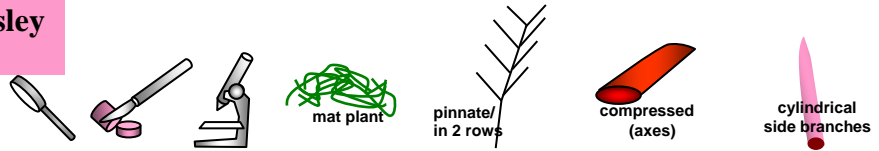


**Techniques needed and shape**



**Classification**

Phylum: Rhodophyta; Order: Gigartinales; Family: Gigartinaceae

**\*Descriptive name**

clumped gristle weed

**Features**

plants dark brown-red, forming tangled clumps 20-100mm across; main branches (axes) 2-4mm wide with *spreading, flat-branched*, mainly *cylindrical* side branches *alternating* along their *edges* (pinnately), branch bases *pinched*, tips often *curved* acting as attachment organs

**Occurrences**

Pearson I. to Port MacDonnell S Australia and Port Arthur, Tasmania

**Usual Habitat**

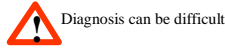
forming clumps or mats at or just below low tide level

**Special requirements**

cut cross sections and view microscopically to find

- a wide core (medulla) of *inter-connecting*, branched threads; outer layers (cortex) of *chains* of *small* cells facing outwards
- in female plants: when young, *large, rounded cells* with dense contents bearing 3-celled branches ending in a thread (trichogyne) (the carpogonial branch); *mature* female structures (cystocarps) large, spherical, embedded *near tips* of short branches that are often forked and may wrap about the cystocarps; cystocarps with an envelope of threads (involucre), and *clumps* of carposporangia separated by large *threads*
- in sporangial plants: tetrasporangia in *deep-seated* masses (sori) within small branches, tetrasporangia divided in a cross (*cruciate*) pattern (sporangia escape through a common pore)

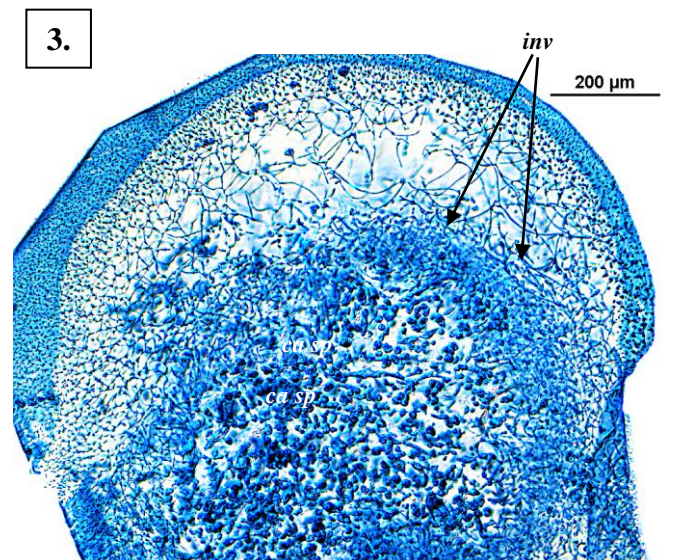
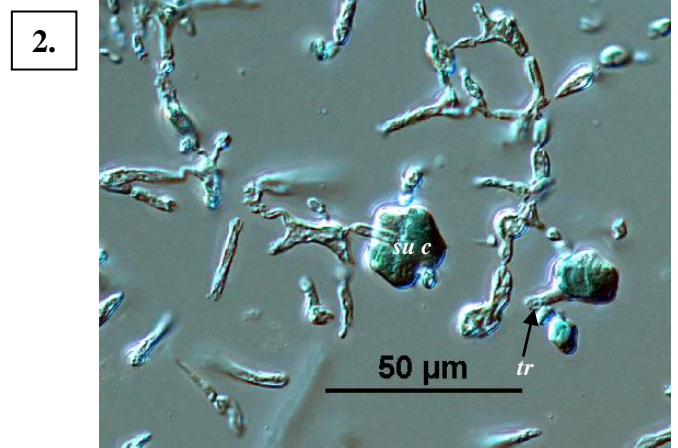
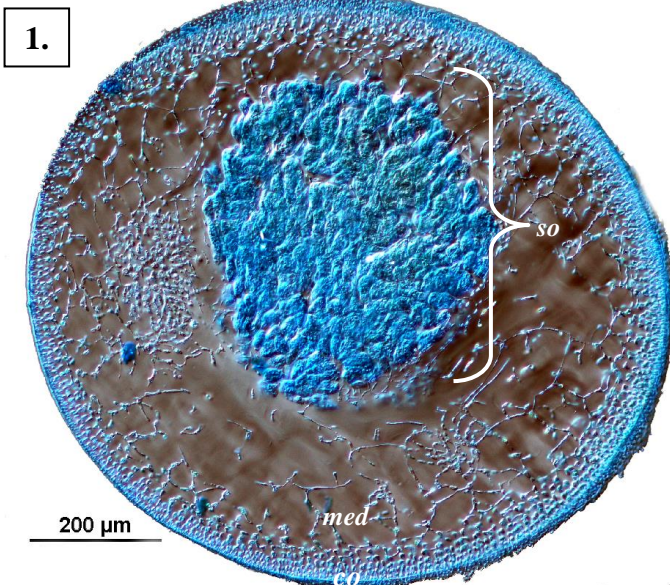
**Similar Species**



*Gigartina brachiata* also forms tangled mats, but plants are redder, sporangial masses (sori) form irregular, whitish bands across branches; tetrasporangia are *superficial* (in the cortex) and escape by dissolving holes in the surface

**Description in the Benthic Flora** Part IIIA, pages 292, 294-296

**Details of Anatomy**

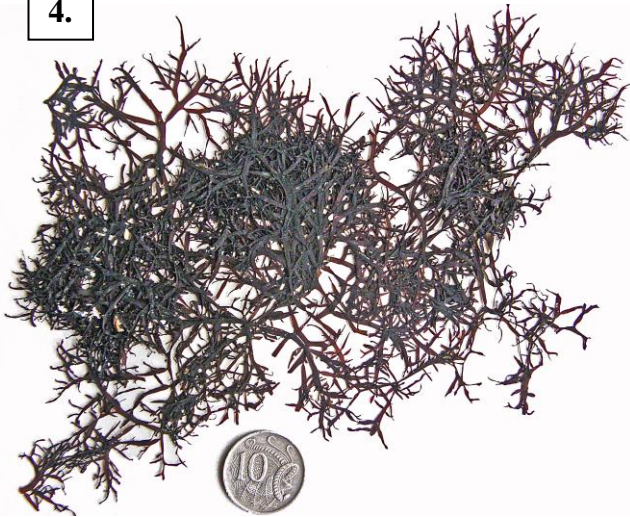


*Sarcothalia insidiosa* stained blue and viewed microscopically

1. cross section of a side (cylindrical) branch of a sporangial plant: deeply-imbedded mass (sorus, *so*) in a core (medulla, *med*) of inter-connected threads, branched chains of outwardly-pointing small cells in the outer layers (cortex, *co*) (slide 12433)
2. tissue squash of a young female structure (carpogonial branch system): prominent cell (supporting cell, *su c*) somewhat displaced from a 3-celled carpogonial branch, short trichogyne (*tr*) (slide 12435)
3. cross section through part of a mature female structure (cystocarp): envelope of threads (involucre, *inv*), patches of carposporangia (*ca sp*) mixed with threads (slide 13838)



4.



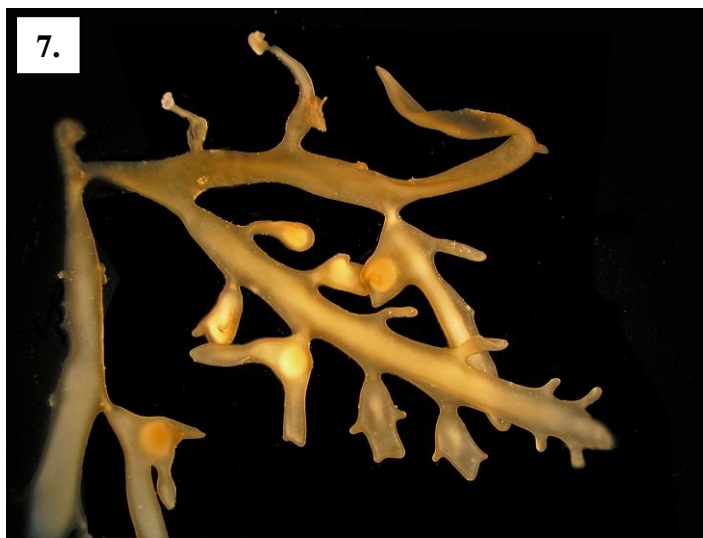
5.



6.



7.



8.



9.



*Sarcothalia insidiosa* (J Agardh) Edyvane & Womersley from S Australia

- 4, 5. drift plant from Port MacDonnell (A56934): tangled habit, and, in the magnified image, side branches pinched at the base with two-sided (pinnate) branching and curved tips
- 6. preserved (bleached) specimen (A56934): curved tips acting as attachment organs (haptera) (A63198)
- 7. preserved (bleached) specimen (A56934): swollen cystocarps in forked short branches
- 8. preserved (bleached) specimen (A63198): spotty masses (sori) of tetrasporangia on side branches: pinched branch bases
- 9. fragment of a pressed plant: forked side branches with cystocarps (A63198)