



105° CONGRESSO SBI



UNIVERSITÀ
DEGLI STUDI
DI MILANO



UNIVERSITÀ DEGLI STUDI
DI MILANO
BICOCCA

Simposi

“BIODIVERSITÀ”

“EVO-DEVO”

“BIOLOGIA RIPRODUTTIVA”

“SPECIAZIONE ED EVOLUZIONE”

“CONSERVAZIONE, RECUPERI, REINTRODUZIONI”

“PIANTE E SOCIETÀ”

25-28 AGOSTO 2010 - MILANO

A1 = Early indicator in seagrass degradation events: Changes on surface interaction between epiphytes and seagrass hosts.

L. Sordo, A. Papini

Department of Plant Biology, Università di Firenze, Via La Pira, 4 50121 Firenze, Italy.

The causes for seagrass regressions worldwide are still unclear. Epiphytic overgrowths had been widely associated to these regressions (1). Previous monitoring programs often failed to detect the increased nutrient loading responsible for macroalgal blooms, because high levels of pulsed nutrient are quickly absorbed by bloom-forming algae and early stages are so gradual that they usually are not recognized until changes are well under way (2). Due to the complexity of biological and environmental factors that can influence seagrasses response to light reduction, we need to develop early warning indicators. Biomass, percent coverage and community structure of epiphytes have been already used as indicators of seagrass ecosystems. In a *Halodule wrightii* regression event apparently due to a *Hincksia mitchelliae* (Phaeophyta) overgrowth, we compared two samples from the beginning and end of the algal overgrowth via electronical and optical microscopy. The investigation revealed that even though there was the same type of epiphytism at both periods, only at the late stage of the host-epiphyte interaction we observed the presence of plasmodesmata between the cells of *Hincksia*. This indicates a change in the vegetative organization of *Hincksia* in relation to its host to improve nutrients absorption and distribution through the epiphyte cells (3). Changes on surface interaction between epiphytes and seagrass hosts may be a useful indicator of early seagrass degradation before the signs are irreversible. We propose the development of an index where the macroalgae and plant biomass together with the type of epiphytism are treated as variables. For this purpose it is necessary to study the different types of anatomical relationships between seagrass and epiphytes, using (4) as a model where there were identified the types of host-epiphyte interfaces with the algal host *Gracilaria chilensis* (Rhodophyta).

Key words: Epiphytic index, host-epiphyte interaction, seagrass regressions.

- 1) Ralph, P.J., Durako, M.J., Enríquez, S., Collier, C.J., Doblin, M.A., 2007. Impact of light limitation on seagrasses. *J. Exp. Mar. Biol. Ecol.* 350, 176-193.
- 2) Kiirikki, M., Blomster, J., 1996. Wind induced upwelling as a possible explanation for mass occurrences of epiphytic *Ectocarpus siliculosus* (Phaeophyta) in the northern Baltic Proper. *Mar. Biol.* 127, 353-358.
- 3) Papini, A., Sordo, L.N., Mosti, S. Surface interactions of the epiphytic macroalga *Hincksia mitchelliae* (Phaeophyceae) with the shoalgrass, *Halodule wrightii* (Cymodoceaceae). Submitted to the *J. Phycol.* February 12 of 2010
- 4) Leonardi, P.I., Miravalles, A.B., Faugeron, S., Flores, V., Beltran, J., Correa, J. A., 2006. Diversity, phenomenology and epidemiology of epiphytism in farmed *Gracilaria chilensis* (Rhodophyta) in northern Chile. *Eur. J. Phycol.* 41(2):247-257.