

to the margin; a narrow intrathecal ridge on the adcauline side of the hydrothecae near the base and with a distinct intrathecal fold arising from the ridge and curving slightly upward as it crosses the hydrothecal cavity to almost the abcauline wall; hydrothecal margin with well developed teeth, a prominent anterior tooth the front of which is produced into a spinous process and four teeth on each side, the first and fourth of which are thin, often difficult to see, and the second and third larger subtriangular, with rounded tip; all of the adcauline side of hydrothecae fixed to internode; internode with short septal ridges opposite the intrathecal ridge and the base of the lateral nematothecae; length of abcauline wall of hydrotheca 0.175 to 0.200 mm; width of hydrotheca at the margin, viewed laterally, 0.125 to 0.150 mm; nematothecae—mesial nematotheca 0.14 to 0.175 mm in length, a little shorter than the hydrotheca, fixed for all its length to the hydrotheca; aperture gutter-like, sloping outwards away from the hydrotheca; lateral nematothecae approximately 0.10 mm in length, flanking the hydrotheca, tubular, fixed to the hydrotheca almost to the level of the hydrothecal margin, and then free and projecting forwards; stem nematothecae, two at the base of each hydrocladium, the lower projecting forward, the upper larger and projecting outward, and one on the stem to one side of the lower nematotheca; gonosome, borne on a modified hydrocladium which forms a protective corbula; corbula closed, approximately 5.0 mm long, including the basal peduncle; the rachis (gonocladium) carries three kinds of branches, the gonohydrocladium (secondary hydrocladium I), the costa (secondary hydrocladium II), and the costal apophysis (secondary hydrocladium III); at the base of each type of branch are three nematothecae except in the distal region of the rachis where the laterals are absent, only the median infrathecal one remains; the gonohydrocladium bears one hydrotheca about which are disposed the three usual nematotheca as seen on non-specialized hydrocladia, and in addition, a distal median nematotheca above the cup; the costa or corbula leaflet grows out from between the hydrotheca and the mesial infrathecal nematotheca, and carries on its distal edge from five to eight closely set, tubular nematothecae; the costal apophysis is small and subtriangular and arises from the base of the distal edge of the costa; each costal apophysis unites with the hinder edge of the base of the costa distal to it.

LOCALITY. Type locality, off Cape Maria van Diemen, 10 miles north-west, 50 fathoms (Bale, 1924); off Three Kings Islands, Stn. 90, "Terra Nova", 100 fathoms (Totton, 1930); off Cape Maria van Diemen, Stn. 144, "Terra Nova", 40 fathoms (Totton, 1930); Cape Reinga, between Cape Maria van Diemen and North Cape, storm drift (W. H. Dawbin), 10/5/50, 34; Napier, foreshore, storm drift (P.M.R.), 19/11/50, 2. Species known only from New Zealand.

Thecocarpus subdichotomus n.sp. Figs. 9, c-e; 10, e.

Erect stem tall, up to 20.0 cm in height; not stiff, flexible, subdichotomously branched, polysiphonic, at the base of the stem and branches, becoming monosiphonic in the medial and distal regions of both stem and branches; stem arising from a cluster of hydrorhizal stolons; base of stem free of branches and hydrocladia for approximately 6.0 cm; stem apophyses and associated nematothecae readily observed on basal region of stem, suggesting that lower branches and hydrocladia are shed as growth in length proceeds; approximately seven alternating pairs of hydrocladia between each branch; branches up to 3.59 cm in length and with up to 30 alternating pairs of hydrocladia; hydrocladia arising from fronto-lateral aspect so that erect stem has a clearly defined front and back aspect; hydrocladia carried on a well developed apophysis, the latter approximately 0.125 mm in length; nodes oblique, readily observed in all regions of erect stem, and dividing the hydrocladia regularly into thecate internodes; internodes of stem and branches from 0.40 to 0.60 mm in length and 0.15 to 0.20 mm in width; hydrocladial internodes 0.40 to 0.45 mm in length and 0.12 to 0.15 mm in width measured at the node; hydrothecae deep, basal region distinctly bulbous; one well developed adcauline intrathecal ridge in the basal half of the hydrotheca; aperture of hydrotheca with an oblique downward slope; margin of hydrotheca with a sharply pointed median anterior tooth and five pairs of low but pointed lateral teeth, the fifth lateral tooth very sharply pointed and in lateral view often appearing as a tiny spike alongside the lateral nematotheca; abcauline length of hydrotheca from 0.25 to 0.31 mm; width of hydrotheca at the margin viewed laterally from 0.13 to 0.14 mm; nematothecae—mesial nematotheca approximately 0.20 mm in length, adnate to the hydrotheca for nearly all its length; free portion short, directed outwards from the hydrothecal wall; terminal aperture circular and close to, but distinct from the lateral aperture; a small opening between mesial nematotheca and cavity of hydrotheca; lateral nematothecae flanking hydrotheca from 0.095 to 0.12 mm in length, adnate to the hydrotheca up to the margin of the latter; short free portion turned outwards; terminal aperture circular approximately 0.01 mm in diameter, and close to, but distinct from, the lateral aperture; stem nematothecae one in the axil of the hydrocladium, one on the stem almost