

Acanthophora nayadiformis (Delile) Papenfuss

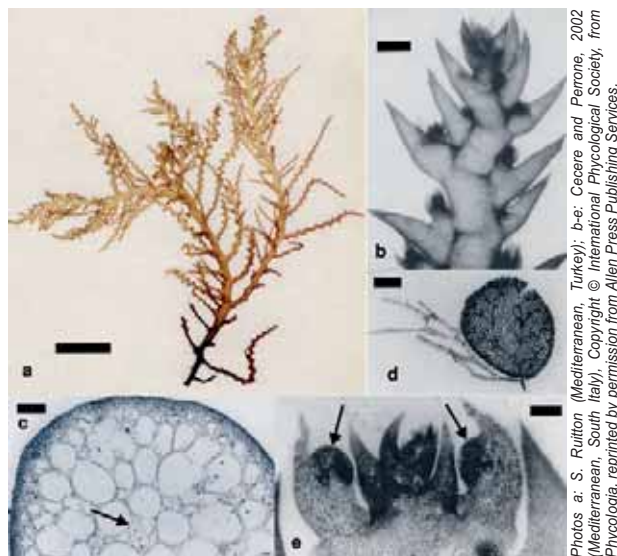
Relevant synonyms

Acanthophora delilei J.V. Lamouroux
Fucus nayadiformis Delile

Incorrect spellings

Acanthophora naiadiformis (Delile) Papenfuss
Acanthophora najadiformis (Delile) Papenfuss

a. Dried specimen. b. Apex.
c. Transverse section (Arrow: rhizoidal filaments). d. Spermatangial plate. e. Apex of a female gametophyte (Arrows: procarps).
Bars: a = 1 cm; b = 500 μ m; c, d = 100 μ m; e = 60 μ m.



Photos a: S. Ruffon (Mediterranean, Turkey); b-e: Cecere and Perrone, 2002 (Mediterranean, South Italy). Copyright © International Phycological Society, from *Phycologia*, reprinted by permission from Allen Press Publishing Services.

Short description

Medium (to 20 cm high), cylindrical, cartilaginous, brownish to dark red, densely branched and bushy, and covered by short spirally alternating stout spines; attached to the substratum by rhizoids and stolons or free-living (in coastal lagoons); apices blunt, covered with many spines; branches not constricted at the bases; main axes 1.3-1.5 mm in diameter; structure uniaxial with five periaxial cells surrounded by a large parenchymatous cortex; outer cortical cells elongated, fibre-like, in surface view; gametophytes dioecious; cystocarps sessile, ovoid to urn-shaped, borne on branchlets; spermatangial organs forming flat plates with sterile marginal cells, borne on trichoblasts; tetrasporangial stichidia borne on the bases of branchlets, globose, spineless on surface, but apices blunt with many spines; vegetative multiplication by dark red swollen deciduous propagules derived from the apical parts of branches.

Distinguishing characteristics

The base stoloniferous, the axes covered with short stout spines, the structure uniaxial with five periaxial cells surrounded by a parenchymatous cortex, the spermatangial organs forming flat plates with sterile marginal cells, and the deciduous propagules are distinctive; no confusion possible with native species.

Biology / Ecology / Habitat

Shallow subtidal communities, 0-3 m depth, littoral pools and coastal lagoons; present all year round; well-developed fronds in summer and autumn.

Distribution

Described from both the Red Sea (Suez, Egypt) and the Mediterranean Sea (Alexandria, Egypt) (Delile, 1813, 1826, as *Fucus nayadiformis*). **Worldwide:** Red Sea; Indian Ocean, Persian Gulf, Ethiopia, Kenya, Somalia, Iran, Pakistan, India, Sri Lanka, Laccadive Islands; Black Sea; north western Atlantic, Florida. **Mediterranean:** recorded first in 1798-1801 from Egypt, Alexandria (Delile, 1813); successively recorded in Greece, north Aegean Sea (Grunow, 1861, as *A. delilei*), south-eastern Aegean Sea, Rhodes Island (Tsekos and Haritonidis, 1974, as *A. delilei*), Ionian Sea (Schnetter and Schnetter, 1991, as *A. delilei*); France, Corsica (Debeaux, 1873, as *A. delilei*); Libya (De Toni and Levi, 1888, as *A. delilei*); Italy, Naples, Sicily (Preda, 1908, as *A. delilei*), middle Adriatic Sea (Huvé *et al.*, 1963, as *A. delilei*), Calabria (Tolomio, 1976), Taranto (Cecere, 1990a), Tuscan Archipelago (Papi *et al.*, 1992), Tyrrhenian Sea, Caprolace Lagoon (Signorini *et al.*, 2009), south Adriatic Sea, Lake of Acquatina (Petrocelli *et al.*, 2009); Syria (Preda, 1908, as *A. delilei*); Tunisia (Feldmann, 1951, as *A. delilei*); Israel (Nemlich and Danin, 1964, as *A. delilei*; Hoffman and Dubinsky, 2010); Turkey (Aysel, 1981, Taşkın *et al.*, 2008a); Maltese Islands (Lanfranco, 1989); Algeria (Seridi, 1990); Cyprus (Cirik *et al.*, 2000); Lebanon (Lakkis and Novel-Lakkis, 2000). Although the oldest Mediterranean records are anterior to the opening of the Suez Canal, the chronology of the Mediterranean records suggests an introduction or the co-occurrence of introduced and native populations. Cormaci *et al.* (2004) did not consider the species as introduced into the Mediterranean Sea.

Mode of introduction

Multiple; shipping; via the Suez Canal. According to Aleem (1948): “the migration could have taken place in historical times prior to the opening of the Suez Canal... through the old intermittent canal which was established by the Ancient Egyptians”.

Establishment

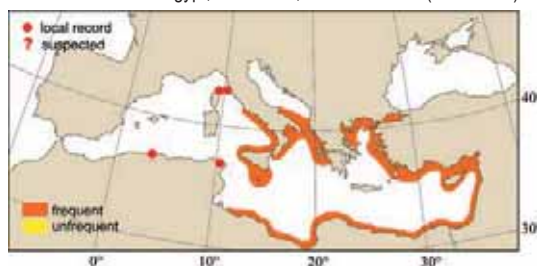
Well established.

Importance to humans

None.

1st Mediterranean record

Egypt, Alexandria, 1813 and 1826 (1798-1801).



Key references

- Aleem A.A., 1948. The recent migration of certain Indo-Pacific algae from the Red Sea into the Mediterranean. *New Phytologist*, 47: 88-94.
- Cecere E. and Perrone C., 2002. Morphology of *Acanthophora nayadiformis* (Ceramiales, Rhodophyta). *Phycologia*, 41: 523-532.
- Delile A.R., 1813. Flore d'Égypte. In: Description de l'Égypte... Histoire naturelle, Vol. 2, pp. 145-320. Paris.
- Delile A.R., 1826. Flore d'Égypte. Explication des planches. In: Description de l'Égypte... Histoire naturelle, Vol. Atlas Paris.
- Nemlich C. and Danin Z., 1964. *Marine algae of the coast of Israel*. Hakibbutz Hameuchad Publisher, 199 pp.