Urospora penicilliformis (Roth) Areschoug 1874: 4

Contributed by Louis Hanic
hanic@telus.net

Basionym:
Conferva penicilliformis Roth 1806: 271

Type Locality:
Eckwarden, Germany

Habitat:
On rocks, pebbles, boats buoys, tires, logs, pilings, mostly in the upper intertidal zone, together with Bangia, Porphyra, Ulothrix, Enteromorpha, Urospora neglecta, and cells of the Codiuolm phase; occasionally extending into the lower intertidal zone to upper edge of the Laminaria belt. Most common of the three species of Urospora from British Columbia south, less common than U. neglecta northward.

Confirmed Northeast Pacific Distribution (based on culture studies):
San Simeon, California, to Homer, Alaska (Hanic 2005).

Vegetative Morphology:
Gametophytic thalli macroscopic, uniseriate filaments 4-50 mm long in culture (to 20 mm long lower on the shore), composed of multinucleate cells ranging from squat or quadrate to barrel-shaped to elongate, 20-100 μm diameter (average 57 μm, to 192 μm in the low intertidal). Holdfast of 1-12 (average 6) rhizoids in field material, usually > 20 in culture. Sporophytic thalli microscopic, colonial (hence sometimes visible macroscopically), elongate or club-shaped, stalked unicells, with protoplast at distal end of cell and usually with hyaline stipe, reaching 1-2 mm in length in nature.

Reproductive Morphology and Life History:
Alternation of heteromorphic generations. Sexuality most common in gametophytic thalli from the upper, rarely lower intertidal, with gametangia to a maximum diameter of 200 μm. Dioecious, rarely monoecious. Gametes unequal in size. Female gamete green, with stigma, elongate to acuminate, asymmetric, 2 to 3-ridged, twisted and slightly curved, 10.8 μm long, 4.0 μm diameter, capable of parthenogenesis; flagella 18.1 μm long, moving in screw-like fashion. Male gamete pale yellow, without stigma, acuminate to long-ovate, 5.9 μm long, 2.8 μm diameter, not parthenogenetic; flagella 17.4 μm long, moving rapidly and erratically. Zygotes in culture spherical, ovate to slightly elongate, with or without stipe, maturing in 9-12 days in culture when 35-70 μm long (November to February in nature), releasing 16-32 (100s or 1000s in nature) quadriflagellate quadrato zoospores with pointed tails, 22-40 μm long (average 27.1 μm) x 6-14 μm diameter (average 9.0 μm); flagella 12-21 μm long.

Important References:

Seaweeds of Alaska

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