

Dictyosphaeria versluisii

Weber-van Bosse 1905

Dictyosphaeria versluisii is a common green algae found on reef flats attached to rocks and rubble. This alga forms solid, hard bubbles, not to be confused with the hollow, convoluted bubbles of *D. cavernosa*.

Division	Chlorophyta
Class	Ulvophyceae
Order	Cladophorales
Family	Valoniaceae
Genus	<i>Dictyosphaeria</i>



© J.E. Smith 2001

IDENTIFYING FEATURES

DESCRIPTION

Thallus to 5 cm in diameter, spherical when young, somewhat flattened solid cushion when mature. Firm, tough texture, consisting of large bubble-shaped cells that are easily seen by eye. Rhizoids are short, generally unbranched.

Can be easily confused with *D. cavernosa*. *D. cavernosa* forms hollow sacks which are often ruptured and convoluted.

COLOR

Grass green, but sometimes blueish in color.

STRUCTURAL

Primary cells 0.5-1.0 mm diam., angular or polyhedral in surface view, appearing honey-comb like. Daughter segments maturing in many planes and forming a pseudoparenchymatous tissue, inner wall of segments with spinulose trabeculae some simple, some furcate, 7-15 μm wide, 50-150 μm long; hapteroid cells at juncture of walls of adjacent segments branched, to 270 μm long.

HABITAT

Dictyosphaeria versluisii is found in the same calm habitats as *D. cavernosa*, as well as in areas of strong wave action or currents. The alga attaches to rocks or coral rubble associated with sand on shallow, calm reef flats, in tidepools, and subtidally to 76 meters.



© L. Preskitt 2001

DISTRIBUTION

HAWAI'I

Northwest Hawaiian Islands, O'ahu, Kaua'i, Kaho'olawe, Lana'i and Hawai'i Island.

WORLDWIDE

Eastern Atlantic, Caribbean, Indian and Pacific Oceans.

MECHANISM OF INTRODUCTION

Indigenous to Hawai'i.

ECOLOGY/IMPACT

Dictyosphaeria versluysii is a common native alga found on reef flats and subtidally to 76 meters. The solid, spherical morphology of its thallus is able to withstand the high water motion and wave action near shore breaks and on reef crests.

This alga does not have the invasive tendencies shown by its relative, *D. cavernosa*. *D. cavernosa* is able to capitalize on nutrient availability by trapping nutrients in its hollow chamber morphology. Because of the solid, hard pseudoparenchymous thalli, *D. versluysii* can only utilize the nutrients available for uptake in the water column. In a study of the standing crop of frondose algae at Waikiki, approximately 20-25 gm/m² of biomass was attributed to *D. versluysii*, compared to 300gm/m² for *D. cavernosa*.

Dictyosphaeria species reproduce vegetatively by producing daughter segments that are initiated inside parent segments but grow outwards in the form of a bubble. The species also reproduces sexually by freeing reproductive cells through pores in the walls of the vegetative cells of the thallus.

REFERENCES

- Abbott, I.A., 2001. Unpublished manuscript.
- Egerod, L.E, 1952. An analysis of the siphonous chlorophycophyta. University of California Publications in Botany, V. 25 (5): 325-454.
- Magruder, W.H. and J.W. Hunt, 1979. Seaweeds of Hawai'i. Out of print.
- Russell, D. J. and G. H. Balazs. 2000. Identification manual for dietary vegetation of the Hawaiian green turtle, *Chelonia mydas*. NOAA TM-NMFS-SWFSC-294. 49 pp.

WEB LINK

- Frondose Algae of Waikiki.
<http://www.botany.hawaii.edu/reefalgae/>
- Hawaiian Reef Algae. <http://www.botany.hawaii.edu/ReefAlgae/>