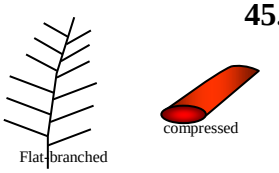
Gigartina pinnata J Agardh

45.380

Techniques needed and shape

MACRO PLANT



Classification Phylum: Rhodophyta; Family: Gigartinaceae

***Descriptive name** comb gristle-weed

Features plants dark red-brown, fading to yellow, 150-300mm high, ***gristly*** when dry with 1-2 upright, ***compressed*** main branches (axes) from the base; side branches flat-branched, comb-like, alternating along two sides of axes

Occurrences West Coast, S Australia to Victoria and E coast of Tasmania

Usual Habitat on rough coasts in deep water

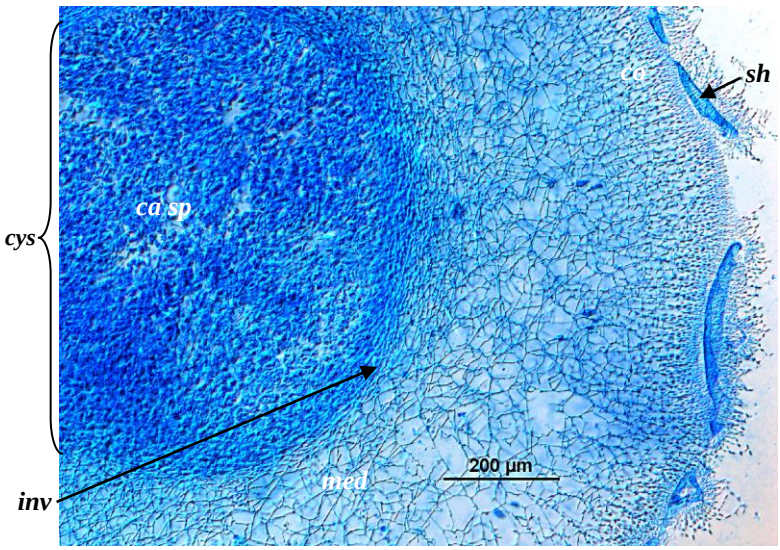
Similar Species *Sarcothalia crassifolia* but that species is intertidal

Description in the Benthic Flora Part IIIA, pages 311-313

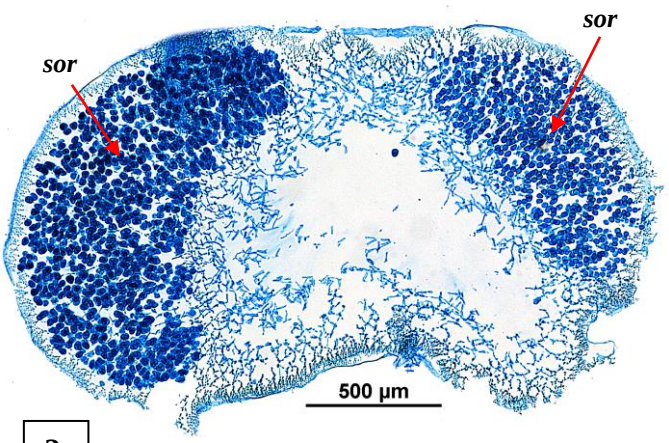
Special Requirements

1. cut a cross section of a branch and view microscopically to find: the ***wide*** core of loose threads connected by short cross threads; branched ***chains*** of small cells facing outwards forming the outer (cortex) layers; a thick, non-cellular sheath (often broken into segments in stained preparations)
2. find swollen female structures (cystocarps) ***imbedded*** at ***rounded*** tips of ***short*** side branches. Cut a cross section to view microscopically the central clusters of spores, with a ***compact*** wrapping ***g*** of threads (involucre). Note the ***dimple*** in the branch surface where spores escape after the cell layers disintegrate
3. in sporangial plants, cut cross sections through masses (sori) of tetrasporangia at edges of branches to view microscopically the ***massed*** tetrasporangia, formed from the core (medullary) threads, dividing mainly into cross shaped (cruciate) patterns when mature

Details of Anatomy



1.



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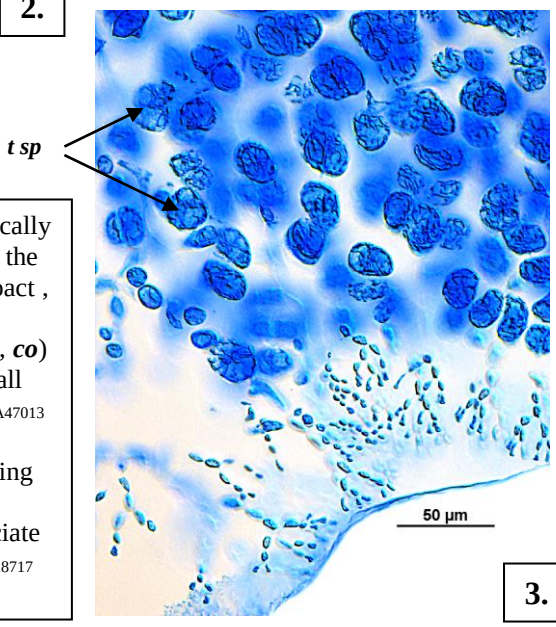


3.

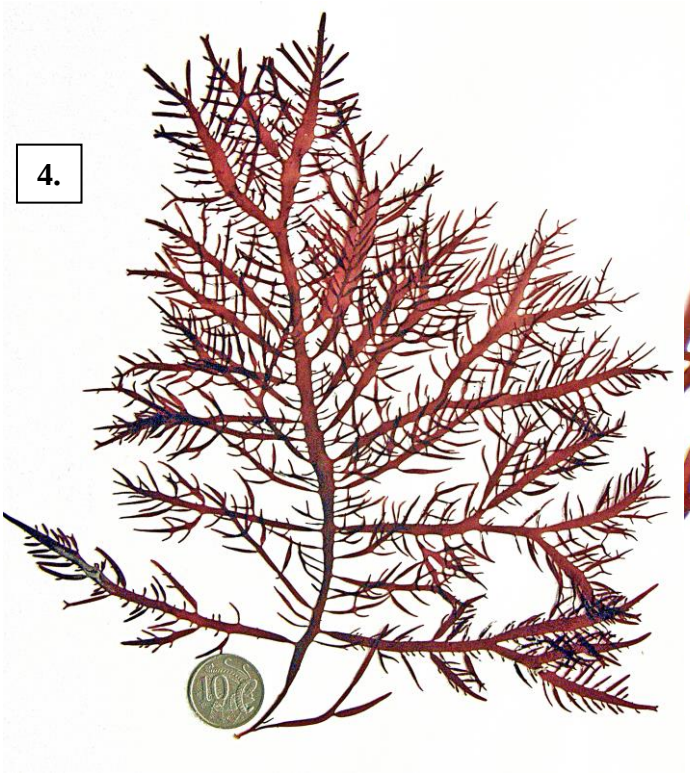
Cross sections of *Gigartina pinnata* stained blue and viewed microscopically

1. part of a branch with an imbedded female structure (cystocarp, ***cys***) in the core (medulla, ***med***) of inter-connecting threads, enveloped with compact , concentrically arranged threads (involucrum, ***inv***) and consisting of threads and clusters of carposporangia (***ca sp***). The outer layer (cortex, ***co***) of the branch consists of a dense mass of outward facing chains of small cells and a "rind" or sheath (***sh***) fragmented by the slide preparation (A47013 slide 13022)
2. compressed branch with two masses (sori, ***sor***)of tetrasporangia (forming lines along the branch edge in surface view) (A18717 slide 12462)
3. detail of tetrasporangia (*t sp*) starting to divide into cross-shaped (cruciate and decussate) patterns, and branched cortical chains of small cells (A18717 slide 12462)

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

"Algae revealed", R N Baldock, State Herbarium S Australia, February 2009; edited May 2014

4.



6.

5.

7.

Specimens of *Gigartina pinnata* J Agardh

4. 15m deep from 1.3 km off Middle Point, Cape Northumberland, S Australia (A47013)

5, 6. two magnifications of a specimen 20m deep SW end of Second I., Pondalowie Bay, S Australia, showing the branching pattern and short compressed side branches with cystocarps (arrowed), one with a prominent dimple in the surface layer(A54353)

7. preserved (bleached) specimen magnified to show the branching pattern and fringing tetrasporangial masses (sori, arrowed) (A18977)

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