Austroclonium charoides
(Harvey) Min-Thein & Womersley

45.540

Techniques needed and shape

MACRO
PLANT

Classification Phylum: Rhodophyta; Order: Gigartinales; Family: Cystocloniaceae

***Descriptive name** thin whorls

Features

1. plants are dark red to red-brown, 50-150mm tall, and ***soft*** textured
2. branches consist of narrow, cylindrical ***sections*** about 1mm long, narrower at each end
3. side branching is in ***rings*** (whorled) several times over
4. ***tendrils*** hooked at the tip aid attachment to seagrasses and other algae

Occurrences West Coast S Australia to Victoria

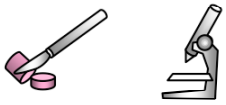
Usual Habitat a relatively deep water species on sea grasses and algae in moderate water movement

Similar Species *Hypnea* spp particularly *H. ramentacea* that has hooked tendrils, but branching in *Hypnea* is not whorled

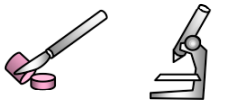
Description in the Benthic Flora Part IIIA, pages 431-435

Special Requirements

1. view fronds microscopically to see
   - ***single*** cells at the tips of branches
   - a single central thread running lengthwise, visible only at the tips
   - only vague ring patterns (rosettes) of surface cells

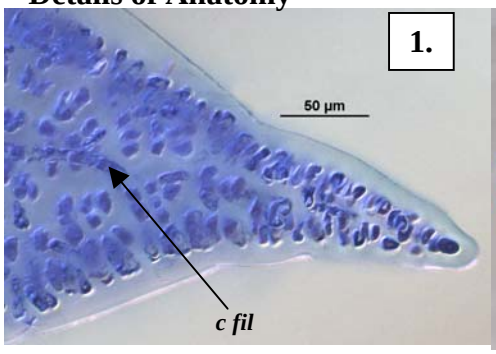


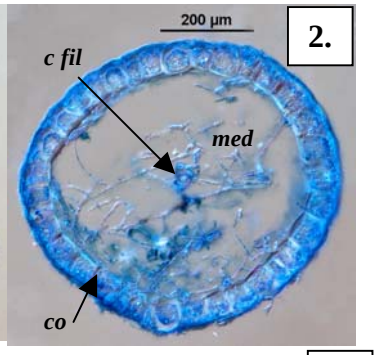
2. cut a lengthwise slice of a branch and view microscopically to find:
   - a core (medulla) of a ***single*** central thread that may be wrapped in rhizoids, with ***pairs*** of thin, branched threads arising at oblique angles from it
   - outer (cortex) of box-shaped and small cells

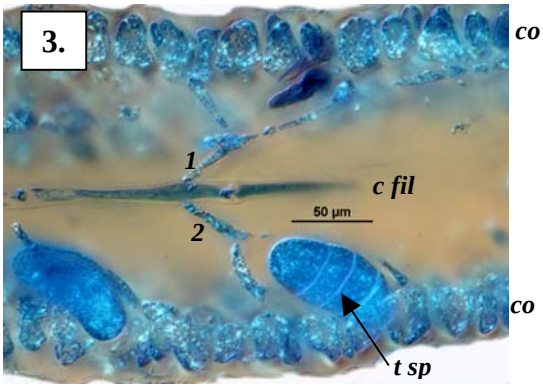


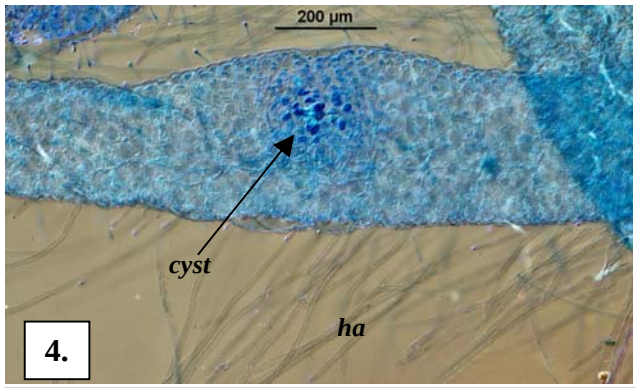
3. find female plants with large, swellings on the fronds. Cut a cross section if possible to view:
   - a small central cell and egg-shaped sporangia
   - a ***loose wrapping*** of threads
   - a single opening (ostiole)
4. if possible, find ***large***, cigar-shaped tetrasporangia scattered near the surface, divided across into four sporangia (***zonate***)

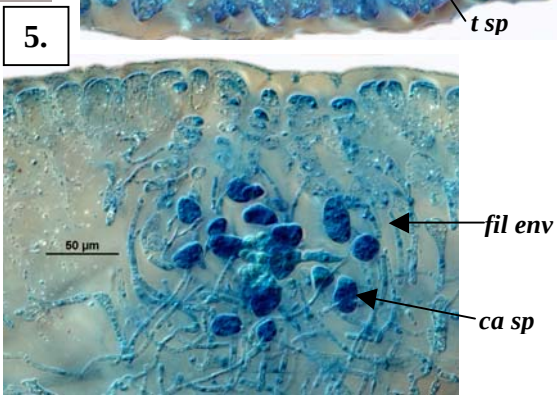
Details of Anatomy





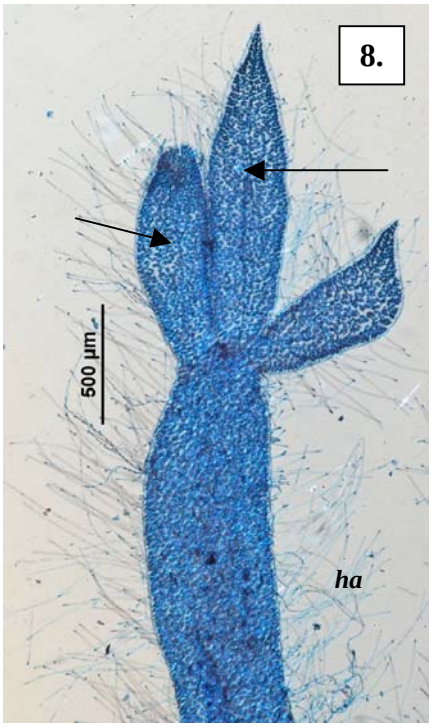






Austroclonium charoides stained blue and viewed with interference microscopy
1. a pointed branch tip with single apical cell (*ap c*)and central thread (*c fil*) (A 27480 slide 4847)
2. a cross section with core (medulla, *med*) of a central filament and rhizoids, and outer layers (cortex, *co*) of box-shaped cells (A27480 slide 4845)
3. a lengthwise section of a sporangial plant, with pairs of diverging threads (periaxial cells, *1, 2*) and a tetrasporangium (*t sp*) (A27480 slide 4846)
4. surface view of a segment with a cystocarp, showing numerous hairs (*ha*) (A41219 slide 4851)
5. a section through a cystocarp with sporangia (carposporangia, *ca sp*) and loose filamentous envelope (*fil env*) (A41219 slide 4851)

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



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6, 7. two magnifications of a drift plant (A55431) from Queenscliff, Victoria, showing the characteristic whorled branching pattern and hooked tendrils (arrowed)

8. a specimen stained blue and viewed microscopically to show the whorled branching pattern forming at the tips, the faint traces of central threads (arrowed) and numerous hairs (*ha*)

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