

***Prasiola borealis* Reed 1902**
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Type locality:

Iliuliuk, Unalaska I., Alaska, USA.

Habitat:

On rocks, just above high water mark (Setchell & Gardner 1920). It may occur in great abundance (Reed 1902).

Northeast Pacific distribution:

So far reported only from Unalaska, Kodiak and Baranof Islands, Alaska (Setchell & Gardner 1920), it is no doubt more widely distributed in the State. Material in general agreement with the morphology of this species has been recently collected at Helby Island, Barkley Sound, British Columbia (Rindi & Guiry, pers. observ.).

Vegetative morphology:

This species is characteristically infected by a fungus (*Guignardia alaskana* Reed), which grows endophytically. The extent of fungal infection is largely related to the age and size of the thallus; whereas young plants are only scarcely infected, old specimens are largely invaded by fungal hyphae and show substantial modifications in morphology. Young plants consist of broad blades, cuneate to obovate, arising from a short stipe attached to the substratum by an expanded holdfast. Adult plants are 0.5-1.0 cm tall and are usually formed by 3-4 blades arising from a common holdfast. The blades are much broader than tall, curled and crinkled, with involute edges; not infrequently, edges of opposite sides tend to meet and produce blades with a sac-like appearance. The color of this species is dull olive-green; the texture of the thallus is soft and flaccid when moist, coriaceous and brittle when dry. The blade is initially monostromatic, but in older stages it may consist of 6-8 layers; the penetration of fungal hyphae into the thallus seems to act as an irritant and stimulate division into multiple layers. The surface of the thallus is roughened by numerous brownish hemispherical protrusions, 180-454 μm in diameter and 90-175 μm high, scattered over both surfaces from near the basal parts to the apex of the blades; these represent the perithecia, from which the reproductive bodies of the fungus are released. In the monostromatic stages, the blade is 33-45 μm thick; the cells are clustered in distinct tetrads (groups of 4), which are arranged in larger quadrate or polygonal areas, with wide spaces between them. In surface view, the cells are quadrate or rectangular, 4-9 μm long and wide; in cross section they appear oblong or palisade-like, 11-14 μm high. In older stages, a regular structure is no longer observable; the blades consist of a mixture in which fungal hyphae completely surround and encapsulate the algal cells. At these stages, the blades are 75-146 μm thick.

Reproductive morphology:

No mention of specialized forms of reproduction was made in the original description.

Setchell & Gardner (1920) reported aplanosporangia producing aplanospores, but without giving details.

References:

Reed, M., 1902. Two new ascomycetous fungi parasitic on marine algae. Univ. Calif. Publ. Bot. 1: 141-164.

Setchell, W.A. and N.L. Gardner, 1920. The marine algae of the Pacific coast of North America. Part 2. Chlorophyceae. Univ. Calif. Publ. Bot. 8: 139-374.