

***Prasiola meridionalis* Setchell & N.L. Gardner 1920: 291**

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Type Locality:

Neah Bay, Washington, USA.

Habitat:

On rock, growing in the spray zone above the intertidal zone on exposed coasts or in upper intertidal or supratidal areas rich in guano. It may occur in dense populations, which form dark green patches on the rock, especially at sites affected by large amounts of seabird guano. In other parts of its distributional range, it is often reported to be associated with *Rosenvingiella constricta*. This is generally the most common species of *Prasiola* on the North American Pacific coast.

Northeast Pacific Distribution: From Santa Cruz, California, to Adak Island, Aleutian Islands (Scagel 1966).

Vegetative morphology:

Individual specimens consist of a stipe that is pluriseriate throughout its length and a blade of variable, often irregular shape. Large adult specimens are up to 17 mm tall, and the blade is often folded and crisped. Juvenile blades are usually more or less linear, but with growth they quickly become wedge-shaped, fan-shaped or irregularly rounded. Length and width of the stipe are very variable; usually, the stipe enlarges gradually into the blade, but in some specimens it may be very short and enlarges so abruptly that it may be difficult to observe. In surface view the cells are quadrate or rectangular, 5-9 μm long and wide; they are not arranged in distinct areas, and no thickened walls forming spreading lines in the blade are observable. In the normal vegetative condition the blade is monostromatic, 15-45 μm thick.

Reproductive morphology and Life History:

Two different forms of reproduction are known. Sexual reproduction, taking place by oogamy, is reported as the main form (Cole & Akintobi 1963). Asexual reproduction by release of aplanospores also occurs. Gametes and aplanospores are produced on the same thalli. The normal life history of this species consists of the repetition of a single morphological phase reproducing sexually. The adult thallus is diploid; somatic meiosis takes place in the apical part of the blade and produces gametangial tissue, which increases the thickness of the blade from 1 to 4-6 cell layers. In surface view, cells of the gametangial tissue appear smaller (4-6 μm) than normal vegetative cells. Each cell releases an individual gamete: smaller, light green cells produce microgametes (male gametes); larger, dark green cells produce macrogametes (female gametes). The macrogametes are spherical, devoid of flagella, 2.4-4 μm in diameter; microgametes are drop-shaped, with two flagella, 1.5 \times 2 μm . In adult specimens, mature gametangial

portions are easily identifiable as irregularly shaped patches of dark green cells (producing macrogametes) mixed with light green cells (producing microgametes), in a characteristic mosaic pattern. Aplanospores are diploid; they are produced by mitosis in the central and lateral parts of the thallus, segregated from the gametangial portions. Production of aplanospores is reported to occur in older thalli which have completed sexual reproduction or which have been exposed to unfavorable conditions. Thalli produced by germination of aplanospores and thalli produced by gemination of zygotes after sexual reproduction appear morphologically identical (Cole & Akintobi 1963).

Important References:

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