Techniques needed and shape

**Classification**

*Descriptive name*

Phylum: Rhodophyta; Order: Gigartinales; Family: Areschougiaceae

tough red sea fern; narrow-leaved fishbone

**Features**

1. plants dark red-brown, 100-300mm tall, usually with a stubby, cylindrical stalk from which several sturdy, compressed main upright branches (axes) 4-5mm broad arise
2. side branches are distinctly narrower, flat-branched oppositely twice over (bi-pinnate), cylindrical or compressed, often dense (proliferous), 1-2mm broad

**Occurrences**

from Geraldton, W Australia to Kangaroo I., S Australia

**Special requirements**

1. cut a cross section and view microscopically to find
   - the central core (medulla) of threads, and rhizoids
   - an outer layer (cortex) of inner large and outer small cells
2. if possible find cystocarps, the products of fertilisation in female plants bulging at the edges of smaller branches (pinnules), often grouped together
3. if possible, cut a cross section and view microscopically a sporangial plant to find the small, cigar-shaped tetrassporangia, divided into rows (zonately) among elongate, sterile outer (cortical) cells

**Usual Habitat**

possibly a deep water species (collected to 38m deep)

**Similar Species**

Callophycus laxus, but that species has less dense side branches similar in width to main axes

**Description in the Benthic Flora**

Part IIIA, pages 334-338

**Details of Anatomy**

1-4. sections of *Callophycus oppositifolius* (A31039 slide 3833) stained blue and viewed microscopically showing
   - the core (medulla, med) of threads and outer (cortex) layers of equal-sided (parenchymatous) cells, inner ones large grading to small outer ones
   - a cluster of cystocarps (cyst) forming swellings at the margin of a branch
   - detail of a cystocarp with a central fusion cell (fc) and opening (ostiole, ost)
   - detail of a fusion cell with a stalk formed by fusions of medullary threads

5, 6. *Callophycus oppositifolius* (A34329 slide 3834) stained blue and viewed microscopically showing
   - surface view of tetrassporangia (t sp) amongst cortical cells
   - cross section showing a zonately divided sporangium amongst elongate cortical cells (“hairs”, ha)

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

§name used by Edgar, G (2008) in Australian Marine Life (2nd ed)

“Algae Revealed” R N Baldock, S Australian State Herbarium, January 2008
Descriptive names are inventions to aid identification, and are not commonly used.


7, 8 two views of *Callophycus oppositifolius* (C Agardh) Silva, (A56647), from Rottnest I., W Australia showing the flat-branching pattern, and wide main axes by comparison to side branches (pinnae and pinnules)

9, 10. two views of *Callophycus oppositifolius* (A68471) showing:
9. the basal attachment pad, short stalk and several wide, flat, denuded main branches (axes)
10. the dense bi-pinnate branching and compressed shape of branches near the plant tips

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

