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Poster Abstract - D.07

RELATIONSHIP BETWEEN DNA METHYLATION PATTERN AND STRESS CONDITIONS IN PLANTS OF *POSIDONIA OCEANICA* (L) DELILE

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Posidonia oceanica (L) Delile is an important marine phanerophyte of the Mediterranean area. In the last years a regression of *Posidonia oceanica* meadows has been caused by the increasing anthropization and *Posidonia* has been proposed as an effective bio-indicator to monitor sea environments (1).

DNA methylation is a fundamental mechanism for gene expression regulation and plant development (2,3). In this context, we investigated the putative relationship between DNA methylation and stress conditions in plants of *Posidonia* derived from anthropic-stressed and intact meadows respectively, during three different periods of the year. In addition, the analysis of DNA methylation pattern was extended to plants grown in aquarium under controlled stress conditions (Cd 10 mM). DNA methylation of shoot apical meristems and young leaves was monitored by immunocytological and Methylation-Sensitive Amplification Polymorphism analysis (MSAP). A set of morphometric and nucleotipic features were also investigated. The plants of anthropizated meadows showed cytosine hypermethylation and chromatin re-modelling with respect to those of intact areas. Notably, we observed similar changes in Cd-stressed plants as compared to those of controls. Moreover, MSAP signal-band profiles revealed a clear polimorphism between antropic stressed and well preserved meadows, thus suggesting that the methylation pattern in *Posidonia* may be used as a molecular marker of altered environmental condition.

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