Coelarthrum opuntia (Endlicher) Børgesen

45.660

Techniques needed and plant shape

Classification Phylum: Rhodophyta; Order: Rhodymeniales; Family: Rhodymeniaceae

***Descriptive name** §cactus grapeweed, branched sausage weed

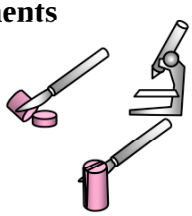
Features

1. plants red to red-brown, 50-300mm tall, of tubular, jelly-filled segments separated by thin joints ***about 1mm long***
2. branches often in 3's, reaching the same height, produced simultaneously at plant tips
3. mature female structures (cystocarps) scattered, breast-like, ***protruding*** from segments

Occurrences N Indian Ocean, Northern Territory around southern Australia and N Tasmania

Usual Habitat shallow water to 35m deep

Special requirements



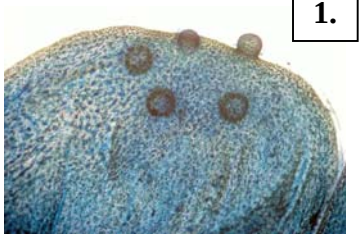
1. focus through the surface microscopically to find obscure rings (rosettes) of small outer (cortical) cells
2. cut cross sections of the wall of a segment and view microscopically
   - narrow band of small outer (cortical) cells branched once and facing outwards
   - narrow inner layer (medulla) of large cells
   - tetrasporangia in patches, decussately divided

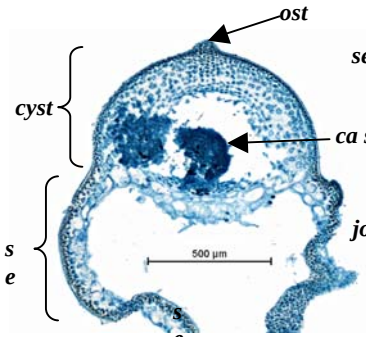
   - mature female structures (cystocarps) ***highly protruding***, with a single opening (ostiole). Internally, masses of sporangia joined basally to a small pyramid of feeding cells
3. cut a lengthwise section through the joint between 2 segments to find
   - the joint is ***solid***, of a mix of small and large cells, about ***6 cells deep***
   - small secretory cells on the upper part protruding into the jelly-filled space

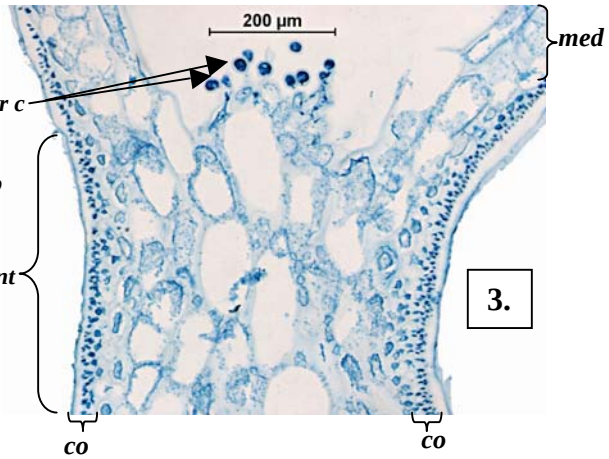
Similar Species *Coelarthrum cliftonii*, with irregularly branched and very short joints, ***one cell thick***; *Webervanbossea kaliformis*, with longer axial segments and side branching often arising along the length of axial segments as well as apically; *Rhabdonia clavigera*, and *Erythroclonium* sp but these have a central thread

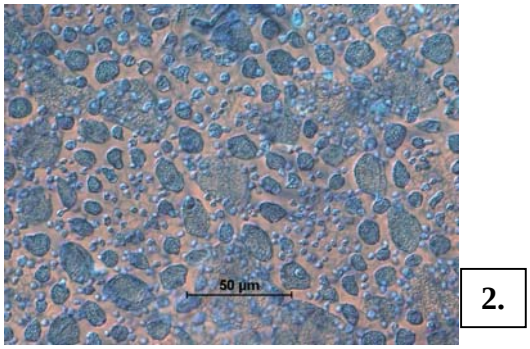
Description in the Benthic Flora Part IIB, pages 55-57

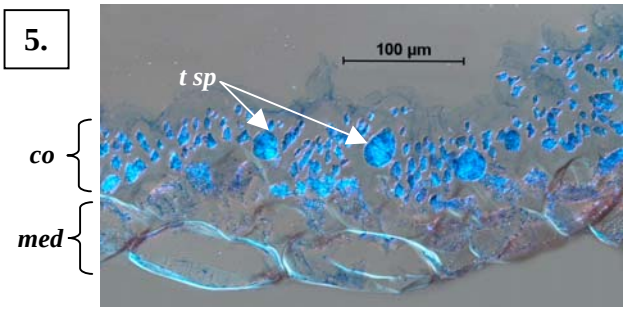
Details of Anatomy











Coelarthrum opuntia stained blue and viewed microscopically

1. branch tip showing simultaneous origin of side branches
2. surface view of weak rings (rosettes) of outer (cortical) cells (A57446 slide 14611)
3. lengthwise section through a solid joint between hollow segments, of large and small cells, tiny secretory cells (*secr c*) protruding into the upper, hollow segment, single row of tiny outer (cortical, *co*) cells and large inner (medulla, *med*) cells(A46643 slide 14633)
4. cross section through a mature female structure (cystocarp, *cyst*) protruding from a hollow segment (*se*), with thick cellular wall, carposporangial masses (*ca sp*) and beaked outlet (ostiole, *ost*) (A33018 slide 14618)
5. cross section of a segment wall (bent upwards) showing the cortex (*co*) medulla (*med*) and tetrasporangia (*t sp*) (A46643 slide 14610)

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

§ name used in Edgar, G. *Australian Marine Life, 2nd Ed.* (2008)

"Algae Revealed", R N Baldock, S Australian State Herbarium October 2010

Coeolarthrum opuntia (Endlicher) Børgesen from S Australia

6, 7. from the Stenhouse Bay jetty, 3-7m deep (A59188 and A44568 respectively)

8. preserved (bleached) female specimen from Stony Point, upper Spencer Gulf showing the highly protuberant cystocarps with beaked openings (ostioles)

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