**Kallymenia tasmanica**

*Harvey*

**Techniques needed and shape**

**Classification**

*Descriptive name*

**Features**

- Plants are dark red, 50-300mm tall and about the same width.
- They consist of firm leafy blades lobed at the edges, some edges ruffled with small points.
- Main blades arise from short stalks and blade lobes overlap.

**Occurrences**

**Usual Habitat**

From shallow to moderately deep water.

**Special requirements**

- Make squashes of tissue of different plants under the microscope to see:
  - Loosely arranged thread-like cells developing from the pointed ends of star-shaped (stellate) cells with densely staining contents located in the core.
  - Small, round cells in several layers of the outermost parts (cortex).
  - Numerous, young, amoeba-like female structures (carpogonial branch systems, *cbs*) in the cortex with dense contents bearing single threads (carpogonia).
  - Scattered tetrasporangia divided in a cross (cruciate) pattern.

**Similar Species**

- *Kallymenia rubra* also with single carpogonium per *cbs* but that species has separate female reproductive (auxiliary cell) systems that receive the fertilized nucleus, the core of threads is more compact and blade lobes do not overlap. Highly lobed *K. tasmanica* may also resemble *Thamnophyllis laciniata.*

**Description in the Benthic Flora**

Part IIIA, pages 232, 234-236

**Details of Anatomy**

1. A partial cross section showing several layers of outer cells (cortex, *co*), loose threads of the core (medulla filaments, *med fil*) and a young female structure (carpogonial branch system, *cbs*) with a single thread-like carpogonium (carp) characteristic of the species (A34632 slide 2861).
2. A partial cross section through a sporangial plant with tetrasporangia (t sp) in the cortex (A34270 slide 2864).
3. A cross section with a central star-shaped cell (stellate cell, *st c*) and a developing *cbs* (A34632 slide 2861).
4. A cross section showing a string of stellate cells in the medulla (arrowed) and a female structure developing after fertilization (cystocarp, *cyst*) (A34632 slide 2861).
5. A cross section through a mature female structure (cystocarp, *cyst*) showing the patches of carposporangia (c sp) separated by threads (filaments, *fil*) (A33060 slide 2860).

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

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

Prepared April 2009

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Phylum: Rhodophyta; Order: Gigartinales; Family: Kallymeniaceae

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*Kallymenia tasmanica* stained blue and viewed microscopically:

1. A partial cross section showing several layers of outer cells (cortex, *co*), loose threads of the core (medulla filaments, *med fil*) and a young female structure (carpogonial branch system, *cbs*) with a single thread-like carpogonium (carp) characteristic of the species (A34632 slide 2861).
2. A partial cross section through a sporangial plant with tetrasporangia (t sp) in the cortex (A34270 slide 2864).
3. A cross section with a central star-shaped cell (stellate cell, *st c*) and a developing *cbs* (A34632 slide 2861).
4. A cross section showing a string of stellate cells in the medulla (arrowed) and a female structure developing after fertilization (cystocarp, *cyst*) (A34632 slide 2861).
5. A cross section through a mature female structure (cystocarp, *cyst*) showing the patches of carposporangia (c sp) separated by threads (filaments, *fil*) (A33060 slide 2860).

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Different magnifications of *Kallymenia tasmanica* Harvey from S Australia

6. 7. from 50m deep, Gulf St Vincent (A16142) showing ruffled edges and the slender basal stalk (arrowed)

8. a drift plant from Port Elliott, with divided blades, points on the blade edge and basal stalk (arrowed) (A11122)

9. a tissue squash stained blue showing a mix of small outer cells (cortex, co) core (medulla) threads (med fil) with a densely stained stellate cell (st c) a and 2 developing carposgonial branch systems (cbs) (A34162 slide 2862)

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