Pachymenia orbicularis (Zanardini) Setchell & Gardner

45.280

Techniques needed and shape

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

***Descriptive name** red blades

Features

1. plants are ***very dark*** red, sometimes mottled, 200-900mm tall, may become yellow-red and ***gristly*** (cartilaginous) when dry
2. plants are attached to rock by a small disc producing a ***thin stalk*** with several broad blades divided near their bases or with small marginal blades, narrow at the bases

Plants can show considerable variation

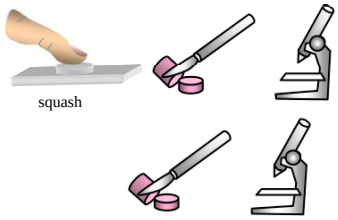
Occurrences SW W. Australia to Victoria and Tasmania.

Usual Habitat fairly common on rock (also jetty piles) but in deep water (3-25m deep)

Similar Species superficially similar to *Rhodoglossum gigartinoides* or *Sarcothalia radula*, but these members of the Gigartinaceae differ reproductively from *Pachymenia*

Description in the Benthic Flora Part IIIA, pages 207, 208-211

Special Requirements

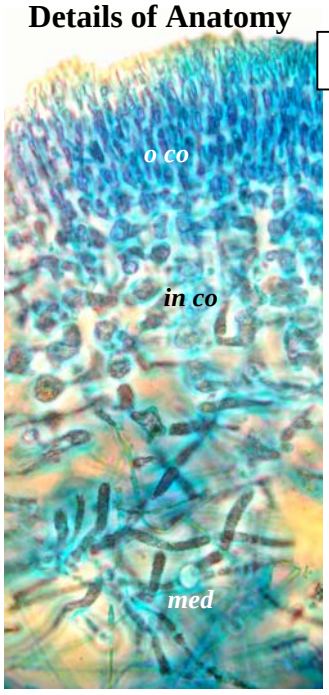


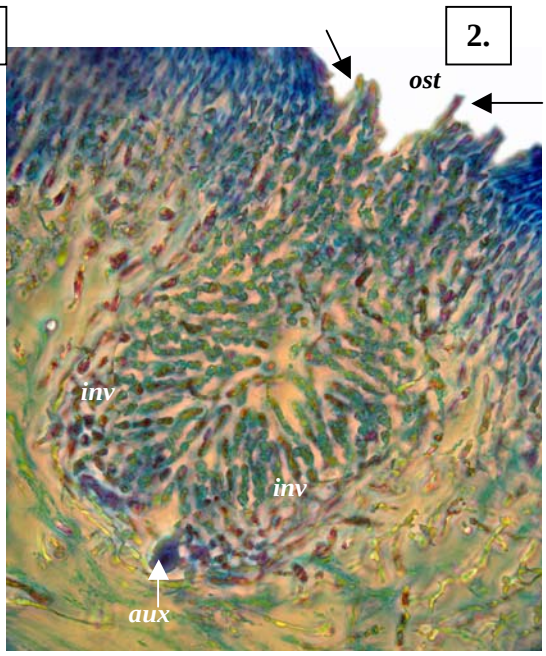
1. cut a cross section or make a tissue squash and view microscopically to find:
   - the ***broad*** core (medulla) of irregular threads of 2 kinds: ***very fine*** and ***broader***
   - ***thick*** outer layers (cortex) of inner ***irregular-shaped*** cells and ***forked*** outer chains of about 10-20 ***outwardly facing*** small cells
   - bright (***refractive***) spidery (***ganglionic***) cells may be present ***or*** absent
2. if possible, cut a cross section of a female plant to find the products of fertilisation
   - ball-shaped structures (ampullae) protruding into the core (medulla) with a ***prominent*** basal (auxiliary) cell and dense masses of carposporangia inside
   - enveloped by a ***dense*** network of threads (involucre) some of which ***protrude*** through the ***prominent*** openings (ostioles)

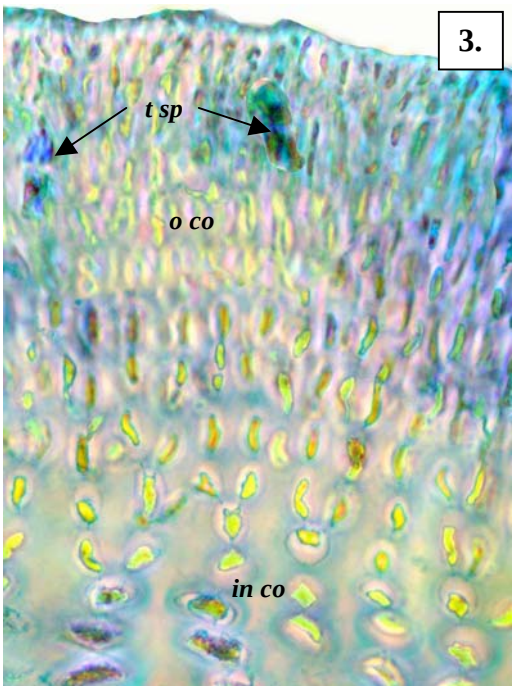
Diagnosis can be difficult

3. if possible, cut a cross section of a sporangial plant to find scattered ***elongate*** tetrasporangia divided in a cross (cruciate) pattern amongst the outer cortical cells

Details of Anatomy

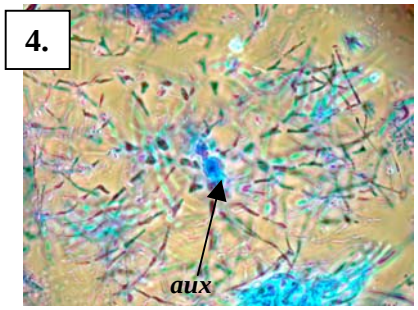






Pachymenia orbicularis stained blue and viewed microscopically:

1. a cross section showing part of the core (medulla, *med*) of broad ***and*** thin threads and thick outer layer of inner irregular cells (inner cortex, *in co*) grading into forked chains of about 10 smaller, elongate cells facing outwards (outer cortex, *o* co) (A32977 slide 11727)
2. a cross section of a mature female structure lying in a space (ampulla) in the cortex, with basal auxiliary cell (*aux*) and chains of cells forming an envelope (involucre, *inv*) some of which (arrowed) protrude through the opening (ostiole, *ost*) (carposporangia inside are not visible) (A22982 slide 11739)
3. a cross section of a sporangial plant showing two tetrasporangia (*t sp*) in the outer cortex (A11130 slide 11728)
4. a young female structure separated out in a tissue squash and viewed from above showing the auxiliary cell and early stages of the involucre (A44953 slide 11736)



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

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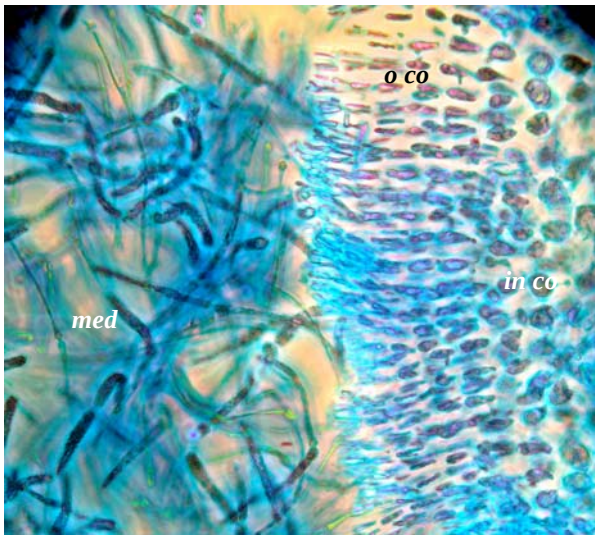

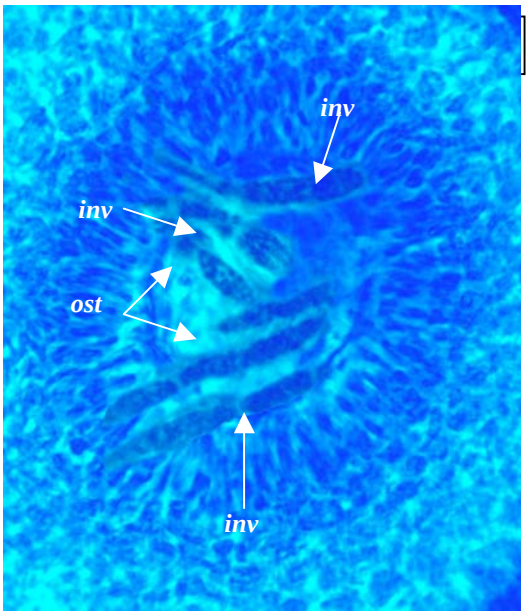

6, 7. Two specimens of *Pachymenia orbicularis* (Zanardini) Setchell & Gardner, showing variations in colour and shape.
6. a drift plant from Hut Bay, Yorke Peninsula, S Australia (A59160)
7. a plant 20m deep on a limestone reef 4km off the Murray River mouth, S Australia (A71994)

8, 9. views of tissue stained blue and viewed microscopically
8. a tissue squash with a piece of the outer (cortex) layer showing the outermost chains of small cells (outer cortex, *o co*), inner, larger more irregular cells (inner cortex, *in co*); and fine ***and*** broad threads of the core (medulla, *med*) (displaced to the outer side of the cortex during the squashing) (A32977 slide 11727)
9. a highly magnified surface view showing a prominent opening (ostiole, *ost*) of a female structure (ampulla) ringed by cortical cells, with some threads of the internal envelope (involucre, *inv*) protruding through the opening (A44953 slide 11736)

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