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The spread of *Acrothamnion preissii* (Sonder) Wollaston (*Rhodophyta, Ceramiaceae*) in the Mediterranean Sea: New record from the Balearic Islands.

Abstract

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Acrothamnion preissii, a species from waters off Australia and Japan, is reported for the first time off the northern coast of Mallorca (Balearic Islands) and for the fourth time in the Mediterranean Sea, indicating its progressive spread in the area. The Spanish specimens are described and compared with specimens from other Mediterranean localities.

The genus *Acrothamnion* J. Agardh is characterized by the presence of a big gland cell in the apex of the pleuridia and by cruciately divided tetrasporangia in the base of the primary pleuridia (J. Agardh 1892; Wollaston 1967). At present, only two species are recognized in this genus: *A. preissii* (Sonder) Wollaston from waters off Australia and Japan and *A. butleriae* (Collins) Kylin from off India, Japan and the West Indies.

The presence of *Acrothamnion preissii* along the Mediterranean coast is quite recent (Fig. 1a) being recorded first off Livorno (Italy) by Cinelli & Sartoni (1969). It was then found off the French coasts in the vicinity of Villefranche-sur-Mer (Alps Maritimes) by Boillot & al. (1982) and then near Cap Camarat (Var) by Thélín (1984). Now its appearance off the Spanish coasts is reported.

The Spanish specimens of *Acrothamnion preissii* are from samples collected off the Mallorca coast, between Punta de Na Foradada (4388000Y; 450800X) and Punta del Verger (4392600Y; 456600X) (Fig. 1b), and have been deposited in BCF (BCF-A 9886). These samples were collected between 30 and 40 metres depth, on a maërl bottom. *A. preissii* grows over the calcareous algal species off *Phymatolithon* Foslie and *Lithophyllum* Philippi, though it can also live epiphytically on *Peyssonnelia harveyana* J. Agardh, *P. rosa-marina* Boudouresque & Denizot and *P. dubyi* H. Crouan & P. Crouan. The presence of *A. preissii* in detrital communities agrees with the findings of Boillot & al. (1982) who recorded this species at 35 metres depth, though it has also been found at lesser depths as an epiphyte on *Posidonia oceanica* (L.) Delile (Boillot & al 1982; Cinelli & Sartoni 1969; Thélín 1984).

The samples, collected by dragging, did not allow for a study of the community structure, nor, for the calculation of biomass and surface area of the species. However, it was possible to confirm that *Acrothamnion preissii* was present in 60 % of the samples analysed.

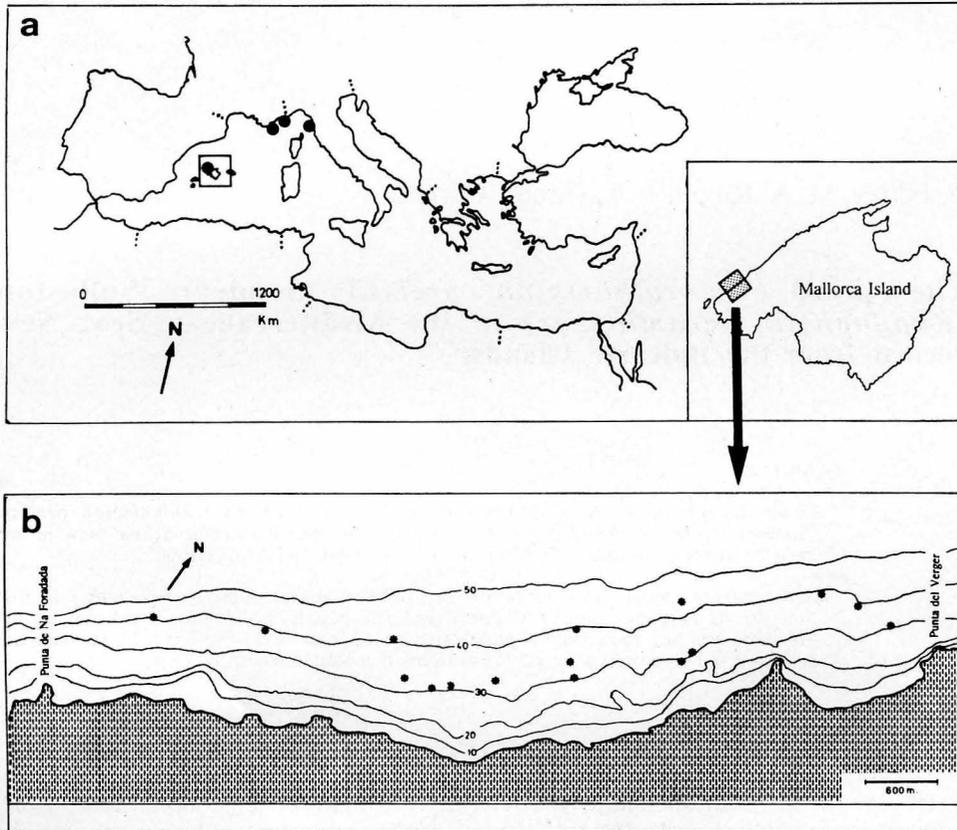


Fig. 1. *Acrothamnion preissii* in the Mediterranean.- a, distribution; b, sampling area on Mallorca with places where *A. preissii* was found (*).

The specimens studied were less than 10 mm in length and consisted of a lower prostrate axis attached to the substrate by pluricellular rhizoids. These rhizoids grew out of the same coxal cell bearing pleuridia (Fig. 2a).

Axial cells were cylindrical, without cortication, and in the main branches measured 150-300 μm x 40-60 μm . In general, each axial cell produced 3-4 lateral branches (pleuridia) in its distal part: 2 long branches (major branches), distichous, opposite, and pinnately branched, and 1-2 shorter branches (minor branches) irregularly branched. In our specimens, pinnate branching of the 2 major branches was not always obvious. They were similar to the Japanese specimens due to the presence of three lateral branches (Itono, 1977), but not to the Mediterranean specimens from Livorno with four lateral branches (Cinelli & Sartoni, 1969). Major branches consisted of 4-7 cells, 26-30 μm x 20-22 μm broad, decreasing in size towards the apex. The coxal cell of the pleuridia was smaller, approximately 15 μm x 20 μm . A refringent gland cell was present at the apex of the pleuridia. This cell was ovoid, and its maximum diameter was 20 μm (Fig. 2b & 2c).

The specimens studied were all sterile. In the Mediterranean, specimens with tetrasporangia were found in August off the coast of Livorno (Cinelli & Sartoni 1970) and in December off Cap Camarat (Thélin 1984).

Sartoni & Sarti (1976) suggested that the introduction of *Acrothamnion preissii* at Livorno was due to transport by maritime traffic. This hypothesis was confirmed, according to the same authors, by the presence of other introduced species, such as

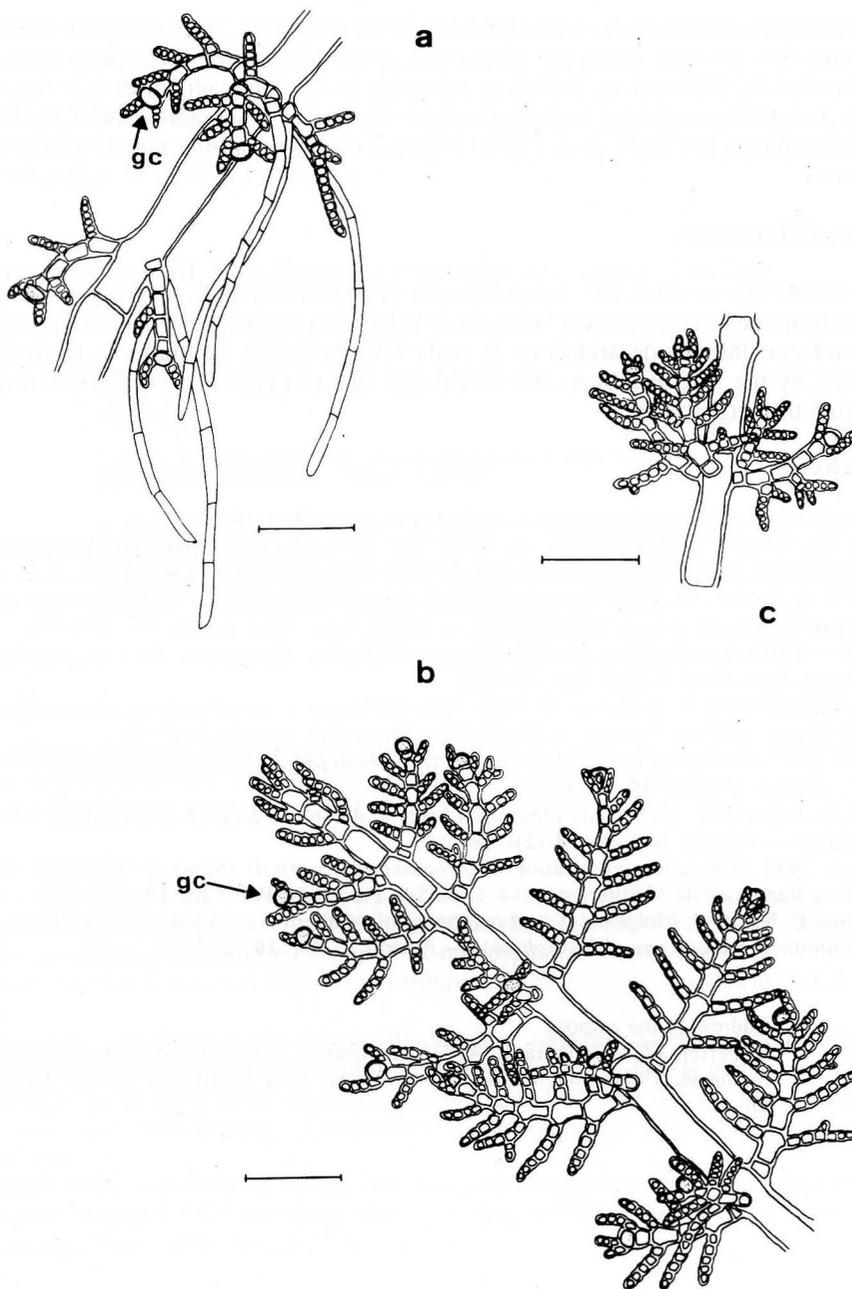


Fig. 2. *Acrothamnion preissii*.- a, presence of pluricellular rhizoids in the prostrate axis; b, thallus with whorls of 3 lateral pleuridia, 2 major branches and 1 minor branch; c, occasional presence of a whorl of 4 pleuridia, the 2 major and minor pleuridia opposite each other.- gc = gland cell. - Scale bar = 100 μ m.

Aglaothamnion feldmanniae L'Hardy-Halos, in the same area. The subsequent westward expansion of *A. preissii*, along the north coast of the western Mediterranean basin, has been reported by Boillot & al. (1982) as being due to the dominant currents in this area. Further prospecting is needed to determine how the species is spreading and if has begun an invasion phase, as Cinelli & al. (1984) observed during the winter season off the coast of Livorno.

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