

Neosiphonia harveyi (J. Bailey) M.-S. Kim, H.-G. Choi, Guiry & G.W. Saunders

Relevant synonyms

Polysiphonia harveyi J. Bailey
Polysiphonia insidiosa (J. Agardh)
P. Crouan et H. Crouan
Polysiphonia japonica Harvey
Polysiphonia mottei Lauret

a. Dried specimen. b. Base of axis with cortication. c. Transverse section. d. Female gametophyte with cystocarps. e. Cystocarp. g. Male gametophyte with spermatangial branches. h. Tetrasporophyte with tetrasporangia.
Bars: a = 1 cm; b = 1 mm; c, g = 250 μ m; d = 2 mm; e, f = 100 μ m.



Photos a: M. Verlaque (Mediterranean, Thau); b-h: Meggs and Hommersand, 1993 (NE Atlantic).

Short description

Medium (to 10 cm high), several cylindrical axes in tufts; young branches brownish red to yellowish, flaccid; old axes dark red, fairly tough and flexible; attached either by a solid disc of downgrowing cortical filaments, or by a dense cluster of rhizoids; erect axes, up to 770 μ m in diameter, typically unbranched for basal 0.5-1 cm, then densely irregularly, pseudodichotomously to spirally branched; branches replacing trichoblasts and not constricted basally; four periaxial cells appearing transparent due to the absence of plastids on outer walls; cortication absent or growing downwards in grooves between periaxial cells of lower main axes, rarely in continuous manner; trichoblasts sparse to abundant; gametophytes dioecious; cystocarps widely pedicellate, subspherical, up to 350-425 μ m in diameter; spermatangial branches usually replacing a branch of first or second dichotomy of trichoblasts, 150-350 μ m long and 50-75 μ m in diameter, with a 1-2-celled sterile tip; tetrasporangia, 75-80 μ m in diameter, in long spiral series, often interrupted by sterile segments, in last three orders of branching.

Distinguishing characteristics

The four periaxial cells, the cortication restricted to lower portions of axes, the branches not constricted basally and replacing trichoblasts, the absence of plastids on outer walls of periaxial cells, the cystocarps subspherical and the tetrasporangia in spiral series are distinctive; confusions possible with:

- other species of Rhodomelaceae: other combinations of characters.

Biology / Ecology / Habitat

Subtidal communities; epiphytic or saxicolous; present all year round.

Distribution

Worldwide: north-western Atlantic Connecticut, USA (introduced and described in 1848; Bailey, 1848), from Newfoundland to Georgia, Caribbean; north-eastern Atlantic, France, Brittany (introduced, first observation in 1832; McIvor *et al.*, 2001), from Norway to Canary Islands; north-western Pacific (native area; McIvor *et al.*, 2001), Japan, Korea, China; north-eastern Pacific, California; south-western Pacific (introduced), New Zealand; Indian Ocean, Maldives, Seychelles. **Mediterranean:** recorded first as a new species in 1958 from France, Etang de Thau (Lauret, 1967, as *Polysiphonia mottei*); successively recorded in Italy, Naples (Cinelli, 1971, as *P. mottei*), Sicily (Giaccone *et al.*, 1986, as *P. mottei*), Sardinia (Cossu *et al.*, 1992, as *P. mottei*), Tuscan Archipelago (Papi *et al.*, 1992, as *P. insidiosa*), Venice (Belle-mo *et al.*, 1999); Syria (Mayhoub, 1976a, as *P. mottei*); Spain (Llimona, 1985, as *P. mottei*); Egypt (Bergin, 1987, as *P. mottei*); Algeria (Seridi, 1990, as *P. mottei*); France, south-east (Klein *et al.*, 2005); Greece, south Aegean Sea, Karpathos Island (Catra and Giardina, 2009), north Aegean Sea (Tsiamis *et al.*, 2010).

Mode of introduction

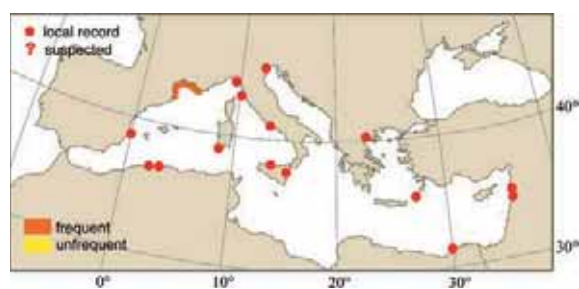
Multiple: shipping; transferred with oysters imported for farming from Japan.

Establishment

Well established; invasive dynamics.

Importance to humans

None.



1st Mediterranean record
Etang de Thau, France,
1967 [1958].

Key references

- Bailey J.W., 1848. Continuation of the list of localities of algae in the United States. *American Journal of Sciences, Series 2*, 6: 37-42.
- Lauret M., 1967. Morphologie, phénologie, répartition des *Polysiphonia* marins du littoral languedocien. I. Section *Oligosiphonia*. *Naturalia monspeliensa, Série Botanique*, 18: 347-373.
- Maggs C.A. and Hommersand M.H., 1993. *Seaweeds of the British Isles. Volume 1. Rhodophyta. Part 3A. Ceramiales*. pp. xv + 444. London: HMSO.
- McIvor L., Maggs C.A., Provan J. & Stanhope M.J., 2001. *rbcl* sequences reveal multiple cryptic introductions of the Japanese red alga *Polysiphonia harveyi*. *Molecular Ecology*, 10: 911-919.