Phylum: Rhodophyta; Order: Gigartinales; Family: Cystoclioniaceae
fringed fronds
1. plants are red, upright or lying flat, small, 50-100mm tall, soft, thin and flat-branched
2. fronds are 3-4mm broad, side branches pinched at their bases, main branches with tiny, irregular, spatula-shaped fringing outgrowths

Occurrences
Rottnest I., W Australia to Victoria and N coast of Tasmania
probably a deep water species (42m), but most specimens collected as drift

Usual Habitat
probably a deep water species (42m), but most specimens collected as drift

Similar Species
members of the Delesseriaceae (“filmy reds”), (many with a microscopic central thread or vein), but differing in the presence of cell rings (rosettes) in surface view

Description in the Benthic Flora
Part IIIA, pages 417-419

Special Requirements
1. view microscopically the frond tips in surface view to see
   • the apical cell in a notch
   • the faint, central, branching thread (“vein”) (best seen when stained blue)
   • small cells ringing larger ones (rosettes)
2. cut a slice of a main branch and view microscopically to find:
   • the core (medulla) is absent or is represented by an obscure thread
   • obvious (cortex) layers of large spherical cells; with smaller, outer ones appearing jammed between them, but no bright cells (gland cells)
3. if possible find female plants with spherical swellings in fronds, cut a section through these and view microscopically to find
   • a central large cell formed from fusions of several cells
   • radiating chains of sporangia
   • a distinct wall of cells (pericarp) but no opening (ostiole)
4. if possible, cut cross sections of sporangial plants to find the large, tetrasporangia scattered in the cortex of young branches, and divided across into four (zonate)

Rhodophyllis volans stained blue and viewed microscopically
1. surface view showing the apical cell in a notch, the flat-branching central thread (c fil) and rings (rosettes) of cells (A22876 slide 13115)
2. a cross section through a female structure (cystocarp, cys) contrasted by using interference microscopy, showing rows of cells in the cystocarp wall (pericarp, peri) and central mass of sporangia (co sp) (A22876 slide 13116)
3. a cross section of a sporangial plant showing tetrasporangia (t sp) divided across (zonate), large cortex cells (in co, slightly crumpled) and the small cells that ring them (o co) forming rosettes in surface view (A22876 slide 13117)

* Descriptive names are inventions to aid identification, and are not commonly used
“Algae Revealed” R N Baldock, S Australian State Herbarium, September 2008
Specimens of *Rhodophyllis volans* Harvey showing variations in colour and branching patterns, particularly the fine, fringing outgrowths (arrowed)

4, 5. from 30m deep, Pearson L., (West Coast) S Australia (A14031)
6, 7. from 42m deep north Great Australian Bight, S Australia (A43518)

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“Algae Revealed” R N Ballock, S Australian State Herbarium, September 2008