**Techniques needed and plant shape**

**Classification**
*Descriptive name*
Division: Rhodophyta; Family: Rhodomelaceae; Tribe: Polysiphonieae

**Features**
plants dark red-brown, 20-50mm tall, of many upright main branches densely clothed in short, spreading branches giving them a shaggy appearance

**Special requirements**
View the branches microscopically, to find

- all branches *naked* and, thread-like (*filamentous*), generally ending in colourless branched “hairs” (*trichoblasts*), of a fine central thread (central filament) flanked by 4 (pericentral) cells in banks, producing a banded appearance (*segments*); continuously growing (*indeterminate*) branches densely surrounded by *radially* arranged, short branches of limited (*determinate*) growth
- tetrasporangia *one* per segment in the short side branches *spirally* arranged, slightly *distorting* the branch
- cystocarps, the products of fertilisation, *urn-shaped*, (ball-shaped, with a neck), opening (*ostiole*) at the tip (male structures are unknown)

**Occurrences**
only known from Kangaroo I., S. Australia

**Usual Habitat**
epiphytic on small entangled algae but possibly also on rock, in the region of wave wash, at the edge of the subtidal

**Similar Species**
*Echinothamnion* spp, but in that genus branches of unlimited growth have an outer are *corticated*

**Description in the Benthic Flora**
Part IIID, pages 220-222

**Details of anatomy**

1. *trich*  
2. *c fil*  
3. *c sp*

*Tolypiocladia penningtonensis* (A8736 slide 19008) stained blue and viewed microscopically:
1. short radially arranged branches of limited growth ending in trichoblasts (*trich*), tetrasporangia spiral, single per segment (*t sp*)
2. cross sections of two branches showing a central fine thread (*c fil*) and 4 flanking (pericentral) cells (1, 2, 3, 4) in the larger branch
3. cystocarp the product of fertilisation, showing club-shaped spores (carposporangia, *c sp*) and opening (*ostiole*, *ost*)

* Descriptive names are inventions to aid identification, and are not commonly used.

4. Descriptive names are inventions to aid identification, and are not commonly used


5. Tolypiocladia penningtonensis Womersley, A8736a

4. specimen from Pennington Bay, Kangaroo I., S. Australia

5,6 slide 19008 stained blue and viewed microscopically

5. main branch (axis, ax) of unlimited growth, side branches of limited (determinate) growth densely surrounding the axes

6. detail of a branch tip, showing apical trichoblast (trich), fine, central filament (c fil), flanking (pericentral) cells; two shown in this face view of the thread

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