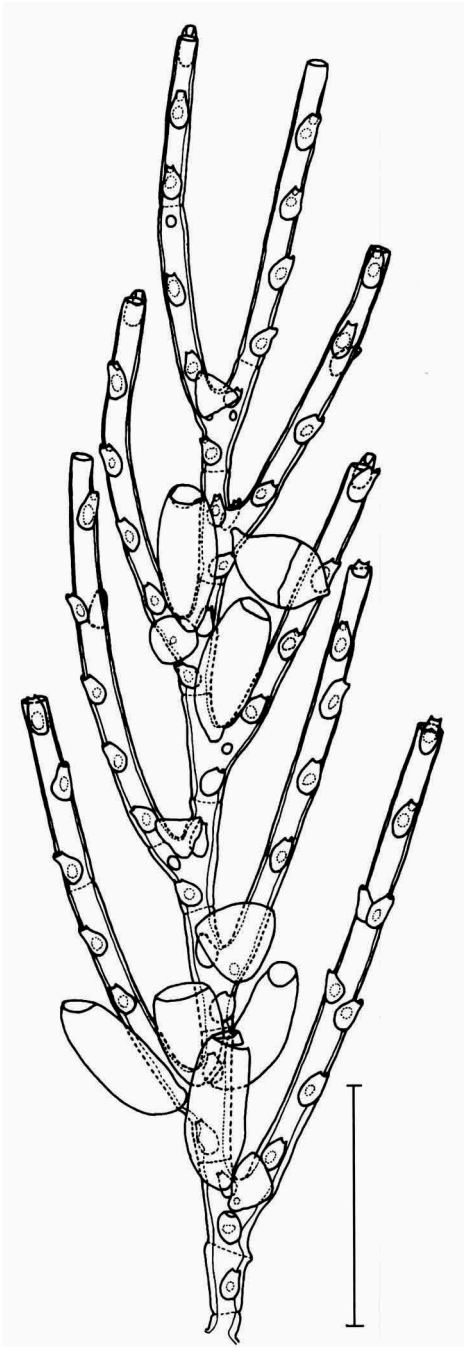

Fig. 8. *Cladocarpus elongatus* Bedot, 1921, from SEAMOUNT 1, Stn CP 12, Phylactocarp with male gonothecae. Scale 1 mm.

Medel & Vervoort, 1995: 30-32, fig. 12a-e.
Thecocarpus myriophyllum; Vervoort, 1946b: 187-189, fig. 79.
Thecocarpus myriophyllum var. *typica*; Billard, 1922: 343-346, fig. 1A.
Thecocarpus myriophyllum myriophyllum; Gili, Vervoort & Pagés, 1989: 96-97, fig. 22.
Thecocarpus myriophyllum var. *Bedoti* Billard, 1906a: 333; 1906c:157, 227; 1922: 346.
Thecocarpus myriophyllum var. *bedoti*; Vervoort, 1959: 306, fig. 51b.
Thecocarpus myriophyllum var. *radicellatus*; Billard, 1906a:333; 1906c: 227; 1922: 346, fig. 1B; Vervoort, 1942: 306, fig. 2c.
Aglaophenia radicellata G.O. Sars, 1874: 9-10, pl. 2 figs 1-6.

Material.— SEAMOUNT 1, Stn DW 06, Gorringe Bank, 36°30.2'N 11°37.9'W, 250 m, 22.ix.1987: 35 colonies up to 80 mm high, many with corbulae [DEBA-UV, slides R212-R218, R236; MNHN-Hy 1265, with *Plumularia setacea* (Linnaeus, 1758); RMNH-Coel. 27958, with *Antennella secundaria* (Gmelin, 1791) and *Plumularia setacea* (Linnaeus, 1758); RMNH-Coel. 27959, with *Filellum serratum* (Clarke, 1879), *Antennella secundaria* (Gmelin, 1791) and *Clytia gracilis* (M. Sars, 1850)]; Stn DW 07, Gorringe Bank, 36°28.5'N 11°33.7'W, 350-355 m, 22.ix.1987: one colony 95 mm high and two fragments 40 and 70 mm high, larger with 2 corbulae (RMNH-Coel. 27928, slide 1100); Stn DW 16, Gorringe Bank, 36°31.1'N 11°32.5'W, 255-265 m, 24.ix.1987: three colonies 55-100 mm high and a fragment 30 mm high, no corbulae (MNHN-Hy 1272); Stn DW 17, Gorringe Bank, 36°30.2'N 11°31.0'W, 155 m, 24.ix.1987: two plumes 48 and 60 mm high, two fragments 22 and 43 mm high and many detached hydrocladia, no corbulae (RMNH-Coel. 27929, slide 1149); Stn CP 93, Ampère Bank, 35°03.7'N 12°54.0'W, 140-230 m, 11.x.1987: 6 branched plumes 40-80 mm high, apparently from larger colony; one with a corbula (DEBA-UV, slides R219-R221; MNHN-Hy 1243); Stn DW 94, Ampère Bank, 35°04.4'N 12°55.2'W, 185-205 m, 11.x.1987: one colony 210 mm high (MNHN-Hy 1268) and 6 fragments 20-145 mm high, no corbulae (DEBA-UV, slides R222-224; 2 slides 1184, RMNH-Coel. 27923); Stn CP 99, Ampère Bank, 35°03.8'N 12°55.4'W, 225-280 m, 12.x.1987: five large and branched colonies, up to 350 mm high and many fragments up to 50 mm high, with corbulae (DEBA-UV, slide R225; MNHN-Hy 1242; RMNH-Coel. 27894, slide 1199); Stn CP 100, Ampère Bank, 35°03.6'N 12°55.3'W, 182-207 m, 12.x.1987: two detached plumes, one branched, 35 and 38 mm high and probably from a larger colony; one with a damaged corbula (MNHN-Hy 1244).

Remarks.— The colonies collected at Ampère Bank are branched, and agree with the description of *Lytocarpia myriophyllum* var. *bedoti* Billard, 1906 (figs 9-10).

The material collected at Gorringe Bank is all unbranched and the morphology of the hydrotheca is similar to that in *Lytocarpia myriophyllum* from Ampère Bank, but differs because the infracalycine nematotheca is short and occupies only the most basal part of the hydrotheca, never reaching the level of the intrathecal septum (fig. 11). One colony from Stn DW 06 has two infracalycine nematothecae on some hydrocladial segments as the result of damage and later regeneration (fig. 12).

Distribution.— The geographical distribution of *Lytocarpia myriophyllum* has recently been revised by Ramil & Vervoort (1992a). The species is widely distributed in Atlantic and Mediterranean, from the Arctic regions in the North to the Abidjan region, Ivory Coast, in the south. SEAMOUNT 1 material originates from Gorringe and Ampère Banks, between 140 and 335 m depth.

Discussion.— Ramil & Vervoort (1992a) after the study of a large material from the BALGIM expedition originating from 55 localities situated at both sides of the Strait of Gibraltar, reached the conclusion that the varieties *typica* and *radicellatus* have no taxonomic value and should be sunk in the nominal subspecies. Nevertheless, that material was unbranched and the authors did not reach a definite conclusion concerning the variety *bedoti*, mainly characterized by the ramified hydrocaulus. The

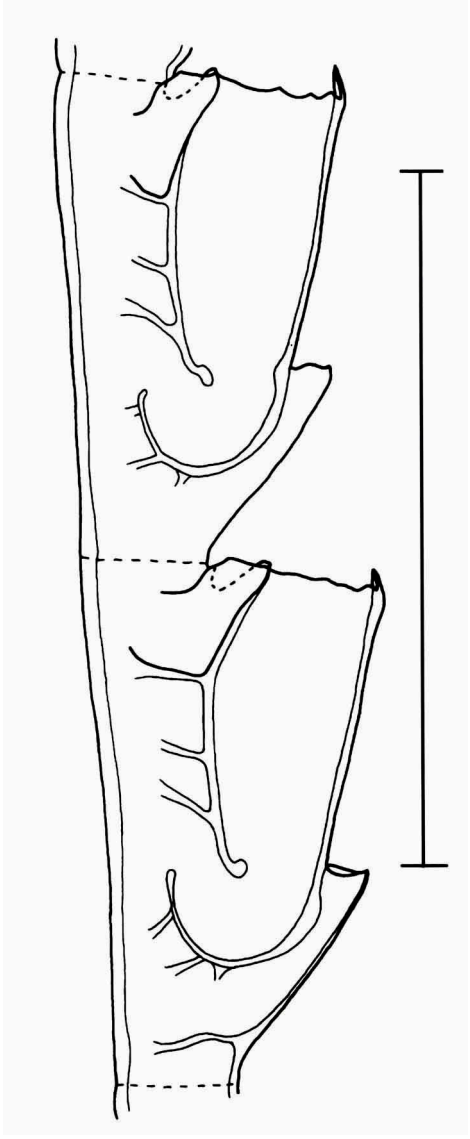

Fig. 9. *Lytocarpia myriophyllum* (Linnaeus, 1758), from SEAMOUNT 1, Stn CP 99, slide R225, two cormidia with hydro- and nematothecae. Scale 1 mm.

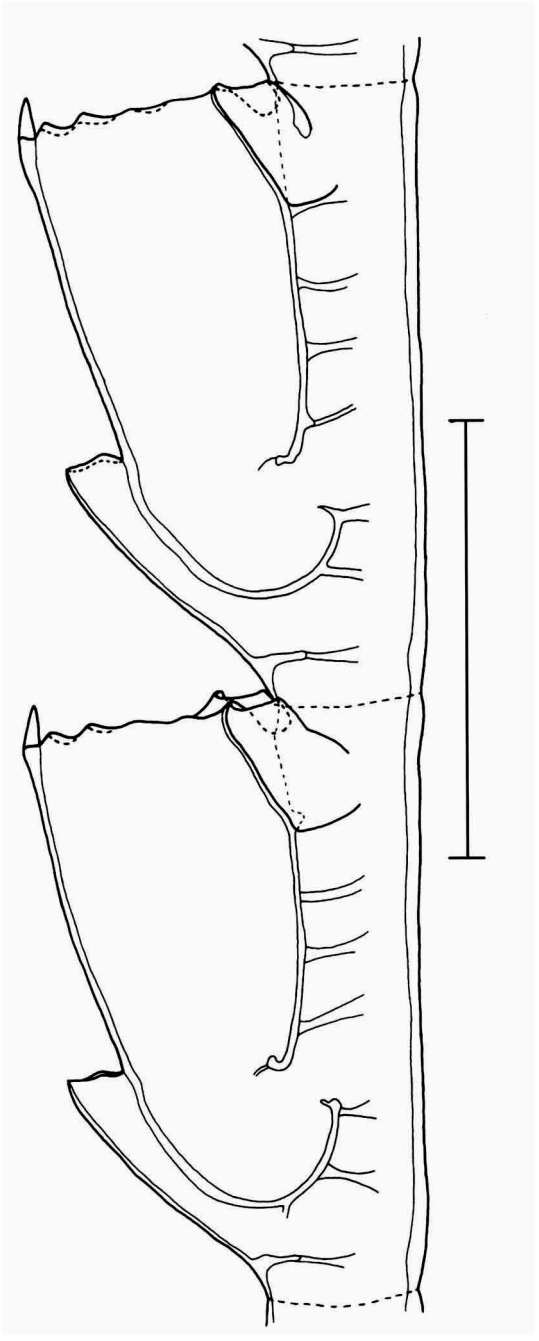

Fig. 10. *Lytocarpia myriophyllum* (Linnaeus, 1758), from SEAMOUNT 1, Stn CP 93, slide R220, two cormidia with hydro- and nematothecae from median part of hydrocladium. Scale 0.5 mm.

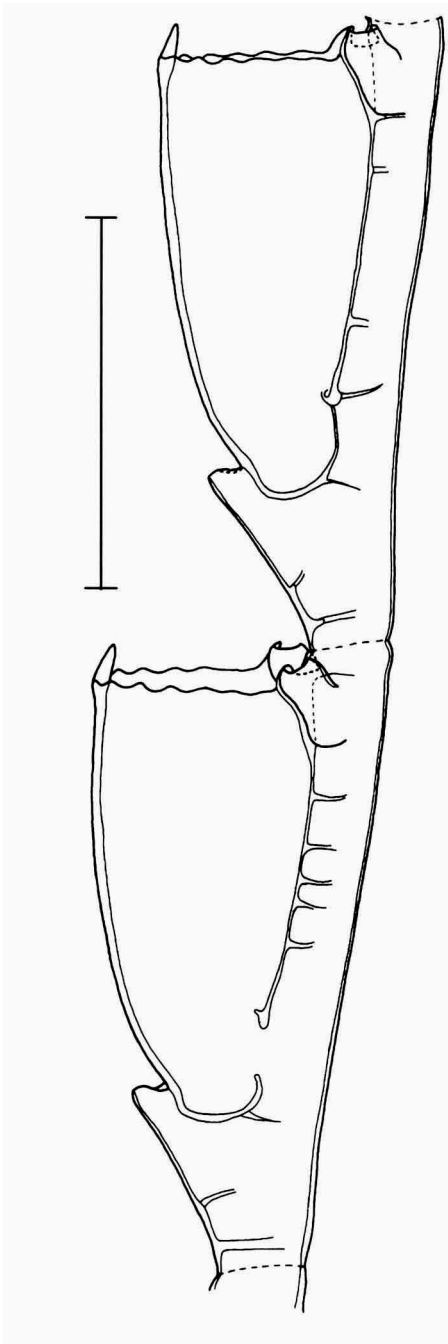

Fig. 11. *Lytocarpia myriophyllum* (Linnaeus, 1758), from SEAMOUNT 1, Stn DW 06, slide R212, two cormidia with hydro- and nematothecae from distal part of hydrocladium. Scale 0.5 mm.

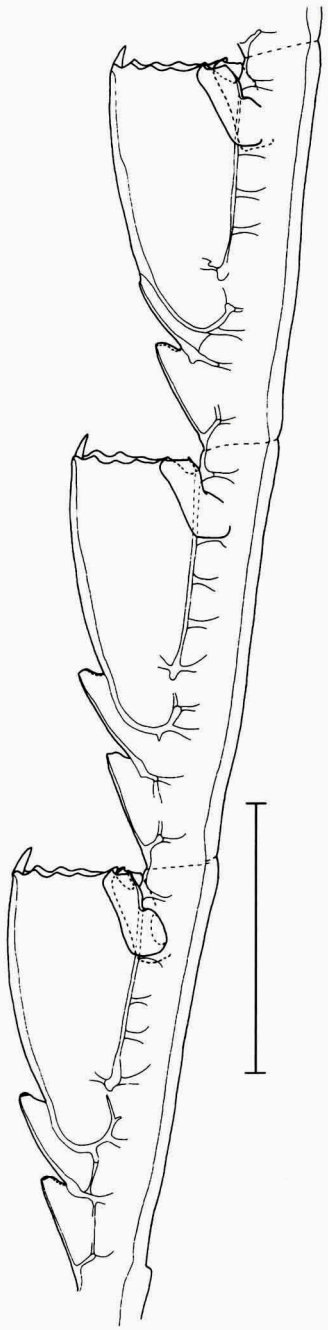

Fig. 12. *Lytocarpia myriophyllum* (Linnaeus, 1758), from SEAMOUNT 1, Stn DW 06, slide R236, three cormidia with two median infracalycine nematothecae each. Scale 0.5 mm.

SEAMOUNT 1 material is both ramified and unramified and shows little morphological variations; both in shape and structure these colonies are within the range of variability observed in the BALGIM material of *Lytocarpia myriophyllum*. Ramified colonies, but with hydrotheca similar to those of var. *typica* were also described, as *Thecocarpus myriophyllum myriophyllum*, by Gili et al. (1989) from the coasts of Guinea Bissau. Therefore, in our opinion, the var. *bedoti* should be sunk too in the nominal subspecies.

Genus *Streptocaulus* Allman, 1883

Streptocaulus corneliusi (Ramil & Vervoort, 1992) (figs 13-18)

Cladocarpus tenuis var.; Vervoort, 1985: 292-294, fig. 3.
Cladocarpus spec. Ramil & Vervoort, 1992b: 174, fig. 3.
Cladocarpus corneliusi Ramil & Vervoort, 1992a: 103-107, fig. 26a-h.

Material.— SEAMOUNT 1, Stn DW 06, Gorringe Bank, 36°30.2'N 11°37.9'W, 250 m, 22.ix.1987: 24 colonies 35-130 mm high, majority with phylactocarps and gonothecae (DEBA-UV, slide R226; MNHN-Hy 1250; RMNH-Coel. 27904, with *Sertularella* spec. and *Campanularia hincksii* Alder, 1856); Stn DW 07, Gorringe Bank, 36°28.5'N 11°33.7'W, 350-355 m, 22.ix.1987: two colonies 100 and 130 mm high with phylactocarps and gonothecae (MNHN-Hy 1253; slide 1101, RMNH-Coel. 27906); Stn DE 09, Gorringe Bank, 36°31.5'N 11°38.0'W, 350-360 m, 23.ix.1987: six colonies 60-80 mm high, some with phylacto-

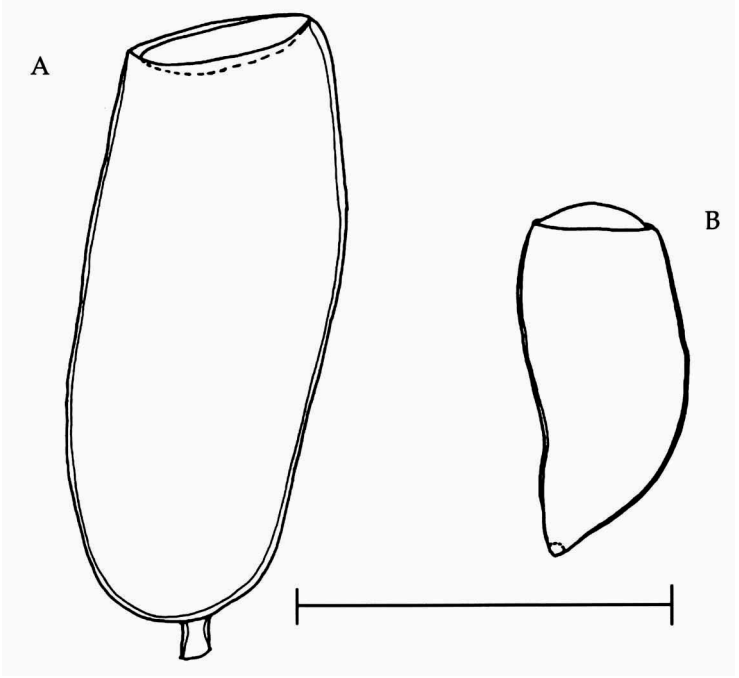

Fig. 13. *Streptocaulus corneliusi* (Ramil & Vervoort, 1992), from SEAMOUNT 1, Stn CP 12, slides R247-R249. A, female gonotheca; B, male gonotheca. Scale 0.5 mm.

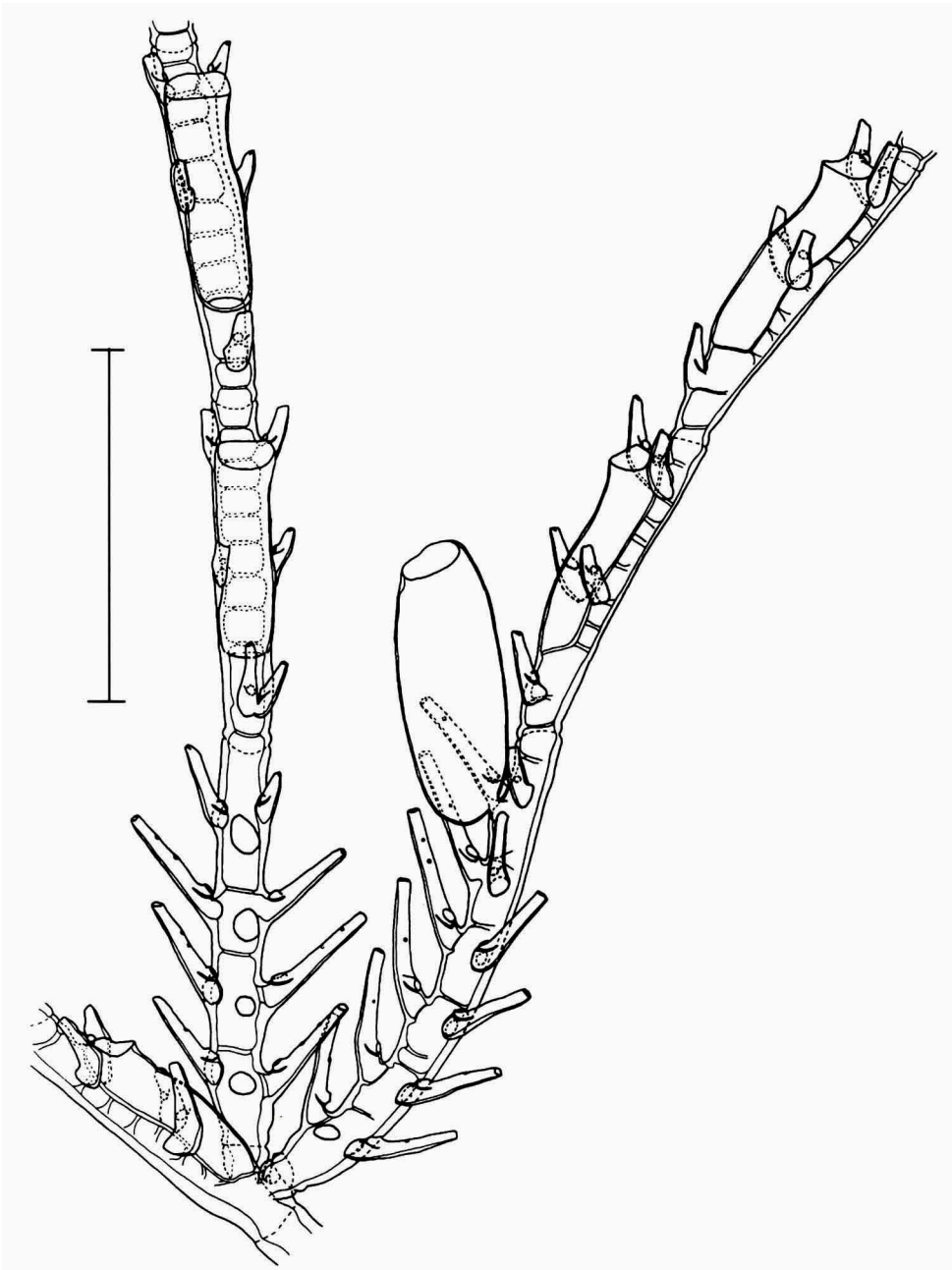

Fig. 14. *Streptocaulus corneliusi* (Ramil & Vervoort, 1992), from SEAMOUNT 1, Stn DW 06, slide R226, aberrant phylactocarps with gonotheca and normal hydrotheca at their distal extremity. Scale 1 mm.

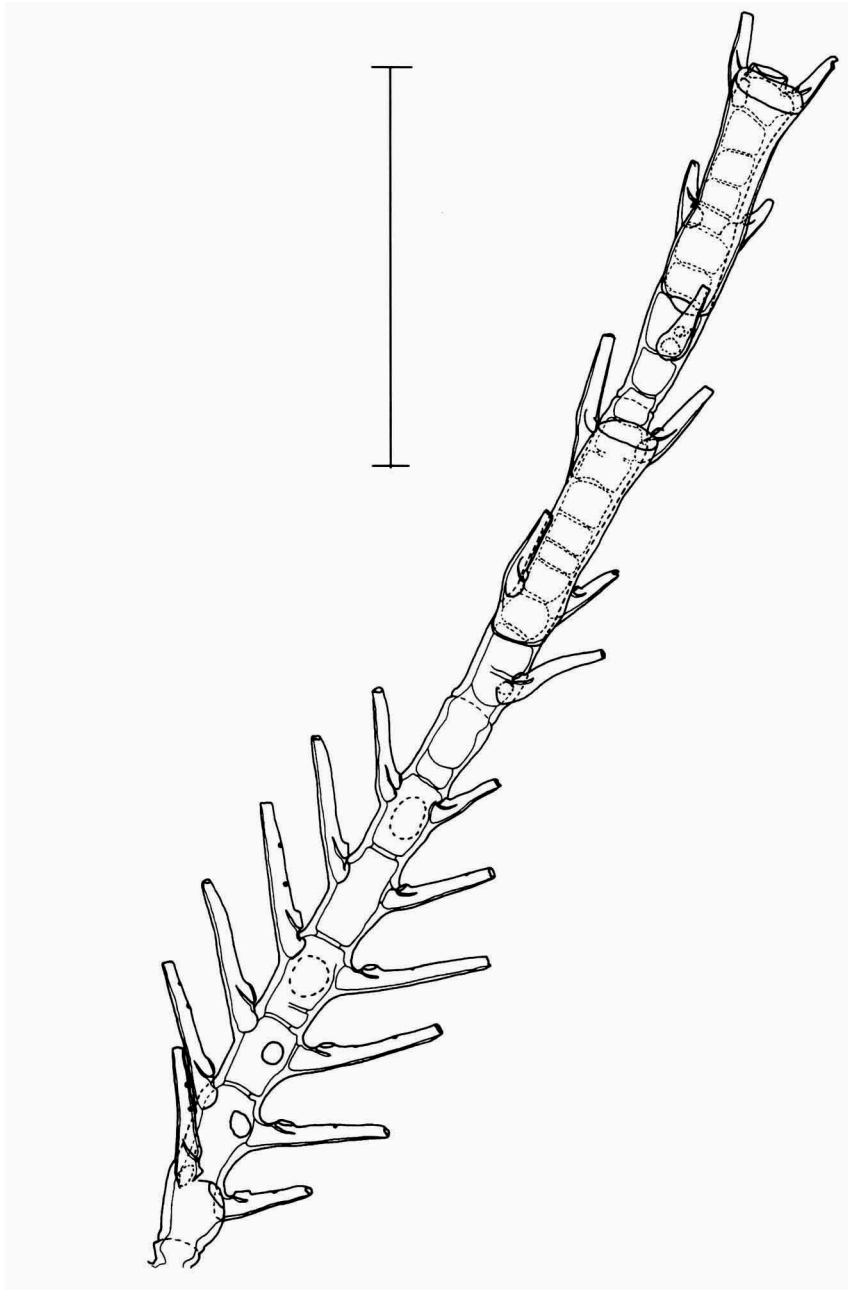

Fig. 15. *Streptocaulus corneliusi* (Ramil & Vervoort, 1992), from SEAMOUNT 1, Stn DW 06, slide R226, distal extremity of aberrant phylactocarp. Scale 1 mm.

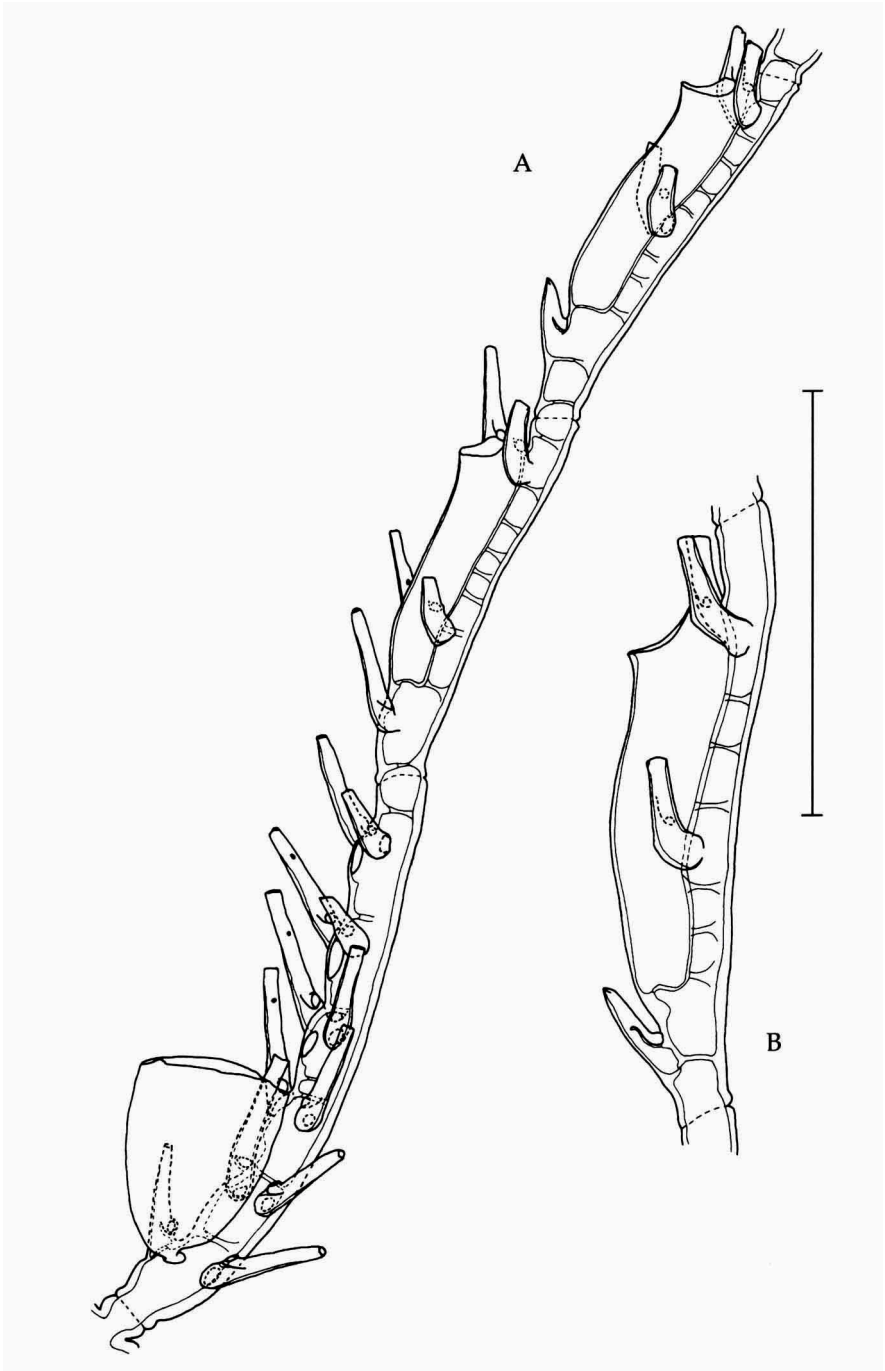

Fig. 16. *Streptocaulus corneliusi* (Ramil & Vervoort, 1992), from SEAMOUNT 1. A, Stn DW 06, slide R226, phylactocarp with gonotheca basally and normally developed hydrothecae distally. B, Stn CP 30, slide 1099, hydrotheca on distal extremity of aberrantly developed phylactocarp. Scale for A 1 mm, scale for B 0.75 mm.

carps and gonothecae (MNHN-Hy 1251; slide 1145, RMNH-Coel. 27902); Stn CP 11, Gorringe Bank, 36°26.4'N 11°40.2'W, 805-830 m, 23.ix.1987: two colonies 60 mm high, with phylactocarps and gonothecae (RMNH-Coel. 27911); Stn CP 12, Gorringe Bank, 36°24.2'N 11°43.2'W, 1005-1040 m, 23.ix.1987: two colonies 55 and 80 mm high with phylactocarps and gonothecae (DEBA-UV, slides R247-R249; RMNH-Coel. 27961); Stn DW 15, Gorringe Bank, 36°33.4'N 11°28.8'W, 300-330 m, 24.ix.1987: five colonies 50-100 mm high, with phylactocarps and gonothecae (MNHN-Hy 1246); Stn CP 30, Gorringe Bank, 36°44.3'N 11°23.0'W, 1940-2075 m, 26.ix.1987: single colony 120 mm high with many phylactocarps and gonothecae (slide 1099, RMNH-Coel. 27912); Stn DW 37, Josephine Bank, 36°42.0'N 14°17.7'W, 255-270 m, 04.x.1987: four colonies and many fragments 35-70 mm high, with phylactocarps and gonothecae [RMNH-Coel. 27903, slide 1140, with *Diphasia margareta* (Hassall, 1841)]; Stn DW 38, Josephine Bank, 36°41.5'N 14°17.0'W, 235-245 m, 04.x.1987: one colony 80 mm high and a fragment 35 mm high, with phylactocarps and gonothecae (MNHN-Hy 1249). In addition two colonies 25 and 45 mm high without phylactocarps and a colony 40 mm high with the base confluent with base of *Diphasia margareta* (Hassall, 1841), no phylactocarp (RMNH-Coel. 27907); Stn DW 43, Josephine Bank, 36°44.9'N 14°17.3'W, 260-285 m, 04.x.1987: two colonies 40 and 90 mm high, larger with phylactocarps and gonothecae (MNHN-Hy 1252); Stn DW 45, Josephine Bank, 36°45.8'N 14°17.5'W, 315-335 m, 05.x.1987: two colonies 60 and 75 mm high, without phylactocarps (RMNH-Coel. 27900); Stn DW 60, Josephine Bank, 36°43.1'N 14°17.3'W, 240-255 m, 07.x.1987: single colony 65 mm high with three hydrocladia and a mutilated colony 30 mm high, without phylactocarps (RMNH-Coel. 25724, 2 slides 1073); Stn DE 98, Ampère Bank, 35°03.2'N 12°55.4'W, 300-325 m, 12.x.1987: one colony 65 mm high with phylactocarps and gonothecae. In addition a sterile colony 55 mm high [RMNH Coel. 27905, slide 1124, with *Diphasia margareta* (Hassall, 1841); slide 1128, RMNH-Coel. 27930, with a small athecate hydroid and *Campanularia hincksii* Alder, 1856]; Stn CP 99, Ampère Bank, 35°03.8'N 12°55.4'W, 225-280 m, 12.x.1987: single top part of colony 25 mm high, with phylactocarps and gonothecae (MNHN-Hy 1267, with *Diphasia margareta* (Hassall, 1841); Stn CP 100, Ampère Bank, 35°03.6'N 12°55.3'W, 182-207 m, 12.x.1987: single colony 60 mm high, with phylactocarps and gonothecae (RMNH-Coel. 27899).

Remarks.— The material collected by the SEAMOUNT 1 expedition agrees with the description of *Cladocarpus corneliusi* given by Ramil & Vervoort (1992a). Our recent observations confirm that the colonies are dioecious. The male gonothecae (fig. 13B) are ovoid and small, with a terminal aperture closed by a lid; the female ones (fig. 13A) are much longer, ovoid with a truncated apex and with a circular aperture closed by a lid.

One colony, collected at Stn DW 06, has phylactocarps with many variations. The distal part of some phylactocarps bears normal hydrothecae (figs 14-16) and in some cases, secondary phylactocarps arise from the base of these hydrothecae (fig. 17). Development of secondary phylactocarps from the normal point of insertion of the gonothecae, from the axis of the phylactocarp between the two nematothecae of one pair (fig. 18), was also observed.

Table 4. Measurements of *Streptocaulus corneliusi* in μm.

	SEAMOUNT 1, Stn CP 12
Hydrocladial internode, length	1120-1240
diameter at node	110-120
Hydrotheca, depth	720-830
diameter ar rim	180-200
Median nematotheca, length	180-220

diameter of terminal aperture	10-20
Lateral nematotheca, length	190-200
diameter of terminal aperture	30-50
Supplementary nematotheca, length	180-220
diameter of terminal aperture	30-50
Male gonotheca, total length	390-430
maximal diameter	180-220
Female gonotheca, total length	820-840
maximal diameter	300-340

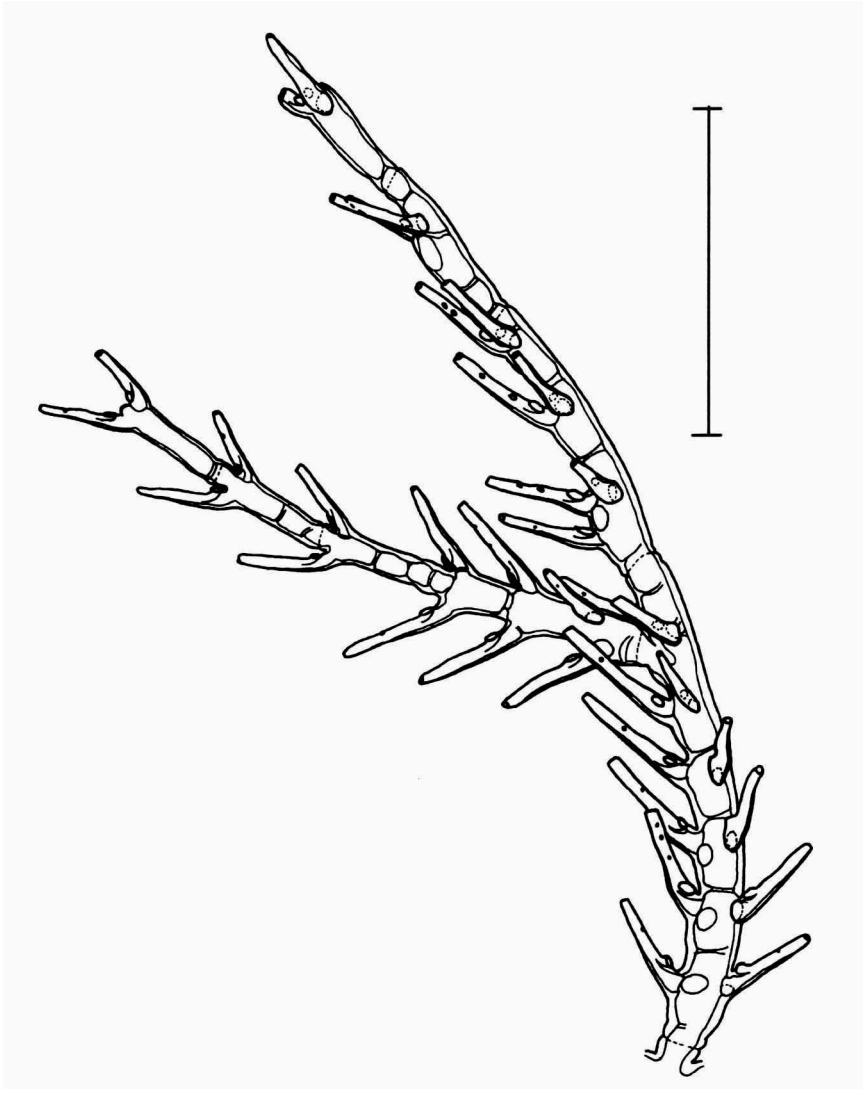

Fig. 17. *Streptocaulus corneliusi* (Ramil & Vervoort, 1992), from SEAMOUNT 1. Stn DW 06, slide R226, branched phylactocarp. Scale 0.5 mm.

Distribution.— This species has previously only been recorded from the Bay of Biscay, 47°34.3'N 08°33.8'W (Vervoort, 1985, as *Cladocarpus tenuis* var.), from four localities in the Atlantic SW of Cape São Vicente, from one locality off the coast of Rabat, Morocco, and from the Ormonde Seamount, WSW of Cape São Vicente, depths records are 650-2292 m (Ramil & Vervoort, 1992a). SEAMOUNT 1 material originates from Gorringe Bank, Josephine Bank and Ampère Bank, depth 182-2075 m.

Discussion.— In the course of a study of several species of the genus *Cladocarpus* Allman, 1874, Ramil & Vervoort (1992b) described two different types of phylactocarps. In the first type, present in *Cladocarpus formosus* Allman, 1874, type-species of genus *Cladocarpus*, the rachis of the phylactocarp is homologous with the axis (hydrocaulus) of Aglaopheniidae, being either unbranched or dichotomouly branched and bearing apophyses supporting a nematophorous branch alternately pointing left or right (see description of phylactocarps in *Cladocarpus elongatus* Bedot, 1921c). In the second type the rachis is structurally similar to that of the hydrocladia and the composing segments bear couplets of nematothecae arranged in opposite pairs. This type of phylactocarp is present in *Streptocaulus pulcherrimus* Allman, 1883, type-species of genus *Streptocaulus* Allman, 1883. Ramil & Vervoort (1992b) therefore proposed to remove from *Cladocarpus* the species with the second type of phylactocarp and place those species in *Streptocaulus*. As a consequence *Cladocarpus corneliusi*, having a phylactocarp of the second type, must be placed in *Streptocaulus*.

Streptocaulus pectiniferus (Allman, 1883)
(fig. 19)

Cladocarpus pectiniferus Allman, 1883: 50-51, pl. 17 figs 1-5; Bedot, 1921c : 54-56, pl. 6 figs 54-58; 1923: 224, figs 20-21; Vervoort, 1966: 149; Van Praët, 1979: 911, fig. 74; Ramil & Vervoort, 1992a: 114-119, figs 28a-h, 29a-j, 30a-g.

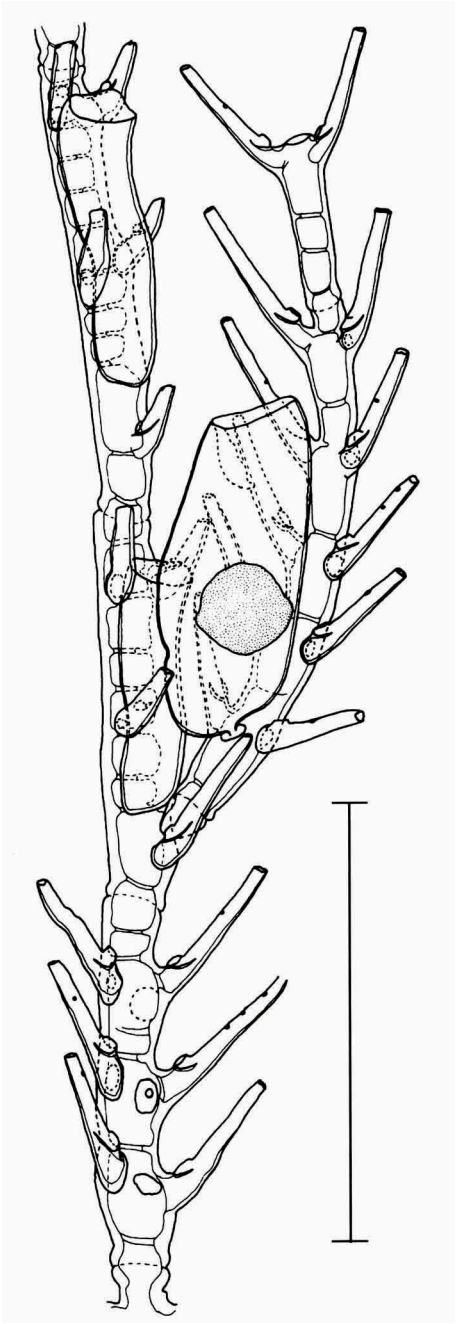

Fig. 18. *Streptocaulus corneliusi* (Ramil & Vervoort, 1992), from SEAMOUNT 1, Stn DW 06, slide R226, development of secondary phylactocarp from place of insertion of gonotheca on primary phylactocarp. Scale 1 mm.

Aglaophenia ? pharetra Broch, 1918: 80-82, figs 42a-c.
Not *Cladocarpus pectiniferus*; Pictet & Bedot, 1900: 49 (= *Cladocarpus cartieri* Bedot, 1921)

Material.— SEAMOUNT 1, Stn DW 78, Seine Bank, 33°48.7'N 14°22.6'W, 235 m, 10.x.1987: single colony 65 mm high, with phylactocarps and empty gonothecae (DEBA-UV, slide R227; MNHN-Hy 1247; slide 1135, RMNH-Coel. 27897); Stn CP 79, Seine Bank, 33°49.0'N 14°22.6'W, 242-260 m, 10.x.1987: two mutilated colonies 35-110 mm high, with phylactocarps (RMNH-Coel. 27898, slide 1372); Stn DE 80, Seine Bank, 33°48.5'N 14°22.6'W, 250-256 m, 10.x.1987: three colonies 65-110 mm high, with many phylactocarps and gonothecae (DEBA-UV, slides R228 and R229; slide 1117, RMNH-Coel. 27924).

Remarks.— SEAMOUNT 1 material agrees with the colonies collected from the BALGIM expedition at Stn DW 130 (see Ramil & Vervoort, 1992a). The colonies are dioecious, with two different types of (empty) gonothecae. One type, probably male, is small, ovoid, has a terminal aperture and agrees with the gonothecae described by Ramil & Vervoort (1992a, fig. 28f-h) from Ormonde Seamount material; the other type, probably female (fig. 19B), is much longer, with a latero-terminal and curving aperture, and agrees with the description of gonothecae given by Allman (1883, pl. 17 fig. 2).

Distribution.— The geographical distribution of *Streptocaulus pectiniferus* has recently been reviewed by Ramil & Vervoort (1992a). *S. pectiniferus* is a North Atlantic species known from SW of Iceland, the Azores, the Ibero-Moroccan Gulf and the Canary Islands region. It was also recorded from one locality in the Strait of Gibraltar and from a locality in the Alborán Sea, Mediterranean. SEAMOUNT 1 material originates from three stations on Seine Bank, 235-260 m depth.

Discussion.— This species, and its range of variation, was described in detail by Ramil & Vervoort (1992a). The phylactocarps belong to the second type described by Ramil & Vervoort (1992b) (see discus-

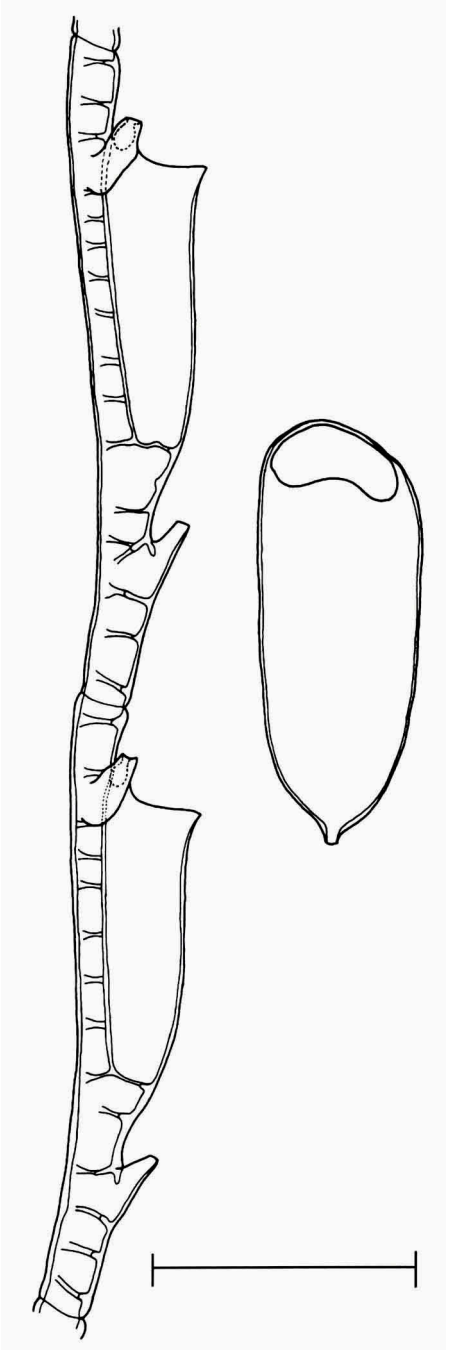

Fig. 19. *Streptocaulus pectiniferus* (Allman, 1883), from SEAMOUNT 1, Stn DE 80, slide 1117. A, two cormidia with hydro- and nematothecae; B, female gonotheca. Scale 0.5 mm.

sion under *Streptocaulus corneliusi*) and in consequence the species must be placed in *Streptocaulus*.

Family Halopteridídae Millard, 1962

Genus *Antennella* Allman, 1877

Antennella secundaria (Gmelin, 1791)

Sertularia secundaria Gmelin, 1791: 3856.
Plumularia secundaria; Pictet & Bedot, 1900: 27-28, pl. 6 fig. 7.
Antenella secundaria; Patriti, 1970: 57, fig. 81A-B; Millard, 1975: 332-334, fig. 10F-L; Gravier-Bonnet, 1979: 56-58, fig. 11A-B; Rees & Vervoort, 1987: 113, figs 23a-b; Ramil & Vervoort, 1992a: 143-145, fig. 37a-d; Medel & Vervoort, 1995: 35-37, fig. 14a-d; Calder, 1997: 29-32, fig. 7; Schuchert, 1997: 14-18, figs 3-4.

Material.— SEAMOUNT 1, Stn DW 06, Gorringe Bank, 36°30.2'N 11°37.9'W, 250 m, 22.ix.1987: many colonies 3-15 mm high on *Lytocarpia myriophyllum* (Linnaeus, 1758), no gonothecae (RMNH-Coel. 27958); Stn DE 20, Gorringe Bank, 36°33.7'N 11°30.1'W, 305-320 m, 24.ix.1987: one colony with many stems up to 10 mm high on *Pseudoplumaria sabinae* Ramil & Vervoort, 1992c, no gonothecae (RMNH-Coel. 27917); Stn CP 93, Ampère Bank, 35°03.7'N 12°54.0'W, 140-230 m, 11.x.1987: numerous stems 5-15 mm high on old axes, some with gonothecae [MNHN-Hy 1235; RMNH-Coel. 27888, with *Obelia bidentata* (Clarke, 1879)]; Stn DE 95, Ampère Bank, 35°04.6'N 12°55.3'W, 197-210 m, 11.x.1987: three colonies up to 20 mm high on hydrocaulus of *Nemertesia ramosa* (Lamarck, 1816), no gonothecae; Stn DE 98, Ampère Bank, 35°03.2'N 12°55.4'W, 300-325 m, 12.x.1987: some colonies up to 8 mm high on old hydroid stem, no gonothecae (slide 1121, RMNH-Coel. 27931); Stn CP 99, Ampère Bank, 35°03.8'N 12°55.4'W, 225-280 m, 12.x.1987: numerous colonies 3-18 mm high on other hydroids, principally *Aglaophenia tubulifera* (Hincks, 1861), some with gonothecae [MNHN-Hy 1236, with *Zygophylax biarmata* Billard, 1905; MNHN-Hy 1238, with *Filellum serratum* (Clarke, 1879); MNHN-Hy 1248, with *Modeeria rotunda* (Quoy & Gaimard, 1827), *Filellum serratum* (Clarke, 1879), and *Campanularia hincksii* Alder, 1856; RMNH-Coel. 27877; 27886, with *Clytia gracilis* (M. Sars, 1850); 27895, with *Campanularia hincksii* Alder, 1856, *Filellum serratum* (Clarke, 1879), *Zygophylax biarmata* Billard, 1905, and *Corydendrium/Turritopsis* spec.]. In addition one colony 5-10 mm high on *Diphasia margareta* (Hassall, 1841), no gonothecae [RMNH Coel. 27884, 4 slides 1153, with *Modeeria rotunda* (Quoy & Gaimard, 1827 and *Zygophylax* spec.; 2 slides 1194, RMNH Coel. 27885, of which one with *Filellum serratum* (Clarke, 1879) and *Clytia gracilis* (M.Sars, 1850)]; Stn CP 100, Ampère Bank, 35°03.6'N 12°55.3'W, 182-207 m, 12.x.1987: numerous colonies 5-23 mm high on *Cryptolaria* spec. and *Aglaophenia tubulifera* (Hincks, 1861), some with gonothecae [MNHN-Hy 1237; RMNH-Coel. 27896, with *Modeeria rotunda* (Quoy & Gaimard, 1827)].

Distribution.— *Antennella secundaria* is considered a cosmopolitan species (Millard, 1975; Gili, Vervoort & Pagès, 1989; Boero & Bouillon, 1993) with a preference for warmer waters (Gili, Vervoort & Pagès, 1989; Schuchert, 1997). Records of this species in high latitudes are scarce and it is apparently absent in polar seas. SEAMOUNT 1 material originates from Gorringe and Ampère Banks, 140-325 m depth.

Antennella siliquosa (Hincks, 1877)

Plumularia siliquosa Hincks, 1877: 148, pl. 12 figs 2-6.
?*Antenela simplex* Bedot, 1914: 84-86, pl. 5 figs 2-5.

Antennella diaphana f. *siliquosa*; Vervoort, 1959: 286-289, fig. 43.
Halopteris diaphana f. *siliquosa*; García Corrales, Aguirre & González, 1978: 45-46, fig. 19; Ramil & Vervoort, 1992a: 148-149, fig. 38a.
Antennella siliquosa; Medel & Vervoort, 1995: 32-35, fig. 13a-e; Schuchert, 1997: 19-22, fig. 5.

Material.— SEAMOUNT 1, Stn CP 99, Ampère Bank, 35°03.8'N 12°55.4'W, 225-280 m, 12.x.1987: numerous stems up to 20 mm high on *Aglaophenia tubulifera* (Hincks, 1861), without gonothecae [RMNH-Coel. 27877, with *Filellum serratum* (Clarke, 1879)]; Stn CP 100, Ampère Bank, 35°03.6'N 12°55.3'W, 182-207 m, 12.x.1987: numerous stems up to 20 mm high, no gonothecae (RMNH-Coel. 27960). In addition one colony 10 mm high, with an empty female(?) gonotheca (MNHN-Hy 1245).

Distribution.— *Antennella siliquosa* is a Mediterranean-Atlantic species (Boero & Bouillon, 1993). It is known from the Mediterranean and in the Atlantic Ocean from England to Ivory Coast. SEAMOUNT 1 material originates from two localities on Ampère Bank (Stns CP 99 and CP 100, 182-280 m depth).

Discussion.— Cornelius (1995b) includes *Plumularia siliquosa* Hincks, 1877, in the synonymy of *Antenella secundaria*. This species was formerly considered a variety of *Halopteris diaphana* (Heller, 1868), *H. diaphana* f. *siliquosa* (Broch, 1933; Vervoort, 1959; García Corrales et al., 1978; Ramil & Vervoort, 1992a). It is now considered a valid species, included in the genus *Antennella* (Boero & Bouillon, 1993; Peña Cantero, 1995; Medel & Vervoort, 1995; Schuchert, 1997).

Genus *Schizotricha* Allman, 1883

Schizotricha frutescens (Ellis & Solander, 1786)

Sertularia frutescens Ellis & Solander, 1786: 55 (no. 29), pl. 6 figs a, A, pl. 9 fig. 1.
Plumularia frutescens; Hincks, 1868: 307-308, pl. 67 fig. 3.
Schizotricha frutescens; Bedot, 1921c: 11-14, pl. 1 figs 2-3, 6; Vervoort, 1946b: 171-173, fig. 71; Ramil & Vervoort, 1992a: 150, fig. 38b-d.

Material— SEAMOUNT 1, Stn CP 117, Galice Bank, 42°43.4'N 11°45.1'W, 770 m, 20.x.1987: five colonies 100-150 mm high, with strongly polysiphonic stems, on corals; with gonothecae (MNHN-Hy 1260; RMNH-Coel. 27918, 4 slides 1256).

Distribution.— *Schizotricha frutescens* has a wide distribution in the subtropical and temperate Atlantic, including the Mediterranean (Ramil & Vervoort, 1992). The SEAMOUNT 1 material originates from Galice Bank, Stn CP 117, at 770 m depth.

Family Kirchenpaueriidae Millard, 1962

Genus *Kirchenpaueria* Jickeli, 1883

Kirchenpaueria bonnevieae (Billard, 1906)

Plumularia rubra Bonnevie, 1899: 90, 91, 94, pl. 7 fig. 2 [not *Plumularia rubra* Von Lendenfeld, 1885 = *Halopteris campanula* (Busk, 1852)].
Plumularia elegantula var. Pictet & Bedot, 1900: 28.
Plumularia Bonnevieae Billard, 1906a: 331; 1906d: 203-205, fig. 14; Van Praët, 1979: 918, fig. 79.

Plumularia triangulata Totton, 1930: 225-226, fig. 61; Ralph, 1961: 41-42, fig. 5f-g.
Kirchenpaueria triangulata; Vervoort, 1966: 136-138, figs 38-39; Millard, 1975: 375-376, fig. 119E-H; Rees & Vervoort, 1987: 129-132, fig. 27.
Kirchenpaueria bonnevieae; Ramil & Vervoort, 1992a: 151-156, figs 39d-g, 40b,e.

Material.— SEAMOUNT 1, Stn CP 99, Ampère Bank, 35°03.8'N 12°55.4'W, 225-280 m, 12.x.1987: one colony composed of some plumes up to 35 mm high on *Nemertesia* sp, with damaged gonothecae; Stn CP 100, Ampère Bank, 35°03.6'N 12°55.3'W, 182-207 m, 12.x.1987: one colony composed of 9 plumes 11-25 mm high on *Nemertesia ramosa* (Lamarck, 1816), with gonothecae. In addition two fragments 11 and 20 mm high, one with gonothecae (MNHN-Hy 1271).

Distribution.— The geographical distribution of *Kirchenpaueria bonnevieae* was recently reviewed by Ramil & Vervoort (1992a); the species is known from the North Atlantic as well as from the Indo-Pacific. In the North Atlantic it is recorded from Trondhjem Fjord, Norway, to the coast of Morocco, and it has also been recorded from a locality in Alborán Sea, Mediterranean. In the Indopacific is known from Three Kings Island, New Zealand, Oman and Zanzibar and from the coasts of South Africa from Mozambique to the Cape Peninsula. SEAMOUNT 1 material was collected at two localities (CP 99 and CP 100) on Ampère Bank, 182-280 m depth.

Discussion.— The species was described in detail by Ramil & Vervoort (1992a) from material collected by the BALGIM expedition in the Ibero-Moroccan Gulf and from the holotype of *Plumularia bonnevieae*. Our material is in perfect agreement with the BALGIM specimens.

Kirchenpaueria bonnevieae simplex Billard, 1930

Kirchenpaueria bonneviae simplex Billard, 1930: 80; Ramil & Vervoort, 1992a: 156-158, figs 39a-c, 40a,c-d.

Material.— SEAMOUNT 1, Stn DW 15, Gorringe Bank, 36°33.4'N 11°28.8'W, 300-330 m, 24.ix.1987: one colony composed of some stems up to 5 mm high on *Aglaophenia tubulifera* (Hincks, 1861), without gonothecae (RMNH-Coel. 27965).

Distribution.— *Kirchenpaueria bonnevieae simplex* so far has been recorded only from the Strait of Gibraltar and the continental slope off Morocco (Ramil & Vervoort, 1992a). SEAMOUNT 1 material was collected only at one station (DW 15) on Gorringe Bank at 300-330 m depth.

Discussion.— This subspecies was recently re-described by Ramil & Vervoort (1992a) from material collected by the BALGIM expedition and from the holotype in MNHN. It differs from *Kirchenpaueria bonnevieae* (Billard, 1906) by the presence of a simple axis, without hydrocladia, composed of hydrothecate and ahydrothecate segments, by the smaller hydrothecae and gonothecae, and by the separation of the medio-distal nematotheca on a distinct segment.

Kirchenpaueria pinnata (Linnaeus, 1758)
(figs 20-21)

Sertularia pinnata Linnaeus, 1758: 813.
Plumularia pinnata; Hincks, 1868: 295-296, pl. 65 fig. 1.

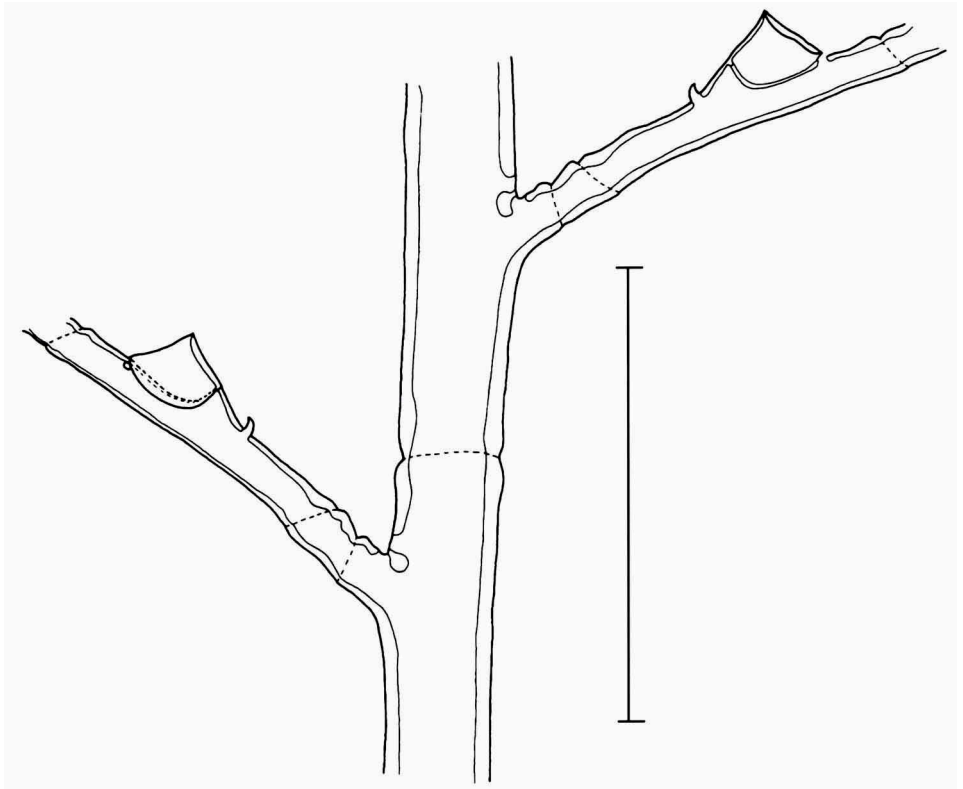

Fig. 20. *Kirchenpaueria pinnata* (Linnaeus, 1758), from SEAMOUNT 1, Stn DW 106, slide 1137, part of axis with proximal parts of two hydrocladia. Scale 1 mm.

Kirchenpaueria pinnata; Bedot, 1916: 645; Vervoort, 1946b: 167-171, figs 69a, 70; Millard, 1975: 372-375, fig. 119A-D; Roca & Moreno, 1987: 46, fig. 1; Ramil & Vervoort, 1992a: 158-161, fig. 41a-c; Medel & Vervoort, 1995: 41-45, figs 17a-d, 18a-d; Cornelius, 1995b: 130-134, fig. 30a-g.
Plumularia echinulata Lamarck, 1816: 126; Hincks, 1868: 302-303, pl. 65 fig. 2.
Plumularia similis Hincks, 1859: 128; 1868: 303-304, pl. 65 fig. 3.
Kirchenpaueria similis; Roca & Moreno, 1987: 46-48, fig. 2; Cornelius, 1995b: 135-136, fig. 31a-f.
Plumularia elegantula G.O. Sars, 1874: 103-104, pl. 3 figs 9-14.

Material.— SEAMOUNT 1, Stn CP 28, Gorringe Bank, 36°38.0'N 11°29.8'W, 605-675 m, 26.ix.1987: one mutilated colony 25 mm high without gonothecae (slide 1093, RMNH-Coel. 27926); Stn DW 106, Galice Bank, 42°41.6'N 11°48.5'W, 765 m, 18.x.1987: two colonies 25 mm high in bad shape, without gonothecae (slide 1137, RMNH-Coel. 27925).

Table 5. Measurements of *Kirchenpaueria pinnata* in μm.

	SEAMOUNT 1 Stn. DW 106	BALGIM Stn DR 130 (Ramil & Vervoort, 1992)
Axial segment, length	2440-3950	490-580

diameter at node	175-320	150-220
Hydrothecate internode, length	890-1050	320-440
diameter at node	60-90	60-80
Hydrotheca, length abcauline wall	140-150	80-110
length adcauline wall	175-205	
length free part adcauline wall	30-45	40-70
diameter at rim	140-170	170-190

Distribution.— *Kirchenpaueria pinnata* is widely distributed in the Atlantic Ocean, ranging from the North Atlantic to the coasts of South Africa and is also common in the Mediterranean (Ramil & Vervoort, 1992a). The SEAMOUNT 1 material originates from Galice Bank (Stn DW 106) and Gorringe Bank (Stn CP 28), 605-765 m depth.

Discussion.— The SEAMOUNT 1 material agrees with the descriptions of *Kirchenpaueria pinnata*, but the measurements, specially the length of the axial segments and the length of the hydrocladial internode, are bigger. This material is very similar to *Plumularia elegantula* G.O. Sars, 1873, considered by Browne (1907) as a deep-water form of *K. pinnata*, and we concur.

Family Plumulariidae Hincks, 1868

Genus *Nemertesia* Lamouroux 1812

Nemertesia antennina (Linnaeus, 1758)

Sertularia antennina Linnaeus, 1758: 811.
Antennularia antennina; Hincks, 1868: 280-281, pl. 61; Billard, 1904: 211-216, figs 80-86.
Nemertesia antennina; Bedot, 1917: 42; Vervoort, 1946b: 179-182, figs 74a, 75, 76a; Millard, 1975: 381-383, fig. 121D-E. Ramil & Vervoort, 1992a: 163-169, figs 42a-r, 43a-h; Medel & Vervoort, 1995: 50-52, figs 21a-e, 23b; Cornelius, 1995b: 148-151, figs 34a-e.

Material.— SEAMOUNT 1, Stn DW 06, Gorringe Bank, 36°30.2'N 11°37.9'W, 250 m, 22.ix.1987: two colonies 30-52 mm high and three fragments, some with gonothecae (MNHN-Hy 1270); Stn DW 81, Seine Bank, 33°48.6'N 14°23.5'W, 270-310 m, 10.x.1987: single unbranched colony 90 mm high without gonothecae (RMNH-Coel. 27932, slide 1130); Stn CP 93, Ampère Bank, 35°03.7'N 12°54.0'W, 140-230 m, 11.x.1987: seven colonies 16-38 mm high and five fragments 12-23 mm high, without gonothecae (MNHN-Hy 1266); Stn DE 95, Ampère Bank, 35°04.6'N 12°55.3'W, 197-210 m, 11.x.1987: two colonies 17 and 45 mm high without gonothecae (RMNH-Coel. 27966).

Distribution.— *Nemertesia antennina* is considered a cosmopolitan species. The geographical distribution was summarized by Cornelius (1995b). SEAMOUNT 1 material originates from Gorringe (DW 06), Seine (DW 81) and Ampère Banks (CP 93 and DE 95), at 197-310 m depth.

Discussion.— Ramil & Vervoort (1992a) gave a detailed description of this species, discussing the variation observed in a large material collected by the BALGIM expedition and provided a list of synonyms.

Nemertesia ramosa (Lamarck, 1816)

Antennularia ramosa Lamarck, 1816: 123.
Antennularia ramosa; Hincks, 1868, 282-283, pl. 62; Billard, 1904: 221-227, figs 86bis, 87, 88.
Nemertesia ramosa; Bedot, 1917: 46; Broch, 1918: 66-69, figs 32-33; Vervoort, 1946b: 182-185, figs 76b, 77; Ramil & Vervoort, 1992a: 173-176, fig. 44a-f; Medel & Vervoort, 1995: 48-50, figs 20a-e, 23a; Cornelius, 1995b: 155-156, fig. 36a-e.
Nemertesia ramosa var. *plumularioides* Bedot, 1917: 46; Vervoort, 1959: 293-297, figs 46b, 47.

Material.— SEAMOUNT 1, Stn CP 93, Ampère Bank, 35°03.7'N 12°54.0'W, 140-230 m, 11.x.1987: c. 50 fragments 10-150 mm high with gonothecae (MNHN-Hy 1269, with *Obelia bidentata* Clarke, 1879; RMNH-Coel. 27963); Stn DW 94, Ampère Bank, 35°04.4'N 12°55.2'W, 185-205 m, 11.x.1987: one branched colony 165 mm high with gonothecae (RMNH-Coel. 27908, 2 slides 1185); Stn DE 95, Ampère Bank, 35°04.6'N 12°55.3'W, 197-210 m, 11.x.1987: three colonies, up to 250 mm high and many fragments, with gonothecae [MNHN-Hy 1258; RMNH-Coel. 27901, with *Cryptolaria* spec., *Acryptolaria* spec. and *Corydendrium parasiticum* (Linnaeus, 1767)]; Stn DW 97, Ampère Bank, 35°05.5'N 12°54.1'W, 204-250 m, 12.x.1987: single forked fragment 75 mm high with gonothecae (RMNH-Coel. 27909, slide 1112); Stn DE 98, Ampère Bank, 35°03.2'N 12°55.4'W, 300-325 m, 12.x.1987: one forked fragment 80 mm high with gonothecae. In addition one fragment 35 mm high and some smaller fragments (RMNH-Coel. 27910, slide 1125); Stn CP 99, Ampère Bank, 35°03.8'N 12°55.4'W, 225-280 m, 12.x.1987: c. 60 fragments 23-140 mm high, some with gonothecae [MNHN-Hy 1254, with *Diphasia margareta* (Hassall, 1841); RMNH-Coel. 27964]; Stn CP 100, Ampère Bank, 35°03.6'N 12°55.3'W, 182-207 m, 12.x.1987: six colonies 150-270 mm high and many fragments, with gonothecae. In addition a juvenile colony 50 mm high without gonothecae (MNHN-Hy 1255; RMNH-Coel. 27915).

Remarks.— The material collected at Stn DE 98 usually has two median distal nematothecae, and is similar to the colonies from BALGIM expedition Stns CP 90 and CP 92 (see Ramil & Vervoort, 1992a).

Distribution.— *Nemertesia ramosa* has a wide distribution in the eastern Atlantic

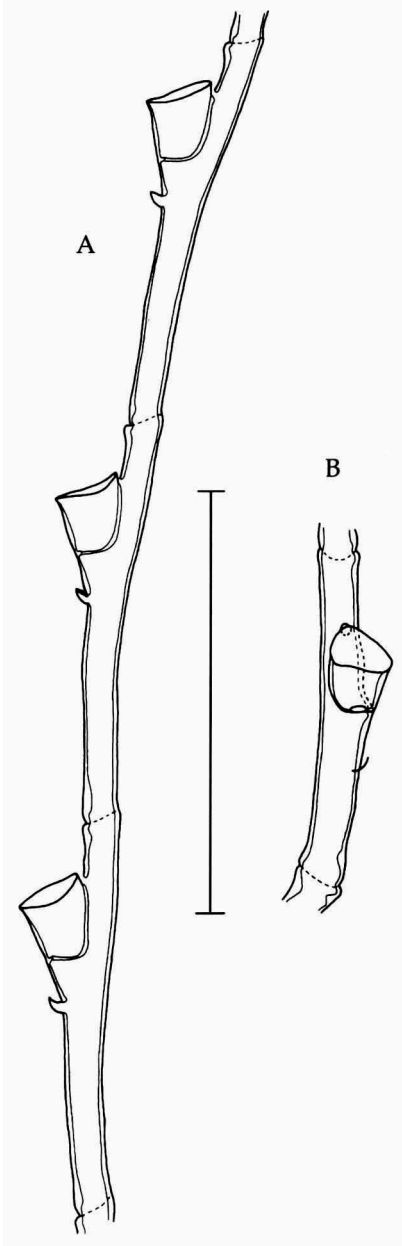

Fig. 21. *Kirchenpaueria pinnata* (Linnaeus, 1758), from SEAMOUNT 1. A, Stn DW 106, slide 1137, three hydrocladia with hydrothecae and reduced infracalycine nematotheca; B, Stn CP 28, slide 1093, hydrocladium in oblique view to show opening of nematophore behind hydrothecal rim. Scale 1 mm.

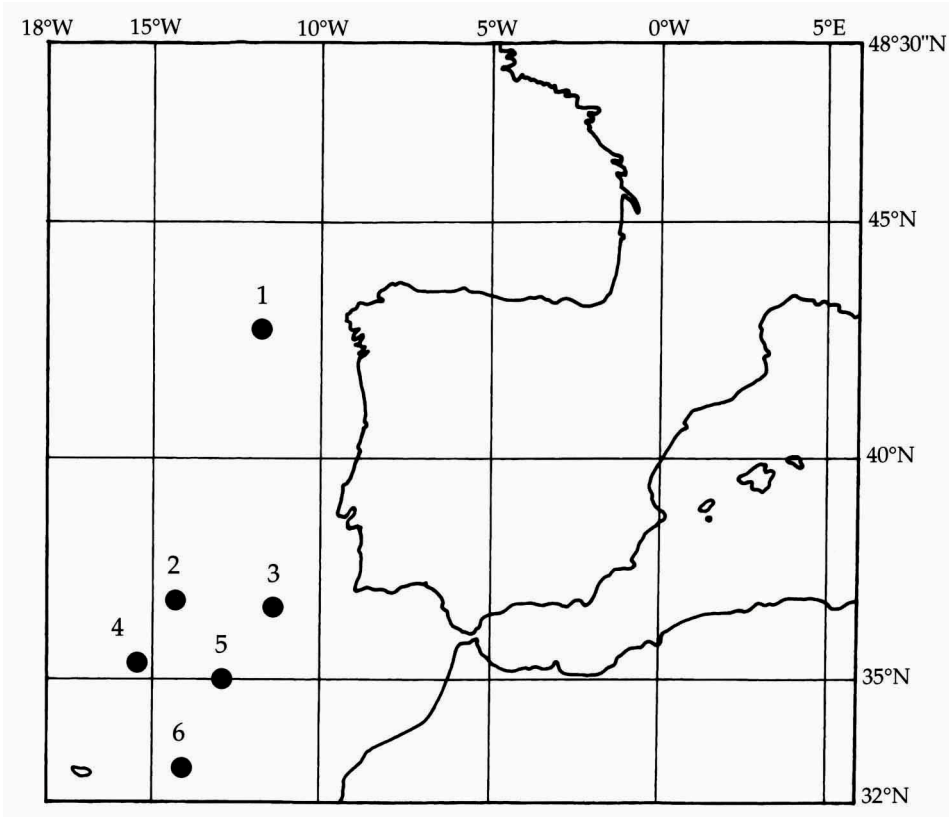

Fig. 22. Map showing the positions of Galice Bank (1), Josephine Bank (2), Gorringe Bank (3), Lion Bank (4), Ampère Bank (5) and Seine Bank (6).

and Mediterranean, occurring from the North Atlantic southwards to the South African coasts (Ramil & Vervoort, 1992a). The records of *N. ramosa* from the Indian Ocean were excluded by Ramil & Vervoort (1992a). SEAMOUNT 1 material all originates from Ampère Bank, 140-325 m depth.

Genus *Plumularia* Lamarck, 1816

Plumularia setacea (Linnaeus, 1758)

Sertularia setacea Linnaeus, 1758: 813.

Plumularia setacea; Hincks, 1868: 296-299, pl. 66 fig. 1; Vervoort, 1946b: 175-178, figs 24f, 73; Millard, 1968: 278-279, fig. 5F-H; 1975: 399-401, fig. 124E-K; Vervoort, 1968: 64-66, fig. 29; Ramil & Vervoort, 1992a: 191-193, fig. 47f-i; Medel & Vervoort, 1995: 56-58, fig. 24a-d; Cornelius, 1995b: 158-161, fig. 37a-e; Calder, 1997: 17-21, fig. 4.

Material.— SEAMOUNT 1, Stn DW 06, Gorringe Bank, 36°30.2'N 11°37.9'W, 250 m, 22.ix.1987: eight colonies 2-14 mm high on *Lytocarpia myriophyllum* (Linnaeus, 1758), with gonothecae (MNHN-Hy 1265; RMNH-Coel. 27958). In addition some small colonies up to 5 mm high on *Streptocaulus corneliusi*

(Ramil & Vervoort, 1992), without gonothecae; Stn DE 95, Ampère Bank, 35°04.6'N 12°55.3'W, 197-210 m, 11.x.1987: six colonies 5-10 mm high on *Nemertesia ramosa* (Lamarck, 1816), without gonothecae. In addition c. 10 plumes up to 5 mm high on *Aglaophenia tubulifera* (Hincks, 1861), without gonothecae; Stn DW 97, Ampère Bank, 35°05.5'N 12°54.1'W, 204-250 m, 12.x.1987: one colony 5 mm high on *Pseudoplumaria marocana* (Billard, 1930), with gonothecae; Stn CP 99, Ampère Bank, 35°03.8'N 12°55.4'W, 225-280 m, 12.x.1987: seven colonies 3-10 mm high on *Aglaophenia tubulifera* (Hincks, 1861), no gonothecae (DEBA-UV, slide R239, R240; RMNH-Coel. 27877); Stn CP 100, Ampère Bank, 35°03.6'N 12°55.3'W, 182-207 m, 12.x.1987: ten colonies 5-10 mm high on *Aglaophenia tubulifera* (Hincks, 1861), with gonothecae [RMNH Coel. 27883, with *Diphasia margareta* (Hassall, 1841)].

Distribution.— *Plumularia setacea* is a cosmopolitan species. SEAMOUNT 1 material originates from various stations at Gorringe and Ampère Banks, depth 197-280 m.

Genus *Pseudoplumaria* Ramil & Vervoort, 1992

Pseudoplumaria marocana (Billard, 1930)

Plumularia marocana Billard, 1930: 79, fig. 1; Patriti, 1970: 54-55, fig. 76; Ramil & Vervoort, 1992a: 186-191, figs 48b-d, 49a,b.

Polyplumaria flabellata p.p.; Gili, Vervoort & Pagès, 1989: 91-92, fig. 19.

Pseudoplumaria marocana; Ramil & Vervoort, 1992c: 491-492, fig. 3a-d; Medel & Vervoort, 1995: 63, figs 27, 28a-b.

Material.— SEAMOUNT 1, Stn DW 97, Ampère Bank, 35°05.5'N 12°54.1'W, 204-250 m, 12.x.1987: single colony 90 mm high, top part separate, and some detached plumes. With gonothecae (DEBA-UV, slide R237; RMNH-Coel. 27919, slide 1114; 3 slides 4151 of gonothecae).

Remarks.— The description of the gonothecae (Ramil & Vervoort, 1992c) support the inclusion of this species in the genus *Pseudoplumaria*. For more information see Ramil & Vervoort (1992c)

Distribution.— *Pseudoplumaria marocana* is known from the Ibero-Moroccan Gulf (Ramil & Vervoort, 1992a, as *Plumularia marocana;* Medel & Vervoort, 1995), Ampère Bank (Ramil & Vervoort, 1992c) and from the coasts of Guinea Bissau (Gili et al., 1989, as *Polyplumaria flabellata*). SEAMOUNT 1 material originates from a single station (DW 97) at Ampère Bank, 204-250 m depth.

Pseudoplumaria sabinae Ramil & Vervoort, 1992

Pseudoplumaria sabinae Ramil & Vervoort, 1992c: 486-490, figs 1a-c, 2a-c.

Material.— SEAMOUNT 1, Stn DE 09, Gorringe Bank, 36°31.5'N 11°38.0'W, 350-360 m, 23.ix.1987: single 35 mm high fragment, top part detached, without gonothecae (2 slides 1147, RMNH-Coel. 27933); Stn CP 11, Gorringe Bank, 36°26.4'N 11°40.2'W, 805-830 m, 23.ix.1987: four colonies 80-130 mm high without gonothecae. Detached fragment with empty gonothecae (MNHN-Hy 1256); Stn CP 12, Gorringe Bank, 36°24.2'N 11°43.2'W, 1005-1040 m, 23.ix.1987: 15 colonies in bad state and many fragments, 100-150 mm high, with gonothecae, some with *Diphasia margareta* (Hassall, 1841) (MNHN-Hy 1259; RMNH-Coel. 27916); Stn DW 15, Gorringe Bank, 36°33.4'N 11°28.8'W, 300-330 m, 24.ix.1987 (type locality): three large colonies 150 × 200 mm and numerous fragments, with gonothecae. A 180 mm high colony with repeatedly forked axis and many side-branches and gonothecae, is the holotype (MNHN-Hy 1127). The remaining two colonies and the fragments are part of the type series (DEBA-

UV, slides R234 and R235; RMNH-Coel. 26054, slide 1210; 4 slides 4153); Stn DW 16, Gorringe Bank, 36°31.1'N 11°32.5'W, 255-265 m, 24.ix.1987: four colonies 70-130 mm high and many fragments, with gonothecae (DEBA-UV, slide R232; MNHN-Hy 1261); Stn DE 20, Gorringe Bank, 36°33.7'N 11°30.1'W, 305-320 m, 24.ix.1987: c. ten large colonies up to 350 mm high, with thick, polysiphonic base of seven mm diameter; also many fragments. With gonothecae [DEBA-UV, slide 233; MNHN-Hy 1263, with *Diphasia pinastrum* (Cuvier, 1830); RMNH-Coel. 27917, with *Antennella secundaria* (Gmelin, 1791) and *Cryptolaria* spec., 2 slides 1378]; Stn DW 21, Gorringe Bank, 36°34.9'N 11°28.4'W, 460-480 m, 24.ix.1987: ten colonies 50-140 mm high and various fragments; with gonothecae (MNHN-Hy 1262; RMNH-Coel. 27921, with *Zygophylax biarmata* Billard, 1905); Stn DE 98, Ampère Bank, 35°03.2'N 12°55.4'W, 300-325 m, 12.x.1987: mutilated colony 80 mm high and several fragments; without gonothecae (RMNH-Coel. 27922; 2 slides 1129); Stn CP 99, Ampère Bank, 35°03.8'N 12°55.4'W, 225-280 m, 12.x.1987: 12 colonies 20-175 mm high and numerous fragments; with gonothecae [MNHN-Hy 1257; RMNH-Coel. 27914, 3 slides 1191, partly with *Antennella secundaria* (Gmelin, 1791) and *Filellum serratum* (Clarke, 1879)]; Stn CP 100, Ampère Bank, 35°03.6'N 12°55.3'W, 182-207 m, 12.x.1987: several mutilated colonies up to 160 mm high, with gonothecae (RMNH-Coel. 27913). In addition 13 fragments 5-40 mm high, some with gonothecae (MNHN-Hy 1264; RMNH-Coel. 27920).

Remarks.— This species was previously fully described by Ramil & Vervoort (1992c); it is not necessary to repeat the description here.

Distribution.— *Pseudoplumaria sabinae* is only known from seven stations at the Gorringe Bank and three at the Ampère Banks, between 182 and 1040 m depth.

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