

PIGMENT-BASED CHEMOTAXONOMY: A RELATIVELY EASY AND ECONOMICAL METHOD FOR MICROALGAL COMMUNITY ASSESMENT AND ADAPTIVE ANAGEMENT.

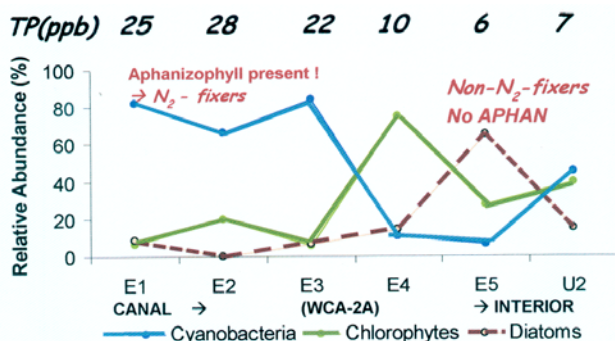
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PREMISE / HYPOTHESIS

We have found that pigment-based chemotaxonomy, using linear regression of biological marker pigments, can give valid estimates of community structure to the Division level and often to Class. However, when working with native periphyton or epiphytic samples, the more labile pigments become degraded in senescent / dead cells. The use of periphytometers, epiphytometers and, as suggested here, fake emergent plant stalks (i.e. bulrush etc.) allow analysis of fresh viable cells and, in addition, can give rapid indications of developing community structure in response to changing water quality parameters, notably nutrients.

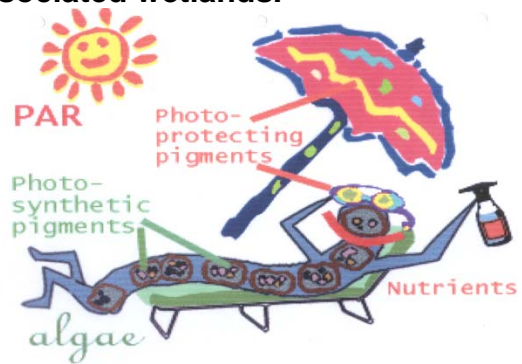
DOES IT WORK ?



Aphanizopyll is a marker pigment for diazotrophic (N-fixing) cyanobacteria. TP correlates to N-fixers.

ADAPTIVE MANAGEMENT IMPLICATIONS

It is suggested here that the ease of chemotaxonomy coupled with its use with periphytometers and epiphytometers in spatial sampling grids could provide temporally rapid indications of community shifts in the microalgal communities of the Everglades and associated wetlands.



REFERENCE

Pigment-Based Chemotaxonomy and its Application to Everglades Periphyton

J.W. Louda,^{1} C. Grant,^{1,2} J. Browne^{1,3} and S. Hagerthey^{4,5}*

IN: Microbiology of the Everglades Ecosystem. J.A. Entry, A.D. Gottlieb, K. Jayachandran and A. Ogram (eds.). CRC press. 2015. (978-1-4987-1183-8) Chpt.13. pp.289-349 & Appendices