

Presence of Sieve Plates in *Cystoseira* (Fucales, Fucophyceae)

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The presence of sieve plates in the cells of Fucophyceae has been observed by a number of authors, in particular in Laminariales (PARKER & HUBER, 1963; SCHMITZ & SRIVASTAVA, 1974, 5, 1976; SIDEMAN & SCHEIRER, 1977) and Fucales (BISALPUTRA, 6, FULCHER & McCULLY, 1968; MOSS, 1983; FIELDING et al. 1987). The latter works deal principally with different species of the genus *Fucus* but, on the other hand, no description of these structures have been found in species of the genus *Cystoseira*. Only data for *Cystoseira* are two photographs of the sieve tubes in *C. stricta* (pictures by L. and M. Pellegrini) shown by ARDY-HALOS et al. (1984).

This study deals with the description of sieve plates in Laminariales. The samples were collected in Blanes (Gerona, NE in) in February 1990. In the preparation for TEM a number of sections from the middle zone of the cauloid of this species were prepared and fixed in 4% paraformaldehyde and 4% glutaraldehyde 0.1 M sodium cacodylate buffer in sea water for 2 hours. The slices were washed four times in the buffer and post-fixed with osmium tetroxide (1%) in the same buffer for 1 hour. The specimens were dehydrated through a graded acetone series and added in Spurr's resin. Cut sections were then post-stained in ethyl acetate and lead citrate, and examined with a Phillips 301. The sieve plates were observed in the cells of the inner cortex.

The thickness of the sieve plates is about 0.41  $\mu$ m (0.33--0.41  $\mu$ m). This value is slightly higher than the values found by other authors in other species of Fucales and Laminariales (0.2  $\mu$ m: FIELDING et al., 1987 for *F. vesiculosus*, *F. serratus* and *F. vesiculosus*; 0.3  $\mu$ m: FULCHER & McCULLY, 1971 for *F. vesiculosus*; 0.2  $\mu$ m: SCHMITZ & SRIVASTAVA, 1975 for *Alaria marginata*; 0.2-0.4  $\mu$ m: SIDEMAN & SCHEIRER for *Laminaria saccharina*). The pores have a diameter of approximately 0.11  $\mu$ m (0.10-0.12  $\mu$ m). This value is lower than the estimates values measured by other authors in Fucales spp. (0.037  $\mu$ m: BISALPUTRA, 1966 for *F. evanescens*; 0.04  $\mu$ m: FIELDING et al., 1987 for *F. vesiculosus*, *F. serratus* and *F. vesiculosus*; 0.05  $\mu$ m: FULCHER & McCULLY, 1971 for *F. vesiculosus*) and lower than the values found in Laminariales (0.11-0.30  $\mu$ m: ITZ & SRIVASTAVA, 1975 for *A. marginata*; 0.70  $\mu$ m: SIDEMAN & SCHEIRER, 1977 for *L. saccharina*; 2.40-6.00  $\mu$ m: PARKER & HUBER, 1963 for *Macrocystis pyrifera*).

MOSS (1983) considered the pattern of pores in the sieve tubes of *F. vesiculosus* to be irregularly distributed while FIELDING et al. (1987) suggest that the pores have an even distribution across the plate. Our observations tend to agree with those of the former author, as the pores in the plates of *C. stricta* appear much more irregularly and infrequently distributed than those of *F. vesiculosus* (FIELDING et al., 1987), a fact which can also be readily seen in one of the photographs of sieve plates in *C. stricta* (L'HARDY-HALOS et al., 1984).

Studies of the part of the cell wall where the sieve tubes are located are currently being undertaken. We can state, however, that the plasmalemma fibres, which pass through the sieve tubes, connect with the inner layers of the cell wall and penetrate them. The same observation has been reported by FIELDING et al. (1987) for *Fucus* spp.

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The *Posidonia oceanica* (L.) Delile Meadows of Egyptian Waters Preliminary Survey

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A survey of the *Posidonia oceanica* beds along the Egyptian coast has been carried out since 1986. The work is focussed on the growth dynamics of the plant and on its associated fauna and flora. Preliminary results are reported. *Posidonia oceanica* communities represent the most productive of all marine ecosystems in the south eastern Mediterranean waters along the Egyptian coast from the Lybian desert in the west to El Arish in the east (Fig. 1), as well in the north west Mediterranean (Molinier and Picard, 1952).

The western desert coast is characterized by large meadows of *Posidonia* exposed to open sea, to waves and water currents. The leaves are healthy, long, green all over and with only a slight epiphytic cover. The animal associations are also poor. Dead mattes of old *Posidonia* meadows are found covered with sand near green meadows in shallow areas (3-6 meters depth). The green meadows of *Posidonia* at shallow depths (5-8 meters) are patchy and scattered while the deeper meadows cover more extensive areas. Aleem (1955) mentioned the presence of two parallel belts of *Posidonia* in the western area off El Agami, the first, a shallow bed at 8-10 meters depth was interspersed with *Cymodocea*, while the second at 20 meters depth was occupied mainly by *Posidonia*. The present survey showed the existence of both belts but the second at 26 meters. Aleem (1955) also reported that *Posidonia* beds were most abundant at Burg El Arab, 50 km west of Alexandria, where the sediment is of coarse calcareous sand completely devoid of fixed algae. Thelin et al. (1985), located and studied *Posidonia* near the El Dabba area, west from El Alamein, at depths down to 27 meters. They gave some data about extension, leaf biometry, flowering and leaf epiphytes. Meadows are also extensive in Merza-Matrouh harbour, where the Red Sea eel-grass *Halophila* sp. is also recorded (Aleem, 1955). Shallow *Posidonia* meadows were also located at Sidi Abd El Rahman, west of El Alamein.

The *Posidonia* meadows in front of Alexandria are formed in scattered patches located in the semi-closed bays specially at Miami, El Asafra and Montazah, (Fig. 1). The patches are found at depths ranging between 5-7 meters and are in most cases protected by rocks but subjected to the eastward flowing current. They are also subjected to direct and indirect organic pollution from city effluents. Adults leaves are heavily covered with epiphytes and are yellow-green to brown-green in colour. Heavy associations of animal groups inhabit the meadows. Some of these associations are reported elsewhere in this volume (Amphipoda, Polychaeta). Aleem (1955), reported the area between Rosetta and Damietta (delta coast) to be scarce in *Posidonia* meadows, *Cymodocea* being more frequent. From Port-Said to El-Arish, *Posidonia* meadows are abundant, located at the few rocky places between the two Ports.



Fig. 1 - Showing Different Locations Along The Egyptian Coast.

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