

MACRO
PLANT



Techniques needed and shape

Classification

Phylum: Rhodophyta; Order: Nemaliales; Family: Liagoraceae

*Descriptive name

single stranded or bushy-tail helminthocladia

Features

red-brown, 100 – 300mm tall, with one (to several) main branches (axes) 2-4mm wide, cylindrical, or slightly compressed basally and densely covered with short, mostly unbranched side branches

Occurrences

near Robe. S Australia to SW Victoria

Usual Habitat

on rock often covered with sand, in the lower intertidal

Similar Species

-

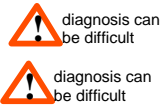
Description in the Benthic Flora

Part IIIA, pages 84, 87 - 89

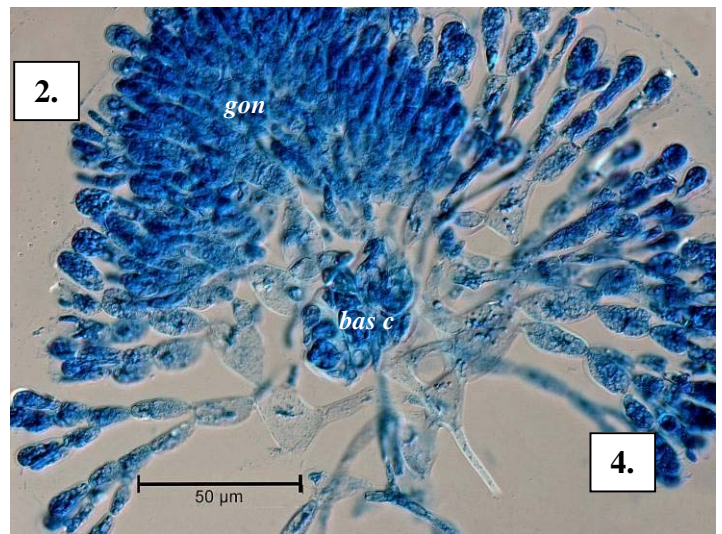
Special Requirements

view a tissue squash microscopically to find:-

1. core (medulla) of colourless, slender threads running lengthwise, irregularly arranged
2. outer layers (cortex) of fan-shaped tufts pointing outwards, of thin, regularly forked (dichotomous) threads of elongate to egg-shaped cells, tip cells *slightly* swollen
3. in the cortex of female plants, *bouquet-like* masses, the products of fertilisation, of a bunch of fertile cells (gonimoblast) ending in carposporangia, sterile basal threads found in other species largely *inconspicuous*
4. early female stages with *curved*, 2-3-celled chains of cells (carpogonial branches) attached near a fork of lower cortical branches, sometimes paired, tip cell (carpogonium) *conical*, ending in a hair-like trichogyne
5. in the cortex of male plants, open, *hand-shaped* branches with dust-like spermatangial *fringes* on practically *all* tip cells



Details of Anatomy



Tissue squashes of *Helminthocladia beagleholei* stained blue and viewed microscopically

1. carpogonial branches (*carp br*) in detached cortical tuft, after fertilisation: remnant trichogyne (*tr*); upper cells of carpogonial branches (originally 3-celled) dividing (*div c*) (A27754 slide 0157)
2. products of fertilisation: fertile cells (gonimoblast, *gon*), basal cells from dividing carpogonial branch (*bas c*) surrounding cortical tuft cells (*co tf*) (A68482 slide 19078)
3. extracted cortical tuft with fringing spermatangia (*sperm*) (A27754 slide 0159)



Helminthocladia a beagleholei Womersley from SE Australia, at different scales
 5, 6. on sand covered rocks, W of Sutton Rocks, Discovery Bay, Victoria (A27754)
 7, 8. contrasting branching patterns on specimens from Back Beach, Little Dip Conservation Park (SE S Australia) in the lower intertidal, bases covered by sand (A63224)
 9. tissue squash stained blue and viewed microscopically: core (medulla, *med*) of fine threads; tufts in outer layers (cortex, *co*) (some displaced) (A63224 slide 13875)

