

Nemertesia tropica spec. nov. from Indonesian waters near Bali.
Description of the new species and a review of
the genus *Nemertesia* Lamouroux, 1812
(Leptothecata, Hydrozoa, Cnidaria)

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Key words: Cnidaria; Hydrozoa; Leptolida; Leptothecata; Plumulariidae; *Nemertesia*; Indonesian waters. A new species of the leptolid family Plumulariidae, *Nemertesia tropica* spec. nov. is described. The various species of *Nemertesia* are listed and their synonymy and characters discussed. Allocation in *Nemertesia* of some species previously described in *Plumularia* by Fraser (1938-1948) necessitated the introduction of two new names, viz. *Nemertesia californica* nom. nov. for *Plumularia mutabilis* Fraser, 1948 and *Nemertesia mexicana* nom. nov. for *Plumularia reversa* Fraser, 1938.

Introduction

During routine identification of leptolid samples collected in Indonesian waters by scientists of the National Museum of Natural History, Leiden, the Netherlands, taking part in expeditions exploring coral reefs in various Indonesian habitats, a species of the leptolid genus *Nemertesia* Lamouroux, 1812 with an unusual combination of characters was discovered. Though the specimens were sterile they were found in such abundance and had such a striking appearance that it seemed advisable to draw attention to this new reef inhabitant by publishing its description.

In the process of identification, descriptions of species hitherto referred to *Nemertesia* were checked and the limitation of this genus and the closely related genus *Plumularia* Lamarck, 1816, were considered. It proved to be a pleasant coincidence that one of the authors (WV) had been involved in a re-investigation of the Allan Hancock hydroid collection, now preserved in the Santa Barbara Museum of Natural History, Santa Barbara, California, USA, a collection previously identified by C. McLean Fraser (1938a, 1938b, 1938c, 1939, 1947, 1948). Though the results of the re-inspection of the Allan Hancock collection, carried out in cooperation with Dr Dale R. Calder, Royal Ontario Museum, Toronto, Canada, will be published elsewhere, some of the preliminary results have been incorporated here, as these bear directly on the results of the present research and the limitation and species composition of *Nemertesia* and *Plumularia*.

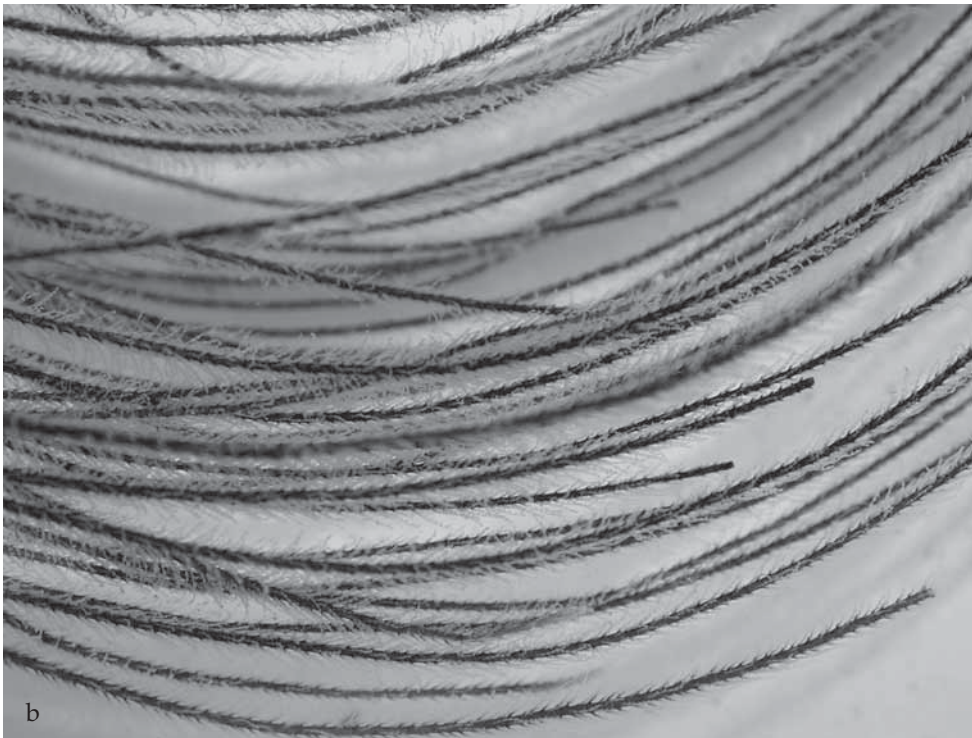


Fig. 1. *Nemertesia tropica* spec. nov., NNM-LIPI-WWF Expedition, Stn BAL. 07. a, holotype; b, detail of stems and arrangement of hydrocladia.

Systematic Account

***Nemertesia tropica* spec. nov.**

(figs 1-3)

Material.— NNM-LIPI-WWF Expedition, Stn BAL.07, Indonesia, Bali, Sanur, Penjor Point, 08°42'04"S 115°16'18"E, slowly declining reef slope, sandy base; scuba diving to 16 m depth; 02.04.2001; collected by L.P. van Ofwegen & M. Slierings. Two colonies, the first composed of c. 50 unbranched stems fused basally to form several bundles, firmly anchored in sediment by means of strong stolonial fibers, maximal height 160 mm; no gonothecae (holotype, RMNH-Coel. 32358); the second composed of c. 20 unbranched stems, 25-170 mm high and basally fused (paratype, RMNH-Coel. 33333).

Description.— Colonies with the appearance of a flattened brush, composed of unbranched stems to 170 mm high of a dark brown, almost black colour, basally fused to form several bundles of 20-30 stems that are united by a globular mass of stolonial fibers, anchoring the colonies in sediment of the bottom. Proximal parts of colonies encrusted by bryozoans and ascidians. Hydrocladia transparent.

Stem unbranched, monosiphonic, non-canalculated, with straight nodes at irregular distances; the resulting internodes of greatly varying lengths, with thick, dark brown to blackish perisarc and strong apophyses supporting hydrocladia of 2.0-2.5 mm length. Apophyses arranged in an irregular spiral along length of stem, 5 to 7 apophyses along one turn of the spiral; number of apophyses per internode greatly varied, the internode may be occupied by one or several turns of the spiral. No nematothecae occur on internodes. Apophyses strong, slightly curved upwards, with a well developed mamelon and two pairs of movable, bithalamic nematothecae, one below, one above mamelon. Perisarc of apophyses strong.

Hydrocladia flexuous, curved upwards, monomerously segmented; nodes distinct and oblique; first internode short, without nematothecae or hydrotheca; following internodes slender; hydrotheca placed halfway length of internode; one mesial inferior nematotheca and a pair of lateral nematothecae. Hydrotheca small, cup-shaped, abcauline wall straight, in line with wall of internode on which it rests. Rim of hydrotheca circular, in lateral view rounded, slightly depressed adcaudally. Nematothecae all bithalamic, with distinct ring-shaped septum separating both chambers and distinctly contracted at that level; upper chamber with slightly scooped rim. All nematothecae have the same conical appearance; those on the apophyses being slightly larger, the mesial nematotheca slightly curved while the lateral nematothecae, inserting near the hydrothecal rim, are straight. Perisarc of internodes generally thin, with ring-shaped internal thickenings below insertion of mesial nematotheca, on abcauline wall of internode at level of rim of that nematotheca and at the abcauline wall just under the node.

Gonothecae absent.

Table I. Measurements of *Nemertesia tropica* spec. nov. in μm :

Colony, height of stems (in mm)	25 - 170
Stem, diameter	370 - 420
First hydrocladial internode, length	40 - 80
Diameter at node	60 - 100
Hydrocladial internode, length	250 - 350
Diameter at node	40 - 75
Hydrotheca, length abcauline wall	60 - 80
Diameter at rim	70 - 90
Mesial nematotheca, length	60 - 80
Diameter at rim	30 - 40
Lateral nematotheca, length	60 - 80
Diameter at rim	35 - 40

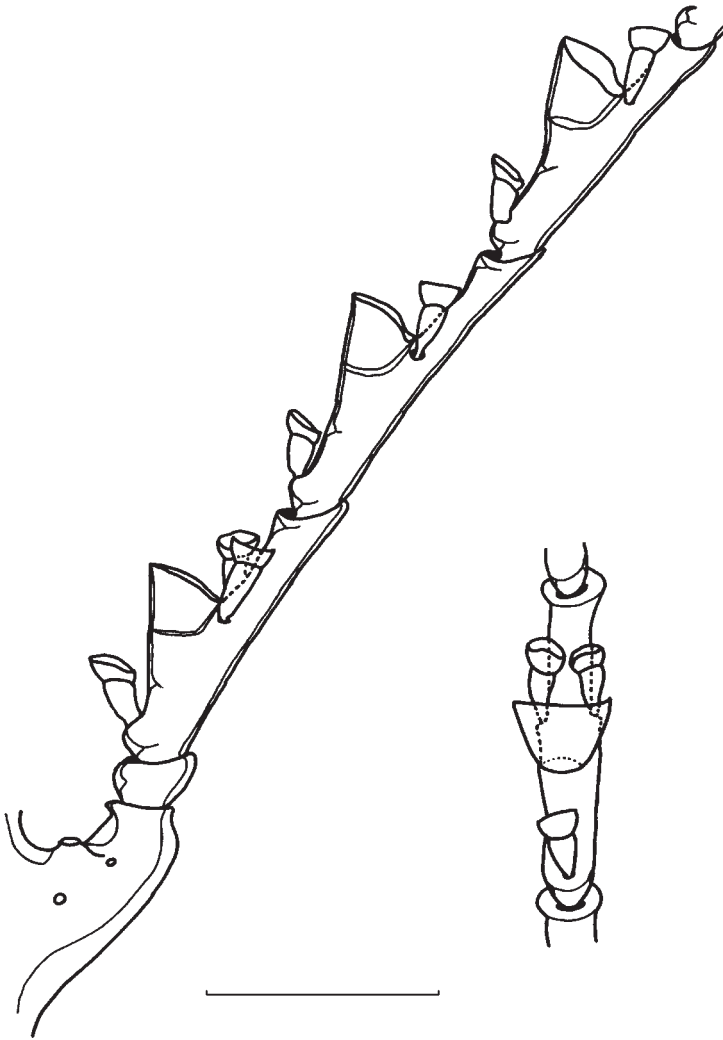


Fig. 2. *Nemertesia tropica* spec. nov., NNM-LIPI-WWF Expedition, Stn BAL. 07. a, stem apophysis and proximal part of hydrocladium in lateral view; b, hydrothecate internode in frontal view. Scale 200 μ m.

The new species resembles *Nemertesia antennina* (Linnaeus, 1758) in the general structure of the colony (unbranched, monosiphonic, basally adnate stems that in contradistinction to *N. antennina* are non-canalculated). The arrangement of the apophyses in an irregular spiral along the stems differs from the decussate arrangement in whorls of 3-5 apophyses found in *N. antennina*. The hydrocladia in *N. tropica* spec. nov. are monomerous; all internodes, with the exception of the first, have a hydrotheca halfway its length, a mesial inferior nematotheca and a pair of nematothecae at the hydrothecal rim. In *N. antennina* hydrothecate internodes of similar structure alternate with ahydrothecate internodes with a single nematotheca.

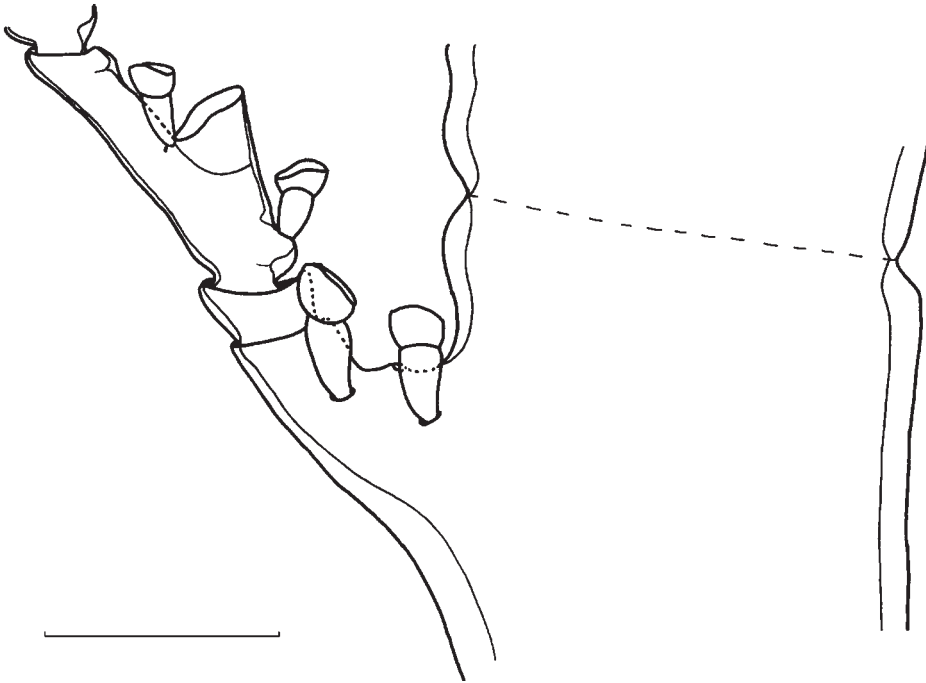


Fig. 3. *Nemertesia tropica* spec. nov., NNM-LIPI-WWF Expedition, Stn BAL. 07, stem apophysis and insertion of hydrocladium in lateral view. Scale 200 μ m.

The species name '*tropica*' is a reference to the tropical seas of Indonesia where the species was found.

Review of the genus *Nemertesia* Lamouroux, 1812

The discovery of this supposed new species made it necessary to review the species of *Nemertesia* and to consider the features of this plumulariid genus. The inspection of the Allan Hancock leptolid material, now preserved in the Santa Barbara Museum of Natural History, Santa Barbara, California, U.S.A., by Dr Dale Calder, Royal Ontario Museum, Toronto, Canada and the second author, considerably extended the number of species and made it necessary to redefine the characters of the genus. For *Nemertesia* Lamouroux, 1812 we now present the following description:

Colonial leptolids composed of erect stem or stems rising from compact bundle of intertwining hydrorhizal tubes usually anchoring the colony in sediment or attaching it to firm substrate. Hydrorhizal tubes occasionally with nematothecae. Stem with strong perisarc, without branches or branched, in which case branches may leave the stem under a sharp angle or curve upwards to run almost parallel to main stem. Stem monosiphonic or polysiphonic by the presence of secondary tubes adhering to and running parallel with the main stem; secondary tubes continued along the branches, in some instances forming the side branches. Stem either with a single canal in the

coenosarc (non-canalculated) or with a number of coenosarcals canals (canalculated), divided into internodes by ring-shaped constrictions of the perisarc (nodes), usually perpendicular to length axis of stem, occasionally absent or visible on part of stem. Stem internodes or stem provided with upwardly curved projections supporting hydrocladia (apophyses). Number of apophyses and their arrangement varied; they may be arranged in two opposed longitudinal rows in one plane, in four longitudinal rows in two planes that intersect perpendicularly or in more longitudinal rows (up to 12). Usually their arrangement is in whorls, but may also be quite irregular. Number of longitudinal rows may be twice the number of apophyses per whorl by decussate arrangement of apophyses in two succeeding whorls (apophyses of next whorl fall in space left open by previous whorl). Arrangement of apophyses in young colonies (or younger parts of a colony) often in two rows in one plane, with apophyses either opposite or alternating (resembling condition found in genus *Plumularia*), but ultimately always leading towards arrangement in a larger number of longitudinal rows, in certain species resulting in very regular arrangement, in others in irregular arrangement of apophyses along the stem. Stem or stem internodes with bithalamic, movable, funnel-shaped nematothecae; apophyses in addition to nematothecae also with elevated "pore" or sarcostyle, named mamelon; development of mamelon varied in various species.

Hydrocladia of moderate length (c. 5-15 mm), composed of a number of internodes separated by oblique or straight nodes, occasionally in alternate arrangement. Internodes either all hydrothecate (monomerous condition) or alternately hydrothecate and ahydrothecate (heteromerous condition). Hydrothecate internodes have one hydrotheca in adcauline position (facing the stem), a pair of nematothecae inserted approximately at the hydrothecal rim (flanking nematothecae), and a number of median nematothecae, usually one or two below hydrotheca (inferior or infracalycine) and one or two above hydrotheca (superior or supracalycine). Ahydrothecate internodes are either devoid of nematothecae or have one or two median nematothecae. The number of nematothecae (and under certain conditions number of hydrothecae) may be increased by fusion of internodes or as the result of regeneration after damage. First internode of a hydrocladium may be ahydrothecate or hydrothecate. Hydrothecae cup-shaped or tumbler-shaped, with smooth, circular rim, exclusively found on the hydrothecate internodes. All nematothecae are movable, bithalamic and funnel-shaped; adcauline nematothecal rim of superior chamber may be scooped. Flanking nematothecae may be increased in length.

Gonothecae elongated ovoid, narrowing basally into a short pedicel; gonothecae inserted at apophyses, either singly or in pairs, occasionally flattened, lobed. Not fully mature gonothecae with rounded apex; mature gonothecae frequently with latero-terminal, more or less circular aperture, directed adcaudally. Gonothecae with attenuated apex have also been described. Some species apparently have sexual dimorphism of gonothecae; female gonothecae with circular, latero-terminal aperture, male gonothecae with attenuated apex with small, terminal aperture. Gonothecae in majority of species listed below unknown. Presence of nematothecae on the gonotheca has been described in only two species: *Nemertesia indivisa* (Allman, 1883) and *Nemertesia cylindrica* (Kirchenpauer, 1876). Gonophore sessile, styloid (fixed sporosacs).

Type (by monotypy): *Sertularia antennina* Linnaeus, 1758.

The genus *Nemertesia*, as diagnosed here, encompasses the following taxa:

Antennularia Lamarck, 1816, first named species *Antennularia indivisa* Lamarck, 1816;

Antennopsis Allman, 1877, type, by monotypy *Antennopsis hippuris* Allman, 1877;

Sciurella Allman, 1883, type, by monotypy *Sciurella indivisa* Allman, 1883;

Nemertella Stechow, 1923, type, by original designation (Stechow, 1923b: 116) *Nemertesia* (*Antennularia*) *hexasticha* Kirchenpauer, 1876.

Left out of consideration are the genera *Nigellastrum* Oken, 1815, *Cymodocea* Lamouroux, 1816, *Lowenia* Meneghini, 1843, and *Heteropyxis* Heller, 1868. *Nigellastrum* Oken, 1815, contains a variety of widely different leptolid species. Oken's 1815 *Lehrbuch der Naturgeschichte* has been banned for the purpose of Zoological Nomenclature (with the exception of the genus *Halecium*, see I.C.Z.N., 1982) by a decision of the International Commission on Zoological Nomenclature (see Melville & Smith, 1987); the genus *Nigellastrum* had been re-introduced by Stechow (cf. Stechow, 1923c: 160). *Cymodocea* Lamouroux, 1816 contains two unidentifiable species. *Lowenia* Meneghini, 1843, originally encompassed three species: *Sertularia setacea* Linnaeus, 1758; *Sertularia pinnata* Linnaeus, 1758 and *Lowenia tetrasticha*, a nomen nudum, validated later on by a description (Meneghini, 1845). Stechow (1923c: 228) designated *Lowenia tetrasticha* as the type of *Lowenia* Meneghini, 1843; Calder (1997: 14) showed this designation to be invalid and subsequently designated *Sertularia setacea* as the type species of *Lowenia*, which makes *Lowenia* Meneghini 1843 a junior synonym of *Plumularia* Lamarck, 1816. *Heteropyxis* Heller, 1868, is a replacement name for *Lowenia* Meneghini, 1843.

Inspection of the list of species and the table revealing their principal characters will obviously demonstrate the lack of information on reproductive structures and principal morphological characters in many of its representatives. It seems inappropriate therefore, to speculate on the monophyletic character of *Nemertesia*. Although the large number of species and the heterogeneity of their external appearance suggest polyphyly they are uniform in arrangement and structure of the hydrocladia that offer the principal differences with the closely allied genus *Plumularia* Lamarck, 1816, a genus even more speciose than *Nemertesia*. The principal difference with *Plumularia* is the colony structure: the hydrocladia are pinnately arranged in one plane (but occasionally merging into a spiral arrangement). Structure and development of the reproductive structures in *Plumularia* suggests that the genus is polyphyletic; it also contains many species with unknown gonosome.

List of the species of *Nemertesia* Lamouroux, 1812

Nemertesia alternata (Fraser, 1938)

Antennularia alternata Fraser, 1938a: 58-59, pl. 13 fig. 66.

Insufficiently characterized species which should be redescribed from the type material.

Nemertesia americana (Nutting, 1900)

Antennularia americana Nutting, 1900: 69-70, pl. 9 figs 3, 4.

Bedot (1917) considered this species to be a variety of *Nemertesia antennina* (L., 1758) [viz. *Nemertesia antennina* var. *irregularis* (Quelch, 1885)], here sunk into the synonymy of *N. antennina*. Pending the inspection of North-west Atlantic material of this species it is tentatively given specific rank.

Nemertesia anonyma Ansín Agís, Ramil & Vervoort, 2001

Nemertesia anonyma Ansín Agís, Ramil & Vervoort, 2001: 226-228, fig. 86.

Nemertesia antennina (Linnaeus, 1758)

Sertularia antennina Linnaeus, 1758: 811.

Cymodocea ramosa Lamouroux, 1816: 212, pl. 7 figs 1a, A.

Nemertesia (*Antennularia*) *antennina* var. *minor* Kirchenpauer, 1876: 51, pl. 2 fig. 23a.

Antennularia irregularis Quelch, 1885: 8, pl. 2 figs 4, 4a, 4b.

Antennularia octoseriata Jäderholm, 1896: 15, pl. 2 fig. 6.

Antennularia pinnata Nutting, 1900: 71-72, pl. 5 figs 5, 6.

Antennularia antennina var. *longa* Billard, 1904: 216.

Antennularia Perrieri var. *antennoides* Billard, 1904: 217.

Antennularia antennina var. *minor* Stechow, 1909: 82.

Nemertesia antennina; Ansín Agís, Ramil & Vervoort, 2001: 193-200, figs 76, 77 (full synonymy and discussion).

Nemertesia belini Bedot, 1916

Nemertesia belini Bedot, 1916: 1; Ansín Agís, Ramil & Vervoort, 2001: 200-204, figs 78, 79 (discussion).

Nemertesia californica nom. nov.

Plumularia mutabilis Fraser, 1948: 285, pl. 41 fig. 50.

Inspection of Fraser's material of *Plumularia mutabilis* proves this species to be a distinct *Nemertesia*, in which genus the species name 'mutabilis' is preoccupied by *Antennularia mutabilis* Fraser, 1948. The material, though sterile, is in good condition and fit for redescription.

Nemertesia ciliata Bale 1914

Nemertesia ciliata Bale, 1914b: 170, pl. 36 fig. 1; Vervoort & Watson, 2003: 376-378, fig. 91F-H (description and references).

Nemertesia ciliata var. *cruciata* Bale, 1915: 300-301.

Nemertesia polygeniculata Rho & Park, 1984: 256-260, figs 2, 3.

Nemertesia compacta (Fraser, 1938)

Antennularia compacta Fraser, 1938b: 111, 115, pl. 17 fig. 6.

Insufficiently characterized species based on juvenile, sterile material.

Nemertesia constricta (Fraser, 1948)

Antennularia constricta Fraser, 1948: 263, pl. 33 fig. 31.

Insufficiently characterized species based on juvenile, sterile material.

Nemertesia cylindrica (Kirchenpauer, 1876)

Plumularia cylindrica Kirchenpauer, 1876: 45, pl. 1 fig. 1, pl. 4 figs 1, 1a, 1b.

Antennularia cylindrica Bale, 1884: 146, pl. 10 fig. 7.

Nemertesia cylindrica; Watson, 2000: 49-51, fig. 38A-E (description and synonymy).

With *Nemertesia indivisa* (Allman, 1883) also brought in the genus *Sciurella* Allman, 1883, here considered synonymous with *Nemertesia*.

Nemertesia cymodocea (Busk, 1851)

Antennularia cymodocea Busk, 1851: 119.

Nemertesia cymodocea; Vervoort & Watson, 2003: 379-380, fig. 91I, J (synonymy and description).

Nemertesia (Antennularia) decussata Kirchenpauer, 1876: 52, pl. 2 fig. 24, pl. 3 fig. 24, pl. 7 fig. 24.

Antennularia hartlaubi Ritchie, 1907: 542, pl. 3 fig. 4a, b.

Nemertesia dissimilis (Fraser, 1943)

Antennularia dissimilis Fraser, 1943: 83, 94, pl. 19 fig. 15; 1944: 324, pl. 68 fig. 310 (description).

Nemertesia distans (Nutting, 1900)

Antennopsis distans Nutting, 1900: 73-74, pl. 12 figs 1, 2.

Nemertesia disticha (Heller, 1868)

Heteropyxis disticha Heller, 1868: 44, pl. 2 figs 9, 10.

Considered by Stechow (1919) to be a species of *Nemertesia*; referred to *Plumularia* by Bedot (1921b: 27, 34).

Nemertesia duseni (Jäderholm, 1904)

Plumularia duseni Jäderholm, 1904: 5-6, pl. 1 fig. 4, pl. 2 figs 2, 3; Bedot, 1917: 43-44 (diagnosis).

Nemertesia elongata Totton, 1930

Nemertesia elongata Totton, 1930: 229, fig. 64; Vervoort & Watson, 2003: 381-384, fig. 93A-C (references and description).

Nemertesia falcicula (Ramil & Vervoort, 1992)

Plumularia falcicula Ramil & Vervoort, 1992: 180-183, fig. 46a-h; Ansín Agís, Ramil & Vervoort, 2001: 205-207, fig. 80 (references and description).

Nemertesia fascicularis (Allman, 1883)

Antennularia fascicularis Allman, 1883: 24-25, pl. 4 figs 5, 6; Billard, 1908: 759.

Corhiza fascicularis; Millard, 1968: 276; Schuchert, 1997: 140.

This species was doubtfully referred to the genus *Antennopsis* by Bedot (1921b). Millard (1968: 276) and Schuchert (1997: 140) refer the species to the genus *Corhiza* Millard, 1962 and we concur.

Nemertesia fraseri Ramil & Vervoort, 1992

Antennularia irregularis Fraser, 1938a: 59, pl. 13 fig. 67; 1939: 161; 1948: 266.

Nemertesia fraseri Ramil & Vervoort, 1992: 172-173.

Based on sterile material, needs to be redescribed as it is so far based on inadequate characters.

Nemertesia geniculata (Nutting, 1900)

Antennularia geniculata Nutting, 1900: 71, pl. 10 figs 3, 4; Fraser, 1944: 325, pl. 68 fig. 311.

The only description of this species is that by Nutting (1900), copied by Fraser (1944); characters listed in table are those taken from descriptions. Apparently only species with paired gonothecae.

Nemertesia gracilis (Fraser, 1948)

Antennularia gracilis Fraser, 1948: 264, pl. 33 fig. 32.

The holotype of this species is a regenerating, 35 mm high stem and so far insufficiently characterized. The available type series is probably unfit for a proper redescription.

Nemertesia hexasticha Kirchenpauer, 1876

Nemertesia (Antennularia) hexasticha Kirchenpauer, 1876: 52, 54, pl. 2 fig. 25, pl. 3 fig. 25, pl. 8 figs 25, 25a, 25b.

Nemertella hexasticha; Stechow, 1923c: 231.

Not redescribed since Kirchenpauer's original account. Placed in the genus *Nemertella* Stechow, 1923 because of the (occasional) occurrence of secondary hydrocladia.

Nemertesia hippuris (Allman, 1877)

Antennopsis hippuris Allman, 1877: 35, pl. 21 figs 3, 6.

Type species of *Antennopsis* Allman, 1877, here considered coterminous with *Nemertesia* Lamouroux, 1812.

Nemertesia inconstans (Fraser, 1948)

Antennularia inconstans Fraser, 1948: 265, pl. 33 fig. 33.

Well defined species based on fertile material. The species, characterized by two opposite rows of subalternate hydrocladia on fairly long apophyses, can be fully re-described from the available material.

Nemertesia indivisa (Allman, 1883)

Sciurella indivisa Allman, 1883: 26, pl. 5.

Type of Allman's genus *Sciurella*. With *Nemertesia cylindrica* (Bale, 1884) the only species of *Nemertesia* with nematothecae on the gonothecae. Because of this and the aberrant shape of these gonothecae *Sciurella* is kept separate from *Nemertesia* by certain authors. We here follow Schuchert (2003: 216) in considering *Nemertesia* and *Sciurella* coterminous.

Nemertesia intermedia Kirchenpauer, 1876

Nemertesia (Heteropyxis) intermedia Kirchenpauer, 1876: 50-51, pl. 7 fig. 23.
Nemertella intermedia; Stechow, 1923c: 231.

Placed by Stechow in the genus *Nemertella* Stechow, 1923 because of the occasional occurrence of secondary hydrocladia. Bedot (1921b: 34) places *Nemertesia japonica* (Stechow, 1907) in the synonymy of this species, a point of view not followed here.

Nemertesia inverta (Fraser, 1948)

Antennularia inverta Fraser, 1948: 265-266, pl. 34 fig. 34.

Based on a single sterile specimen resembling *Nemertesia inconstans* (Fraser, 1948). Detailed inspection of this specimen is necessary to reach a conclusion concerning its identity.

Nemertesia japonica (Stechow, 1907)

Antennularia japonica Stechow, 1907: 196; 1909: 80-81, fig. 5, pl. 6 fig. 5.
Nemertesia japonica; Hirohito, 1995: 268-270, fig. 91a-d (synonymy).

Bedot (1921b: 34) considered this species conspecific with *Nemertesia intermedia* Kirchenpauer, 1876. It has, however, been completely re-described by Hirohito (1995); the two species are obviously different.

Nemertesia johnstoni Kirchenpauer, 1876

Nemertesia (Antennularia) johnstoni Kirchenpauer, 1876: 52, 54, pl. 8 fig. 26.
Nemertella johnstoni; Stechow, 1923c: 231.

Probably identical with *Nemertesia cymodocea* (Busk, 1851). Placed in *Nemertella* Stechow, 1923, because of occasional occurrence of branched hydrocladia.

Nemertesia longicornis (Nutting, 1900)

Antennopsis longicornis Nutting, 1900: 74, pl. 12 figs 3, 4.

Caribbean species not recorded since Nutting's original account.

Nemertesia mexicana nom. nov.

Plumularia reversa Fraser, 1938b: 115-116, pl. 17 fig. 7; 1948: 269.

Though based on sterile material this species can be recognized as a distinct *Nemertesia*; in this genus the species name 'reversa' is preoccupied by *Antennularia reversa* Fraser, 1948. The material available is probably insufficient for providing characters to distinguish this species from its congeners; the type series may not be homogeneous.

Nemertesia multiramosa (Fraser, 1948)

Plumularia multiramosa Fraser, 1948: 283-284, pl. 40 fig. 49.

Originally described by Fraser (1948) as a species of *Plumularia*; inspection of the available material shows it to be an unmistakable species of *Nemertesia*. The material is sterile but well preserved and can be used for proper redescription of the species. Type locality in the Pacific off the coast of Oregon.

Nemertesia mutabilis (Fraser, 1948)

Antennularia mutabilis Fraser, 1948: 266-267, pl. 34 fig. 35.

Insufficiently characterized species based on juvenile, sterile material. Material available may not suffice to characterize this species.

Nemertesia nigra (Nutting, 1900)

Antennopsis nigra Nutting, 1900: 74-75, pl. 12 figs 5, 6.

Caribbean species (Strait of Florida) rather shortly characterized by Nutting, striking by its strongly developed, blackish-brown perisarc; gonosome unknown. Not re-described or recorded since Nutting's original account.

Nemertesia norvegica (G.O. Sars, 1874)

Heteropyxis norvegica G.O. Sars, 1874: 104, pl. 3 figs 15-22.

Nemertesia norvegica Ansín Agís, Ramil & Vervoort, 2001: 208-211, fig. 81 (synonymy and full description).

Nemertesia incerta Bedot, 1916: 2.

Nemertesia pacifica (Nutting, 1927)

Antennopsis pacifica Nutting, 1927: 228, pl. 45 figs 3, 4.

Somewhat summarily described species based on a single, sterile, 10 cm high colony from the Sulu Sea. The holotype, an alcohol preserved specimen, is in the National Museum of Natural History, Washington, D.C. (no. 42183).

Nemertesia paradoxa Kirchenpauer, 1876

Nemertesia (Antennularia) paradoxa Kirchenpauer, 1876: 30, 52, pl. 2 figs 27, 27a, pl. 3 figs 27, 27a, pl. 8 figs 27, 27a-f.

Nemertella paradoxa; Stechow, 1923c: 231.

This species has only been described and figured by Kirchenpauer (1876); material from the collections of the Institut Royale des Sciences Naturelles, Bruxelles, is mentioned by Bouillon et al. (1995) from Madeira; this material so far remained undescribed. Stechow (1923c) brings this species to his genus *Nemertella* Stechow, 1923, because of occasional occurrence of branched hydrocladia.

Nemertesia parva (Fraser, 1948)

Antennularia parva Fraser, 1948: 267-268, pl. 35 fig. 36.

Based on very young, sterile material and not recognizable by the characters listed by Fraser (1948). Probably based on young specimens of one of the better known species. The type lot may not be homogeneous.

Nemertesia perrieri (Billard, 1901)

Antennularia Perrieri Billard, 1901: 73-75.

Antennularia dendritica Stechow, 1907: 195.

Nemertesia perrieri; Ansín Agís, Ramil & Vervoort, 2001: 211-215, fig. 82 (synonymy and full description).

Nemertesia pinnata (Nutting, 1900)

Antennularia pinnata Nutting, 1900: 71-72, pl. 10 figs 5, 6; Fraser, 1944: 325-326, pl. 69 fig. 312.

The only existing description of this species is that by Nutting (1900) which is non-committal; Fraser's (1944) account of this species repeats Nutting's original description. The species is based on Atlantic material from two localities off Martha's Vineyard, Massachusetts, U.S.A.; the syntypes are now all in the National Museum of Natural History, Washington, D.C., U.S.A. (nos 18633/4). Bennett's (1922: 252, fig. 2) record of this species from Bermuda has been referred to *Ventromma halecioides* (Alder, 1859) by Calder (1997: 7).

Nemertesia pinnatifida Vervoort & Watson, 2003

Nemertesia pinnatifida Vervoort & Watson, 2003: 384-386, figs 92A-C; 93D-H (incorrect original spelling).

Species based on spurious material from New Zealand waters. Due to a technical error the species name is misspelled *Nemertesia pinnatifida* in the heading of the description; this is an obvious incorrect spelling of the intended species name *Nemertesia pinnatifida* spec. nov., which name is consistently used in the description and the explanation of figs 92A-C and 93D-H. This name, *Nemertesia pinnatifida* spec. nov., is here formally designated as the valid name for the taxon.

Nemertesia polynema (Fraser, 1948)

Antennularia polynema Fraser, 1948: 268, pl. 35 fig. 37.

Species based on well developed fertile colonies; should be redescribed. Fraser's figure (1948: pl. 35 fig. 37a) is misleading; the stems with hydrocladia are rat-tail like rather than feather-shaped!

Nemertesia ramosa (Lamarck, 1816)

Antennularia ramosa Lamarck, 1816: 123.

Nemertesia janini Lamouroux, 1816: 163, pl. 4 fig. 3a, B, C.

Antennularia profunda Quelch, 1885: 10, pl. 2 figs 5, 5a, 5b, 5c.

Antennularia variabilis Broch, 1903: 10, pl. 4 figs 22-25.

Antennularia ramosa var. *plumularioides* Billard, 1906: 215.

Nemertesia ramosa; Ansín Agís, Ramil & Vervoort, 2001: 215-222, figs 83, 84 (synonymy, bibliography, full description).

Nemertesia reversa (Fraser, 1938)

Antennularia reversa Fraser, 1938b: 115-116, pl. 17 fig. 7.

Although based on sterile material this is a well characterized species; however it should be redescribed from the holotype, a well preserved specimen.

Nemertesia rugosa (Nutting, 1900)

Antennularia rugosa Nutting, 1900: 70-71, pl. 10 figs 1, 2.

Insufficiently known species; structure of hydrocladia not apparent from Nutting's description and drawings. Though mentioned in various accounts (Broch, 1913: 6, fig. 5; Fraser, 1944: 326, pl. 69 fig. 313; Gosner, 1971: 85 et seq., fig.; Cairns et al., 1991: 27; 2002: 20) the species is virtually only known from Nutting's original description and from a single locality in the North-western Atlantic off Nantucket. The holotype is in the National Museum of Natural History, Washington, D.C., U.S.A. (no. 18559).

Nemertesia septata (Fraser, 1938)

Antennularia septata Fraser, 1938b: 116, pl. 18 fig. 8; 1939:161 et seq.; 1948: 269, pl. 36 fig. 38.

A species of which the lecto- and paralectotypes are well preserved; fertile material has been described by Fraser later on from another locality. The species should be re-described from the available material, which may be composite. It shows distinct affinities with *Nemertesia antennina* (Linnaeus, 1758) of which the occurrence in the Pacific has never been proved beyond doubt.

Nemertesia setaceaformis (Mulder & Trebilcock, 1915)

Plumularia setaceaformis Mulder & Trebilcock, 1915: 52-53, pl. 9 figs 2-2b.

It is not quite clear whether or not this is a species of *Nemertesia* or *Plumularia*; the criterion used by Stechow (1919: 121) to discriminate between the two, viz. the presence or absence of a mamelon on the hydrocladial apophyses, deemed unreliable here. The species is provisionally treated as a *Nemertesia* here, pending the discovery of additional material. A microslide of Mulder & Trebilcock's material is in the Museum Victoria, Melbourne, Australia (F57994, fide Stranks, 1993: 13). The species has been synonymized by Bedot (1921b: 28) with *Plumularia procumbens* Spencer, 1891, a conclusion we do not want to share without inspection of the microslide in the Museum Victoria.

Nemertesia simplex (Allman, 1877)

Antennularia simplex Allman, 1877: 34, pl. 21 figs 1, 2.

Species from the north-western Atlantic, first described by Allman (1877) after sterile specimens; redescribed by Nutting (1900: 70, pl. 9 fig. 5) from fertile colonies. The species has distinct affinities to *Nemertesia ramosa* (Lamarck, 1816).

Nemertesia sinuosa (Fraser, 1947)

Antennopsis sinuosa Fraser, 1947: 12-13, pl. 3 fig. 6.

Caribbean species well characterized by the shape of the colony and the branching of the stem.

Nemertesia spiralis (Billard, 1911)

Plumularia spiralis Billard, 1911: lxix, fig. 12.

According to Stechow (1922: 151) a species of *Nemertesia* but the criterion used, viz. the presence of a mamelon on the hydrocladial apophyses, has been proved void to discriminate between *Plumularia* and *Nemertesia*. The species is here considered a valid species of *Plumularia* and should stand as *Plumularia spiralis* Billard, 1911.

Nemertesia tetraseriata (Fraser, 1938)

Antennularia tetraseriata Fraser, 1938a: 59-60, pl. 13 fig. 68.

The lectotype is a sterile stem; the paralectotypes, from another locality, are fertile but were not included in Fraser's description; the material may not be homogeneous.

Nemertesia tetrasticha (Meneghini, 1845)

Lowenia tetrasticha Meneghini, 1845: 183, pl. 14 fig. 2.

A Mediterranean endemic with much affinities with *Nemertesia ramosa* (Lamarck, 1816). Kirchenpauer (1876: 29) also mentions the species from Madeira.

Nemertesia triseriata (de Pourtalès, 1867)

Antennularia triseriata de Pourtalès, 1867: 118.

Generally considered an unidentifiable species. De Pourtalès' type may still be available. Type locality off Sand Key, Florida Straits, U.S.A., 100 fms (188 m).

Nemertesia valdiviae Stechow, 1920

Nemertesia valdiviae Stechow, 1920: 41 (: 33 in reprint); 1921: 232; 1925: 503-505, fig. 46.

Resembles some of the Cape Verde material of *Nemertesia ramosa* (Lamarck, 1816) described and figured by Ansín Agís, Ramil & Vervoort (2001: 217, fig. 84e, g, CANCAP Stns 6.062 & 7.107).

Nemertesia venusta (Fraser, 1948)

Plumularia venusta Fraser, 1948: 288, pl. 42 fig. 54.

The lectotype of this species, a sterile colony, has all the characters that makes it referable to *Nemertesia*. It is doubtful whether or not sufficient characters can be lifted from this single and probably young colony to compose a suitable description. The type locality is in the Gulf of California.

Nemertesia ventriculiformis (Marktanner-Turneretscher, 1890)

Plumularia ventriculiformis Marktanner-Turneretscher, 1890: 256, pl. 6 figs 5, 5a.

Nemertesia (Antennopsis) disticha; Stechow, 1919: 120-122, fig. U¹.

Nemertesia ventriculiformis; Ansín Agís, Ramil & Vervoort, 2001: 222-226, fig. 85 (synonymy and description).

Nemertesia verticillata (Fraser, 1925)

Antennularia verticillata Fraser, 1925: 171, fig. 6.

Species based on a 25 mm high, strongly canaliculated, sterile stem fragment from the Pacific Ocean off Oregon. The holotype is probably lost.

Nemertesia vervoorti El Beshbeeshy, 1991

Nemertesia vervoorti El Beshbeeshy, 1991: 266-270, fig. 67.

Close to if not identical with *Nemertesia ramosa* (Lamarck, 1816); set apart by El Beshbeeshy (1991) because of the stronger development of the internodal septa and the bigger size of the hydrothecae. The material described as *Nemertesia ramosa* by Vervoort (1972: 234, fig. 83) and considered identical with *N. vervoorti* by El Beshbeeshy (1991) was referred to *Plumularia insignis* Allman, 1883, by Stepan'yants (1979) because of the alternate arrangement of the hydrocladia.

Nemertesia spec.

Plumularia irregularis Fraser, 1948: 280, pl. 39 fig. 46.

Inspection of the material available shows that this species is based on juvenile, sterile colonies of *Nemertesia* spec. This material is insufficient for proper redescription of the species and the characters from Fraser's description of the species are too vague to warrant recognition.

Nemertesia spec. 1

Nemertesia spec. 1 Ansín Agís, Ramil & Vervoort, 2001: 228-231, figs 87-88 (description).

Nemertesia spec. 2

Nemertesia spec. 2 Ansín Agís, Ramil & Vervoort, 2001: 232-234, fig. 89 (description).

Table II. Review of the characteristics of the various species of *Nemertesia*. In the table the following abbreviations have hydroth. = hydrothecate, referring to an internode with hydrotheca and nematothecae; athecate refers to an internode tinctly from description or drawing

Name	Characters of stem	Nematothecae on stem or stolon	Stem apophyses	Characters of hydrocladia	
<i>Nemertesia alternata</i> (Fraser, 1938)	Unbranched, monosiphonic, canaliculated, nodes irregular.	Some on stem internodes opposite apophyses.	Distichous, with mamelon and at least 1 nematotheca.	Monomerous; first internode normal, hydroth.	
<i>Nemertesia americana</i> (Nutting, 1900)	Canaliculated, occasionally branched, stout, nodes indistinct.	Scattered over stem.	Whorls of 4 or 6, same number of vertical rows, conspicuous, with distinct mamelon, 2 nematothecae in axil, 1 additional nematotheca distally.	Heteromerous at least in distal part, without first ahydroth. internode.	
<i>Nemertesia anonyma</i> Ansín Agís, Ramil & Vervoort, 2001	Unbranched, monosiphonic, non-canaliculated; internodes of varied length, nodes distinct, straight.	Present on stolon, on stem restricted to axil of apophysis.	Decussate verticils of 3 in distal parts, alternating and in several planes proximally; at end of internodes. Mamelon distinct, a pair of nematothecae below and a pair above.	Monomerous at first; heteromerous after third or fourth internode; first internode hydroth.	
<i>Nemertesia antennina</i> (Linnaeus, 1758)	Unbranched, monosiphonic, canaliculated; several stems proximally adnate and with dense tuft of stolonal fibers anchoring colony in sediment; nodes regular, straight, usually well visible.	Dispersed on stem internodes, not present on stolonal tubes.	Verticils of 2 to 5 apophyses in decussate position thus doubling number of vertical rows. Apophyses short proximally, longer distally, with low mamelon, a pair of nematothecae below and 1 above.	Heteromerous; nodes oblique, first internode short, athecate.	

been used: ahydroth. = ahydrothecate, referring to an internode without hydrotheca but with only nematothecae; without either hydrothecae or nematothecae. A question mark (?) indicates that the condition does not appear dis-

Arrangement of hydrotheca and nematothecae	Hydrotheca	Nematothecae	Gonotheca	Main occurrence
Hydroth. internode with hydrotheca in middle, mesial inferior, mesial superior nematotheca and flanking pair.	Cup-shaped, not known in detail.	Detailed structure unknown.	In pairs on distal apophyses, curved, pear-shaped.	Galapagos Is, 100-150 fms (183-274 m).
Hydroth. internode with hydrotheca below middle, with mesial inferior nematotheca, flanking pair and 1 or 2 distal nematothecae, occasionally on separate ahydroth. internode.	Slightly below middle on internode; fairly big, aperture tilted downwards, sometimes slightly everted.	Detailed structure unknown.	Elongated oval to obovate; aperture termino-lateral.	Atlantic coasts of the United States, 58-373 fms (106-682 m).
Hydroth. internode with 1 or 2 mesial nematothecae and flanking pair. Ahydroth. internode with 1 nematotheca.	Distal in monomeric part and slightly above middle of internode in heteromeric part, cup-shaped, aperture straight or slightly tilted downwards.	All bithalamic and movable, not greatly scooped at rim.	Pyriform with circular aperture at apex; inserting on apophyses.	Cape Verde area of the Atlantic, 76-90 m.
Second internode hydroth., with mesial nematotheca and flanking pair; ahydroth. internode short, with 1 nematotheca. Internodes may have well marked internal perisarc rings.	In middle of internode or slightly below, cup-shaped, shallow. Margin tilted downwards, occasionally sinuous.	All bithalamic and movable, margin not scooped or scarcely so, sometimes greatly lengthened, particularly flanking pair.	Ovoid with short pedicel and oval, latero-terminal aperture; inserting on apophyses.	Boreal, temperate and subtropical Atlantic, 0-1500 m.

<i>Nemertesia belini</i> Bedot, 1916	Unbranched, monosiphonic, canaliculated, regularly divided into internodes by distinct, straight nodes.	Dispersed on stem internodes, absent from stolon.	Verticils of 2 to 4 distinct apophyses of varied length in decussate position thus doubling number of vertical rows. Apophyses with distinct mamelon, 2 axillar and a distal nematotheca of which number may be increased on longer apophyses.	Irregularly heteromorous. In proximal part of stem, on short apophyses, first internode only with nematotheca; in medio-distal part, on long apophyses, first internode hydroth. Nodes slightly oblique.	
<i>Nemertesia californica</i> nov. nom.	Unbranched, monosiphonic, non-canaliculated, without distinct nodes, dark coloured.	Some on stem, in plane of hydrocladia.	In 2 vertical rows, proximally alternate, distally opposite; mamelon and at least 1 nematotheca present.	Monomorous, first internode short, athecate.	
<i>Nemertesia ciliata</i> Bale, 1914.	Big, fan-shaped, strongly ramified colonies with polysiphonic stems and branches formed by secondary tubes, pinnately arranged. Nodes only visible in younger parts.	Present on secondary tubes, absent from stolonial fibers.	Internodes with 1 or 2 whorls of 2 to 4 strong apophyses, decussate; in younger parts 1 apophysis per internode, alternate. Apophysis with distinct mamelon and 2 pairs of nematothecae; 1 above, 1 below.	Heteromorous; first internode ahydroth., often (partly) fused with apophysis; regular succession of ahydroth. and hydroth. internodes often interrupted by presence of extra ahydroth. internode.	
<i>Nemertesia compacta</i> (Fraser, 1938)	Short, polysiphonic and canaliculated.	One nematotheca on stem between 2 successive apophyses.	Big, closely packed, in whorls proximally, decussate distally; mamelon present. 1 nematotheca below, 1 above.	Monomorous; first internode hydroth.	
<i>Nemertesia constricta</i> (Fraser, 1948)	Colony plumose, stem monosiphonic and non canaliculated; nodes distinct, straight.	On stem, between and in line with apophyses, number 3 or 4.	Distinct, alternate, 1 to 3 per internode, more or less in 1 plane. Distinct mamelon; pair of nematothecae below, 1 above.	Largely monomorous; first internode hydroth.	

Hydroth. internodes with hydrotheca, 2-4 mesial inferior nematothecae, a flanking pair and 0-3 on distal end. Ahydroth. internodes with 1-3 nematothecae.	Hydrotheca cup-shaped, on distal third of internode, adcauline wall fully adnate, rim smooth, aperture straight, perpendicular to hydrothecal length axis or slightly tilted downwards.	All bithalamic, movable, with long and narrow distal chamber.	Ovoid, inserted on apophyses, narrowing proximally into short pedicel. Aperture broadly oval, latero-terminal.	Azores and Cape Verde areas of the Atlantic, 91-1229 m.
Hydrotheca on distal half; 1 mesial nematotheca below hydrotheca on first internode; 2 on all following; pair of flanking nematothecae.	In upper third of internode, fairly deep, abcauline wall convex; rim straight, perpendicular to internodal length axis.	Apparently all movable and bithalamic.	Unknown.	Agua Verde Bay, Gulf of California, 10 fms (18 m).
One mesial nematotheca on ahydroth. internode; hydroth. internode with hydrotheca well below middle, 1 mesial nematotheca and a flanking pair.	Cup-shaped, fairly low, abcauline wall rather thick, straight; rim oblique, curving inwards adcaudally.	All nematothecae bithalamic and movable. Mesial nematothecae deeply scooped; paired ones unscooped, with slender proximal chamber.	Male and female gonothecae of same elongated drum shape, on same colony. Proximally narrowing into excentrally placed, short pedicel, aperture circular, at obliquely truncated apex.	Tasmania; deeper water around New Zealand; Japanese waters, and waters around South Africa.
Each internode with hydrotheca in middle or slightly below, 1 mesial nematotheca below hydrotheca and flanking pair.	Cup-shaped, abcauline wall convex; rim slightly oblique, aperture tilted downwards (?).	All bithalamic and movable.	Unknown.	Off Francisquito Bay, Gulf of California, 10-20 fms (18-37 m).
Hydrotheca in upper third; first internode with 2, following with 3 mesial nematothecae; proximal part may split off separately with 2 nematothecae; also flanking pair.	Fairly deep, abcauline wall convex, rim straight, aperture slightly tilted downwards (?).	All bithalamic and movable.	Unknown.	Pacific off Lower and southern California, 10-120 fms (18-219 m).

<i>Nemertesia cylindrica</i> (Kirchenpauer, 1876)	Large number of monosiphonic, non canaliculated stems basally united by a large fibrous stolonial mat; nodes distinct, internodes short.	On internodes above node near apophyses.	Verticils up to eight on proximal internodes, gradually reduced to 4 or 5 in distal internodes, occasionally in 2 opposed rows. Mamelon big, with 2 or 3 flanking nematothecae.	Monomeric; first internode often imperfectly separated from apophysis.	
<i>Nemertesia cymodocea</i> (Busk, 1851)	Thick (3-5 mm), polysiphonic stem producing numerous long and rebranching shoots directed upwards to 400 mm height, not unlike flattened broom; conspicuous bundle of stolonial fibers basally. Distal parts of stems monosiphonic, with straight nodes.	Longitudinally arranged rows of nematothecae on secondary tubes; presence of additional nematothecae on internodes unknown.	Apophyses conspicuous, decussate whorls of 3 or 4 per internode, occasionally several whorls per internode by fusion of internodes. Decussate pairs of apophyses on younger parts of colony. Mamelon big, 2 pairs of nematothecae, 1 in axil, 1 above mamelon.	Heteromeric; first internode ahydroth., with small nematotheca and frequently fused with apophysis. Ahydroth. and hydroth. internodes alternate regularly.	
<i>Nemertesia dissimilis</i> (Fraser, 1943)	Strongly polysiphonic, with 16 (proximal) to 12 (distal) peripheral tubes of which part gives rise to apophyses, resulting in decussate whorls of 4 apophyses in proximal and 6 in distal parts of stem.	Unknown.	Apophyses strong and swollen, produced by peripheral tubes, contracted at insertion of internode, presence of mamelon or nematothecae unknown.	Heteromeric, 2 ahydroth. internodes between each hydroth.; first internode of hydrocladium athecate; second with 1 mesial nematotheca, third a normal hydroth. internode.	
<i>Nemertesia distans</i> (Nutting, 1900)	Polysiphonic; irregularly, pinnately branched, ultimate parts monosiphonic.	Dispersed nematothecae on stem under apophyses.	Apophyses long, alternate and pinnate (distal) or irregular (proximal), with shallow mamelon and 1 nematotheca in axil.	Monomeric, 1-3 athecate internodes proximally, followed by a succession of long, hydroth. internodes with only an occasional ahydroth. internode.	

One mesial nematotheca on prominence at base of internode, reaching bottom of hydrotheca and a flanking pair on small elevations at hydrothecal rim.	Hydrotheca tubiform, occupying greater part of internode, adcauline wall fully adnate; abcauline wall weakly convex, rim sinuous; aperture curving towards internode.	Nematothecae on stem internodes, apophyses and mesial one on internodes slender, with elongated proximal and small distal chamber; those of flanking pair stubby, distal chamber bigger, deeply scooped.	One of few species of <i>Nemertesia</i> with nematothecae on gonotheca and thus approaching <i>Nemertesia indivisa</i> (Allman, 1883).	Tropical East coast waters of Australia, Java, Philippines.
One mesial nematotheca on proximal part ahydroth. internode; hydroth. internode with hydrotheca in middle, 1 mesial nematotheca not reaching hydrothecal bottom and flanking pair near hydrothecal rim. Internal perisarc septa usually present.	Hydrotheca small, cup-shaped, abcauline wall straight, fairly thick; rim sinuous, aperture curving towards internode.	All nematothecae bithalamic and movable, cylindrical, with conical proximal chamber and well developed distal chamber, that on first internode of hydrocladium small. All with distinctly scooped rim.	"Without nematothecae, smooth, compressed, flask-shaped and often curved in side-view, with terminal aperture on a short tubular neck, held parallel to branch" (Millard, 1975: 385).	Waters surrounding southern Africa; New Zealand waters, and southwestern Atlantic, 55-695 m.
Ahydroth. internodes with 1 mesial nematotheca; hydroth. internodes with hydrotheca more or less in middle, 1 mesial nematotheca under hydrotheca and flanking pair.	Small, cup-shaped, further details unknown.	Bithalamic and movable.	Unknown.	Deep water of Atlantic off St. Andrews Sound, Georgia, U.S.A.
Hydrotheca in distal third of internode, first hydroth. internode with hydrotheca below middle; 1 mesial nematotheca below hydrotheca in first internode, 2 in remainder. Paired nematothecae at hydrothecal rim.	Small, shallow and cup-shaped; rim sinuous (?)	All bithalamic and movable.	On apophyses, ovoid.	Caribbean, off Havana, Cuba, 115 fms (210 m).

<i>Nemertesia disticha</i> (Heller, 1868)	Monosiphonic, non canaliculated, unbranched, divided into internodes with 1 to 4 alternating apophyses.	Condition on stolon unknown; stem internodes with 1 nematotheca opposite and slightly under apophysis.	Slender, with distinct mamelon; 1 nematotheca in axil, 1 above mamelon.	Monomerous, internodes thin and long; first internode ahydroth. with a single nematotheca.	
<i>Nemertesia duseni</i> (Jäderholm, 1904)	Bundles of monosiphonic, unbranched stems, regularly divided into internodes, each with 1 distal apophysis, initially alternating in 1 plane, distally radially arranged.	One proximally on internode.	Characters of apophysis unknown; pair of nematothecae in axil.	Heteromerous, with internal perisarc septa; ahydroth. and hydroth. internodes alternate regularly.	
<i>Nemertesia elongata</i> Totton, 1930	Tall colony arising from thick bundle of stolon fibers; main stem basally thick, forked, each fork with long, upward directed branches in irregular spiral, all strongly polysiphonic; basal part without branches.	Nematothecae on secondary tubes and on proximal part of internodes; these only visible in distal parts of branches. Nodes straight, distinct.	Internodes with 1-3 whorls of 3-4 decussate apophyses, placed in oval at acute angle with length axis of internode, strong, basally swollen, with thick perisarc; mamelon conspicuous, pair of nematothecae in axil and pair distally, occasionally 1 extra.	Heteromerous, first 3-5 internodes ahydroth., followed by succession of hydroth. and ahydroth. internodes. Nodes moderately oblique.	
<i>Nemertesia falcicula</i> (Ramil & Vervoort, 1992)	Short, polysiphonic stem arising from tubular stolon, several monosiphonic stems arise from polysiphonic base, divided into internodes; nodes straight, occasionally obscure.	Slender nematothecae on stolon and basal part of polysiphonic stem, composed of long, slender proximal chamber and cup-shaped distal chamber. 1-4 nematothecae below apophyses on internodes.	Stem internodes with 1 to 3 distal apophyses; decussate verticils of 3 in proximal part, in higher parts alternately placed in 1 plane, plumularioid. Mamelon conspicuous, pair of nematothecae in axil and occasionally additional nematotheca above.	Monomerous; first internode short, ahydroth., remaining internodes slender, hydroth. Nodes oblique.	

Hydrotheca in lower third of internode; 1 mesial inferior, a flanking pair and 1 mesial superior nematotheca.	Small, cup-shaped, adcauline wall completely adnate; abcauline wall straight, rim straight, smooth.	Bithalamic and movable, slightly curved (?).	Placed singly on apophyses, elongated ovoid, curved apically; aperture latero-terminal.	Mediterranean, no depth record. García Carrascosa (1981) records this species from 64-150 m depth in the Mediterranean; the identity of this material is doubtful.
One mesial nematotheca in middle of ahydroth. internode; 1 mesial nematotheca under hydrotheca and flanking pair at rim of hydrotheca on hydroth. internode.	Small, cup-shaped; abcauline wall almost straight (?), rim smooth, aperture slightly tilted downwards.	Bithalamic and movable, rim of mesial nematotheca slightly scooped; lateral nematothecae slender; distal chamber with smooth rim.	Elongated ovoid, 750-830 µm long, 220-330 µm wide, inserted on apophysis near pair of nematothecae. Aperture terminal, narrow, circular.	Guaitecas Islands, Pacific off Melinca, Chile, 10-15 fms (18-27 m).
Hydroth. internode with hydrotheca on proximal half, 1 mesial inferior, 1 mesial superior (in first 3-5 internodes) and pair of flanking nematothecae; ahydroth. internodes with 1 mesial nematotheca.	Rather big, adcauline wall completely fused, abcauline wall straight, thick. Rim of aperture straight or slightly convex, at right angles to internodal length axis or slightly tilted downwards. Laterals set at middle of adcauline wall.	All bithalamic and movable. Median nematothecae curved, rim scooped; paired nematothecae at hydrothecal rim conical, rim scarcely scooped.	Elongated ovoid, narrowing proximally into eccentrically placed pedicel, aperture oval, latero-terminal, closed by lid. Insertion of gonothecae next to mammelon on apophyses.	Moderately deep to deep water off New Zealand (27-1125 m).
Ahydroth. internode with 1 mesial nematotheca; hydroth. with hydrotheca on proximal third, 1 mesial proximal nematotheca, a flanking pair and 1, rarely 2, mesial distal. Internodes slender.	Small, quadrangular in cross section, adcauline wall adnate, abcauline wall and rim straight, aperture at right angle to internodal length axis.	For nematothecae of stolon and proximal stem see above. All nematothecae bithalamic and movable, mesials curved, paired conical, inserted on small apophyses. Rim slightly scooped.	Female strongly curved, horn shaped; aperture circular, latero-terminal, closed by lid. Inserted in axil of apophysis by short pedicel. Male sac-shaped, aperture terminal, circular. Colony monoecious.	Alboran Sea off Morocco, Strait of Gibraltar, Canary Islands, 350-1800 m.

<i>Nemertesia fraseri</i> Ramil & Vervoort, 1992 (= <i>Antennularia</i> <i>irregularis</i> Fraser, 1938)	Monosiphonic, non canaliculated, un- branched, division into internodes quite irregular, nodes straight.	Some dispersed on internodes; condition of stolon unknown.	Number per inter- node varied; proxi- mally on several sides; distally with tendency towards opposite arrange- ment, sometimes regularly alternate or subopposite.	Heteromerous but irregularly placed; 1-3 ahydroth. inter- nodes or hydroth. internode at begin- ning of hydroclad- ium. Number of ahydroth. between hydroth. internodes 1-3.	
<i>Nemertesia geniculata</i> (Nutting, 1900)	Monosiphonic, with canaliculated coeno- sarc, divided into internodes; distal part of stem genicu- lated.	Dispersed on inter- nodes; condition on stolon unknown.	Apophyses long, curved upwards, irregularly distrib- uted along stem, with tendency towards verticillate arrangement; 1 or 2 nemathecae in axil; mamelon present, 0-3 nematthecae above it.	Heteromerous; first internode short, ahydroth., followed by regular succession of hydroth. and ahydroth. internodes.	
<i>Nemertesia gracilis</i> (Fraser, 1948)	Based on 25 mm long, monosiphonic, non canaliculated stem, regularly divided into inter- nodes.	1 or 2 on stem internodes.	'Relatively long', 2 or 3 per internode, alter- nate, in one plane, resulting colony pinnate. Mamelon present, 1 axillar, 1 distal nemattheca.	Irregularly mono- merous; all inter- nodes hydroth. Nodes oblique.	
<i>Nemertesia hexasticha</i> Kirchenpauer, 1876)	Tall, monosiphonic, erect, unbranched, regularly divided into internodes by straight nodes, cana- liculation unknown.	Condition unknown.	Distinct apophyses, 3 per internode, arranged decussate, resulting in six verti- cal rows. Condition of mamelon and nematthecae un- known.	Heteromerous; ahy- droth. internodes in proximal part of hydrocladium may give rise to second- ary hydrocladia of heteromerous structure.	
<i>Nemertesia hippuris</i> (Allman, 1877)	Moderately high, unbranched, monosi- phonic, non canalicu- lated, divided into internodes by straight nodes.	No dispersed nema- tothecae on stem, condition of stolon unknown.	Each internode with long, distal apophy- sis supporting hydro- cladia pointing obliquely upwards in all directions. 1 nemattheca on apophysis.	Heteromerous; hy- droth. and ahydroth. internodes in regular succession; first internode apparently ahydroth.	

Hydroth. internode with hydrotheca in middle or slightly above; 1 mesial nematotheca proximally and a flanking pair. Ahydroth. internodes with 1-2 nematothecae.	Small, cup-shaped, rim circular, smooth.	Bithalamic and movable.	Unknown.	Lectotype from off Isla La Plata, Pacific off Ecuador, 45-55 fms (82-101 m); paralectotypes from Pacific off Mexico and off Ecuador.
Hydrotheca just below middle of hydroth. internode, 1 mesial nematotheca below and a pair at hydrothecal rim. Ahydroth. internode shorter, with 1 or 2 nematothecae.	Sub-conical, as deep as wide, rim smooth, slightly concave, aperture somewhat tilted downwards.	Bithalamic and movable.	Gonothecae inserted in pairs in axil of apophysis, large, ovate, distal end turned to one side and aperture directed laterally.	Atlantic off southern Georgia, U.S.A., 273-440 fms (499-804 m).
First internode with 1 mesial inferior nematotheca and a flanking pair, following internode with 2 mesial inferior nematothecae; proximal part occasionally split off as ahydroth. internode with 1 nematotheca.	Placed above middle of internode, cup-shaped; paired nematothecae described as 'relatively long'.	Bithalamic and movable.	Unknown.	Pacific off Baja California Norte; idem off Santa Barbara County. 26-55 fms (48-101 m).
Hydroth. internodes apparently have only a hydrotheca (without mesial inferior and paired flanking nematothecae); ahydroth. internodes with single mesial nematotheca.	Hydrotheca fairly big, centrally placed, rim circular, aperture tilted downwards.	Structure unknown.	Described as bottle-shaped, distally narrowing into a slender neck, attached by thin pedicel to axil of primary and secondary hydrocladia.	Java (described by Kirchenpauer from that locality, not recorded since).
Hydroth. internode with hydrotheca, 1 mesial inferior, 1 mesial superior nematotheca and flanking pair; ahydroth. internode with 2 nematothecae.	Hydrotheca deep cup-shaped, set in lower half of hydroth. internode; rim circular, aperture slightly tilted downwards.	Bithalamic and movable; further details unknown.	Gonothecae singly inserted on apophyses, male long and slender with oblique terminal orifice; female shorter, stouter, slipper-shaped, with orifice lateral' (Nutting, 1900).	Straits of Florida, 195 fms (256 m), recorded by Allman (1877); Fewkes (1881) and Nutting (1900); no recent records.

<i>Nemertesia inconstans</i> (Fraser, 1948)	Stem stout, of moderate height, monosiphonic; non canaliculated (?), division into internodes irregular.	2 or 3 nematothecae between successive apophyses on same side.	Apophyses biserially arranged in one plane in irregular sequence, conspicuous, with distinct mamelon. 2 nematothecae in axil, 1 on distal part.	Monomeric, all internodes hydroth., long and slender, nodes indistinct.	
<i>Nemertesia indivisa</i> (Allman, 1883)	Stem thick, unbranched or occasionally branched, clustered, canaliculated, nodes usually distinct.	1 or 2 on stem internode close to apophysis.	Apophyses short, normally 4 per internode in opposite pairs, decussate; less frequently 2, 6 or more. Mamelon conspicuous, up to 4 nematothecae.	Monomeric; all internodes hydroth., short, with slightly oblique nodes.	
<i>Nemertesia intermedia</i> Kirchenpauer, 1876)	Stem branched, branches directed upwards, polysiphonic; canaliculation and division into internodes unknown.	Condition unknown.	Apophyses in oblique verticils of 3 in decussate arrangement resulting in six oblique rows, forming an oval around stem or branch.	Monomeric, all internodes hydroth. Branched hydrocladia occasionally present.	
<i>Nemertesia inverta</i> (Fraser, 1948)	Monosiphonic, unbranched, regularly divided into internodes, constricted at node.	A few between successive apophyses.	Two opposed at distal end of internode, gradually shifting to alternate, in one plane. Mamelon conspicuous, with 1 nematotheca below and 1 above.	As in <i>N. inconstans</i> .	
<i>Nemertesia japonica</i> (Stechow, 1907)	Unbranched, tall, polysiphonic, non canaliculated, division into internodes in upper, monosiphonic part irregular.	Pair of nematothecae on small process on secondary tubes; condition of stolon unknown.	Decussate verticils of 3 or 4 apophyses, laterally exposed, resulting colony plumose. Apophyses conspicuous, each with a mamelon, a pair of nematothecae in axil and 1 on distal part.	Monomeric, up to 20 hydroth. internodes per hydrocladium; nodes oblique, perisarc rings strongly developed.	

First internode with 2, following internodes with 3 mesial, inferior nematothecae; also mesial superior nematotheca on first; all with flanking pair.	Hydrotheca small, cup-shaped, set in upper third of internode; rim circular, aperture slightly tilted downwards.	Bithalamic and movable, further details unknown.	Gonothecae small, obovate, sometimes slightly curved, inserted on apophysis.	Gulf of California, Pacific coast of Lower California, 45-111 fms (82-203 m).
Hydrotheca in middle, 1 mesial inferior and flanking pair of nematothecae.	Hydrotheca deep cylindrical, adcauline wall adnate, as abcauline wall straight, aperture perpendicular to internodal axis, rim slightly tilted downwards on adcauline side.	Flanking pair ovoid to conical, rim scooped on outer and more deeply on inner side; mesial longer, conical, rim scooped on adcauline side.	Gonothecae big, lobed, with numerous nematothecae (type of <i>Sciurella</i> Allman, 1883).	Northern Australia, Indonesian waters, 9-18 m.
All internodes with hydrotheca in middle, 1 mesial inferior nematotheca and a flanking pair, occasionally 1 mesial superior.	Hydrotheca cup-shaped, rim circular, aperture slightly tilted downwards.	Condition unknown, but apparently bithalamic and movable.	On axis of secondary hydrocladia, female gonotheca described as cup-shaped with big terminal orifice; male figured on same colony, elongated ovoid, attenuated, with short terminal neck.	Madeira. Not redescribed since Kirchner's original account; material from Madeira mentioned by Bouillon, Massin & Kresevic, 1995.
As in <i>N. inconstans</i> ; no median superior nematotheca on first internode (?).	As in <i>N. inconstans</i> .	Bithalamic and movable, further details unknown.	Gonothecae unknown.	Pacific west of Cape Dume, California, 47-48 fms (86-89 m).
Hydrotheca in middle of internode or slightly under; 1 mesial inferior nematotheca and flanking pair at hydrothecal rim.	Small, cup-shaped, abcauline wall straight, adcauline wall fully adnate. Rim even, smooth; aperture at right angle to length axis of internode.	All bithalamic and movable, conical, of medium length, rim of upper chamber slightly scooped.	Unknown.	South China Sea, Japanese waters.

<i>Nemertesia johnstoni</i> Kirchenpauer, 1876	As in <i>N. cymodocea</i> .	Condition unknown.	Two opposed apophyses at end of internode, not in straight vertical lines.	As in <i>N. cymodocea</i> , occasionally secondary hydrocladia present.	
<i>Nemertesia longicornis</i> (Nutting, 1900)	Stem polysiphonic, branched 'in a dendritic manner', division of monosiphonic distal parts into internodes irregular.	Condition unknown.	Apophyses long, scattered, with a tendency towards pinnate arrangement; pair of axillary nematothecae, mamelon and distal nematotheca.	Heteromerous; hydroth. internodes long, ahydroth. internodes much shorter; first internode hydroth.	
<i>Nemertesia mexicana</i> nom. nov. for <i>Plumularia reversa</i> Fraser, 1938.	Stem erect, 75 mm high, monosiphonic, non canaliculated, division into internodes indistinct; colony plumularioid.	Irregularly arranged on stem.	Apophyses alternate, in 4 series, irregularly decussate, 2 directed to one side, 2 to the other; distinct, with mamelon, axillar and distal nematotheca.	Monomerous, slender; first internode of hydrocladium a normal hydroth. internode.	
<i>Nemertesia multiramosa</i> (Fraser, 1948)	Stem tall, to 90 mm high, monosiphonic, non canaliculated, regularly divided into internodes each with strong distal apophysis, supporting hydrocladia or, in higher parts, side-branches, rebranching as stem. Perisarc strong, yellowish-brown.	Internodes have 1 nematotheca in axil of apophysis and 1 on wall of internode on opposite side. Apparently no nematothecae on stolon.	Conspicuous, directed obliquely upwards, pointing in all directions; no mamelon described.	Heteromerous; first internode of hydrocladium short, atecate, second ahydroth. internode with 1 nematotheca, partly fused with third hydroth. internode; rest of hydrocladium regular succession of ahydroth. and hydroth. internodes.	
<i>Nemertesia mutabilis</i> (Fraser, 1948)	Erect, unbranched, monosiphonic, non canaliculated, growing singly, rooting in sponge, with few nodes.	1 or 2 nematothecae on stem between 2 apophyses on same side.	Distinct, alternate in one plane proximally, becoming opposite, triseriate and decussate distally, each with mamelon, axillar pair of nematothecae and 1 on distal part.	Division irregular; hydrocladium starts with short, hydroth. internode, following hydroth. internodes longer, in regular succession or proximal part split off as separate internode with 1 or 2 nematothecae.	

	As in <i>N. cymodocea</i> .	As in <i>N. cymodocea</i> .	Bithalamic, probably movable.	Elongated ovoid, with short tubular neck, also borne on hydrocladia (?).	South Africa. Probably synonymous with <i>N. cymodocea</i> ; not redescribed since Kirchenpauer's description.
	Hydroth. internode with hydrotheca in proximal third; 1 mesial inferior nematotheca and 'flanking pair'; ahydroth. internode with 1 nematotheca.	Small, cup-shaped; rim circular, aperture tilted downwards.	Bithalamic and movable.	Unknown.	Caribbean, off Havana, 204 fms (373 m); not recorded since Nutting's record.
	Hydrotheca in lower third, 1 mesial inferior, 1 mesial superior nematotheca almost on distal end; flanking pair.	Small, cup-shaped, rim circular, smooth; aperture perpendicular to internodal length axis.	Bithalamic and movable.	Unknown.	Gulf of California, 51-54 fms (93-99 m).
	Hydroth. internode with hydrotheca above middle, 1 mesial inferior nematotheca and a flanking pair; ahydroth. internode with single mesial nematotheca. Fusions of internodes and irregularities do occur.	Small, cup-shaped. Abcauline wall convex; rim circular and smooth, perpendicular to hydrothecal length axis.	Bithalamic and movable.	Unknown.	Pacific north of Winchester Bay, Oregon, U.S.A. 26-58 fms (48-106 m).
	First hydroth. internode with hydrotheca in middle, 1 mesial inferior nematotheca and flanking pair. Following internodes have hydrotheca on distal third and 2 or 3 mesial inferior nematothecae. Occasional ahydroth. internodes with 1 or 2 nematothecae.	Cup-shaped but rather deep.	All bithalamic and movable.	Unknown.	Pacific coast of Lower California, 45-65 fms (82-119 m).

<i>Nemertesia nigra</i> (Nutting, 1900)	Strong, polysiphonic, branching 'in a dendritic manner', perisarc dark brown or black, branches geniculate.	Condition unknown.	Apophyses long, 'scattered', pointing in all directions, with mamelon and pair of axillar nematothecae.	Heteromorous, first internode hydroth., followed by regular succession of ahydroth. and hydroth. internodes.	
<i>Nemertesia norvegica</i> (G.O. Sars, 1874)	Erect, monosiphonic, canaliculated, unbranched, divided into internodes of varied length, supporting 1 to 26 apophyses.	None on stolon, 1 between 2 apophyses on same side.	Conspicuous, arranged alternately in one plane, opposite in one plane or decussate (in upper parts of stem). Mamelon distinct, with pair of axillar nematothecae and 1 distal.	Monomorous, internodes fairly long and slender; nodes oblique; internal perisarc rings present	
<i>Nemertesia pacifica</i> (Nutting, 1927)	Monosiphonic, non canaliculated, flexuose, dark brown, branched, branches occasionally bifurcated, irregularly divided into internodes by oblique nodes.	'Few nematophores on stem and branches' (Nutting, 1927).	Normally 2 apophyses per internode, on 'upper' side of branch, hydrocladia 'inclined alternately to left and right'. Structure of mamelon and nematothecae unknown (Nutting, 1927).	Monomorous; first internode ahydroth., short, with 1 nematotheca (?), followed by fairly short hydroth. internodes.	
<i>Nemertesia paradoxa</i> Kirchenpauer, 1876	Numerous unbranched, erect stems, fused to communal axis proximally; dense bundle of hydrorhizal tubes.	Condition unknown.	In verticils of six around stem, decussate? Apophyses not swollen.	Heteromorous, occasionally of considerable length and provided with secondary hydrocladia.	
<i>Nemertesia parva</i> (Fraser, 1948)	Stem c. 9 mm high, monosiphonic; divided into irregular internodes by straight nodes.	Some dispersed nematothecae on stem internodes, condition on stolon unknown.	Biseriate, with a tendency towards quadriseriate arrangement. Many apophyses per internode. Mamelon present (?); 2 axillar nematothecae and 1 distal.	Heteromorous but with irregularities because of fusions between hydroth. and ahydroth. internodes.	

Hydrotheca in middle of internode; 1 mesial inferior nematotheca and a flanking pair, ahydroth. internodes with 1 nematotheca.	Cup-shaped and shallow, much wider than deep.	All bithalamic and movable.	Unknown.	Strait of Florida, 121 fms (221 m).
Hydrotheca slightly under middle of internode; 1 mesial inferior and 1 mesial superior nematotheca; 1 at rim of hydrotheca, rarely 2.	Small, cup-shaped, abcauline wall straight, adcauline wall fully adnate; rim circular, aperture perpendicular to internodal length axis or slightly tilted upwards.	Bithalamic, small and movable; rim scooped to varied degree.	Inserted singly or in pairs on apophyses, strongly curved, cornucopia-shaped; aperture terminal and slightly oblique, circular, closed by lid.	North-eastern Atlantic from west coast of Norway to the coasts of Senegal, 65-1250 m.
Hydrotheca on lower third of internode; mesial inferior nematotheca big; flanking pair long and slender, apical chamber flaring; 2 (occasionally 1?) on distal part of internode.	'Small, conical in shape, margins smooth everted, borne on thick shoulder of the hydrocladia,..... rather closely approximated' (Nutting, 1927).	Bithalamic and movable. Median inferior biggest, deeply scooped; flanking pair about as long as depth of hydrotheca.	Unknown.	Philippines, Sulu Archipelago, near Sirun Island, 05°35'40"N 120°47'30"E, 17 fms (31 m).
Hydrotheca in middle of hydroth. internode, 1 mesial inferior nematotheca and flanking pair; 1 nematotheca on ahydroth. internode. According to description sexual difference in length of ahydroth. internode of secondary hydrocladia.	Cup-shaped but fairly deep.	Bithalamic and movable.	Male gonothecae broadly ovoid with lateral aperture; female ones bigger, attenuated on both ends; opening terminal.	Madeira (Kirchenspauer, 1876; Bouillon et al, 1995).
Hydroth. internode with hydrotheca in middle (except second internode), 1 mesial inferior nematotheca and flanking pair; ahydroth. internode with 1 nematotheca.	Cup-shaped, average sized; hydrothecal rim smooth, tilted downwards (?).	Bithalamic and movable.	Unknown.	Pacific Ocean off Lower California, 21-26 fms (38-48 m).

<i>Nemertesia perrieri</i> (Billard, 1901)	Several monosiphonic, unbranched, canaliculated stems arise from dense bundle of hydrothizal fibres, division into internodes indistinct, nodes straight.	No nematothecae on stems and stolon tubes.	Decussate verticils of 3 or 4 per internode; each with mamelon, a pair of axillary nematothecae, a pair just above mamelon and 1 solitary distally.	Heteromerous; hydrocladia in proximal parts of colony start with short ahydroth. internode with 1 nematotheca, in more distal parts by means of hydroth. internode.
<i>Nemertesia pinnata</i> (Nutting, 1900)	Stems monosiphonic, branched or unbranched, canaliculated but coenosarc canals often quite obscure; apparently no nodes and internodes.	Dispersed nematothecae on stem.	Apophyses long, 'pinnate, alternate or scattered', apparently pinnate or alternate in young colonies or younger parts of stem and scattered in older parts and colonies. With mamelon (?) and pair of nematothecae in axil.	Heteromerous; hydroth. internodes longer than ahydroth.
<i>Nemertesia pinnatifida</i> Vervoort & Watson, 2003	Thick, polysiphonic stem, branched mostly in one plane; secondary branches short (10-20 mm), opposite or subopposite pairs, tertiary branching may also occur. Stem and branches divided into internodes by transverse nodes.	No nematothecae on internodes of stem or accessory tubules.	Apophyses long, 1-3 per internode, singly. In loose pairs or in irregular whorl, but always decussate. Big mamelon and 5-6 nematothecae of which 1 or pair in axil, remainder distributed.	Hydrocladia short, heteromerous, slender, 1-2 mm long. First internode hydroth., may be preceded by 1 or 2 ring-shaped internodes without nematothecae.
<i>Nemertesia polynema</i> (Fraser, 1948)	Slender and upright, monosiphonic, canaliculation unknown; divided into regular internodes by straight septa.	Dispersed nematothecae on stem internodes; condition on stolon unknown.	Two pairs of decussate apophyses per internode. A pair of axillar nematothecae and 1 between mamelon and node.	Largely monomerous; all internodes hydroth. Occasionally extra internodes split off from proximal part internode bearing 2 mesial nematothecae.

Hydroth. internode with hydrotheca in middle, 1 mesial inferior and pair of flanking nematothecae; ahydroth. internode with 2. All internodes with 1 proximal and 1 distal internal septum of varied development.	Small, cup-shaped, adcauline wall fully adnate; abcauline wall straight, rim even, smooth, aperture perpendicular to internodal length axis or slightly tilted downwards.	Bithalamic and movable, rim of upper chamber slightly scooped.	Gonothecae ovoid, inserted on apophyses on both sides of mamelon by means of short pedicel; aperture latero-distal, more or less circular, closed by lid.	Eastern Atlantic and Western Mediterranean; probably also some isolated localities in the Pacific, 5-291 m.
Hydrotheca slightly below middle of hydroth. internode; in addition a mesial inferior nematotheca and a flanking pair. Ahydroth. internode with 1 proximal nematotheca. Irregularities do occur.	Cup-shaped, as deep as wide; rim even and smooth; aperture slightly tilted downwards.	Bithalamic and movable, fairly long and slender.	Unknown.	Described by Nutting (1900) from 2 localities off Martha's Vineyard, 86-100 fms (157-183 m); Bennett's (1922) record from Hamilton Harbour, Bermuda, refers to <i>Ventromma halecioides</i> (Alder, 1859).
Hydroth. internodes with hydrotheca slightly under middle, 1 mesial inferior and flanking pair of nematothecae; ahydroth. internode with 1 basal nematotheca.	Small, cup-shaped, abcauline wall thick, adcauline wall fully adnate. Rim circular, smooth, aperture slightly tilted downwards adcaudally.	All bithalamic and movable. Mesial inferior nematotheca on hydroth. internode deeply scooped, not reaching bottom of hydrotheca; laterals long and slender, rim scarcely scooped.	Male gonothecae inserted on apophyses, big, drum-shaped, with circular operculum. Female gonothecae smaller, elongated ovoid, narrowing towards apex, inserted in basal hydrocladial internodes.	New Zealand waters near Three Kings Islands; Tasman Sea, 119-279 m.
Hydrotheca on distal part internode; first internode short, with hydrotheca in middle, 1 mesial inferior nematotheca and flanking pair; remaining with 3 mesial inferior nematothecae.	Small, cup-shaped, adcauline wall apparently fully adnate with internode, rim smooth and even; aperture perpendicular to internodal length axis.	Bithalamic and movable.	Fairly large for genus, ovoid to pear-shaped, inserted singly or in pairs on side of mamelon with a short pedicel. Later on developing latero-distal circular opening closed by lid.	Gulf of California, Pacific off Lower and Southern California, 26-75 fms (47-137 m).

<i>Nemertesia ramosa</i> (Lamarck, 1816)	Polysiphonic, much ramified, canaliculated stem arising from thick bundle of intertwining hydro-rhiza fibers; ramifications in all directions; internodes visible in monosiphonic parts, separated by straight nodes.	Dispersed nematothecae on internodes; no nematothecae on hydro-rhizal tubules.	Number per internode varied: 2 in alternate arrangement, 2 in opposite pair or whorls of several apophyses; decussate arrangement always maintained. Mamelon, 2 pairs of nematothecae and occasionally 1 distal.	Strictly monomeric; internodes separated by slightly oblique nodes. All internodes hydroth.	
<i>Nemertesia reversa</i> (Fraser, 1938)	Heavily sclerotized, monosiphonic, unbranched, canaliculated stem, nodes absent.	Some dispersed nematothecae between apophyses on stem; condition on stolon unknown.	Strong apophyses, quadriseriate, irregularly decussate, 2 series on each side, as a result colony feather-shaped. Distinct mamelon and at least 2 nematothecae: 1 axillar, 1 on distal end.	Closely packed, to 8 mm long, pointing obliquely upwards, monomeric; nodes straight and distinct. First internode hydroth.	
<i>Nemertesia rugosa</i> (Nutting, 1900)	Erect, unbranched, canaliculated, monosiphonic (?), nodes absent or indistinct.	Some dispersed nematothecae on stem between apophyses, condition of stolon unknown.	Decussate verticils of 6 or 8 strongly reinforced apophyses; condition of mamelon and nematothecae unknown. At least 3 nematothecae on apophyses.	Apparently monomeric, with strong internal ridges or rings. Development of nodes irregular.	
<i>Nemertesia septata</i> (Fraser, 1938)	Many erect, unbranched, monosiphonic, non canaliculated stems arising from communal axis embedded in sponge; no septa.	Fairly big nematotheca on stem between successive apophyses of same side; condition on stolon unknown.	Apparently biseri-ate, but in reality in 4 series of which 2 exposed on each side. Condition of mamelon undescribed, 1 nematotheca on basal part of apophysis.	Heteromeric, with strong internal ridges or rings, long, curving upwards. First internode ahydroth., these internodes short; hydroth. internodes longer.	
<i>Nemertesia setacea-formis</i> (Mulder & Trebilcock, 1915)	Polysiphonic and branched, 'half an inch' high, non canaliculated.	Only nematothecae on stem are axillary.	Biseriate(?), alternate, 1 or 2 per stem internode.	Heteromeric; first internode atheticate.	

<p>Hydrotheca almost in middle of internode or slightly below; 1 mesial inferior, a flanking pair and a mesial superior nematotheca. Rarely internode lengthened and accommodating 2 or 3 mesial superior nematothecae.</p>	<p>Smaller than in most of other species; adcauline wall adnate, abcauline wall straight or slightly to distinctly convex, rim circular, aperture tilted downwards at adcauline side</p>	<p>Bithalamic and movable; smallish.</p>	<p>Inserted on apophyses near mamelon, elongated ovoid, when nearly mature often slightly curved; with latero-distal, circular aperture closed by lid.</p>	<p>Widely distributed in tropical, subtropical and temperate East Atlantic; from Norway and Faeroes to South African coast, reaching Mozambique in the Indian Ocean. Also known from the Mediterranean. 3-1425 m.</p>
<p>Hydrotheca placed slightly below middle; 1 mesial inferior, a flanking pair and a mesial superior nematotheca almost at distal end of internode.</p>	<p>Small, cup-shaped; rim smooth and circular, aperture slightly tilted downwards abcaudally.</p>	<p>Bithalamic and movable.</p>	<p>Unknown.</p>	<p>Gulf of California, 50-75 fms (91-137 m).</p>
<p>1 mesial inferior and 2 or 3 mesial superior nematothecae, also a flanking pair. Hydrotheca placed below middle of internode. Occasionally more than 1 hydrotheca per internode.</p>	<p>'Rather small, short, cylindrical, with postero-lateral margins often cut away and supported below by a noticeable thickening of the internode' (Nutting, 1900).</p>	<p>Bithalamic and movable</p>	<p>Unknown.</p>	<p>North-western Atlantic southeast of Nantucket, 46 fms (84 m).</p>
<p>1 mesial nematotheca on ahydroth. internodes. Hydrotheca placed on distal part hydroth. internode, also having mesial inferior nematotheca and flanking pair.</p>	<p>Condition of hydrotheca undescribed, but apparently fairly big, with convex abcauline wall and even, smooth rim; Aperture slightly tilted downwards abcaudally.</p>	<p>Bithalamic and movable.</p>	<p>Not described, but present in type series; female obovate, more or less flattened at top, basally tapering into short pedicel; male elongated oval. Type series may be composite.</p>	<p>Gulf of California, Pacific coast of Southern California, 15-75 fms (27-137 m).</p>
<p>Ahydroth. internode with single mesial nematotheca. Hydroth. internode with hydrotheca, 1 mesial inferior nematotheca and flanking pair.</p>	<p>Cup-shaped.</p>	<p>Bithalamic and movable.</p>	<p>Unknown.</p>	<p>Tasmania, on <i>Halopteris buskii</i> (Bale, 1884).</p>

<i>Nemertesia simplex</i> (Allman, 1877)	Erect, unbranched or slightly so, monosiphonic, canaliculated, division into internodes indistinct.	Some nematothecae scattered over stem.	Strong, decussate verticils of 3 to 5; condition of mamelon undescribed but almost certainly present; 2 additional nematothecae.	Monomeric; internodes long and slender. Distal part internode with nematotheca may be split off as separate internode.	
<i>Nemertesia sinuosa</i> (Fraser, 1947)	Polysiphonic, non-caliculated stem twisted into a helioid spiral, at each twist a branch with secondary and tertiary ramifications; distal parts monosiphonic and divided into internodes by straight septa.	A nematotheca on stem internodes opposite apophysis.	Each stem internode with distal apophysis; various apophyses alternate in 1 plane or opposite and decussate. Mamelon present; 1 basal and 1 distal nematotheca.	Short, c. 3 mm long, heteromeric; first internode hydroth.; irregularities in arrangement of internodes occur.	
<i>Nemertesia tetra-serialata</i> (Fraser, 1938)	Monosiphonic, canaliculated, coenosarc canals wide; perisarc moderately developed, unbranched. No division into internodes visible.	Nematothecae on stem in line with apophyses, 2 between successive apophyses of same row; condition on stolon unknown.	Apophyses strong, opposite and decussate, resulting in 4 vertical series, each with mamelon and 3 nematothecae: 1 axillary, 2 flanking mamelon.	Monomeric and fairly long; first hydrocladial internode with single mesial inferior nematotheca and shorter than remaining.	
<i>Nemertesia tetrasticha</i> (Meneghini, 1845)	Basally polysiphonic, canaliculated, irregularly branched, divided into internodes each with pair of opposite apophyses in decussate arrangement; juvenile parts with alternate, biserial apophyses.	No information available. (Stechow, 1919: 123, fig. V ¹ , figures 1 nematotheca on stem between opposite apophyses).	Distinct, with mamelon and 4 nematothecae.	Monomeric; all internodes slender and hydroth., as is also first internode of hydrocladium.	
<i>Nemertesia triserialis</i> (de Pourtalès, 1868)	Stem erect, unbranched, 'corneous, translucent, dark amber color' (de Pourtalès, 1867: 118).	No information available.	Apophyses 'in 3 rows', most likely in decussate arrangement.	Information lacking.	

	Hydrotheca placed in lower half of internode; 1 mesial inferior, 1 mesial superior and a pair of flanking nematothecae.	Hydrotheca small, cup-shaped, 'with slightly everted margins' (Nutting, 1900)	Bithalamic and movable, fairly long and slender, those of flanking pair 'borne on processes from the internode' (Nutting, 1900).	'Rather small, ovate, with an oblique aperture, borne in the axils of the hydrocladia' (Nutting, 1900).	Caribbean and North-western Atlantic. 48 – 373 fms (88-681 m).
	Hydroth. internode with hydrotheca slightly below middle, 1 mesial inferior nematotheca and a flanking pair, those long. A hydroth. internode with single nematotheca in middle.	Small, cup-shaped; rim smooth, circular.	Bithalamic and movable.	Unknown.	Near Aruba in the Caribbean, 23-24 fms (42-44 m).
	Hydrotheca slightly above middle of internode; 2 mesial inferior nematothecae and a flanking pair; no nematotheca on distal part internode.	Small, cup-shaped, rim smooth.	Bithalamic and movable.	No gonothecae in type series; some colonies referred to this species by Fraser have obovate gonothecae with slightly vaulted top and a short pedicel.	Gulf of California and Pacific off northern part of Lower California, 55 fms (101 m). Wider distribution in Pacific suggested by Fraser's table (1948: 188).
	Hydrotheca slightly below middle of internode; 1 mesial inferior nematotheca and a flanking pair; only exceptionally also mesial superior nematotheca.	Small, cup-shaped; adcauline wall fully adnate; abcauline wall straight, rim straight and smooth, tilted downwards adcaudally.	Bithalamic and movable, of moderate length; mesial inferior nematotheca almost on proximal end of internode.	Obovate and slightly curved; attached to axil of apophysis by means of a short pedicel. Aperture disto-lateral, circular, closed by lid.	Apparently endemic to Mediterranean, 4-150 m,
	Information lacking.	'Polyp cells very small, scattered sparsely on the stem, more plentiful but not dense on the branchlets, campanulate, (next column).	very short on a longer, conical caliciform stem. Aperture entire' (de Pourtalès, 1868, considered to be description of nematothecae).	'In axillae of branchlet, compressed, semi-lunar or long kidney-shaped, aperture on inside of upper horn facing peduncle' (de Pourtalès, 1868).	Off Sand Key, Florida.

<i>Nemertesia valdiviae</i> Stechow, 1920	Stem erect, 120 mm high, unbranched, basally polysiphonic, canaliculated, division into internodes irregular, number of apophyses per internode varied.	Nematothecae in same plane as apophyses, 3 between 2 successive apophyses on same side; condition on stolon unknown.	Opposite and in one plane; irregularly alternating in lower part of colony, regularly alternating in distal part. Mamelon and 4 nematothecae per apophysis.	Hydrocladia long, up to 28 short, monomerous internodes; nodes oblique. First internode of hydrocladium hydroth.	
<i>Nemertesia venusta</i> (Fraser, 1948)	Stem erect, thin, monosiphonic, non canaliculated, divided into internodes by straight nodes, becoming obscure distally.	Nematothecae on internodes in same plane as apophyses, 2 on wall internode opposite apophysis; condition on stolon unknown.	Alternate and in one plane, 1 distally on each internode, widely spaced. Mamelon and at least 1 nematotheca per apophysis.	To 5 mm long, monomerous; internodes fairly long and slender. First internode athecate.	
<i>Nemertesia ventriculiformis</i> (Marktanner-Turneretscher, 1890)	Stem erect, of medium height, unbranched, monosiphonic, canaliculated, irregularly divided into internodes by straight nodes.	No nematothecae on stem internodes besides those of apophyses; none on stolon.	1 to 19 per stem internode, in one plane, alternately arranged, opposite and decussate or in decussate verticils of 3-4. Mamelon and varied number of nematothecae: 2 in axil, 1-2 pairs flanking mamelon, 1 above.	Monomerous; internodes long, slender, nodes oblique. First hydrocladial internode in proximal parts ahydroth., with 1 nematotheca. Occasionally ahydroth. internodes in distal part of hydrocladia, representing distal part of previous internode.	
<i>Nemertesia verticillata</i> (Fraser, 1925)	Stem erect, strongly canaliculated [24 coenosarc canals according to Fraser (1938)] and polysiphonic; only 25 mm preserved!	Apparently no nematothecae on stem other than those on apophyses. Condition of stolon unknown.	Decussate verticils of six notably strong apophyses (12 vertical rows), with 2 nematothecae each; mamelon not described but certainly present.	Heteromerous; internodes short, first hydroth., followed by ahydroth. internode with 2 nematothecae, remainder in regular succession.	
<i>Nemertesia vervoortii</i> El Beshbeeshy, 1991	Stem erect, branched, polysiphonic and canaliculated, divided into long internodes.	Dispersed nematothecae on stem internodes above apophysis and on wall opposite apophysis.	Alternate and in one plane in younger parts, opposite and decussate or in verticals of 3-4 in older (lower) parts. Mamelon, 2 axillary nematothecae and 1 distal.	Monomerous, nodes oblique, 10-16 internodes per hydrocladium; first internode normal, hydroth. Internodes with internal septa or rings.	

Hydrotheca in middle of internode; 1 mesial inferior nematotheca, almost at distal end and flanking pair.	Shallow, cup-shaped, adcauline wall fully adnate, abcauline wall strongly convex. Rim circular, smooth, tilted downwards adcaudally.	Bithalamic and movable, of medium length, slender.	Unknown.	Cape Verde region.
Hydrotheca on distal third or fourth of internode, first hydroth. internode with 2, remaining with 3 mesial inferior nematothecae; all with a flanking pair.	Cup-shaped, adcauline wall almost fully adnate; abcauline wall slightly convex; rim circular, smooth, slightly tilted downwards abcaudally.	Bithalamic and movable.	Unknown.	Gulf of California, 18 fms (33 m).
Hydrotheca in lower half, 1 mesial inferior, 1 mesial superior nematotheca and flanking pair. Mesial superior nematotheca sometimes placed at ahydroth. internode	Small, cup-shaped; adcauline wall fully adnate; abcauline wall straight; rim circular, aperture perpendicular to internodal length axis.	Bithalamic and movable.	Gonothecae dimorph, female horn-shaped, one wall straight, the other convex; aperture latero-terminal on straight side, circular, with lid. Male gonothecae smaller and slender. Monoecious.	Glénan Is, France; Basque coast, Spain; Strait of Gibraltar; coast of Morocco; Canary Is; Cape Verde Is; Western Mediterranean and Adriatic, 10-930 m.
Hydrotheca in middle of hydroth. internode; 1 mesial inferior nematotheca and flanking pair. 2 nematothecae on ahydroth. internode	Small and cup-shaped.	Bithalamic and movable.	Unknown.	Pacific off Oregon, U.S.A. , 84 fms (154 m).
Hydrotheca in lower half, 1 mesial inferior nematotheca, 2 flanking and 1 mesial above hydrotheca.	Cup-shaped and fairly deep, adcauline wall fully adnate; abcauline wall straight or slightly convex; rim slightly convex, tilted downwards adcaudally.	Bithalamic and movable.	Ovoid, narrowing proximally into a short pedicel attaching gonothecae to apophysis. Aperture lateral, circular, directed towards stem.	Atlantic off the coast of Argentina (c. 31°- 54° S), 30-1000 m depth.

<i>Nemertesia</i> spec. (= <i>Plumularia irregularis</i> Fraser, 1948)	Stem simple (monosiphonic?), unbranched, division into internodes irregular.	1-2 nematothecae between adjacent hydrocladia.	In one plane, from alternate to opposite, with 2 nematothecae, 1 axillar and 1 distal, mamelon not described.	Heteromerous; first internode hydroth. Occasionally 2 ahydroth. internodes between 2 consecutive hydroth. internodes.	
<i>Nemertesia</i> spec. 1 (cf. Ansín Agís et al., 2001)	Erect, unbranched, basally polysiphonic, canaliculated; no nodes visible.	Only on apophyses.	Alternate and in 1 plane proximally; decussate verticils of 3 in distal parts. Mamelon and 2 pairs of nematothecae, 1 axillar, 1 distal.	Monomerous, nodes slightly oblique; frequently branched. Branch originating from apophysis on internode, being a modified hydrotheca.	
<i>Nemertesia</i> spec. 2 (cf. Ansín Agís et al., 2001)	Erect, monosiphonic, unbranched, divided into internodes by straight nodes.	Numerous elongated nematothecae on stolonal tubes, covering basal part of stem. Dispersed nematothecae on stem internodes.	2 to 5 apophyses of considerable length in decussate arrangement. 2 axillary nematothecae, mamelon and varied number on rest of apophysis.	Heteromerous, nodes alternately straight and oblique; first internode ahydroth. or hydroth.	

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Hydrotheca in middle of hydroth. internode; 1 mesial inferior nematotheca and flanking pair. Ahydroth. internode with 1 mesial nematotheca.	Small and cup-shaped.	Bithalamic and movable.	Unknown.	Pacific off Southern California, 28-31 fms (51-57 m).
Hydrotheca in lower third of internode; 1 or 2 mesial inferior, a flanking pair and 1 or 2 mesial superior nematothecae.	Small, cup-shaped, adcauline wall adnate; abcauline wall straight. Aperture circular, slightly tilted downwards abcaudally.	Bithalamic and movable.	Unknown.	Atlantic off Canary Islands, 500 m.
Hydrotheca in lower half of internode; 1 mesial inferior, a flanking pair and 1 mesial superior nematotheca; ahydroth. internode with 2 or 3 nematothecae.	Small, cup-shaped, adcauline wall fully adnate; abcauline wall straight. Rim circular and straight, tilted downwards abcaudally.	Bithalamic and movable; those on stolon thin and elongated, apical chamber small.	Fairly big, ovoid, narrowing basally and attached to apophyses. Aperture latero-distal, circular, closed by lid, directed towards stem.	Cape Verde Islands, 396-591 m.

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