

**Pictured Key to some common broad bladed red algae of southern Australia**

(not including leafy algae with much divided blades)

**Red Algae.** With some 800 species, many of which are endemic (found nowhere else), southern Australia is a major centre of diversity for red algae. Classification is based on detailed reproductive features. Many species unrelated reproductively have similar vegetative form or shape, making identification very difficult if the technical systematic literature is used.

**This key** Fortunately, we can use this apparent problem to advantage - common shapes or morphologies will allow you to sort *some* algae directly into the level of genus or Family and so shortcut a systematic search through intricate and often unavailable reproductive features. The pictured key below uses this *artificial* way of starting the search for a name. It's designed to get you to a possible major group in a hurry. Then you can proceed to the appropriate fact sheets within this website.

**Scale:** the coin used as a scale is 24mm or almost 1" wide. Microscope images of algae are usually blue stained

- 1a. blades tissue-paper thin, almost transparent, edges ruffled, stalk small or practically absent. Figs 1, 2, 4, 6, 8, 10 ..... 2.
- 1b. blades thicker, leathery or gristly, opaque, edges smooth or wavy, usually attached by a stalk. Fig 4..... 3.
- 2a. blades usually whole, 2 cells thick, cells similar throughout..... *Porphyra*. Figs 1-3
- 2b. blades sometimes lobed, > 2 cells thick, of several cell types ..... 3.
- 3a. surface of blades with rings (rosettes) of cells ..... *Leptosomia rosea* Figs 4, 5
- 3b. **no** rosettes; tissue squash shows large long-armed (ganglionic) cells present Fig. 9 ..... 4.
- 4a. blade shot-holed or with a spiny surface or smooth; evenly coloured ..... *Kallymenia* Figs 6-9 (see the separate web pages "*Kallymenia* spp at a glance")
- 4b. blade whole, smooth, often mottled ..... *Halymenia plana* Figs 10, 11 next page



Fig. 1: two forms of *Porphyra columbina*



Fig. 2: *Porphyra woolhousiae* on threads of a green alga

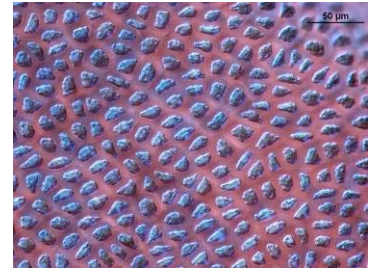


Fig. 3: *Porphyra columbina*: surface cells



Fig. 4: *Leptosomia rosea*

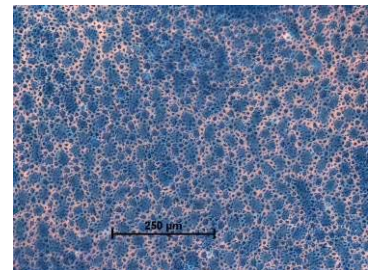


Fig. 5: *Leptosomia rosea*: surface view of cell rosettes



Fig. 6: *Kallymenia cribrosa*



Fig. 7: *Kallymenia cribrogloea*: detail of blade holes

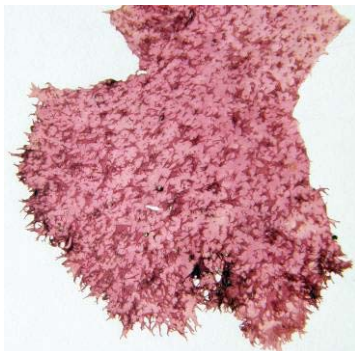


Fig.8: *Kallymenia spinosa*: with spiny surface

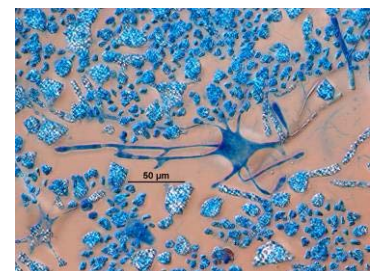


Fig. 9: *Kallymenia cribrogloea*: tissue squash with long-armed ganglionic cell



Fig. 10: *Halymenia plana*

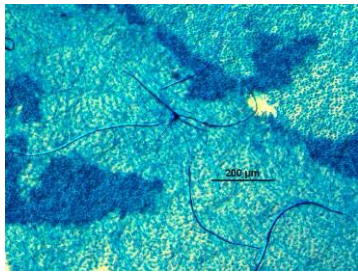


Fig. 11: *Halymenia plana*: tissue squash with long-armed ganglionic cells



Fig. 12: *Predaea huismanii*

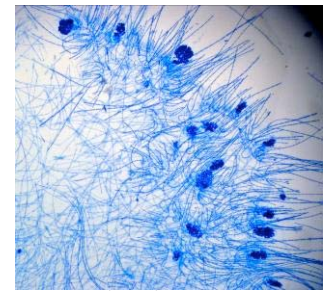
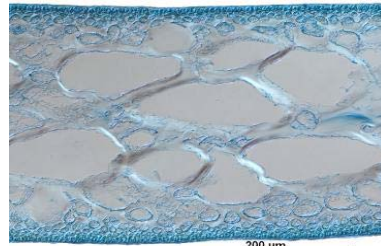


Fig. 13: *Predaea huismanii*: tissue squash

- 5a. surface felty with microscopic hairs; tissue squash shows only fine, twisted threads ..... *Predaea huismanii*. Figs 12, 13
- 5a. surface smooth, cross section or tissue squash shows both threads and chains of small cells **or** oval cells of different sizes ..... 6.
- 6a. cross section shows a core of large oval cells grading to small ones in outer layers. Fig 14 ..... 7.
- 6a. cross section shows a core of threads, outer layers with chains of small cells ..... 8.



*Hymenocladia chondricola*  
Cross section of blade: core of large oval cells



Fig 15: *Hymenocladia chondricola*: tough, fringed blade, short stalk

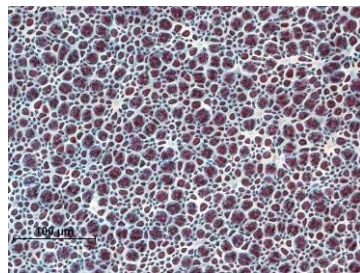


Fig. 16: *Rhodymenia halymenioides*: surface rosettes



Fig. 16: *Rhodymenia halymenioides*



Fig 17: *Rhodymenia halymenioides*

- 7a. blade edges fringed, or divided into narrow blades. *Hymenocladia chondricola*. Figs 14, 15
- 7b. blade edges entire or ragged; surface cells in rosettes; fertile blades grow from the blade surface. *Rhodymenia halymenioides*. Figs 16, 17
- 8a. fertile bumps (pustules) on the blade surface ..... 9.
- 8b. fertile patches sunken into blade surface ..... 10.
- 9a. blades broad at base, fertile pustules on surface and edges; cross section shows star-shaped cells ..... *Sarcothalia radula*. Figs 21-22
- 9b. blades lance shaped, fertile pustules on blade surface; star-shaped cells absent ..... *Rhodoglossum gigartinoides*. Figs 18, 19



Fig. 20: *Sarcothalia radula*



Fig. 18: *Rhodoglossum gigartinoides*



Fig 19: *Rhodoglossum gigartinoides*: scattered pustules on blade surface



Fig. 21: *Sarcothalia radula*: blade edge with fertile pustules



Fig. 22: *Sarcothalia radula*: cross section

shows only fine threads

- 10a. tissue squash or cross section shows **no** large, long-armed (ganglionic) cells ..... *Aeodes nitidissima*. Figs 23, 24
- 10b. tissue squash or cross section shows large, long-armed (ganglionic) cells **present** ..... 11.



Fig. 23: *Aeodes nitidissima*

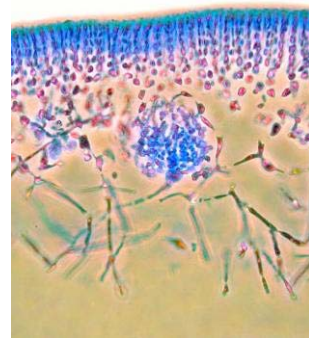


Fig. 24: *Aeodes nitidissima*: section of outer layer with sunken female structure (cystocarp)

- 11a. tissue squash shows outer small cells in loose, branching tufts. Fig. 26 ..... 12.
- 11b. tissue squash shows outer small cells mostly in tight parallel rows. Fig. 30 ..... 13.



Fig. 25: *Platoma australicum*

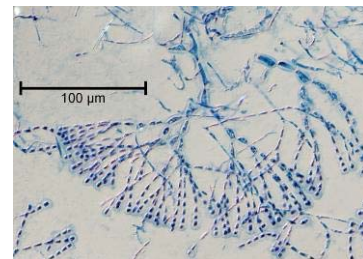


Fig. 26: *Platoma foliosum*: tissue squash of outer parts showing a branch tuft

- 12a. several blades arise from a short stalk; tissue squash shows long strings of cells in tufts of outer layers ..... *Platoma* spp Figs 25, 26
- 12b. blades mainly single; tissue squash shows short strings of cells in tufts of outer layers ..... *Tsengia laingii* Figs 27, 28



Fig. 27: *Tsengia laingii*



Fig. 28: *Tsengia laingii*: tissue squash

- 13a. < 10 cells in strings at blade edges; blades usually slimy ..... 14
- 13b. more than 10 cells in strings at blade edges; blades may be gristly, tough, or with a slight surface sheen, divided at edges into lance-shaped side blades ..... *Pachymenia orbicularis* Figs 29-31



Fig. 29: *Pachymenia orbicularis*



Fig. 30: *Pachymenia orbicularis*

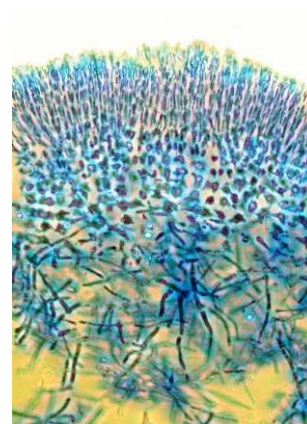


Fig. 31: *Pachymenia orbicularis*: section through outer layer

- 14a. blades large compared to basal stalks, with a wide core of sparse, fine threads; outer chains about 8 cells long  
 ..... 15.
- 14b. blades often divided into smaller, spatula-shaped blades; core narrower of mostly thicker, branched cells, strings of 1-3 cells in outermost layers  
 ..... *Cryptonemia wilsonii* Figs 32, 33



Fig. 32: *Cryptonemia wilsonii*

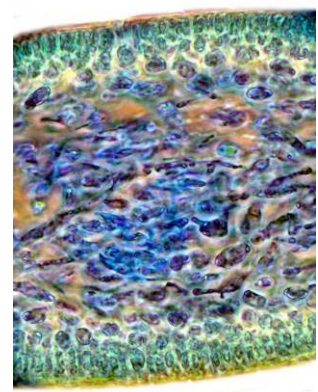


Fig. 33. *Cryptonemia wilsonii*: cross section

- 15a. blades usually slimy, divided into several large, roughly triangular blades narrowing rapidly to a very small common stalk  
 ..... *Schizymenia dubyi* Figs 34, 35



Fig. 34: *Schizymenia dubyi*

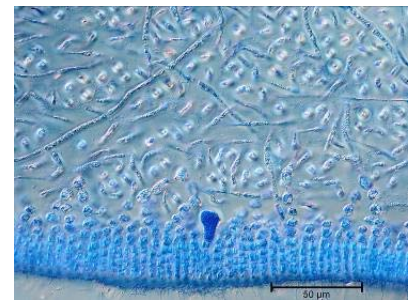


Fig. 35: *Schizymenia dubyi*: cross section, blade edge

- 15b. blades leathery, usually single, broad, oval-shaped with tiny basal stalk; outermost cells with side connections  
 ..... *Grateloupia ovata* Figs 36-38



Fig. 36: *Grateloupia ovata*



Fig 37. *Grateloupia ovata*: small basal stalk



Fig. 38. *Grateloupia ovata*: cross section of blade edge