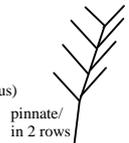
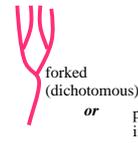


Techniques needed and shape



MACRO  
PLANT



Classification

\*Descriptive name

Features

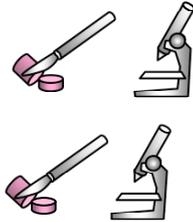
Occurrences

Usual Habitat

Similar Species

Description in the Benthic Flora

Special Requirements



Phylum: Rhodophyta; Order: Gigartinales; Family: Cystocloniaceae  
thin fronds

1. plants are red-brown or grey-brown, 200-300mm tall, soft, thin and flat-branched
2. lower fronds are only **5mm** broad, in two rows (**pinnate**) tapering gradually to about **2mm** broad, and **forked** with **rounded** branch angles (axils)

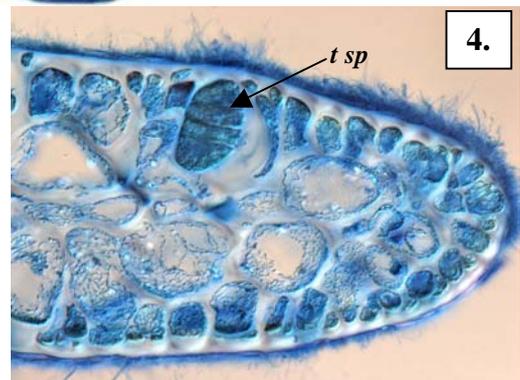
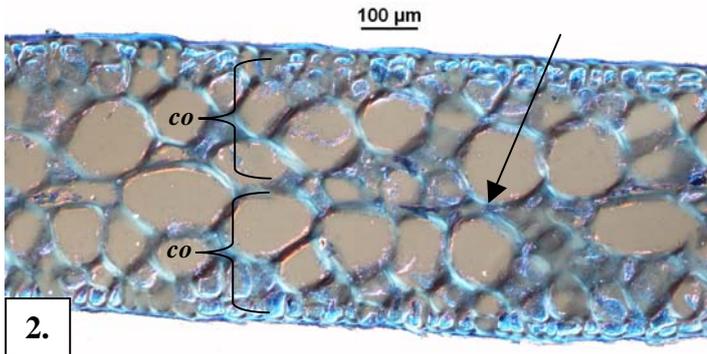
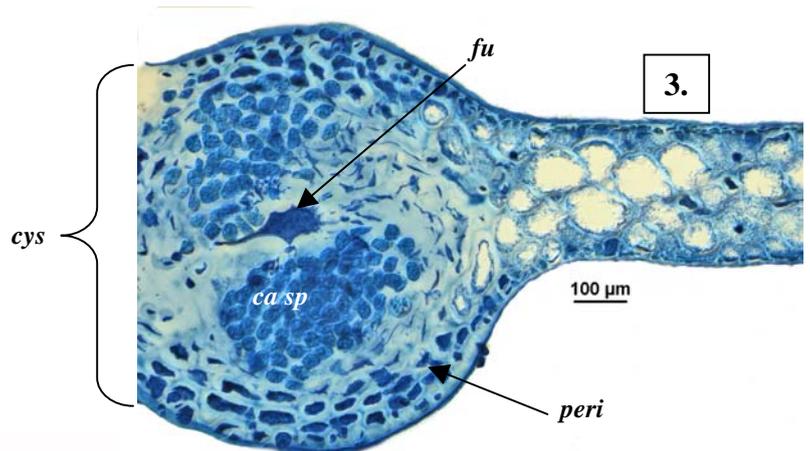
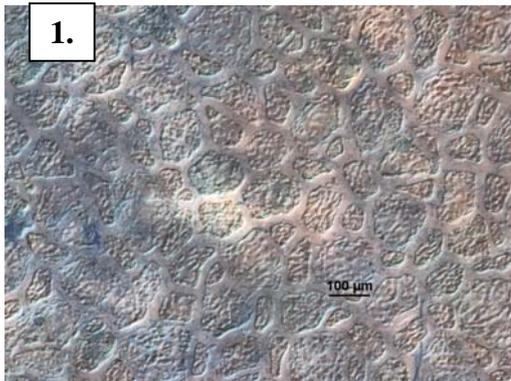
West Coast, S Australia to southern border of NSW and around Tasmania  
on rock in deep water (to 40m)

*Rhodophyllis membranacea* but that species has broader lower parts, quickly narrowing, a visible central thread near the tips and bright gland cells in surface view

Part IIIA, pages 415-417

1. cut a slice of a main branch and view microscopically to find:
  - the core (medulla) is **absent** or is represented by an obscure thread
  - obvious (cortex) layers of **large spherical** cells; with smaller, outer ones appearing **jammed between** them, but **no** bright cells (gland cells)
2. if possible find female plants with spherical swellings at **edges** of branches, cut a section through these and view microscopically to find
  - a central large cell formed from fusions of several cells
  - radiating **chains** of sporangia
  - a **distinct wall** of cells (pericarp) but **no** opening (ostiole)
3. if possible, cut cross sections of sporangial plants to find the **large**, tetrasporangia **scattered** in the cortex of young branches, and divided across into four (**zonate**)

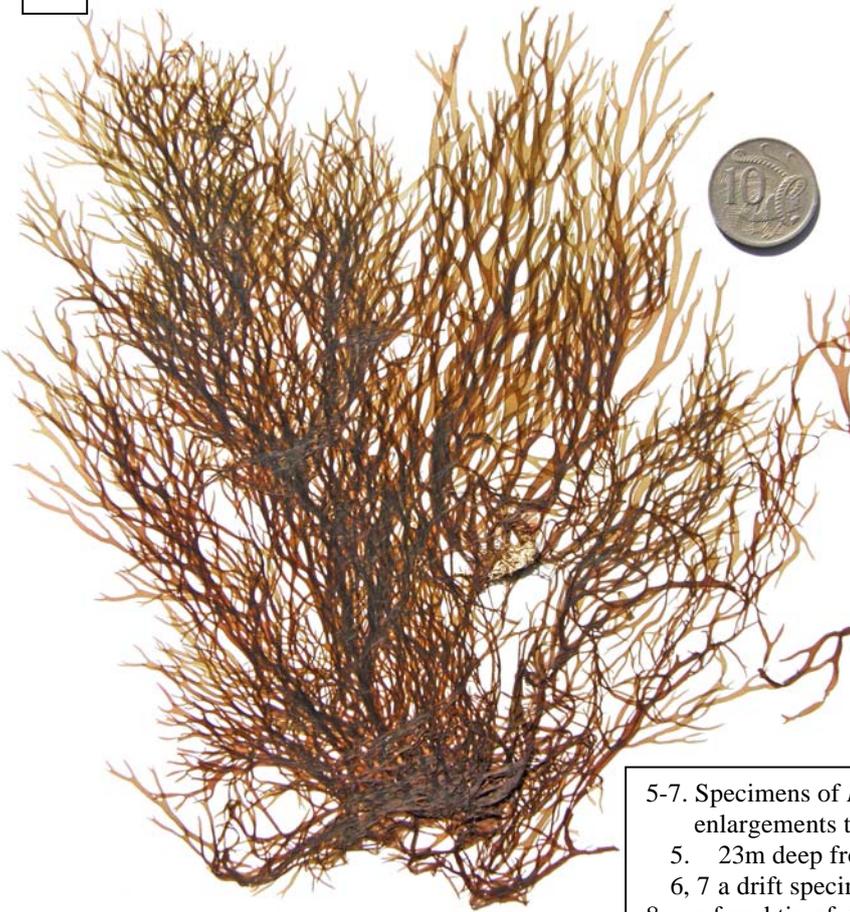
Details of Anatomy



*Rhodophyllis multipartita* stained blue and viewed by interference microscopy to contrast cell details:

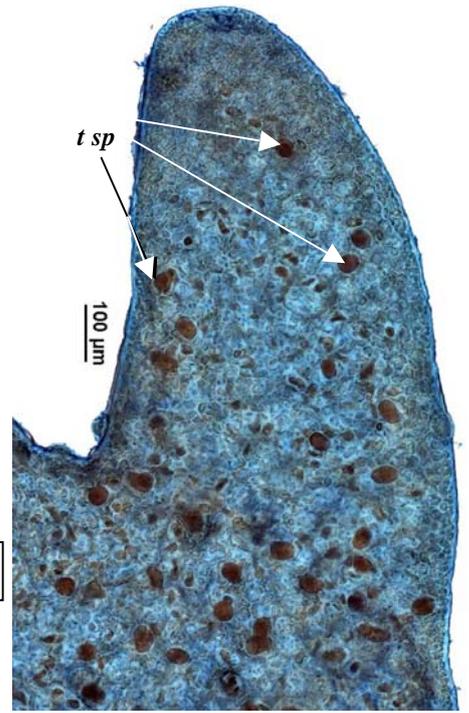
1. surface view focussing through the outer, small cells to thick-walled, lower, large cells (A38699 slide 13107), and showing the lack of bright gland cells found in large numbers in the related *Rhodophyllis membranacea*
2. cross section showing a vague core thread, (arrowed, all that remains of a medulla), large inner and small outer cells of the cortex (*co*) (A36911 slide 13125)
3. cross section of a female structure (cystocarp, *cys*) on the edge of a frond showing the cellular wall (pericarp, *peri*) central fusion cell (*fu*) and chains of spores (carposporangia, *ca sp*) (A38699 slide 13109)
4. cross section of a sporangial plant with a single, large, zonately divided tetrasporangium (*t sp*) (A38699 slide 13108)

5.



t sp

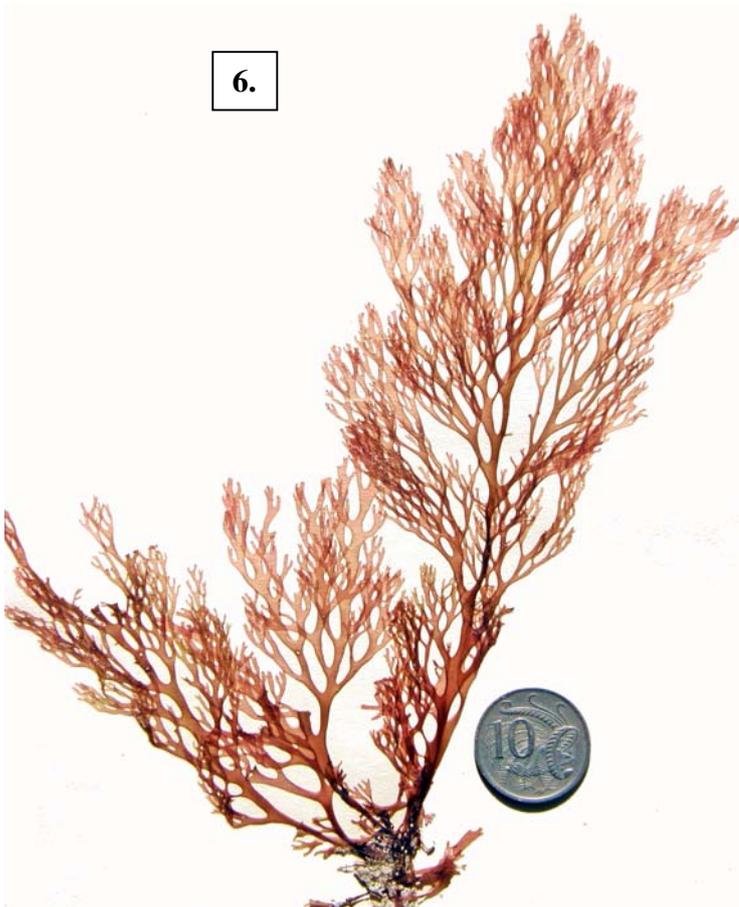
100 μm



8.

5-7. Specimens of *Rhodophyllis multipartita* Harvey at different enlargements to show branching pattern and colour variation  
 5. 23m deep from off the Coorong, S Australia (A71800)  
 6, 7 a drift specimen from Port Elliot, Australia (A09347)  
 8. a frond tip of a sporangial plant stained blue and viewed microscopically showing a surface view of tetrasporangia (*t sp*), lack of central thread and only vague rings (rosettes) of surface cells (A38699 slide 13107)

6.



7.



\* Descriptive names are inventions to aid identification, and are not commonly used  
 "Algae Revealed" R N Baldock, S Australian State Herbarium, September 2008