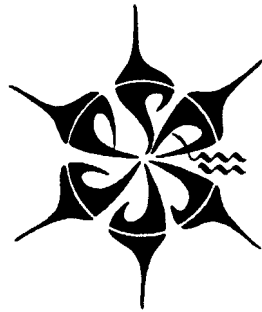
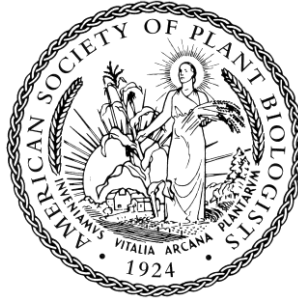


Plant Biology 2009 Final Program



Phycological
Society of America

***Final program and abstracts of symposia, plenaries,
minisymposia, talks, and poster presentations at
Plant Biology 2009***

**Joint Annual Meetings of the
American Society of Plant Biologists
and the Phycological Society of America**

***Hawaii Convention Center, Honolulu, Hawaii
Saturday July 18 thru Wednesday July 22, 2009***

"Using various combinations of the genetic markers COI, EF2, LSU and *rbcl*, we are assessing the taxonomic boundaries and phylogenetic affinities of foliose red algal specimens collected from the isolated warm temperate islands of Bermuda in the western Atlantic. Some are being assessed with specimens including collections from their type localities in Bermuda. Through our DNA analyses, we continue to uncover taxonomic problems, some in the form of cryptic species, but our collections have also included species completely new to science, which we characterize using both molecular and anatomical/reproductive features. On the other hand, some collections that look to be distinct species are, after sequence analysis, merely phenotypic variants displaying morphologies correlated with the environment from which they were collected. Examples of such morphological variability with genetic uniformity will be demonstrated using *Halymenia* and *Cryptonemia*. Our phylogenetic analyses indicate that two Bermudian species currently assigned to the genera *Kallymenia* and *Nemastoma* require assignment to other genera to correct their taxonomic position. We are also using gene sequences from local collections historically identified as species with European type localities (e.g., *Platoma cyclocolpum*) to compare with eastern Atlantic/Mediterranean specimen-derived sequences to assess whether or not they are truly conspecific."

(a) Department of Biology, Trinity College (b) Department of Biological Sciences, University of Rhode Island (c) Department of Biology, University of New Brunswick

P05003 "Phylogenetic relationships within the genus *Hypnea* (Gigartinales, Rhodophyta) based on multigene data"

Boo, Sung Min (a) Geraldino, Paul John L-presenter pj_huey@yahoo.com(a)

"Since the classification of the gigartinean red algal genus *Hypnea* has been controversial, there is a need for a critical reassessment of species delimitation and phylogeny within the genus using extensively sampled collections, including those collected from the type localities. In this study, we determined *rbcl* sequences from 28 specimens, and 20 sequences from *cox1*, *psaA* and SSU genes representing 20 species of *Hypnea*. The phylogenetic trees of the four individual gene sequences were congruent. Two new species such as, *H. asiatica* sp. nov. and *H. caespitosa* sp. nov. were described here. *H. asiatica* occurs in Korea, Japan, and Taiwan and is distinguished by percurrent main axes, branches with abruptly curved adaxial branchlets, and the presence of lenticular thickening in the walls of medullary cells. *H. caespitosa* occurs in the warm waters of Malaysia, the Philippines, and Singapore and is characterized by a relatively slender main axis having a pulvinate growth habit, with entangled, anastomosing and subulate uppermost branches, and unilaterally borne tetrasporangial sori. All phylogenetic trees showed the distant relationship of *H. caespitosa* to *H. pannosa* from Baja California, as well as *H. asiatica* to *H. charoides* from Western Australia. The *rbcl* + *psaA* tree supported the monophyly of the genus with high bootstrap values and posterior probabilities and the recognition of three clades within the genus. The three clades correspond to the three sections, *Virgatae*, *Spinuligerae*, and *Pulvinatae*, originally proposed by J. Agardh in 1852, although exceptions are *H. japonica* in *Pulvinatae* and *H. spinella* in *Spinuligerae*."

(a) Department of Biology, Chungnam National University

P05042 "The red algal genus *Titanophora* (Schizymeniaceae, Nemastomatales) in the Gulf of Mexico"

Gabriel, Daniela-presenter danielalgabriel@gmail.com(a,b) Fredericq, Suzanne (b)

"*Titanophora* (J. Agardh) Feldmann currently comprises nine species inhabiting tropical and subtropical waters worldwide. The genus is distinguished from other members of the Schizymeniaceae primarily by the calcification of the frond and the presence of an involucre surrounding the carposporophyte. The present study provides a characterization of four distinct *Titanophora* species that were dredged throughout the Gulf of Mexico. On the basis of comparative vegetative and reproductive morphology and chloroplast-encoded *rbcl* sequence analysis, a new record for the Gulf, *T. submarina* Bucher & J.N. Norris, and two species new to science in addition to *T. incrustans* (J. Agardh) Boergesen are recognized for the region."

(a) University of the Azores, Department of Biology (b) University of Louisiana at Lafayette, Department of Biology

Start	End	Event	Location
8:30 AM	10:15 PM	PSA Talks Algal Ecology & Physiology 8:30 – P06008: Raymond Lewis - <i>Reduced salinity increases oogenesis in various kelps (Order Laminariales)</i> 8:45 – P06004: Regina Radan - <i>Differential toxin response of Pseudo-nitzschia multiseriata as a function of nitrogen source: batch and continuous cultures</i> 9:00 – P04005: Phillip Bucolo - <i>Phototactic responses of swimmers of the Antarctic epiphyte Elachista antarctica</i> 9:15 – P04011: Kathryn Van Alstyne - <i>The release of dopamine by Ulvaria obscura and its allelopathic effects on algae and invertebrate larvae</i> 9:30 – P06006: Sarah Kiemle - <i>What do the cell walls of two primitive true taxa of the charophycean green algae, Chlorokybus atmophyticus and Klebsormidium flaccidum, tell us about the evolution of the land plant cell wall?</i> 9:45 - P06010: Graham Peers - <i>An ancient light harvesting protein is critical for the regulation of algal photosynthesis</i> 10:00 – P06002: Yingjun Wang - <i>LCIB: a novel gene family involved in the microalgal CO₂-concentrating mechanism</i>	Lana I 314

P06008 Reduced salinity increases oogenesis in various kelps (Order Laminariales)

Lewis, Raymond J.-presenter ray.lewis@wheaton.edu(a) Matthews, Benjamin J. (a) Chambers, Molly K. (a) Coburn, Melinda E.

(a) Foxwell, Tyler J. (a)

"Lowering salinity has been reported to increase oogenesis in some species of kelp gametophytes. In this investigation, isolated female and male gametophytes of several species of kelps (Order Laminariales) were combined in ESNW seawater medium ranging from 12 to 33 psu salinity levels to determine the effects on oogenesis. Gametophytes of *Macrocystis pyrifera* produced the highest number of eggs at 23 psu salinity, with greatly decreasing oogenesis at lower and higher salinities. In *Costaria costata*, oogenesis was observed from 12 to 33 psu, with the highest numbers of eggs at 18-21 psu. Subsequent production of sporophytes showed the same pattern. Egg production of *Saccharina japonica* was highest at 24-27 psu, with about 85% of maximum egg production being observed at 18-21 psu. Oogenesis decreased at higher and lower salinities. Sporophyte production in this species showed the same pattern as egg production, indicating that egg production was the key determining factor for sporophyte production. Gametophytes of *Undaria pinnatifida* produced the greatest number of eggs at 12-15 psu, with high egg production continuing at higher salinities up to 27 psu, above which egg production dropped. This species had optimal sporophyte production at 21-27 psu, indicating something other than egg production was influencing sporophyte production at lower salinities. In all of these species, egg production was greater when the