



MACRO  
PLANT



## Techniques needed and shape+

## Classification

Phylum: Rhodophyta; Order: Nemiales; Family: Liagoraceae

## \*Descriptive name

bushy worm weed

## Features

1. brown to purple, 100 – 400mm tall, branches cylindrical, **2-10mm wide**
2. **several main branches, numerous** side branches, sometimes denuded basally

## Occurrences

Pacific rim temperate to sub-tropical waters. In Australia from W Australia to S NSW and Lord Howe I.

## Usual Habitat

summer only in temperate waters, winter in the sub-tropics; on rock in the lower intertidal and shallow water on moderately rough coasts

## Similar Species

rough water form of *Helminthora australis*, but branches are usually thinner

## Description in the Benthic Flora

Part IIIA, pages 84, 86, 90 - 91

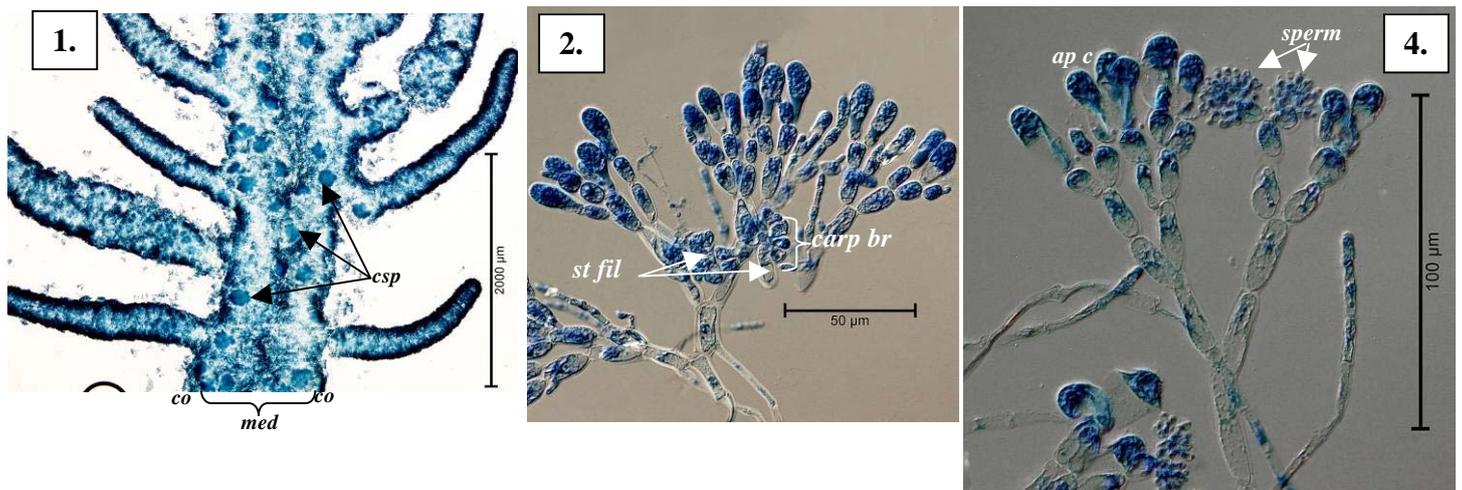
## Special Requirements

view a tissue squash microscopically to find:-

1. wide core (medulla) of threads running lengthwise
2. outer layers (cortex) of fan-shaped, forked (dichotomous) tufts, cells box -or egg-shaped, tip cells **larger** and **club-shaped**, sometimes closely packed together
3. in the cortex of female plants, **ball-shaped** masses, the products of fertilisation, of fused cells, a bunch of fertile cells (gonimoblast) ending in carposporangia, and a thin wrapping of sterile threads (involucre) with un-expanded tip cells
4. early female stages with **curved**, 3-celled chains of cells (carpogonial branches) attached near a fork of lower cortical branches, tip cell **conical** (  ) ending in a hair-like trichogyne and dividing after fertilisation
5. in the cortex of male plants, dust-like spermatangial **clusters** on cells just below the tips

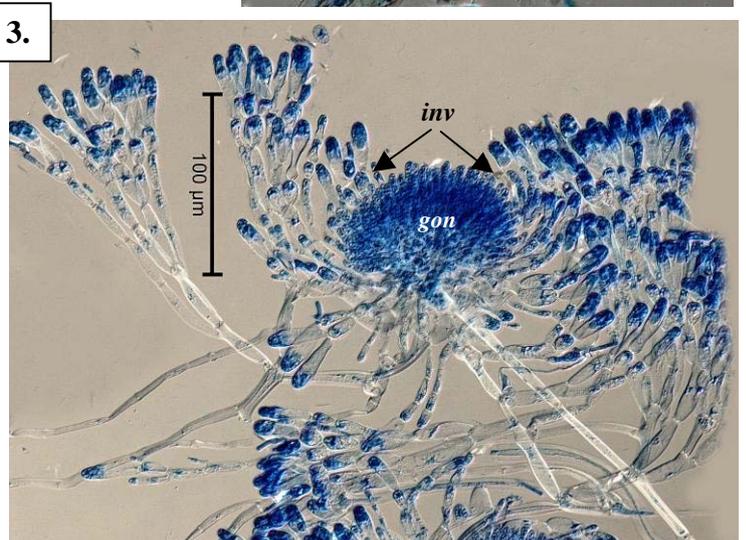


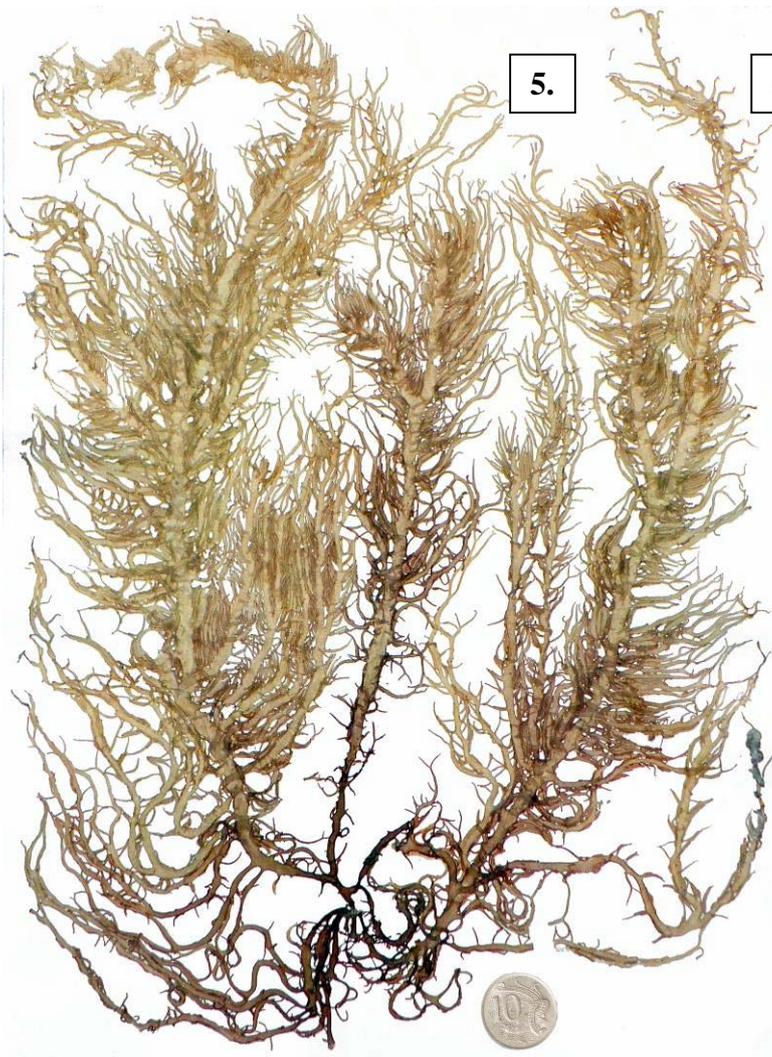
## Details of Anatomy



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

1. side view: broad core (medulla (*med*)) of threads; thin, dense outer layers (cortex, *co*) of forked tufts; dense, ball-shaped masses, products of fertilisation (carposporophytes, *csp*) (A56267 slide 9024)
2. female structure extracted from the cortex, just after fertilisation: 3-celled, curved carpogonial branch (*carp br*) divided at the tip, neighbouring cells forming sterile threads (*st fil*) (A27744 slide 0153)
3. extracted maturing female structure (carposporophyte): fertile cells (gonimoblast, *gon*) sterile threads (involucre, *inv*) (A24703 slide 0204)
4. male cortical tuft: club-shaped tip cells (*ap c*); spermatangial cluster (*sperm*)





5.



6.



7.



8.

9.



*Helminthocladia australis* Harvey at various scales  
 5, 6. in shallow water, Sorrento, Victoria (A51982) with typical dense branching along several axes  
 7,8 plants (A19424) with two contrasting axis widths and colour, from shallow water on rock in sand, Sceales Bay, S Australia  
 9. base of a plant (A24703) from shallow water at Victor Harbour, S Australia showing stubby basal side branches and small holdfast