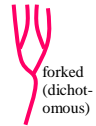




different  
sexual &  
asexual  
stages exist



compressed



forked  
(dichot-  
omous)

## Techniques needed and plant shape

## Classification

Phylum: Rhodophyta; Order: Nemaliales; Family: Galaxauraceae

Huisman (Algae of Australia: Nemaliales, 2006) placed *Galaxaura* species with compressed branches into the genus *Dichotomaria*. He restricted the name *Dichotomaria* (*Galaxaura*) *marginata* to plants from the tropics referring southern Australian plants originally placed in that combination to *D. spathulata*

## Descriptive name

§Leafy galaxaura

## Life cycles



the outer layers (cortex) of **sexual plants** (**gametophytes**) are slightly different to those of the **asexual spore phase** (**sporophyte**)

## Features

plants *limey*, 40-150 mm tall, red-brown, often grey-red above; branches *compressed*, 1.5-2.5 mm wide, *edges ridged* and more obviously so on drying, often vaguely *cross-banded*, forked every 5-20 mm, from a cylindrical, *hairy* basal stalk

## Special requirements

view cross sections microscopically to find:



**in sexual plants:**

- a core (medulla) of branched threads
- 2-3 layers (inner cortex) of large, colourless rounded cells just below the surface
- surface (outer cortex) of a single layer of tightly-packed, smaller coloured cells
- often, spine cells radiating outwards from each outer cortex cell
- mature reproductive structures (carposporophytes) *lacking* a sheath (involucre)

**in asexual (spore) plants:**

- a core and inner cortex similar to sexual plants, but
- outer cortex of of egg-shaped coloured cells, *in pairs*, each pair on a common stalk
- absence of spine cells

## Occurrences

Rottneest I., WA to S NSW and Tasmania

## Usual Habitat

on rock, in shaded pools to 13 m deep

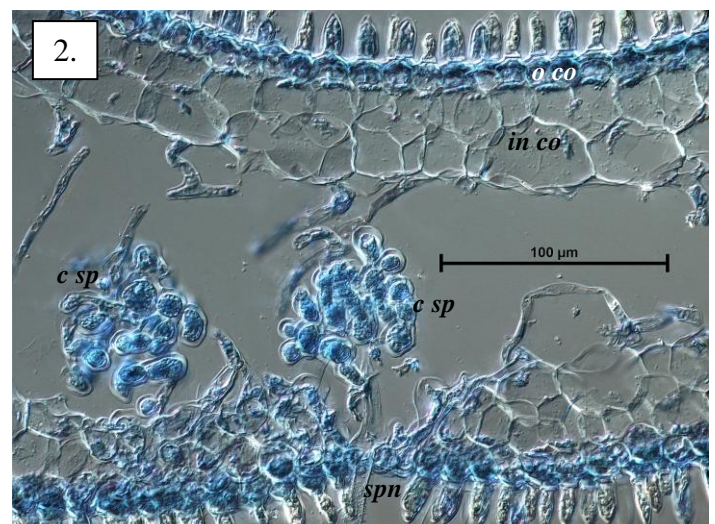
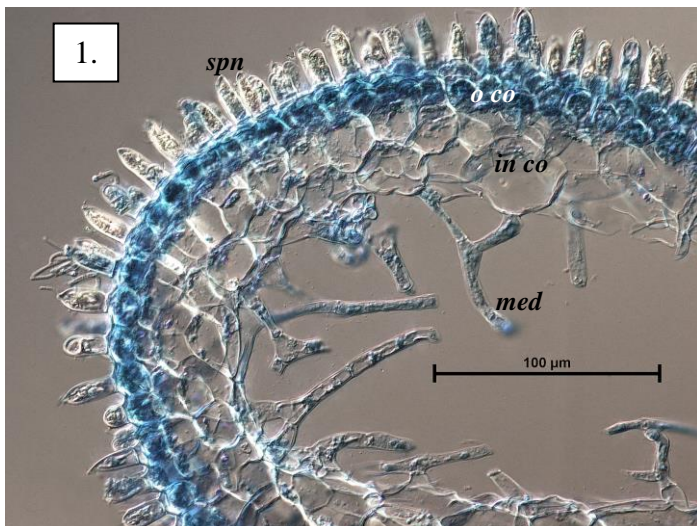
## Similar Species

surface cells of *Dichotomaria marginata* (tropical) and *D. spathulata* (temperate) – both forked, flat branched species – bear microscopic **spine cells in sexual plants**. Surface cells of **spore plants** of *D. marginata* have **pointed tips** but these are **absent** in *D. spathulata*

## Description in the Benthic Flora

Part IIIA, pages 113-115

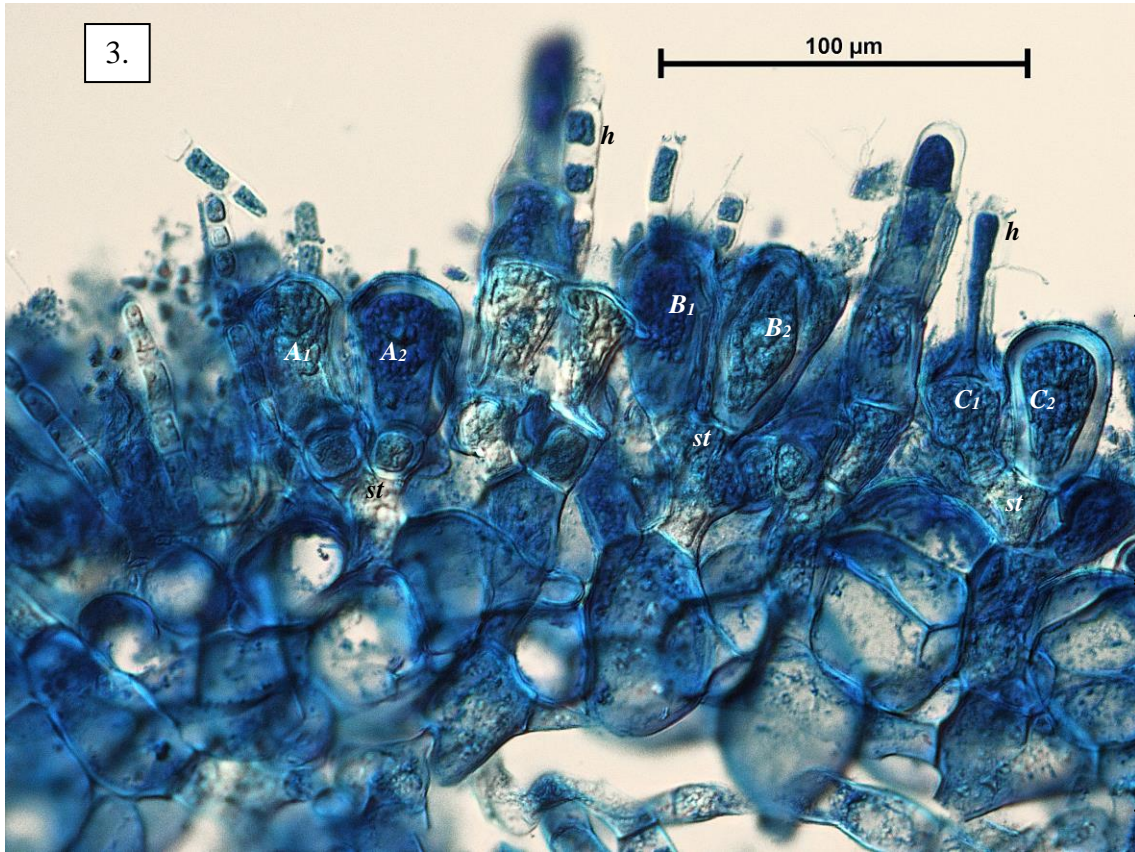
## Details of Anatomy



1, 2. **sexual plants** of *Dichotomaria spathulata* (*Galaxaura marginata* in the Marine Flora) (slide 9150):

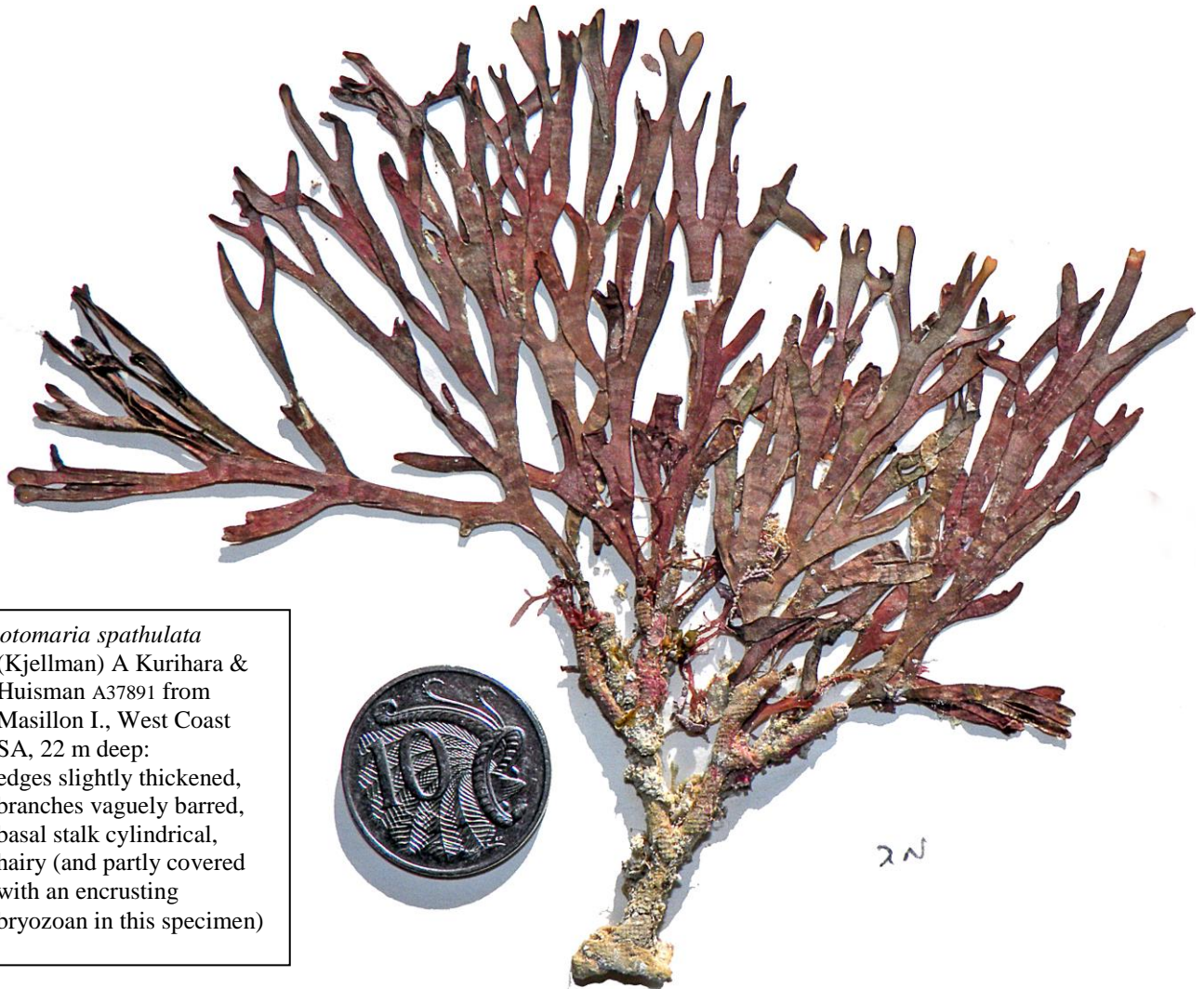
sections near branch edges

- core (medulla, *med*) of branched threads
- 2-3 layers (inner cortex, *in co*) of large, rounded, *colourless* cells
- single layer (outer cortex, *o co*) of smaller *coloured* cells with spiny cells (*spn*) radiating outwards
- developing stage after fertilisation (carposporophyte, *c sp*) (without a wrapping or involucre)



3. **Spore plant** of *Dichotomaria spathulata* A56251 slide 10587: detail of outer layer (cortex)

- inner cortex (*in co*) of 2-3 layers of large, colourless rounded cells
- outer cortex (*o co*) of egg-shaped, coloured cells, in pairs, ( $A_1$ ,  $A_2$  etc.) each pair on a common stalk (*st*)
- hairs (*h*) (common generally only near the plant base)



*Dichotomaria spathulata* (Kjellman) A Kurihara & Huisman A37891 from Masillon I., West Coast SA, 22 m deep: edges slightly thickened, branches vaguely barred, basal stalk cylindrical, hairy (and partly covered with an encrusting bryozoan in this specimen)