Gymnogongrus griffithsieae (Turner) Martius

A SPECIES WITH FEW RECORDS

45.340

Techniques needed and shape

MACRO PLANT

terete turf

Classification Phylum: Rhodophyta; Order: Gigartinales; Family: Phyllophoraceae

***Descriptive name** fine gristle turf

Features

1. plants dark red-brown, ***tufted***. 15- 40mm tall**,** gristly (***cartilaginous***)
2. branches ***thin and cylindrical*** (terete), ***forked*** (dichotomous) largely in one ***flat surface*** (complanate)
3. if fertile, tiny dark ***pustules*** appear near the branch forks

Occurrences

Europe, England, the Mediterranean, and western Atlantic. In Australia known only from Kangaroo I., S. Australia and Barwon Heads, Victoria, in pools near low tide. ***Possibly an introduced species***.

Usual Habitat

on rock in pools near the reef edge

Special requirements

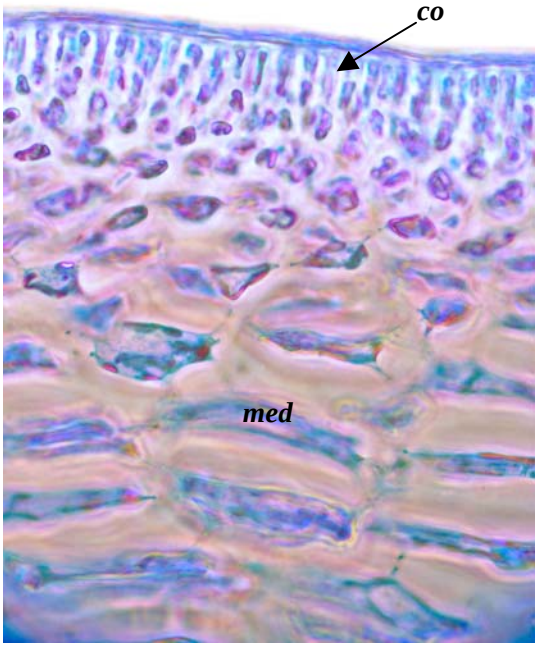
1. slice along a branch and view microscopically the
   - outer (cortical) layers of chains of cells facing outwards
   - inner (medulla) core of elongate cells in chains with cross-connections
2. if possible, cut across a fertile pustule found near branch forks. After fertilisation the tissue produced (the gonimoblast) grows between cells of the medulla and forms masses of beadlike threads practically encircling the branch. These threads change to tetrasporangia divided in a cross pattern except at the tips. The retention of the sporangial stage, a separate plant in most algae, is a unique feature of this genus.

Similar Species

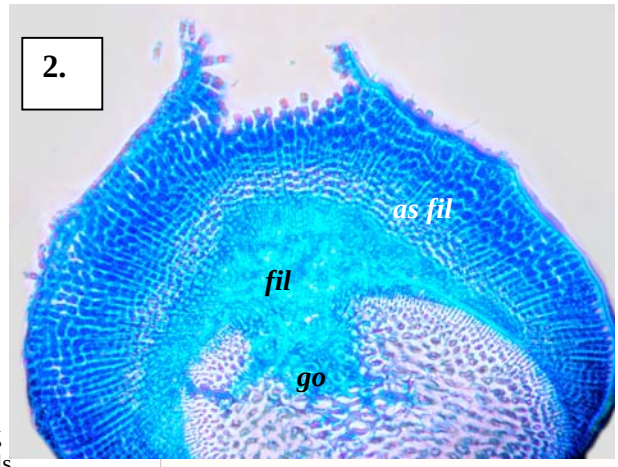
superficially like other tufted members of the Gigartinales, such as *Ahnfeltiopsis* and *Solieria*, but with differing internal structure. Differing from *Gymnogongrus crenulatus* which has flattened, broader branches.

Description in the Benthic Flora Part IIIA, pages 266, 269

Details of Anatomy



1.



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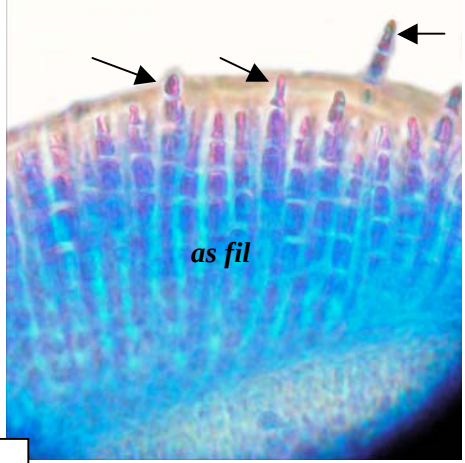


3.

Different magnifications of cross sections of *Gymnogongrus griffithsieae* stained blue and viewed microscopically under polarized light.

1. . A slice along a branch (A20366, slide 12178), showing outer chains of small cells (cortex, ***co***) and the inner layer (medulla, ***med***) of elongate cells with cross connections.
2. . A slice across a branch at a pustule (tetrasporoblast) (A15412, slide 12177). The parasitic gonimoblast (***gon***) has formed a mass of threads on the surface of the branch (filaments, ***fil***), ending in a mass of upright, closely-packed, beadlike threads (assurgent filaments, ***as fil***) that change to tetrasporangia.
3. Detail of threads on the surface of a pustule (A20366 slide 12538). The pointed tip cells (arrowed) and often one cell below are sterile. The other cells when mature divide in a cross-wise pattern (not available in the photo) to become the tetrasporangia

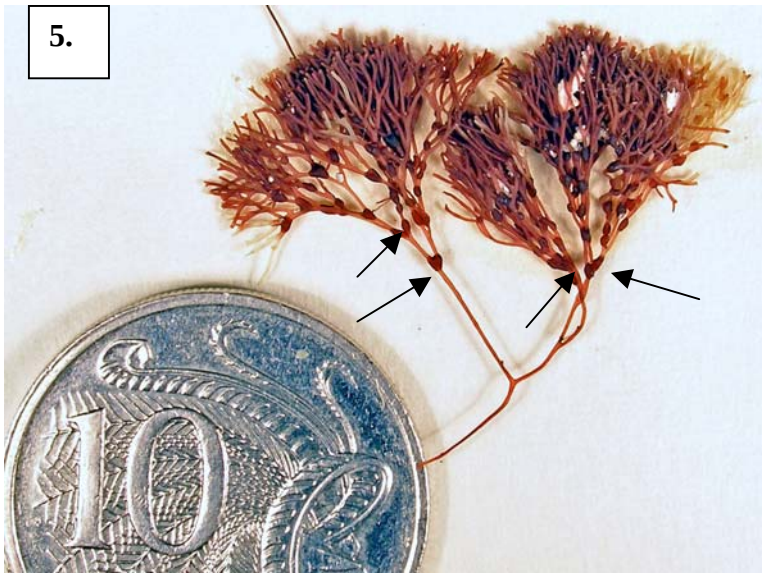
* Descriptive names are inventions to aid identification, and are not commonly used

Prepared initially December 2005, updated September 2009

4.

4, 5. two specimens of *Gymnogongrus griffithsieae* (Turner) Martius (A41308) from the intertidal, Pennington Bay, Kangaroo I., S. Australia. The swellings (arrowed), mainly near forks of branches, are pustules containing tetrasporangia.

5.



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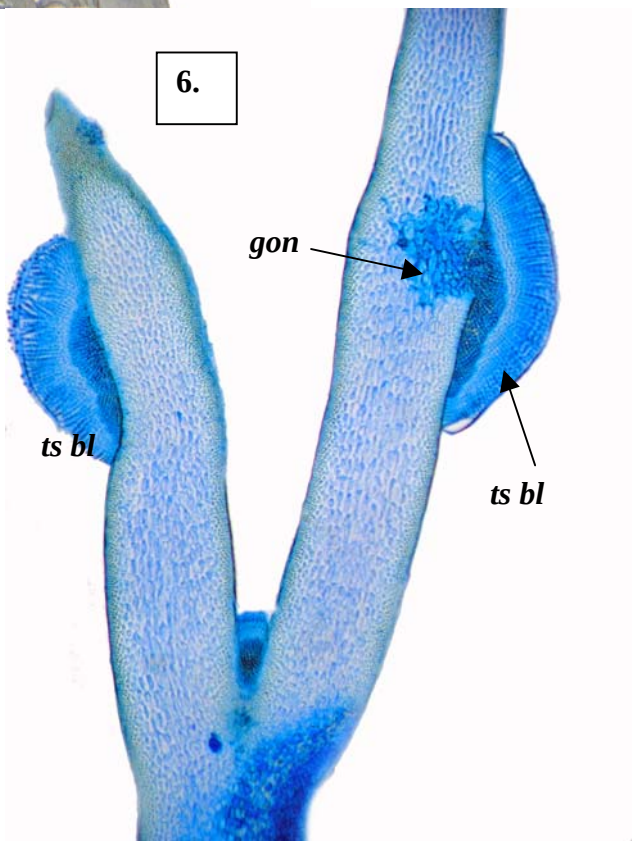

6. *Gymnogongrus griffithsieae*, (A15412, slide12177). A lengthwise slice stained blue and viewed microscopically. The pustule (tetrasporoblast, ***ts bl***) that erupts on the surface close to a branch fork and the embedded tissue that produced it (gonimoblast, ***gon***) are marked.

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