

Cladophora vagabunda

Linnaeus 1753

Cladophora vagabunda forms small, pompon-like tufts on hard substrates at the zero tide level on reef flats. This small green alga is usually only a small part of the biomass of the diverse, highly competitive intertidal community.

Division Chlorophyta
 Class Chlorophyceae
 Order Cladophorales
 Family Cladophoraceae
 Genus *Cladophora*



IDENTIFYING FEATURES

DESCRIPTION

Thallus filamentous, spongy, soft tufts, anywhere from 5 - 50 cm in length. Branches mostly on one side, at times, strongly rebranched and claw-like, maximum number of branches at joints one to four, rarely five. Rhizoids fine, often connecting to adjacent filaments by hapteroid-like rhizoids.

C. vagabunda grows from 4 cm diameter on wave-swept habitats to 30 cm high in protected habitats.

COLOR

Pale green to grass green.

HABITAT

Cladophora vagabunda forms pompon-like tufts attached to coral, basalt substrate, and other hard surfaces on reef flats. This alga is found near zero tide level on protected rocky coastlines and in tidepools.

STRUCTURAL

Filament cells cylindrical, 80-140 μm diameter wide, 4-12 μm long; branchlets tapering to 40 μm diameter, slightly constricted at junction with main axes; apices straight above, curved or sickle-shaped below; apical cells 20-60 μm diameter wide, 5-11 μm long. Cell division intercalary, not apical.

DISTRIBUTION

HAWAI'I

Northwest Hawaiian Islands, O'ahu, Maui, Kaua'i, Lana'i, Moloka'i and Hawai'i Island.

WORLDWIDE

World-wide distribution: Australia, Atlantic Ocean, Mediterranean, Caribbean, Indian and Pacific Oceans.

MECHANISM OF INTRODUCTION

Indigenous to Hawai'i.

ECOLOGY/IMPACT

Cladophora vagabunda forms small, pompon-like tufts on hard substrates at the zero tide level on reef flats. The small tight clumps enable this alga to withstand high wave action and scouring, but the compact morphology also inhibits invasive tendencies of the opportunistic settler in normal environmental conditions. This small green alga is usually only a small part of the biomass of the diverse, highly competitive intertidal community. By virtue of its dense and self-shading form, the alga rarely experiences photoinhibition except in the branches on the very top of the tuft, and thus tends to attach to solid substrate areas that are quite exposed. The alga has, however, demonstrated nitrate storage capabilities which increase its longevity in stressful conditions.

All of the *Cladophora* species are opportunistic settlers that respond to environmental variation. Nutrient loading, water temperature fluctuations, and downwelling illumination all influence the growth rates and longevity of these alga. In areas of eutrophication, opportunistic species like *C. vagabunda* may play an important role in coral reef community shifts.

Cladophora species can be difficult to identify. The morphology can be altered significantly by environmental conditions, to the extent that in many cases even the cellular structure used to define the species can be variable among individuals of the same species. Therefore, the genus as a whole should be observed for invasive tendencies.

REFERENCES

- Littler, D.S. and Mark M., 2000. Caribbean Reef Plants. OffShore Graphics, Washington, D.C.
- Magruder, W.H. and J.W. Hunt, 1979. Seaweeds of Hawai'i. Oriental Publ.Co., Honolulu, Hawai'i.
- 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 LINKS

- Turtle Trax. <http://www.turtles.org/>
- Virtual Herbarium. <http://www.botany.hawaii.edu/reefalgae/greenskey.htm>