Peyssonnelia capensis Montagne

45.240

Techniques needed and shape

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

***Descriptive name** § a red sea fan

Features

1. plants pale red to red-grey, 20-200mm or more across, flat, attached to rock (encrusting)
2. disc-shaped or divided into several leathery lobes (edges curling when dried)
3. blades with minute radial lines (striae) and concentric rings

Occurrences S Africa, Madagascar, Brazil New Zealand. In Australia, from the near Perth to northern NSW and around Tasmania

Usual Habitat on rock in shallow water to 16m deep or in deep intertidal pools

Special requirements

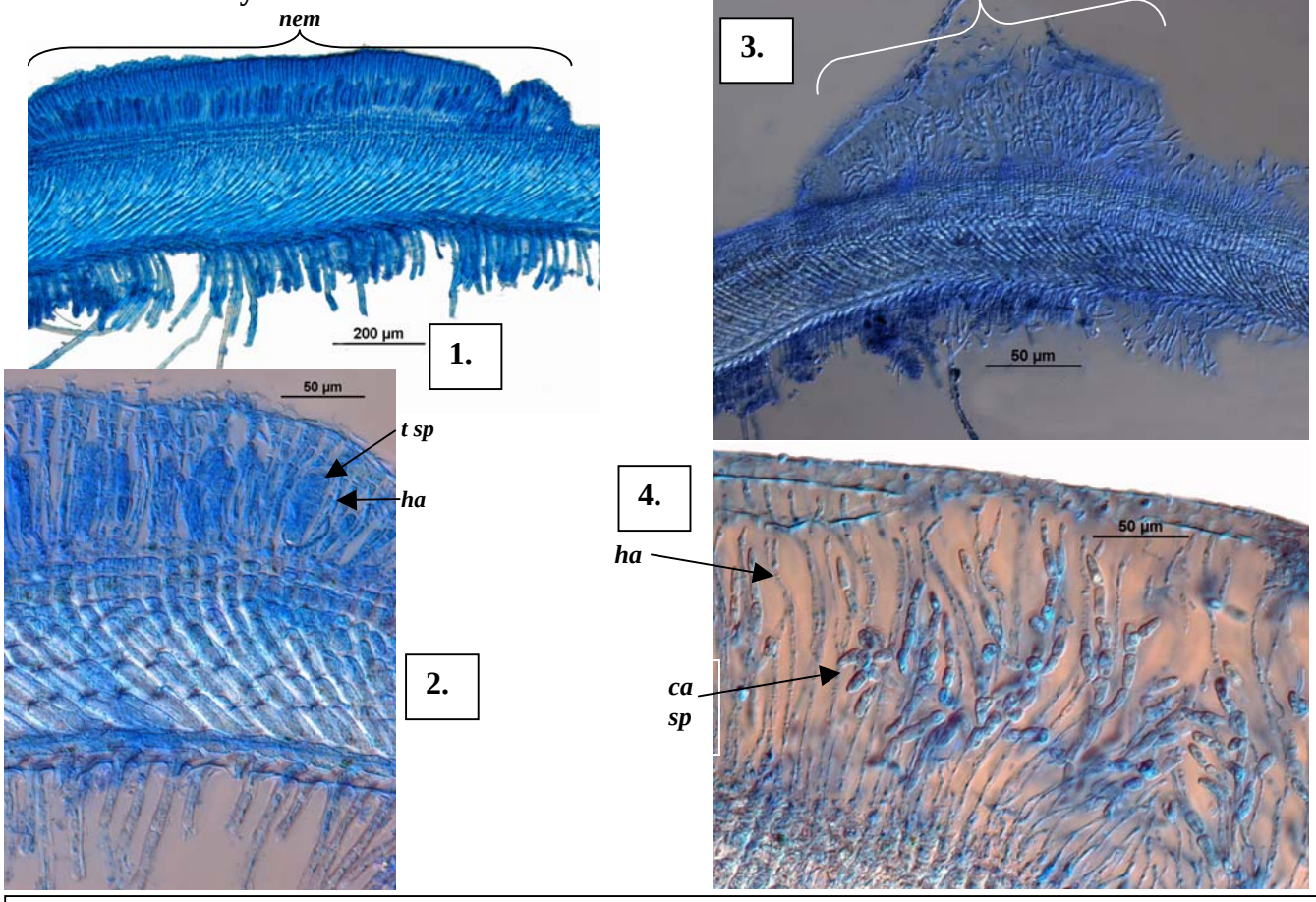
1. cut a cross section along a radius of a blade and view microscopically to find a ***single cell layer*** on the lower surface producing:-
   - upright threads at an ***angle of about 30°.*** Egg-shaped, calcified cystoliths (*cyst l*) may be produced in clusters towards the end of some threads
   - ***bent*** basal cells of rhizoids pointing slightly ***forward*** and lying ***within*** the blade sheath
2. if possible cut a section through patches (nemathecia) on upper blade surfaces of fertile plants.
   - in sporangial plants, tetrasporangia, divided in a cross (cruciate) pattern are intermingled with hairs, a feature separating *Peyssonnelia* from *Sonderopelta*
   - in female plants, carposporangia in branched chains amongst fine hairs

Diagnosis can be difficult as fertile plants are rare

Similar Species *Peyssonnelia novae-hollandiae*, but that species is redder, and basal cells of rhizoids pass through the blade sheath –there is no hypobasal cell layer lying within the blade sheath of that species

Description in the Benthic Flora Part IIIA, pages 152, 155-157

Details of Anatomy



Radial cross sections of *Peyssonnelia capensis* blades (A13698 slide 11252) stained blue and viewed with highly polarised light to accentuate the internal regions of multicellular threads

1, 2 two magnifications of a patch (nemathecium, *nem*) of tetrasporangia on the upper blade surface including tetrasporangia (*t sp*) divided in a cross (cruciate) pattern separated by fine hairs (*ha*) (A60216 slide 11575)

3, 4. two magnifications of a patch (nemathecium, *nem*) of female structures with branches bearing carposporangia (*ca sp*) and hairs (*ha*) (A34320 slide 11285)

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

§ name used in Edgar, G. *Australian Marine Life, 2nd Ed.* (2008)

"Algae Revealed" R N Baldock, S Australian State Herbarium January 2010

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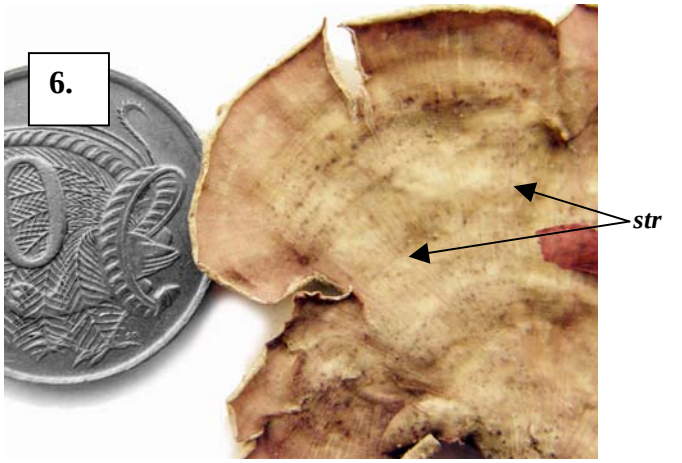
6.



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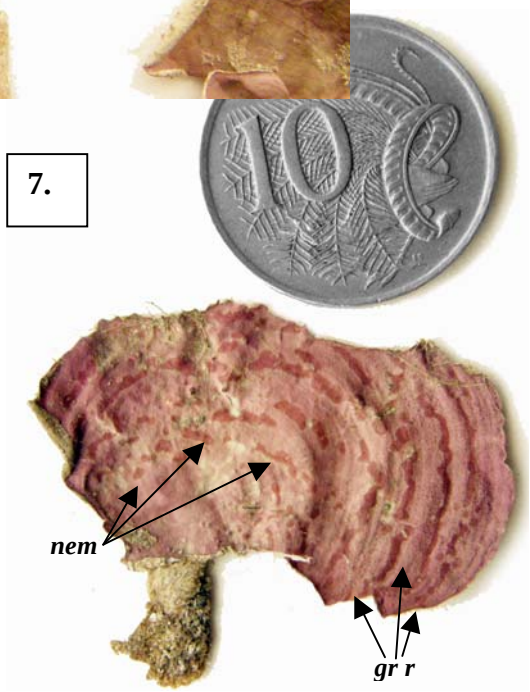

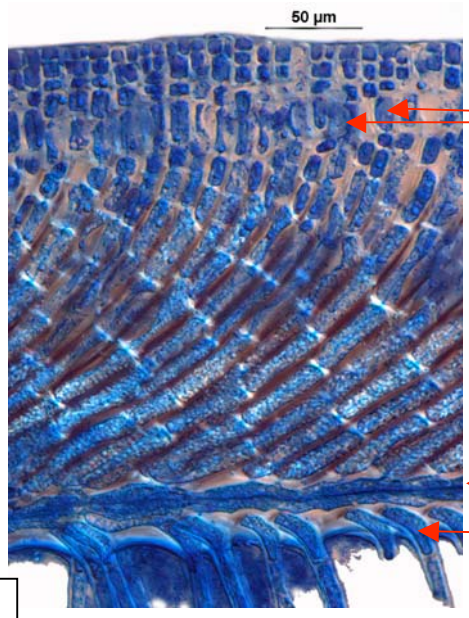

8.

5, 6. Two magnifications of *Peyssonnelia capensis* Montagne (A69474) from 3-5m deep Freeling I., Nuyts Archipelago, S Australia, showing minute radial lines (striae, *str*), and curled edges when dry

7. a specimen from 13m deep, Port Noarlunga, S Australia, (A32552)showing patches (nemathecia, *nem*) of reproductive structures and concentric growth rings (*gr r*)

8. radial cross section of a *Peyssonnelia capensis* blade (A13698 slide 11252) stained blue and viewed with highly polarised light to accentuate the internal regions. A ***single cell layer*** on the lower surface produces threads at an angle of about ***30°*** and ***bent basal cells*** of rhizoids pointing slightly ***forward***. Calcified cystoliths (*cyst l*) are in clusters towards the end of some threads

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