Peyssonnelia foliosa Womersley

45.240

Techniques needed and plant shape



MACRO PLANT


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

***Descriptive name** § a brown-red sea fan

Features

1. plants 20-50mm long, lying flat on rocks, attached basally by rhizoids, with spreading, flat-branched narrow blades, fanning out at the tips
2. blades dark brown-red on top, coated with yellowish rhizoids below

Occurrences islands of the West Coast and one record from Kangaroo I., S Australia

Usual Habitat a deep water species (to 35m) on rock

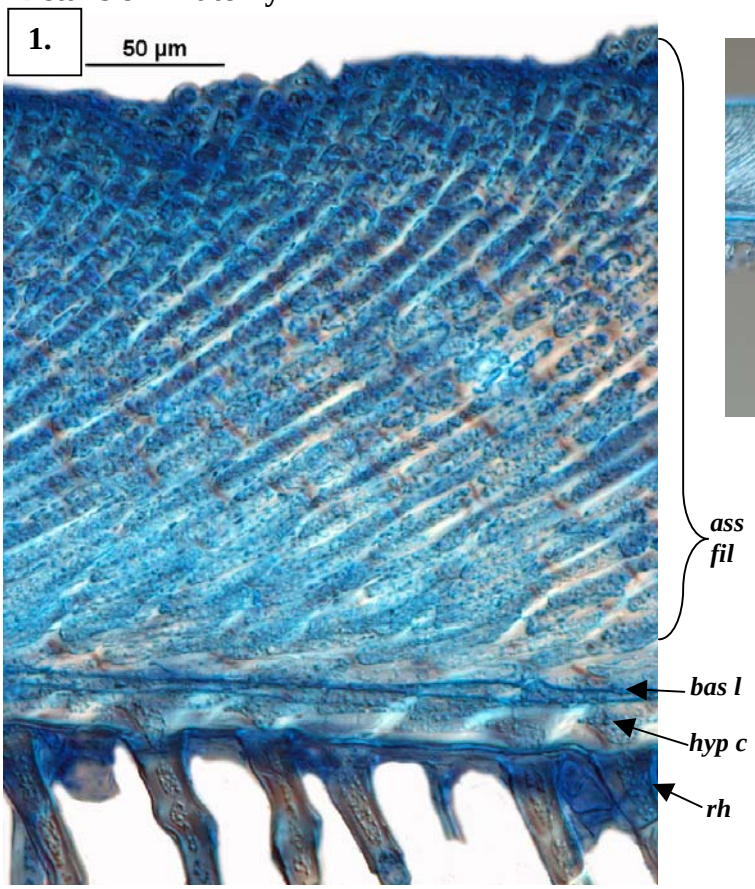
Special requirements

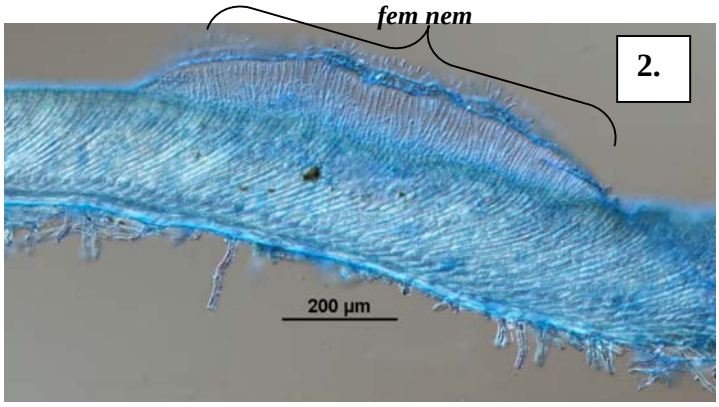

1. cut a radial cross section through a blade to find a prominent basal layer of cells giving rise to:-
   - rhizoids on the underside at right angles, the first cell (hypobasal) of which lies ***within*** the blade sheath
   - threads (assurgent filaments) of many cells on the upper side initially at ***about 30°*** but becoming almost vertical
   - prominent, large, spindle-shaped, bright cells (***cystoliths***) in lower thread parts
2. if possible cut a section through obscure patches (nemathecia) on upper blade surfaces of fertile plants to find:-
   - in female plants, ***chains*** of carposporangia amongst fine hairs
   - in sporangial plants, tetrasporangia divided in a cross-shaped (cruciate) pattern amongst fine hairs

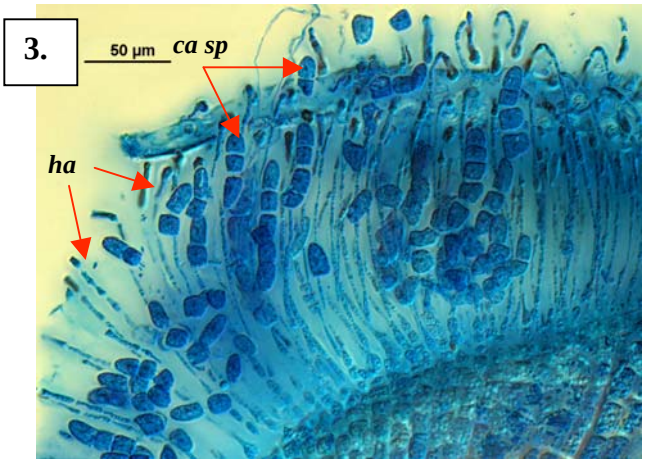
Similar Species *Peyssonnelia novae-hollandiae*, but that species has larger tetrasporangia, carposporangia in ***pairs***, ***cross threads*** amongst the many rising upwards (assurgent filaments) and ***no*** bright cystoliths

Description in the Benthic Flora Part IIIA, pages 152, 158-160

Details of Anatomy







Radial cross sections of *Peyssonnelia foliosa* stained blue and viewed microscopically to show:

1. the basal cell layer (*bas l*), basal cell of a rhizoid within the blade sheath (hypobasal cell, *hyp* c), rhizoids (*rh*) and threads (assurgent filaments, *ass fil*), initially growing upwards at about 30° angle (A34050 slide 11251)
2. a female nemathecium (*fem nem*) (A24047 slide 11270)
3. detail of chains of carposporangia (*ca sp*) amongst hairs (*ha*) in a female nemathecium (A58662 slide 10579)

ca

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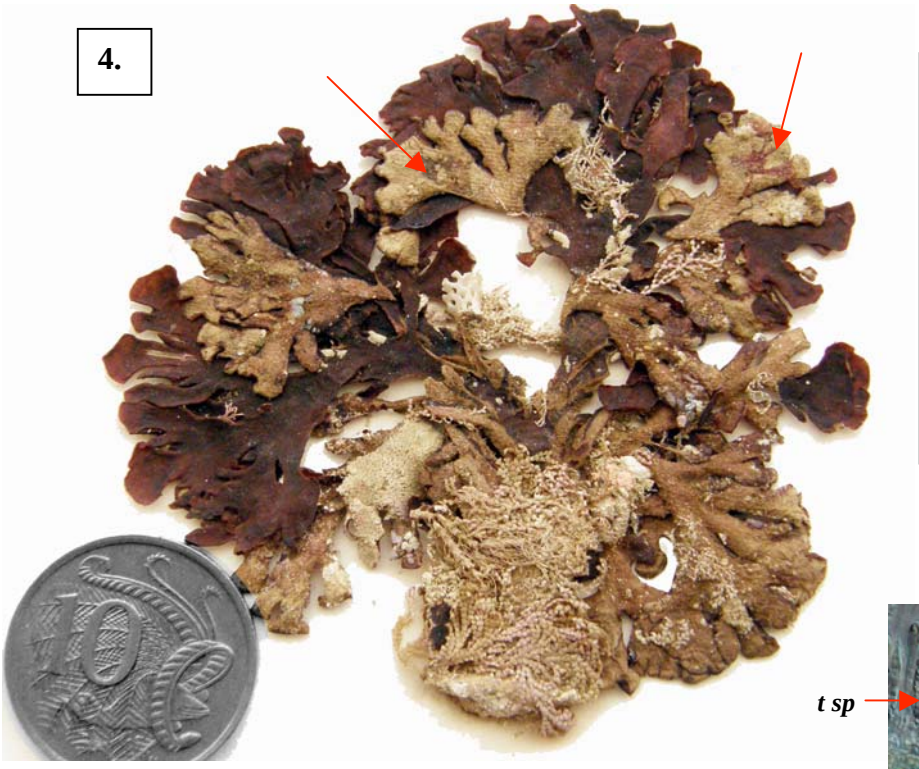
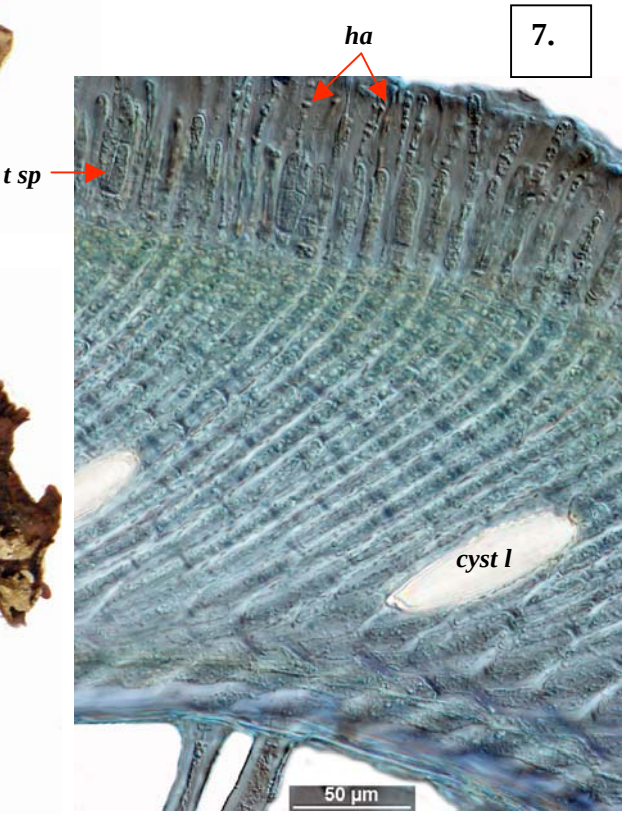
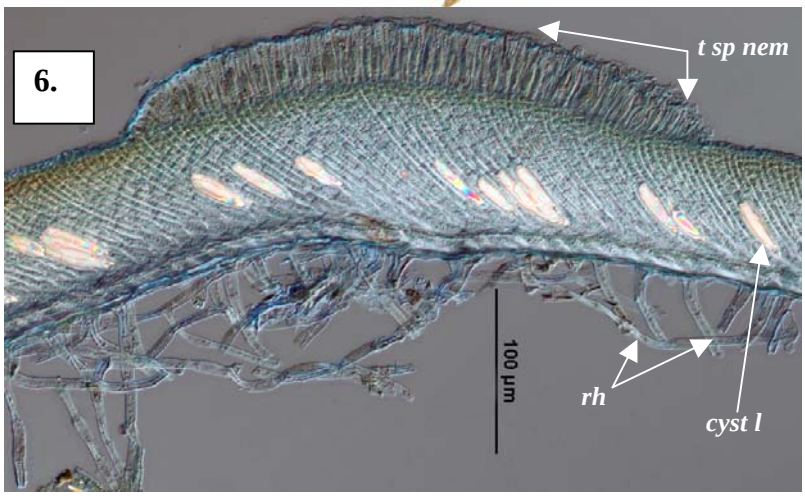
§ name used in Edgar, G. *Australian Marine Life, 2nd Ed.* (2008) for *Peyssonnelia* species
"Algae Revealed" R N Baldock, S Australian State Herbarium January 2010



4. *Peyssonnelia foliosa* Womersley, (A33629), 20-25m deep on a horizontal rock face, Pearson I., South Australia, showing the dark upper surface and lighter rhizoid covered underside (arrowed)
5. *Peyssonnelia foliosa* (A59300) 32m deep at The Hotspot, W of Flinders I., South Australia





6, 7. two magnifications (A59300 slide 11260) of radial cross sections of sporangial patches (nemathecium, *t sp nem*) stained blue and viewed microscopically

6. a plant blade with whole nemathecium (*t sp nem*), bright cells (cystoliths, *cyst l*) in lower parts of upward growing threads and numerous rhizoids (*rh*)
7. tetrasporangia (*t sp*) divided in a cross (cruciate) pattern amongst fine hairs (*ha*)

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