

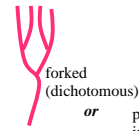
Techniques needed and shape



MACRO
PLANT



flat-bladed



forked (dichotomous) or



pinnate/ in 2 rows

Classification

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

*Descriptive name

Features

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)

Occurrences

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

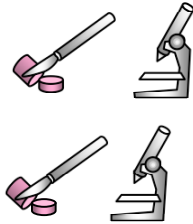
Usual Habitat

Similar Species

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

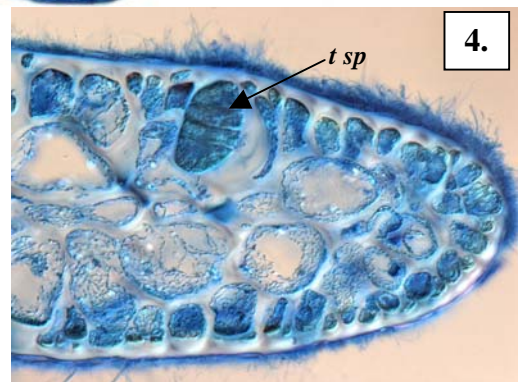
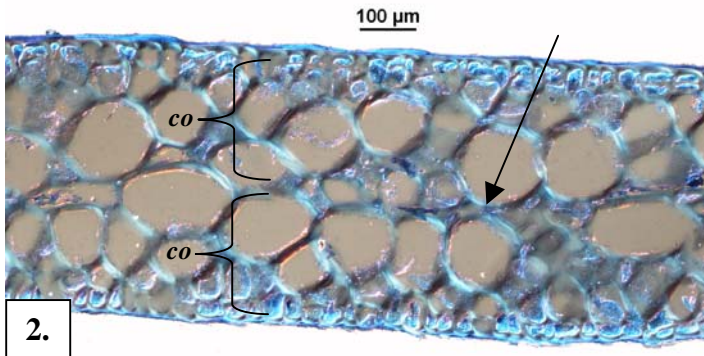
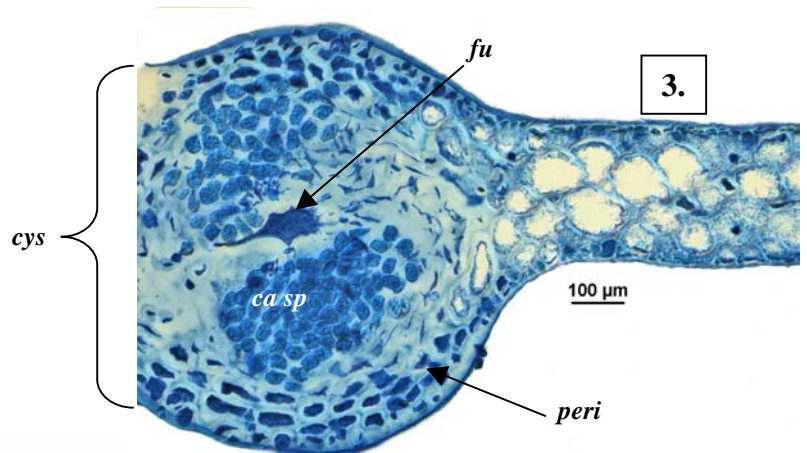
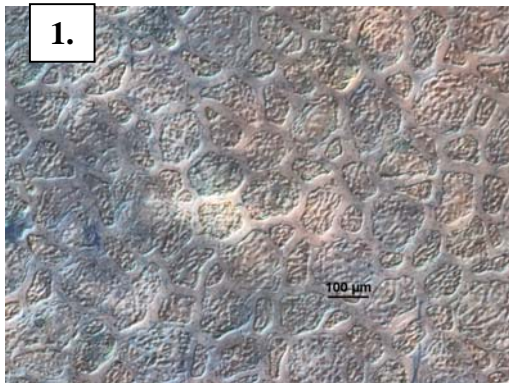
Description in the Benthic Flora Part IIIA, pages 415-417

Special Requirements



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)

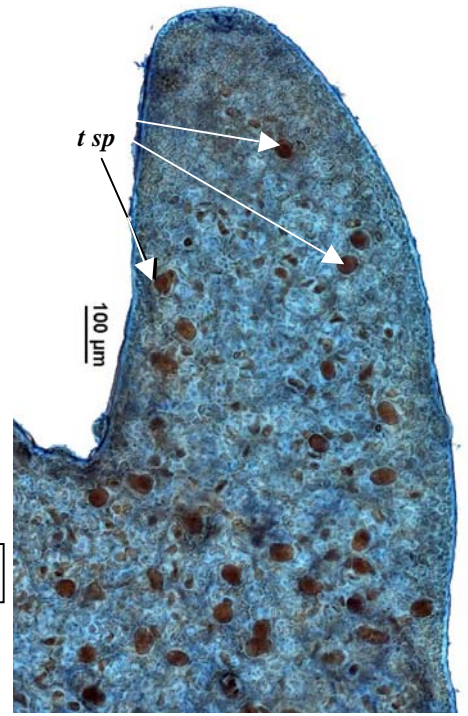
5.



t sp

100 μ m

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