Techniques needed and shape

Phylum: Rhodophyta; Order: Gigartiniales; Family: Areschougiiaceae
toothed red sea fern. § Broad-leaved fishbone

*Descriptive name
toothed red sea fern. § Broad-leaved fishbone

Features

1. plants are dark red-brown, 100-250mm tall, with a short cylindrical basal stalk when mature producing several flat main branches, 5-8mm wide sometimes completely thickened
2. side branches are flat, thin, in two rows, in one flat surface (complanate), 1-2mm wide with toothed edges but no mid-vein

Occurrences

probably a species with only a western Australian distribution, from Port Denison to Hamelin Bay, W Australia

Special requirements

1. cut a cross section and view microscopically to find
   • the central core (medulla) of threads, mainly running lengthwise
   • outer layers (cortex) of inner large and outer small cells
2. if possible find the products of fertilisation in female plants (cystocarps)
   • crowded, protruding in the smaller side branches, with an opening (ostiole)
   • with a large fusion cell connecting to an enlarged central thread
3. if possible, cut a cross section through a sporangial plant to view the scattered, small, cigar-shaped tetrasporangia in the outer (cortex) layers, amongst elongate cells ("hairs"), divided in rows (zonately)

Usual Habitat

from shallow water, but often collected as drift material

Similar Species

Callophycus costatus, a species restricted to tropical regions, with a vein in all but the smallest branches which are also serrated. Side branches are uniform in width and length

Description in the Benthic Flora

Part IIIA, pages 333-336

Details of Anatomy

1-3. Callophycus dorsiferus (C Agardh) Silva (A18369 slide 3812); cross sections stained blue and viewed microscopically to show:
1. lengthwise threads of the central core (medulla, med) and outer layer (cortex, co) of inner large and outer small cells
2. cystocarps (cyst), swelling a compressed branch (arrowed), with prominent fusion cell (fc)
3. detail of a cystocarp, with enveloping threads and fusion cell (fc) extending into a swollen medulla thread (arrowed)
4. a cross section of a sporangial plant (A60803 slide 12584) with small, cigar-shaped tetrasporangia (t sp) divided into rows (zonately) scattered in the cortex between elongate 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, February 2008

5, 6. Views of *Callophycus dorsiferus* (C Agardh) Silva, (A50803), Rottnest I., W Australia
5. general habit
6. detail of the plant base showing the short stalk (arrowed)
7, 8. details of a female plant of *Callophycus dorsiferus* (A51353) from near Dongara, W Australia showing the serrated, flat-branched pattern and terminal cystocarp swellings (arrowed)