

Urospora wormskioldii (Mertens) Rosenvinge 1893: 920

Contributed by **Louis A. Hanic**

Basionym: *Conferva wormskioldii* Mertens in Hornemann 1816: 6.

Type Locality:

Godthaab, Greenland.

Habitat:

Often growing on large, flat rocks in the low intertidal near upper limit of the *Laminaria* band in semi-exposed areas subject to scour and/or burial by sand or other sediment. The dwarf phase has been found on the clean inner surface of empty *Mytilus californianus* shells.

Northeast Pacific Distribution:

Reported from the Pribilof and Aleutian Islands, Alaska, to southern California. Plants from Prince Rupert, BC, to San Simeon, CA, have been studied in culture (Hanic 2005).

Vegetative morphology:

The macroscopic phase is a uniseriate filament that can reach 30 cm in length. The multinucleate cells of the filament are squat, quadrate or barrel-shaped, 200-2000 μm diam. The holdfast is composed of 20 or more rhizoidal cells. Aggregations of filaments resemble fine jade necklaces draped across intertidal rocks at low tide.

Reproductive morphology and Life History:

This species has an alternation of heteromorphic generations. Macroscopic filaments produce only quadriflagellate zoospores, which are 28.5 μm long and 9.1 μm diam. In 10-18°C cultures, zoospores develop into dwarf thalli (cells clusters with several irregularly placed rhizoids). When fertile, dwarf thalli can produce two types of quadriflagellate zoospores, normal-sized ones (25 μm long) and microzoospores (13 μm long), which recycle the phase. Dwarf thalli can also produce biflagellate, pale greenish-yellow, acuminate, slightly anisogamous gametes, usually on separate thalli. These gametes lack an eyespot. Female gametes are 7.3 μm long and 3.0 μm diam. and can develop parthenogenetically; male gametes are 6.6 μm long and 2.5 μm diam. Flagella of both are about 14 μm long. The fertilized zygote develops into a codium up to 300 μm long, with club and stipe of about equal length. Cold shock is required in culture to induce fertility (production of zoospores) in the codium. These zoospores can develop into the macroscopic phase or the dwarf phase.

Important References:

- Hanic, L.A., 2005. Taxonomy, gamete morphology and mating types of *Urospora* (Ulotrichales, Chlorophyta) in North America. *Phycologia* 44: 183-93.
- Kornmann, P. and P.-H. Sahling, 1978. *Meeresalgen von Helgoland*. Biologische Anstalt Helgoland. Hamburg, 289 pp.
- Lokhorst, G.M. and B.J. Trask. 1981. Taxonomic studies on *Urospora* (Acrosiphoniales, Chlorophyceae) in western Europe. *Acta Bot. Neerl.* 30: 353-431.