



MACRO
PLANT



Techniques needed and shape

Classification

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

*Descriptive name

Features



1. plants are red, upright or lying flat, small, 50-100mm tall, soft, thin and flat-branched
2. fronds are **3-4mm** broad, side branches pinched at their bases, main branches with tiny, irregular, spatula-shaped **fringing outgrowths**

Occurrences

Rottneet I., W Australia to Victoria and N coast of Tasmania

Usual Habitat

probably a deep water species (42m), but most specimens collected as drift

Similar Species

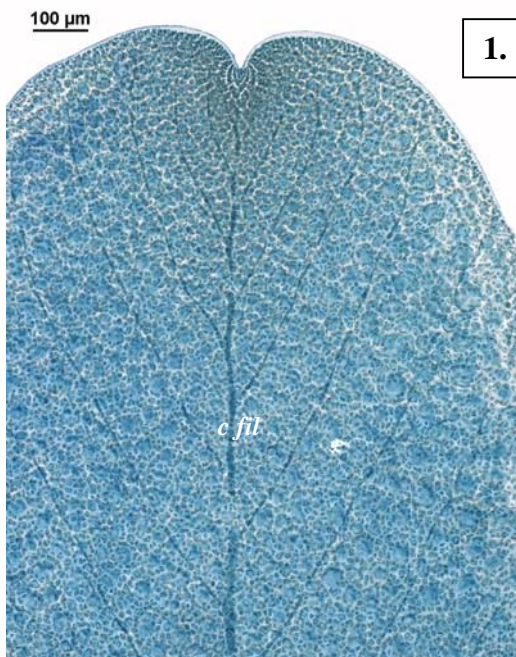
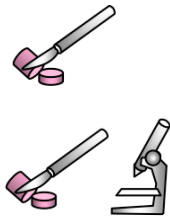
members of the Delesseriaceae (“filmy reds”), (many with a microscopic central thread or vein), but differing in the presence of cell rings (rosettes) in surface view

Description in the Benthic Flora Part IIIA, pages 417-419

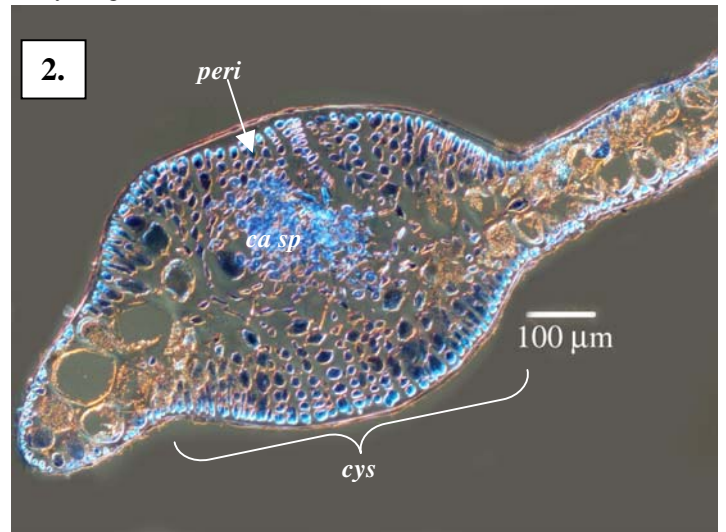
Special Requirements



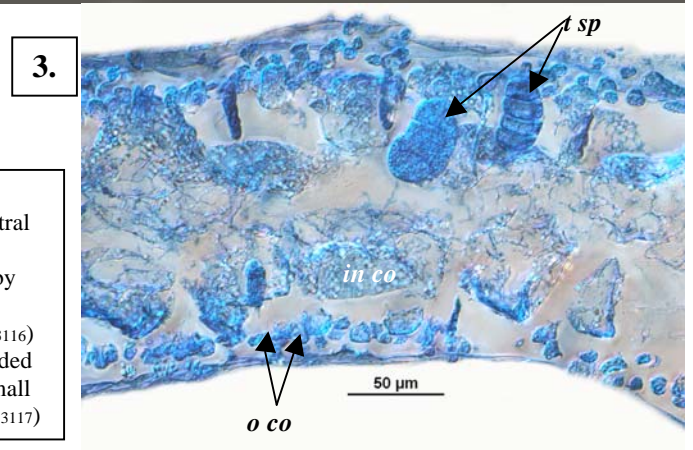
1. view microscopically the frond tips in surface view to see
 - the apical cell in a **notch**,
 - the faint, central, branching thread (“**vein**”) (best seen when stained blue)
 - small cells ringing larger ones (**rosettes**)
2. cut a slice of a main branch and view microscopically to find:
 - the 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)
3. if possible find female plants with spherical swellings in fronds, 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)
4. 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**)



1.



2.

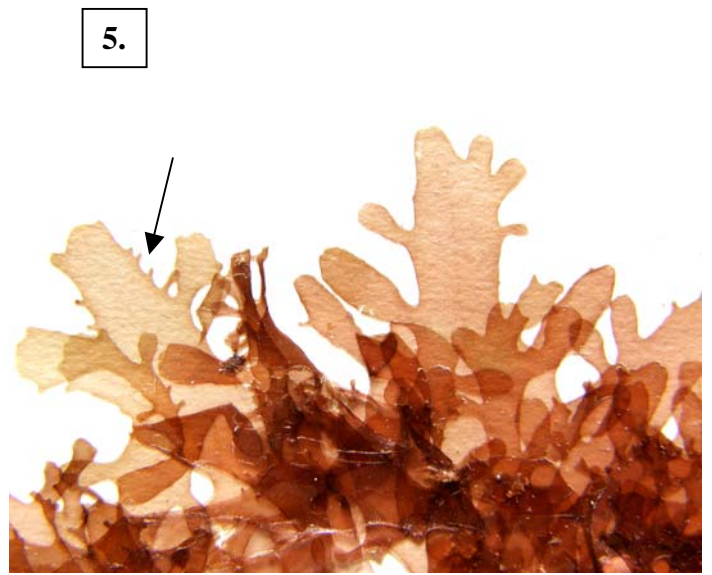


3.

Rhodophyllis volans stained blue and viewed microscopically

1. surface view showing the apical cell in a notch, the flat-branching central thread (*c fil*) and rings (rosettes) of cells (A22876 slide 13115)
2. a cross section through a female structure (cystocarp, *cys*) contrasted by using interference microscopy, showing rows of cells in the cystocarp wall (pericarp, *peri*) and central mass of sporangia (*ca sp*) (A22876 slide 13116)
3. a cross section of a sporangial plant showing tetrasporangia (*t sp*) divided across (zonate), large cortex cells (*in co*, slightly crumpled) and the small cells that ring them (*o co*) forming rosettes in surface view (A22876 slide 13117)

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



Specimens of *Rhodophyllis volans* Harvey showing variations in colour and branching patterns, particularly the fine, fringing outgrowths (arrowed)

4, 5. from 30m deep, Pearson I., (West Coast) S Australia (A34051)

6, 7. from 42m deep north Great Australian Bight, S Australia (A43518)