Undaria pinnatifida (Fucophyceae, Laminariales) spread in the central Mediterranean: its occurrence in the Mar Piccolo of Taranto (Ionian Sea, southern Italy)

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Abstract — The present short note reports the occurrence of the brown alga Undaria pinnatifida (Harvey) Suringar in the Mar Piccolo of Taranto (Ionian Sea, central Mediterranean, southern Italy), an enclosed basin subject to domestic and industrial pollution. © 2000 Adac/Éditions scientifiques et médicales Elsevier SAS

INTRODUCTION AND OBSERVATIONS

The present paper reports the occurrence of the brown alga Undaria pinnatifida (Harvey) Suringar in the Mar Piccolo of Taranto (Ionian Sea, southern Italy), an enclosed basin subject to domestic and industrial pollution (Cardellicchio et al., 1991).

The laminarian kelp U. pinnatifida, belonging to the family of Alariaceae, is native to Japan where it is called 'wakame' and is extensively cultivated for food. It was reported outside its region of origin for the first time in Etang de Thau, a lagoon on the French Mediterranean coast (Pérez et al., 1981; Boudouresque et al., 1985) where it was probably introduced accidentally with Pacific oyster to be cultivated there. Subsequently, in 1983 it was transplanted to the coasts of Brittany for its commercial importance (Pérez et al., 1984). In recent years many additional findings have been reported and U. pinnatifida is now present in several localities of the world (Fig.1).

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The Ionian sea population included plants of different sizes that were growing only on a restricted area of the wharf of the old city of Taranto and on ropes and pebbles lying in the nearby muddy bottom, from the upper sublittoral to a depth of 1.5 m. The longest specimens were slightly greater than 1 m in length, similar to those found in the other Mediterranean localities (Boudouresque et al., 1985; Knoepffler-Peguy et al., 1990; Curiel et al., 1994). All the mature thalli were stocky with wide blades and short stipes. Nevertheless, plants exhibited a great morphological variability, a feature of the species described by many authors (e.g. Kito et al., 1981; Castric-Fey et al., 1999). Blades were more or less deeply indented, with pinnae of different width and length (Figs 2a–d).

Voucher specimens, including specimens presented in Fig. 2, were deposited at the herbarium of the Istituto Talassografico in Taranto.

**DISCUSSION**

Introduced species have recently been regarded as a potential cause of reducing biodiversity (Walker & Kendrick, 1998). The marine vegetation of the Mar Piccolo is already very poor due to the effects of pollution (Cecere et al., 1991), and it is unlikely that the introduction of *Undaria pinnatifida* will cause any further damage. This is because the basin does not support a substantial attached community (Cecere et al., 1992) and therefore the large canopy-forming *U. pinnatifida* might play a positive ecological role by providing food and shelter to many organisms. In fact, several algae and animals (i.e. Bryozoa, Ascidia, Hydrozoa, mussel larvae, eggs of both squids and other
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Fig. 2 a–d. Different morphs of *U. pinnatifida* from the Mar Piccolo of Taranto. The specimens are deposited at the herbarium of the Istituto Talassografico in Taranto. The specimen showed in Fig. 2d lacks its distal part. a: scale bar = 6.7 cm; b: scale bar = 9.9 cm; c: scale bar = 9 cm; d: scale bar = 6 cm.

Molluscs) were found as epiphytes on both the blade and the holdfast of specimens of any size. On the other hand, the introduction of *U. pinnatifida* might be a problem for the local mussel (*Mytilus galloprovincialis* Lamarck) cultivation. In fact, as the local mussel
breeders use horizontally suspended ropes to collect mussel juveniles to be cultivated, *U. pinnatifida* zoospores might compete for the substrate with mussel larvae, as occurs in the Étang de Thau, where the large plants can foul the cultivation ropes (Verlaque, 1994). The introduction of *U. pinnatifida* into the Mar Piccolo is certainly very recent, as the species is present in the basin at one site only, and is probably due to the importation of the Japanese oyster *Crassostrea gigas* (Thunberg) from France. Local mussel breeders reported that the imported oysters were covered by *U. pinnatifida* thalli which, most likely, were accidentally thrown into the sea by the mussel breeders themselves.

With the present finding, the distribution of *U. pinnatifida*, previously limited to the northern Mediterranean zone (Boudouresque et al., 1985; Knoepffler-Peguy et al., 1990; Rismondo et al., 1993), is extended to the central zone.

**RÉFÉRENCES**


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