



**Techniques needed and shape**

**Classification**

**\*Descriptive name**

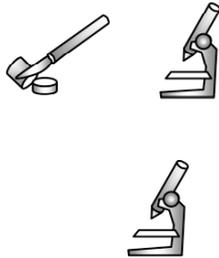
Phylum: Rhodophyta; Order: Gelidiales; Family: Gelidiaceae  
§ winged red sea-fern

**Features**

1. a red to red-brown, alga 80-400mm tall, with a gristly texture
  2. main branches flat, with a thicker mid-rib, and broad tips when actively growing
  3. alternating, flat side-branches are branched once or twice; branches constricted at base
- New Zealand. In Australia, from Kalbarri, W. Australia around southern coasts and Tasmania, to Coffs Harbour, NSW

**Occurrences**

**Special requirements**



1. view the tips of branches microscopically to find, single apical cells in a depression, characteristic of the genus
2. if possible, cut across a branch to view microscopically the
  - The outer (cortex) small cells in 3-5 layers
  - The inner (medulla) larger cells mixed with thick-walled rhizoids (*rhizines*) especially on the mid-ribs of older main branches
3. if possible, find tetrasporangia in
  - swollen branch ends or in rounded structures along the margins of smallest branches
  - cross-shaped tetrasporangia are at first regularly arranged near the dimpled apex of branches
4. if possible, find the products of fertilisation (cystocarps) forming
  - swollen ends to the smallest branching (pinnules)
  - slice across a cystocarp to view the *single* chamber (loculus) inside, spores in short *chains* from the *floor* of the chamber, and 1-4 openings (ostioles)

**Usual Habitat**

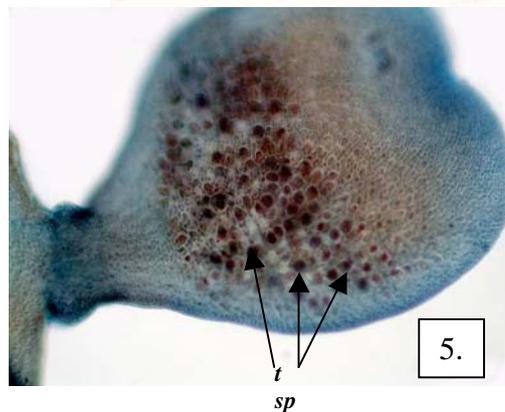
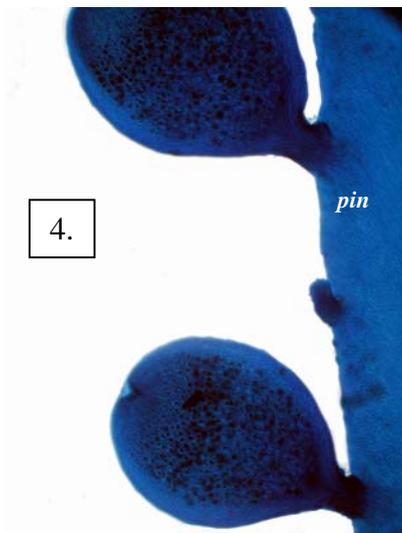
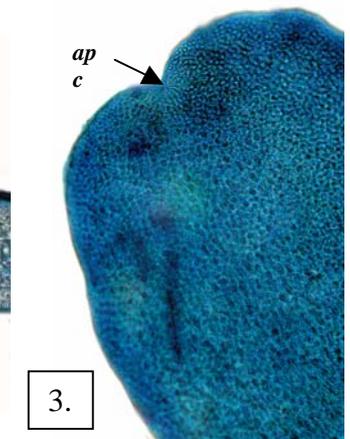
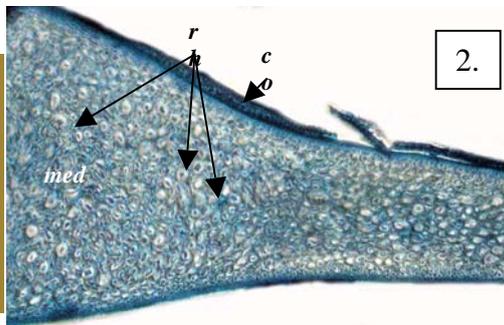
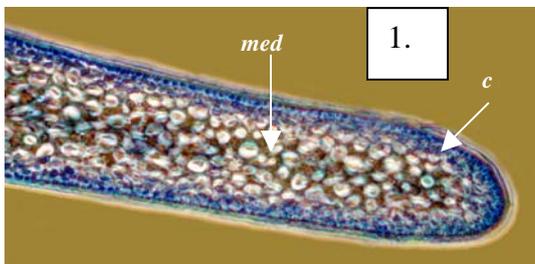
a common rough water species in shallow water to 16m deep

**Similar Species**

relatively distinct with flat, pinnate branches 3-4mm broad

**Description in the Benthic Flora** Part IIIA, pages 137-139, 140

**Details of Anatomy**



*Pterocladia lucida* stained blue and viewed microscopically

1. cross section of a young blade (A32644 slide 10910)
2. cross section of an old blade partly through the mid-rib, showing the outer layers of small cells (cortex, *co*) and inner (medulla, *med*) layer with thick-walled rhizoids (*rhizines*, *rh*) (A31951 slide 10905)
3. tip of a branch with a single apical (*ap*) cell in a depression (A32644 slide 10909)

4. flat and oval-shaped branches with tetrasporangia, along the margins of a pinnule (*pinn*) (A31948 slide 10919)
5. tetrasporangia (*t sp*), initially in rows radiating out from the apical cell of an oval shaped branch (A31948 slide 10920)



6.



7.



8.



9.

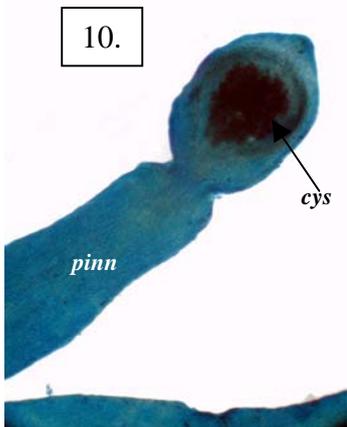
variation in shape of specimens of *Pterocladia lucida* (Turner) J Agardh:

6. from Seal Rock, West I., SA: irregular pinnate branching (A30445)

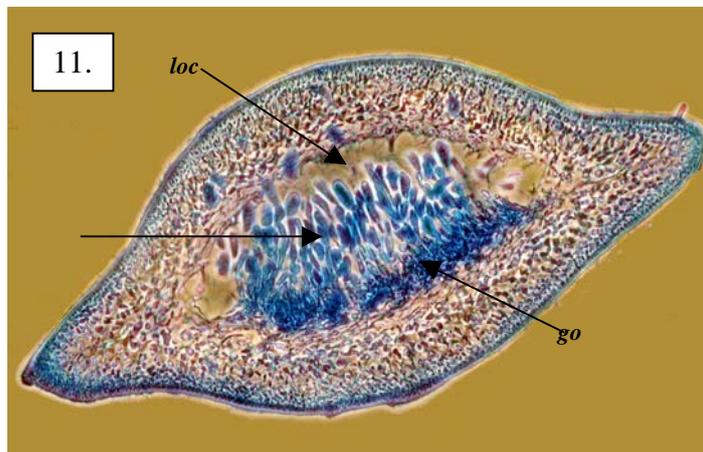
7. from Lands End, West I., SA: with flat tips (A31617)

8. fairly regular bi-pinnate branching (A61113)

9. from Oedipus Rock, West I., SA: pointed tips on pinnules bearing swollen cystocarps (A31948)



10.



11.

*Pterocladia lucida* stained blue and viewed microscopically:

10. a cystocarp (cys), the product of fertilisation, at the tip of a pinnule

11. section through a cystocarp to show:-

- the single cavity (loculus, loc)
- spores in (vague) chains (arrowed)
- fertile tissue (gonimoblast, go) arising from the floor of the cystocarp