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

Separating *Pterocladiella* from *Gelidiella* requires (rare) mature female structures (*cystocarps*) – *lopsided* 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**

1. *Pterocladiella capillacea* stained blue and viewed microscopically:
   - 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*)

2. 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*)

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

4. *Pterocladiella capillacea* stained blue and viewed microscopically:
   - 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*)

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

“Algae Revealed” R N Baldock, S Australian State Herbarium, September 2007
5. 6. Two enlargements of *Pterocladiella capillacea* (Gmelin) Santelices & Hommersand (A31588), from Judith Cove, West I., S Australia, showing the flat, pinnate branching pattern.

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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