Pterocladiella (Pterocladia) capillacea (Gmelin) Santelices & Hommersand

45.180



MACRO PLANT


Techniques needed and shape

Classification Phylum: Rhodophyta; Order: Gelidiales; Family: Gelidiaceae

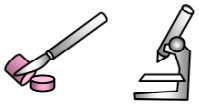
***Descriptive name** fine red turf

Features

1. plants are dark red, 40 to about 150mm tall, forming loose ***turfs***
2. upright ***thin***, compressed main branches(axes) are ***flat-branched*** 1-2 times (pinnate, or bi-pinnate)
3. a tangled runner occurs at the base of upright axes

Occurrences widespread: in Australia, from Cottlesloe, W Australia, (and probably further N), and southern Australia to S Queensland

Special requirements



1. if possible, cut across a flattened branch to view microscopically the
   - outer layer (cortex) of 3-5 cells thick
   - inner layer of larger cells mixed with thick-walled rhizoids (***rhizines***)
2. if possible, find scattered tetrasporangia divided in a cross-shaped pattern (cruciate), in the terminal branches (pinnules)
3. if possible, find the products of fertilisation (cystocarps)
   - swollen structures midway along a terminal branches (pinnules)
   - opening by ***1-2 holes*** (ostioles)
   - cut across a cystocarp to see the ***single*** cavity (loculus) with mass of spores mostly on ***one side*** of a central cell (often obscure) of a central thread running lengthwise (features separating *Pterocladiella* from *Pterocladia* and *Gelidiella*)

Usual Habitat in shallow water to 16m deep on coasts with rough to moderate wave energy

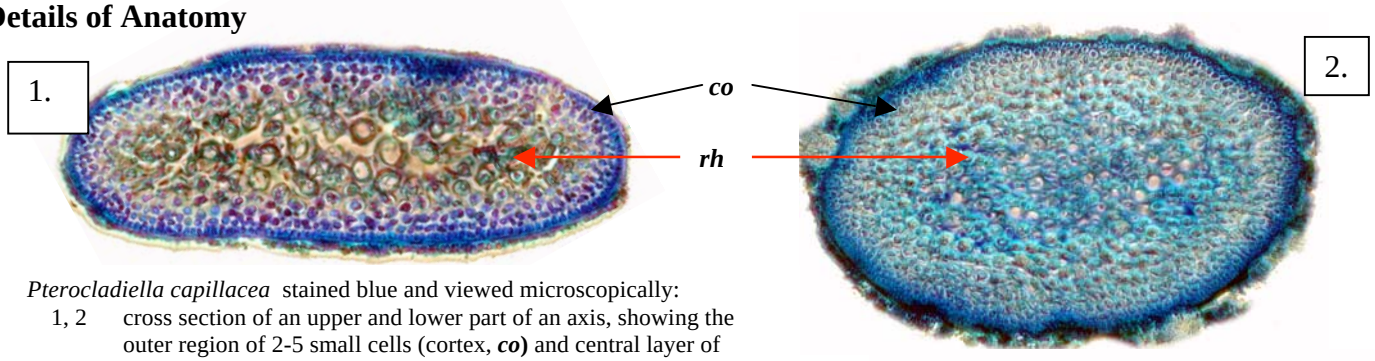
Similar Species *Gelidium australe*, but that species has finer and less compressed main branches

Diagnosis can be difficult

Separating *Pterocladiella* from *Gelidiella* requires (rare) mature female structures (cystocarps) – ***lop-sided*** masses of spores (gonimoblast) in a ***single*** cavity (loculus) form ***unequally*** on either side of the central filament and escape through only one or two openings in *Pterocladiella*

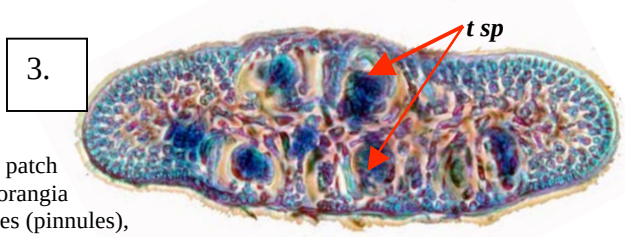
Description in the Benthic Flora Part IIIA, pages 138-141 (as *Pterocladia*)

Details of Anatomy

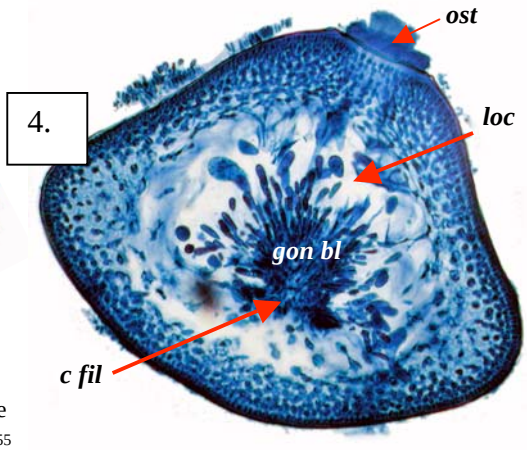


Pterocladiella capillacea stained blue and viewed microscopically:

1, 2 cross section of an upper and lower part of an axis, showing the outer region of 2-5 small cells (cortex, ***co***) and central layer of larger cells mixed with thick-walled threads (rhizines, ***rh***) (A22755, slide 10887)



3. cross section of a patch (sorus) of tetrasporangia in the end branches (pinnules), with tetrasporangia, (***t sp***) (divided in a cross-shaped pattern but not apparent in this image (A22897 slide 10893)

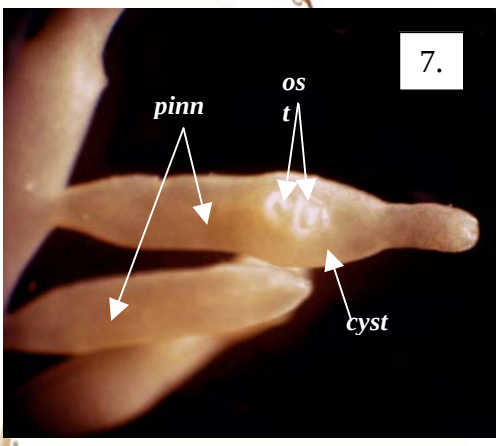


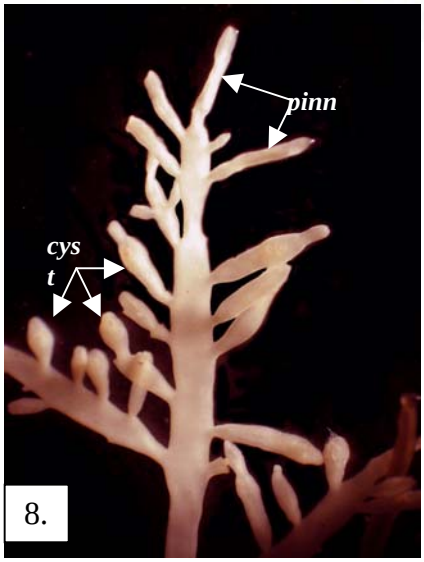
4. section through the product of fertilization (cystocarp, *cyst*) showing the single cavity (loculus, *loc*), lop-sided mass of spores (gonimoblast, *gon bl*) mainly on one side of a central (but obscured) thread (*c fil*) and single opening (ostiole, *ost*) (A22755 slide 10889)

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

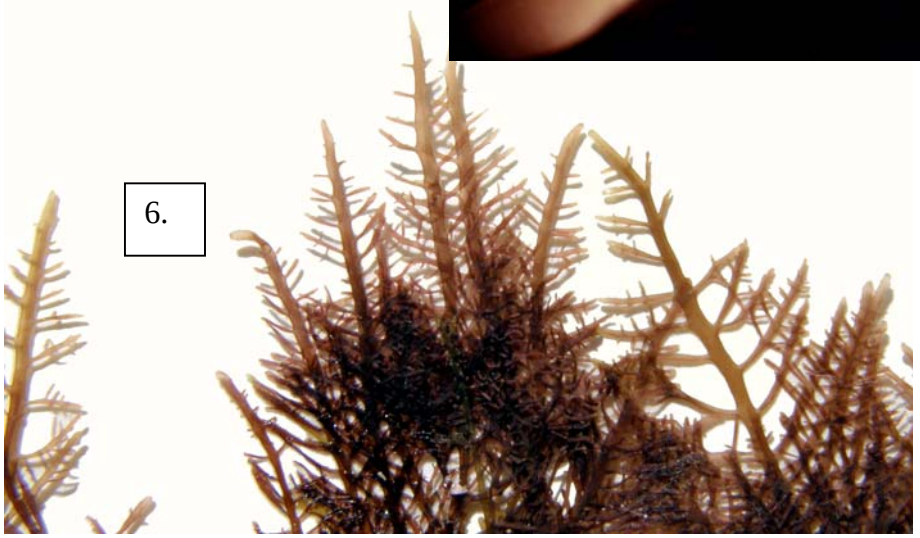
5.

5, 6. two enlargements of *Pterocladiella capillacea* (Gmelin) Santelices & Hommersand (A31588), from Judith Cove, West I., S Australia, showing the flat, pinnate branching pattern





6.



7., 8. two magnifications of a preserved specimen of *Pterocladiella capillacea* (A22897), showing the cystocarpic swellings (*cyst*) on the end branches (pinnules, *pinn*), and one cystocarp with 2 openings (ostioles, *ost*)

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"Algae Revealed" R N Baldock, S Australian State Herbarium, September 2007