Thamnoclonium dichotomum
(J Agardh) J Agardh

45.280

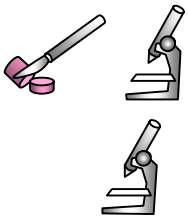
Techniques needed and shape


MACRO
PLANT

Classification Phylum: Rhodophyta; Order: Gigartinales; Family: Halymeniaceae
***Descriptive name** sponge weed
Features

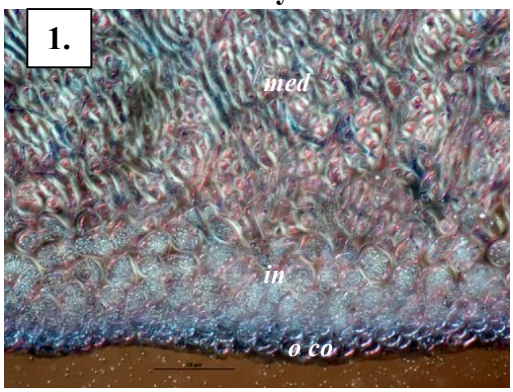
1. plants are red dark brown-red, 100-300mm tall, ***tough***, irregularly forked, covered with small, rough ***outgrowths*** and a ***sponge layer***, but denuded at the base
2. branches are ***cylindrical*** or slightly flattened and when fertile small, thin, naked ***leaflets*** protrude from the rough surface near the tips

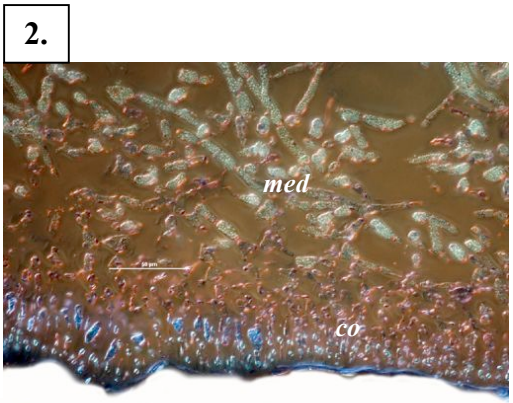
Occurrences central W Australia coast to NSW and around Tasmania
Usual Habitat on rock from 4-18m deep
Similar Species unique because of the rough surface and sponge covering
Description in the Benthic Flora Part IIIA, pages 214-216
Special Requirements

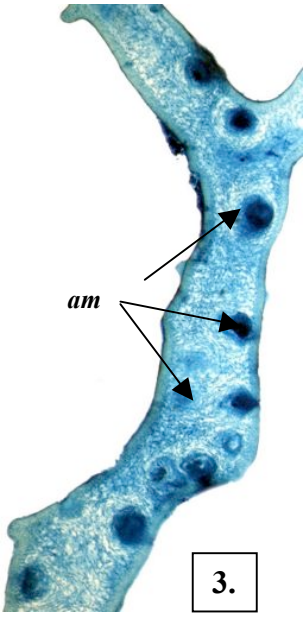


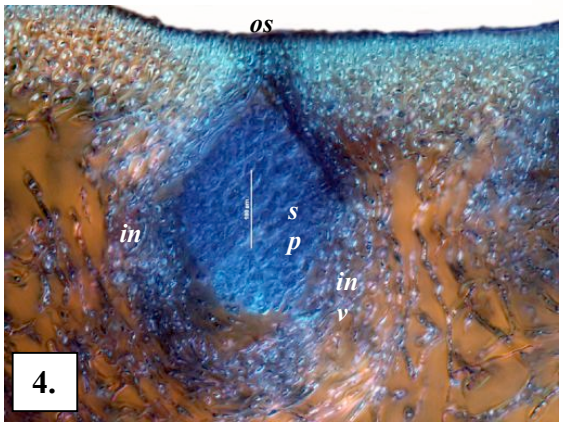
1. cut a cross section of a main branch and view microscopically to find:
   - the core (medulla) of ***dense*** and ***compact*** threads
   - outer (cortex) layers of 4-7 cell rows of ***spherical*** cells; outermost are small, inner ones larger. Old branches may have rings of growth of vertical rows of cells
   - bright (***refractive***) spidery (***ganglionic***) cells are ***absent***
2. if possible, cut a cross section of female plants to find
   - ***numerous*** ball-shaped structures (the intermediate-sized ones are auxiliary cell ampullae) in the inner cortex, with an obscure opening (ostiole)
   - each enveloped by numerous chains of small cells (involucre)
3. if possible, cut a cross section of the small, exposed, leaflets of sporangial plants to find patches (nemathecia) of ***elongate*** tetrasporangia divided in a cross (cruciate) pattern amongst the outer cortical cells

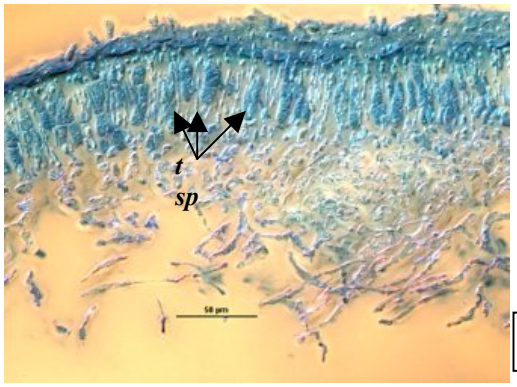
Details of Anatomy









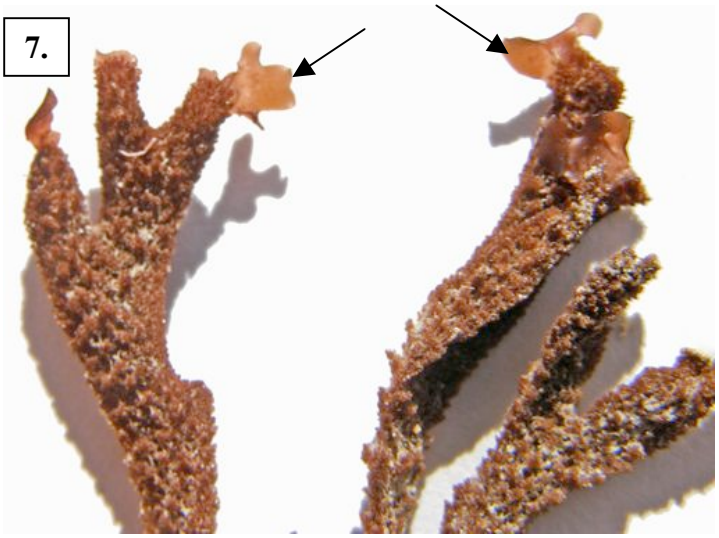


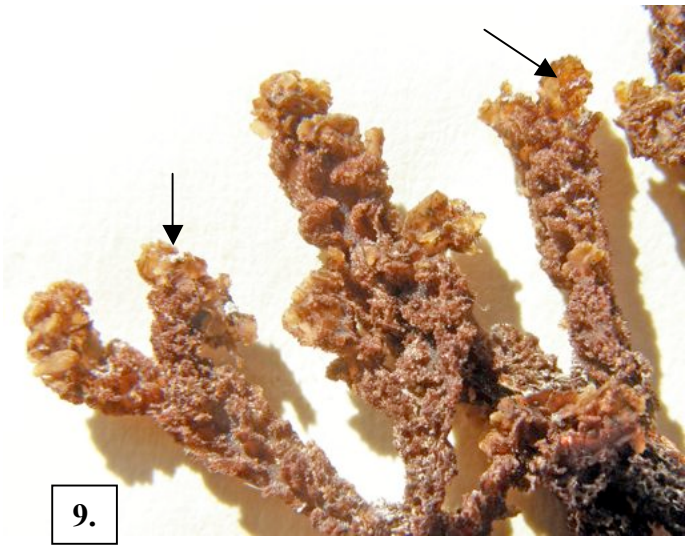
Cross sections of *Thamnoclonium dichotomum* stained blue and viewed by interference microscopy to contrast cell details:

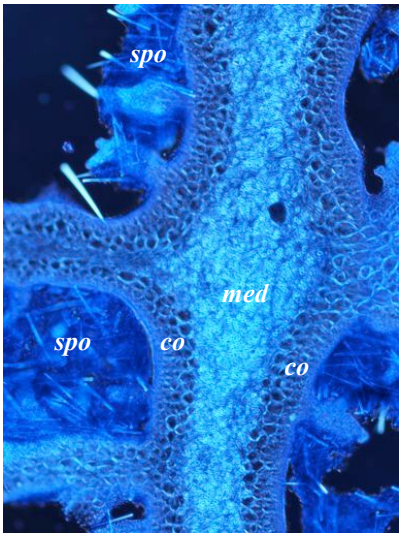
1. an edge of a mature branch with dense, compact threads (medulla, *med*) and outer layer of inner, larger cells (inner cortex, *in co*) and outer, smaller compact, spherical cells (outer cortex, *o co*) (A60206 slide 11814)
2. an edge of a fertile sporangial leaflet, showing a core of more open threads (medulla, *med*) and less dense outer layer of spherical cells (cortex, *co*) with developing sporangia (*t sp*) (A24872 slide 118110)
3. ampullae in a female leaflet (*amp*) (A22672 slide 11810). 4. ampulla detail with inner dense mass of sporangia (*sp*), dense enveloping threads (involucre, *inv*) and obscure opening (ostiole, *ost*) (A22672 slide 11810).
5. elongate tetrasporangia (*t sp*) in the cortex of a sporangial leaflet (A24872 slide 11811)

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

Prepared August 2008







6-9. specimens of *Thamnoclonium dichotomum* (J Agardh) J Agardh at different magnifications:
6, 7. from 17-18m deep, East Point, St Francis I., S Australia, with detail of fertile leaflets (arrowed) (A69644)
8. detail of sterile branch tips with rough outgrowths covered in sponge from Encounter Bay, S Australia (A03865)
9. detail of fertile leaflets (arrowed), 3-4m deep, NE end of Boston I., Port Lincoln, S Australia (A 22529)
10. a section through a branch (A24872 slide 11811) stained blue and viewed with interference microscopy to highlight sponge (*spo*) with bright, needle-like spicules growing between algal outgrowths, algal core (medulla, *med*) of threads and outer layers (cortex, *co*) of spherical cells

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