Polyopes tasmanicus

(Womersley & Lewis) Kawaguchi & Lewis
(as *Grateloupia tasmanica* in the Flora)

45.280

Techniques needed and shape

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

***Descriptive name** red or brown Bottle-brush alga

Features

plants dark red-brown to yellow-brown, 100-300mm tall, gristly (cartilaginous), main branches (axes) ***compressed***, 2-4mm wide, arising from a disc-like base, either bearing thin, tapering side-branches or covered at right angles with short, spindle-shaped branches. Fertile plants have dense, ***inflated***, short, spindle-shaped side branches

Occurrences Eastern Tasmania

Usual Habitat on rock in the lower intertidal to 1m deep

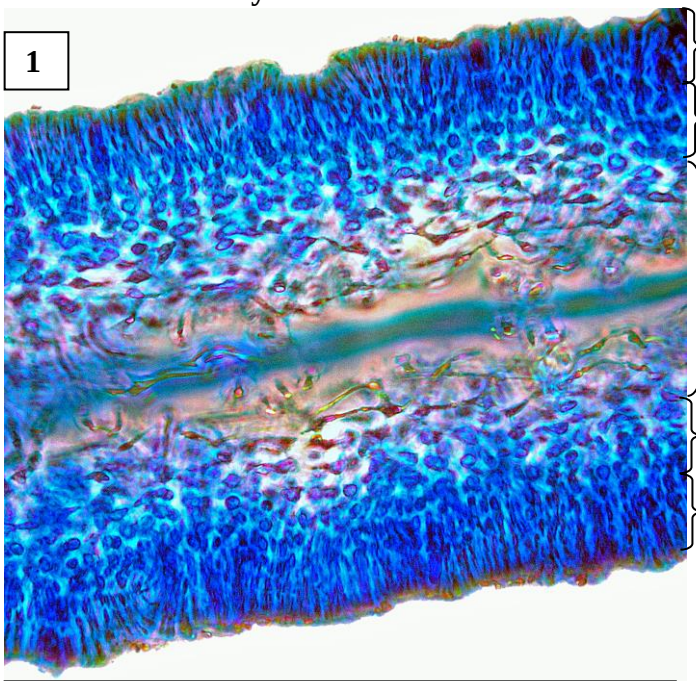
Similar Species *Grateloupia luxurians* (as *Gr. filicina* var. *luxurians* in the Flora) which also has short side branches, although fewer in number and that species is smaller, softer with reproductive differences

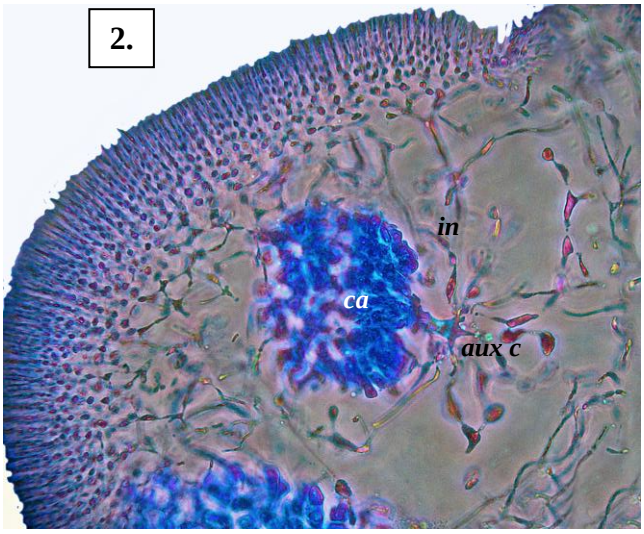
Description in the Benthic Flora Part IIIA, pages 199-202

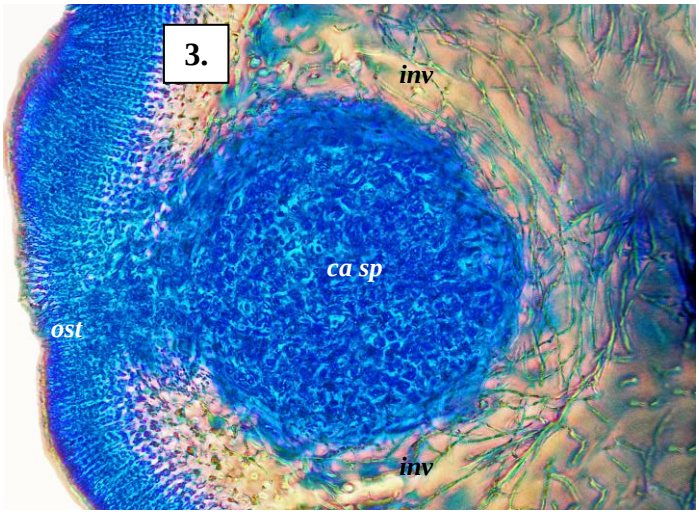
Special Requirements cut cross sections and view microscopically to find

- outermost layers (outer cortex) of closely packed, ***branched*** threads of ***small*** cells at right angles to the surface; inner cortex of ***larger*** even-sided, loosely packed cells, some becoming star-shaped; core (medulla) of ***sparse,*** irregularly branched ***threads***
- in female plants: ***initially***, cell clusters attached to a prominent basal (auxiliary) cell, ***later*** developing into large ball-shaped structures (ampullae) protruding into the core (medulla) enveloped by a ***prominent*** network of threads (involucre), ***finally*** with dense masses of carposporangia inside ampullae, escaping through small openings (ostioles)
- in sporangial plants: scattered tetrasporangia divided in a cross (cruciate) pattern mainly in the cortex of short, spindle-shaped side branches

Details of Anatomy







Polyopes tasmanicus: cross sections stained blue and viewed microscopically

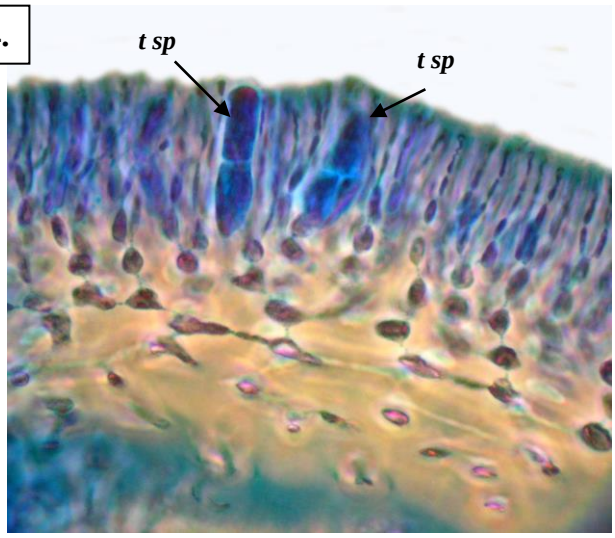
1. core (medulla, ***med***) of loose threads; loosely packed equal-sided cells (inner cortex, ***in co***), smaller cells in branched chains facing outwards (outer cortex, ***o co***) (with several elongate tetrasporangia) (slide 11906)
2. young female structures: prominent cell (auxiliary cell, ***aux c***), sparse wrapping (involucre, ***inv***), mass of fertile cells (carposporophyte, ***ca***) (slide 11908)
3. mature female structure: denser wrapping (involucre) of threads, carposporangia, (***ca sp***), opening (ostiole, ***ost***) (slide 12753)

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

"Algae revealed", R N Baldock, State Herbarium, S Australia, July 2008; revised August 2014

5.

4.



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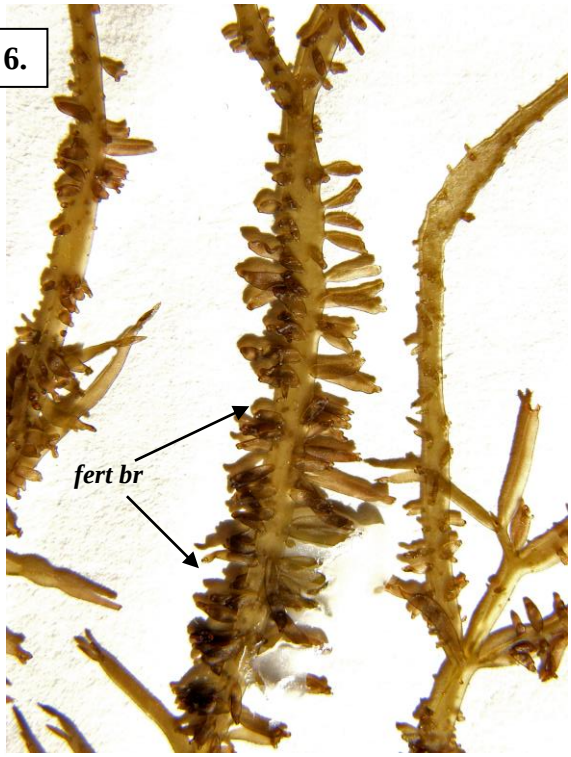

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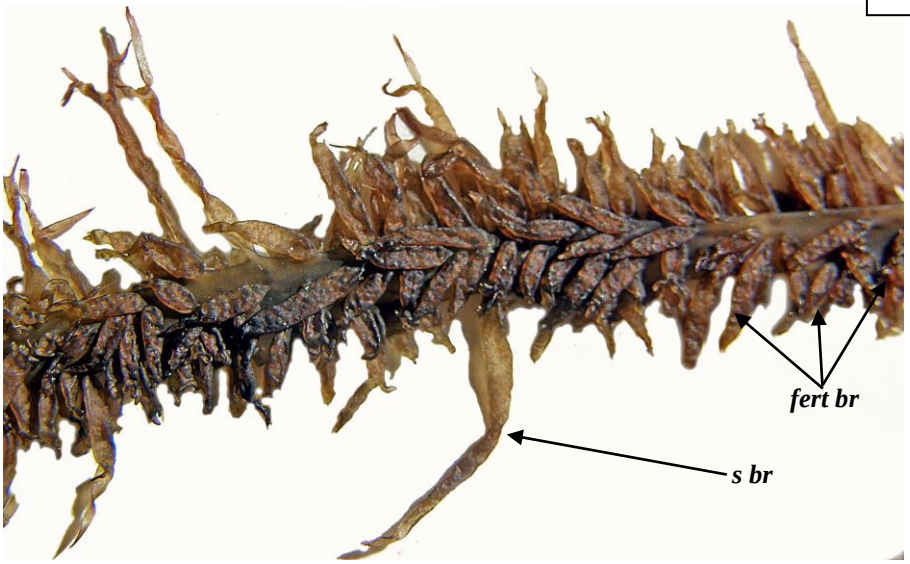

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4. cross section of cortex stained blue and viewed microscopically: two tetrasporangia (***t sp***) dividing into a cross (cruciate) pattern (slide 11906)
5. plants from the lower intertidal at Taroona, Tasmania (A61523): characteristic branching pattern of sterile specimens
6, 7. two magnifications of plants from the lower intertidal at Kingston, Tasmania (A61532): detail of dense, fertile branchlets **(*fert br*)** and sparser, longer ,sterile side branches (***s br***)

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