Codium fragile
(Suringar) Hariot

50.620

Techniques needed



MACRO
PLANT


tubular


Classification Phylum: Chlorophyta; Order: Bryopsidales; Family: Codiaceae

***Descriptive name** narrow-forked velvet-weed, [§] velvet codium

Features
1. plants yellow to-green, 50-300mm tall, attached by a ***broad***, spongy disc
2. branches cylindrical, forked many times, velvety or with a fuzzy (hairy) surface

Variations
several varieties or sub-species are recognised, based on the shape of microscopic, outer flask-shaped structures (***utricles***) (see Womersley, page 240)
1. subsp. *tasmanicum* (J. Agardh) Silva from Victor Harbor, S. Australia to Victoria has a sharp point at the tip of utricles
2. subsp. *novae-zelandiae* (J. Agardh) Siva from New Zealand and from Robe, S. Australia to N. coast NSW has only blunt utricle tips
3. subsp. *tomentosoides*(van Goor) Silva is a ***recent introduction*** to S. Australia and has a dense hairy surface and utricles are pinched about halfway along their length (***see below***)

Special requirements

shave off or tease out a few of the microscopic, flask-shaped outer structures (utricles) and view them under the microscope. Utricles are cylindrical, 1000-1450µm long and 130-300µm wide, tips bullet-shaped with prominent apical point and paired threads at the utricle base containing constrictions or plugs

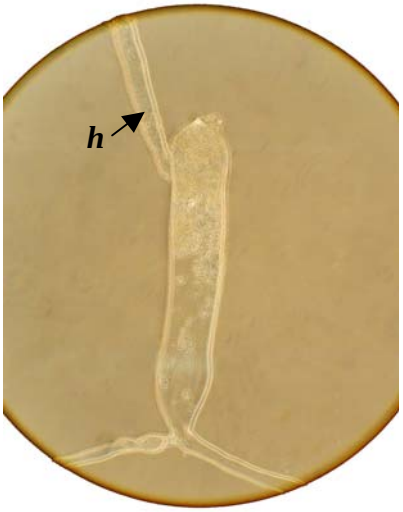
Occurrences Victor Harbor, S Australia to Victoria, Tasmania and N to north NSW. Also Japan and widespread in temperate waters around the globe

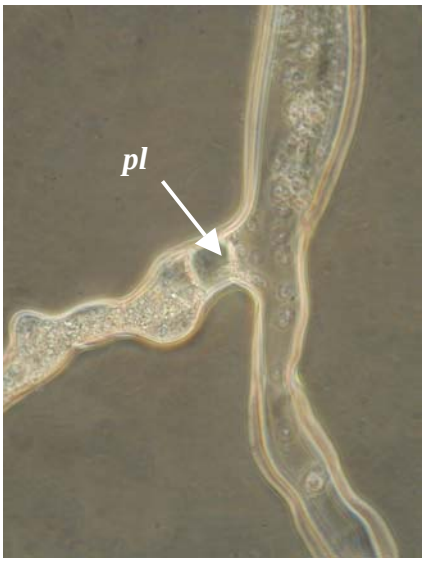
Usual Habitat on rock at low water level and in shallow water

Similar Species *Codium galeatum*, *Codium duthiae* and *Codium muelleri*. Microscopic investigation of the utricles is needed to separate the species.

Description in the Benthic Flora Part I, pages 238-240

Details of Anatomy





Preserved (bleached) specimens of *Codium fragile* (A10988) viewed at different magnifications
1. detached utricle showing the elongate shape, basal threads and hair (***h***)
2, 3 .detail of utricle tips at two different magnifications, showing the characteristic thickening of cell walls and sharp point at the tips (more pronounced in the sub sp. *tasmanicum*)
4. base of a utricle showing the plug (*pl*) in the basal threads

* Descriptive names are inventions to aid identification, and are not commonly used
[§]name used by Edgar, G (2008) in Australian Marine Life (2nd ed.)
"Algae Revealed" R N Baldock, S Australian State Herbarium, September 2003

Two magnifications of *Codium fragile* (Suringar) Hariot, (A34854) from Pt MacDonnell, S. Australia

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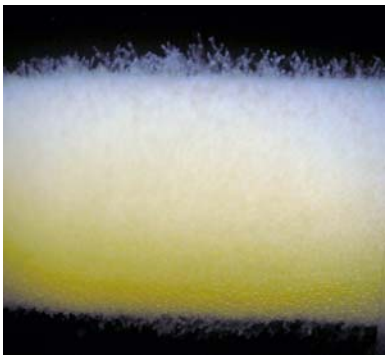
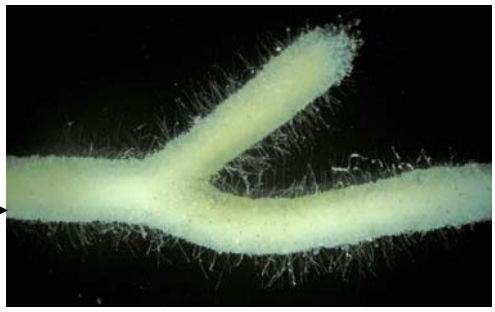
COMPARISON OF TWO SUB SPECIESOF *CODIUM FRAGILE*

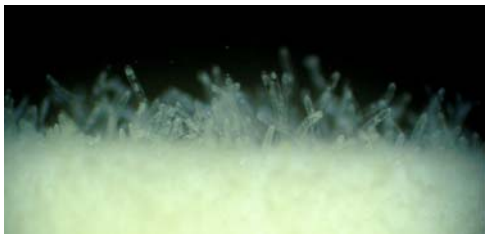
1. subsp. *tasmanicum*, (A10988), from Robe S. Australia

2. subsp. *tomentosoides*, (A69373), from West Lakes, S. Australia

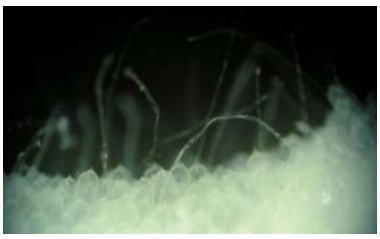


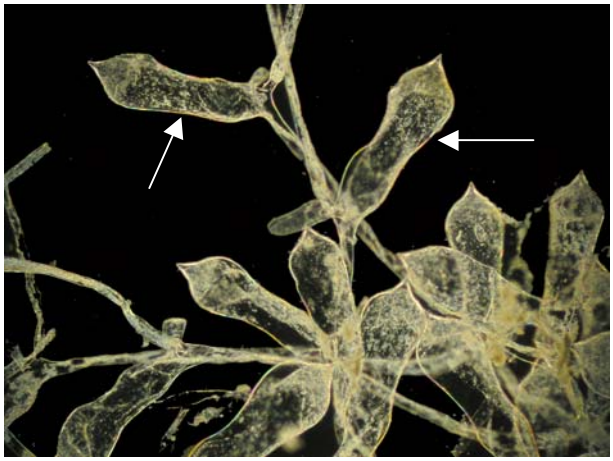
Surface appearance:
1. short hairs
2. delicate, long hairs



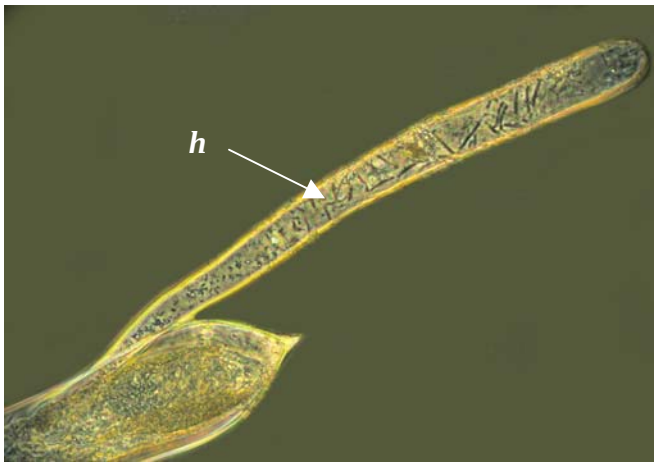


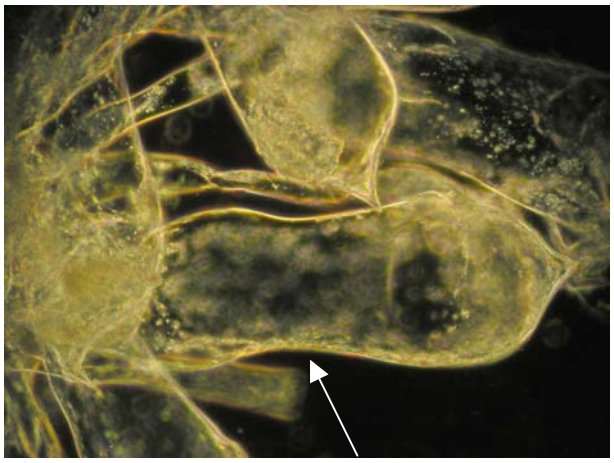
Magnified surface view:
1. short hairs
2. delicate, long hairs





Detached utricles:
1. elongate and relatively straight-sided
2. shorter, with a pronounced pinching half-way along the utricles (arrowed)





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Codium fragile (Suringar) Hariot subsp. *tomentosoides* (van Goor) Silva

AN INTRODUCED OR ADVENTIVE SUB-SPECIES

Features
1. plants are dark green, forming clumps of forked, velvety strands on rock
2. surfaces of the cylindrical forked strands are covered with hairy fuzz
3. surface flask-shaped structures (utricles) viewed microscopically show the diagnostic ***pinching*** halfway along the sides, and a prominent point at the tip

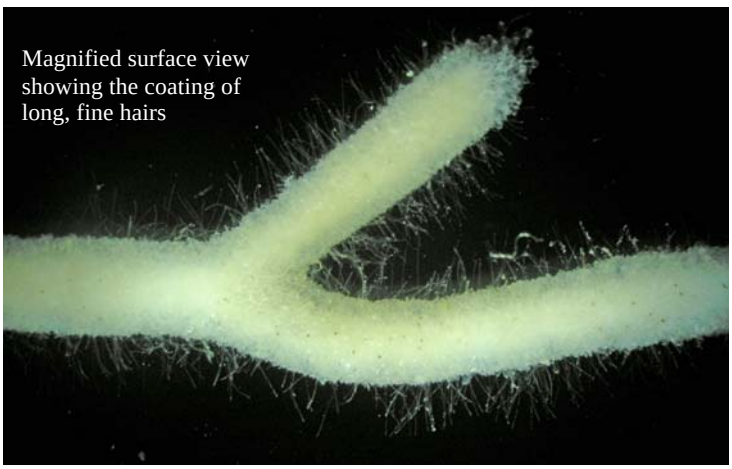
(4. according to Burrows, E M (1991) *Seaweeds of the British Isles. Volume 2Chlorophyta*. Pages 196-7, a diagnostic feature is the flattening of strands just below where they fork, but this is obscure in Australian specimens)

Occurrences Silva considered the origin of the subspecies to be Japan, but it was first described from Holland. The spread to England has been described by Burrows (1991), and to New Zealand by Adams, N M (1996). *Seaweeds of New Zealand an illustrated guide*, page 47.

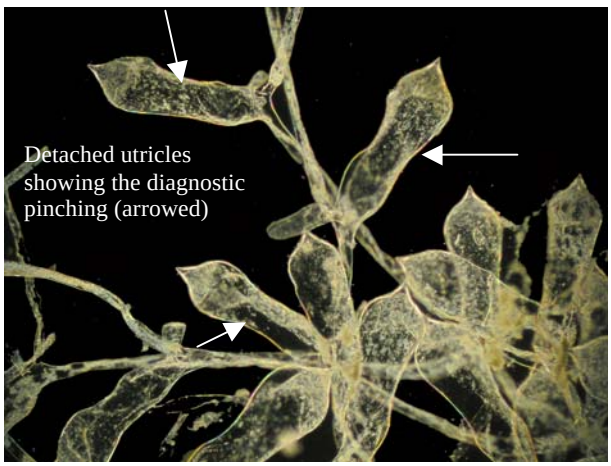
Similar species

Other subspecies of *Codium fragile*. There are ***intergrades*** from one subspecies to another, although geographic distributions (except for the introduced *tomentosoides*) are relatively distinct. Microscope investigation is essential for diagnosis.

Magnified view of one subspecies, *Codium fragile* subsp. *tomentosoides* (van Goor) Silva, A69373 from West Lakes, S. Australia in 2002, showing the downy white surface produced by the dense microscopic hairs characteristic of the subspecies. Womersley Part IIID, page 499 notes this as introduced and found also from bays on the Victorian



Magnified surface view showing the coating of long, fine hairs



Detached utricles showing the diagnostic pinching (arrowed)

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