**Dicranema revolutum**
*(C Agardh) J Agardh*

**Techniques needed and shape**

**Classification**
Phylum: Rhodophyta; Order: Gigartinales; Family: Dicranemataceae

**Descriptive name**
wire-weed tufts; red tumble weed

**Features**
Plants form *wiry*, red-brown tufts, 20-50mm long, fading to yellow-brown, on wire weed (*Amphibolis*) stems, with *open forked, stiff*, cylindrical, branches about 0.5mm wide, sometimes curling, but only at the very tips.

**Occurrences**
Shark Bay, W Australia to Victoria and Bass Strait

**Usual Habitat**
Grows only on *Amphibolis* stems (an obligate epiphyte)

**Similar Species**
*Dicranema cincinnalis*—often the two species grow together. *D. revolutum* is larger, with straighter branches, except at the very tips, and female cystocarps have openings.

**Description in the Benthic Flora**
Part IIIA, pages 319, 322-325

**Special Requirements**
View microscopically to find:
1. in cross section: a small core (medulla, *med*) of fine threads and wide outer layer (cortex, *co*) of inner large and outer very small cells
2. in female plants: mature female structures (cystocarps) forming swellings near the ends of branches, containing distinct openings (ostioles). In longitudinal section: inwardly pointing fertile threads (gonimoblast), single carposporangia at their tips, small fusion cell. Male spermatangia occur in minute packets in the outer layers of the same plants.
3. in sporangial plants: tetrasporangia, divided across (zonately) scattered near branch tips.

**Details of Anatomy**

1. Sections of *Dicranema cincinnalis* stained blue and viewed microscopically
   - cross section: small core (medulla, *med*) of fine threads, wide outer layer (cortex, *co*) of inner large and outer small cells (slide 12794)
   - longitudinal section
   - outer cortex of a sporangial plant: tetrasporangia (*t sp*) divided across (zonately) (slide 12794)
   - lengthwise section of a cystocarp: obscure, minute fusion cell (*f c*), inwardly-pointing, net-like fertile threads (gonimoblast, *gon*) ending in carposporangia (*ca sp*) (slide 3757)

* Descriptive names are inventions to aid identification; ‡name used in Huisman, J et al, *Marine Plants of the Perth Region* (2006)
‡“Algae Revealed” R N Baldock, State Herbarium S Australia, May 2008; corrected May 2014
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5, 6. drift specimens from Point Sinclair, S Australia, on *Amphibolis* stems (A13871).

7-10. preserved (bleached) specimens

7. details of the forked branching pattern (Kraft 3843)

8. tetrasporangia in spotty concentrations (nemathecia) in forked branch tips with rounded ends

9. cystocarps (cyst) near branch tips (A38408)

10. detail of a back-lit cystocarp: fertile mass (gonimoblast, gon) of cells inside; opening (ostiole, ost) (A3844)

11. surface view of clusters of male spermatia (slide 12794)