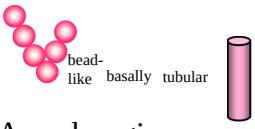
Rhabdonia verticillata
Harvey

45.440

Techniques needed and shape



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

***Descriptive name** bead weed

Features

1. plants are red to dark red, 100-250mm tall, with many main branches
2. lower branches are cylindrical and clothed with short ***bead-like*** branches
3. upper branches consist of ***chains*** of egg- to club-shaped pieces 2-4mm long, appearing hollow

Occurrences from Elliston, S Australia to Victoria and around Tasmania

Special requirements

or

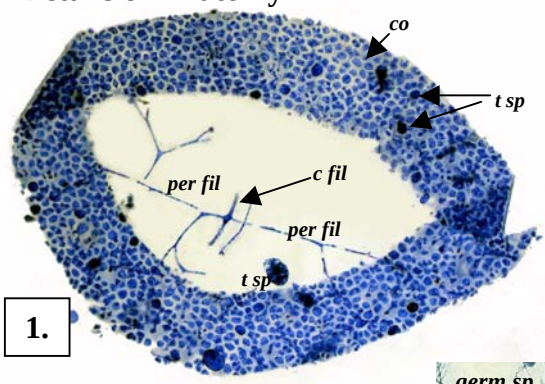
1. view the plant tips microscopically to find the egg to club-shaped ***bead-like*** pieces and a ***single*** central thread, running lengthwise in ***young*** beads
2. if possible cut a cross section or squash a small bead and view microscopically to find the ***flimsy*** central ***thread*** with 3 radiating branched threads crossing a ***central space*** and branching treelike onto an outer layer (cortex) of small cells
3. cut cross sections of larger beads and basal cylindrical branches and view microscopically the changes as the branches mature:
   - increasing numbers of radiating threads towards the plant base
   - the central thread surrounded by a bundle of 4-6 thick-walled threads ***(rhizoids***) intermingled with extremely ***fine threads***
   - an expanding cortex with inner larger cells and outer smaller cells
4. if possible find the products of fertilisation in female plants (cystocarps), cut a cross section and view microscopically to find a mass of carposporangia in the central core, with a ***thin envelope*** of threads (with some sporangia germinating within)
5. if possible, view scattered spermatangia on surface layers of male plants

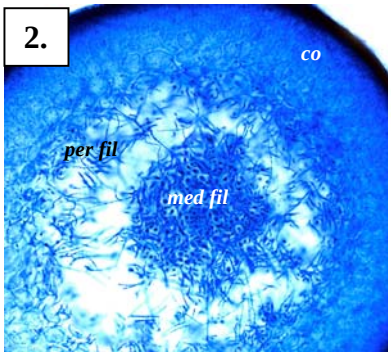
Usual Habitat on rock from 6-23m deep

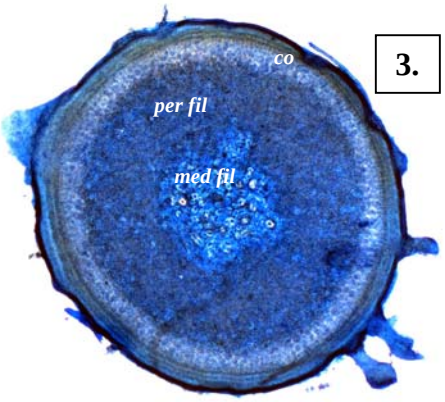
Similar Species *Erythroclonium muelleri* has bead-like parts, but there is a conspicuous central thread in cross sections throughout the plant, and no clothing of tiny bead-like branches basally

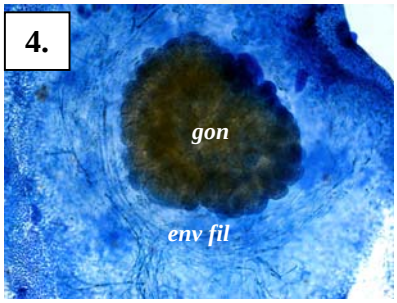
Description in the Benthic Flora Part IIIA, pages 346, 348-349

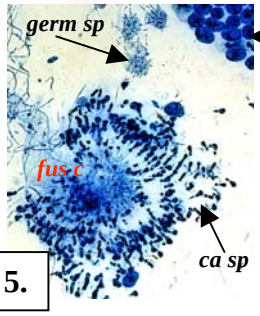
Details of Anatomy

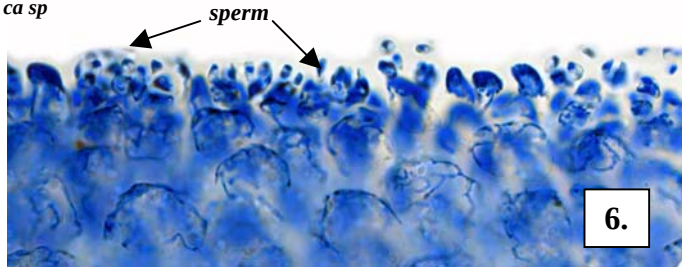










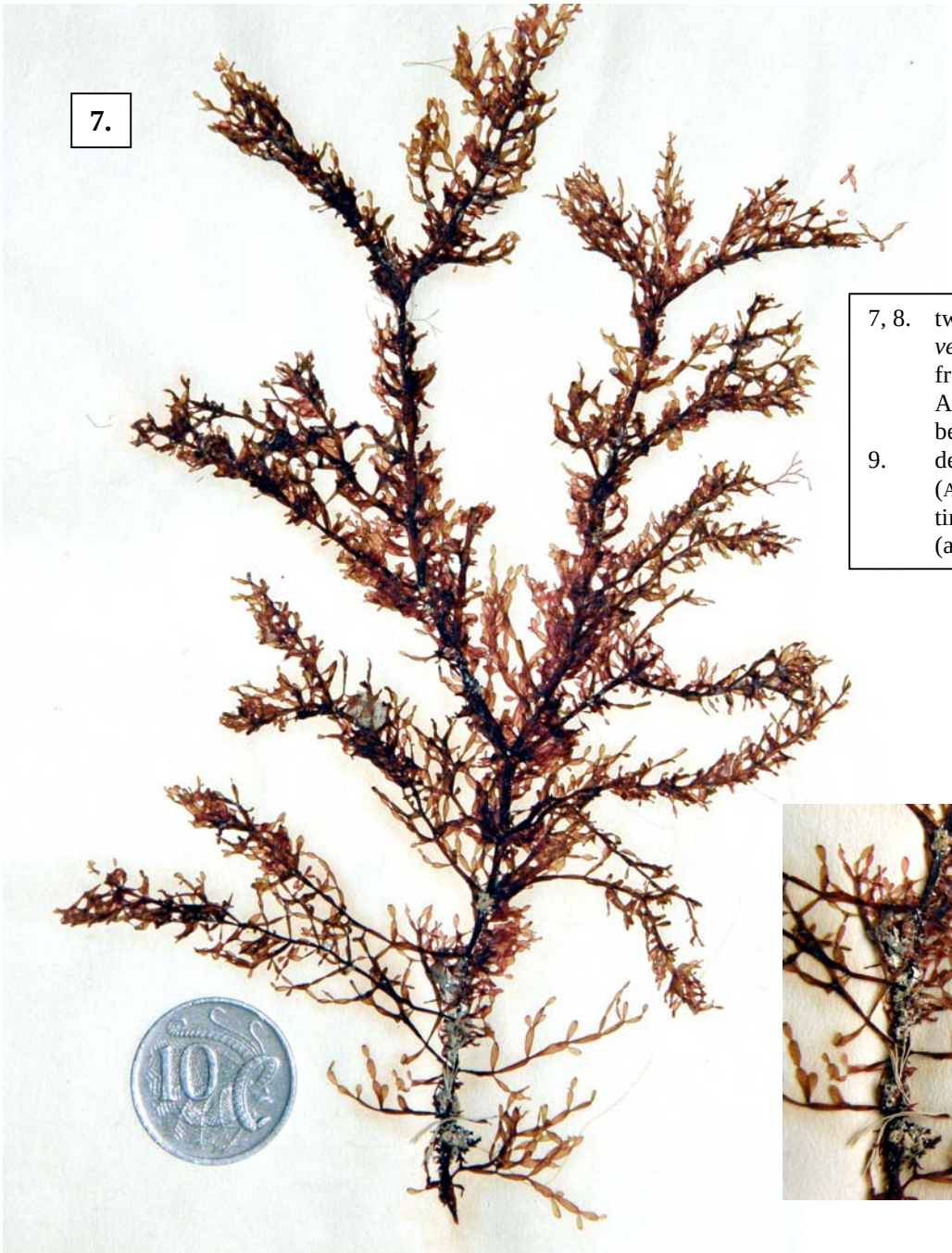


Cross sections of *Rhabdonia verticillata* stained blue and viewed microscopically

1. a slightly tilted, band-shaped section from a ***young*** bead, with central space (arrowed), outer layer (cortex, *co*) with scattered dark tetrasporangia (*t sp*) in surface view, central filament (*c fil*) and radiating branched threads (peri axial filaments, *per fil*) (A21244 slide 3850)
2. cross section of a ***mature*** bead, with central bundle of thick-walled threads (medullary filaments, *med fil*), masses of radiating (peri axial threads, *per f*) and equal-sided cortical cells (*co*) (A6863 slide 19284)
3. cross section of a cylindrical ***basal branch*** thickened with masses of rhizoids (A6863 slide 19284)
4. a cystocarp in the medulla of a branch showing radiating gonimoblast and slight thread-like envelope (*env fil*) (A16405 slide 3847)
5. an extracted gonimoblast with fus cell (*fus c*), short chains of carposporangia (*ca sp*) and germinating spores (*germ sp*) (A16405 slide 3849)
6. cross sectional view of the cortex of a male plant with spermatangia (*sperm*) (A35150 slide 3843)

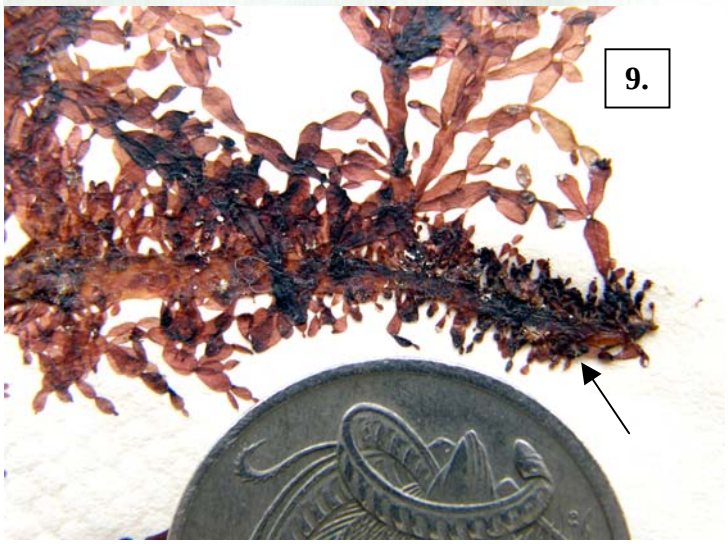
* Descriptive names are inventions to aid identification, and are not commonly used

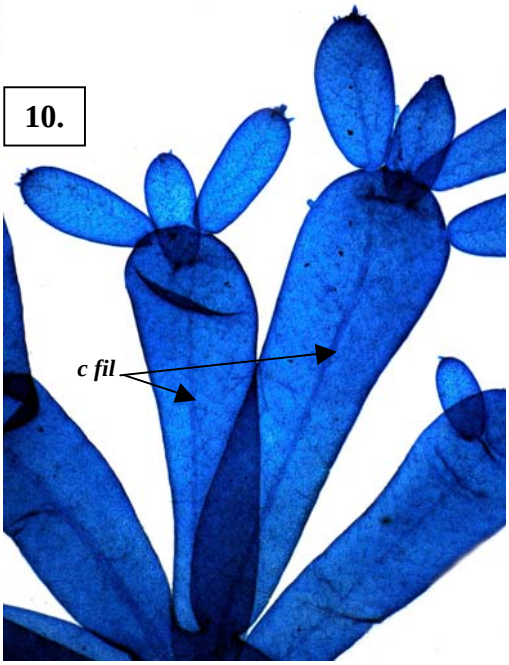
"Algae Revealed" R N Baldock, S Australian State Herbarium February 2008



7, 8. two views of *Rhabdonia verticillata* Harvey, (A0623) from Encounter Bay, S Australia showing the upper bead-like branches

9. detail of the base of a specimen (A1625) showing the clothing of tiny beaded short branches (arrowed)





10. *Rhabdonia verticillata* stained blue and viewed microscopically showing the central threads (*c fil*) (A6863 slide 19284)

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